

November 2023

London Luton Airport Expansion

Planning Inspectorate Scheme Ref: TR020001

Volume 8 Additional Submissions (Examination)
8.89 Applicant's Response to Issue Specific Hearing 2
Actions 5 and 6 - Past Employment Estimates -
Appendices E to J

Infrastructure Planning (Examination Procedure) Rules 2010

Application Document Ref: TR020001/APP/8.89

The Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

**London Luton Airport Expansion Development Consent
Order 202x**

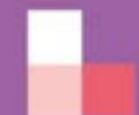
**8.89 APPLICANT'S RESPONSE TO ISSUE SPECIFIC HEARING 2
ACTIONS 5 AND 6 – PAST EMPLOYMENT ESTIMATES –
APPENDICES E TO J**

Deadline:	Deadline 4
Planning Inspectorate Scheme Reference:	TR020001
Document Reference:	TR020001/APP/8.89
Author:	Luton Rising

Version	Date	Status of Version
Issue 1	November 2023	Additional Submission - Deadline 4

ANNEX E - AIRPORT ANNUAL MONITORING REPORT 2014

Annual Monitoring Report 2014



London
Luton
Airport





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Foreword

London Luton Airport (LLA) experienced a record passenger year in 2014 with 10.5 million passengers using the Airport; an 8% increase year on year in passengers, with a 6% increase in the number of aircraft movements. The continued sustainable growth, demonstrated by the increase in passenger numbers above that of aircraft movements, is testament to the modern and efficient fleet used by the airlines flying from LLA.

In June 2014 planning consent for the future development of London Luton Airport was granted. This will see capacity at LLA grow from 12 million to 18 million passengers by 2026. Integral to the grant of consent are extensive planning conditions set by Luton Borough Council regarding the control of noise. In 2015 a Noise Control Scheme will be published which will include information on how London Luton Airport intends to meet the requirements of these planning conditions. This will include plans to introduce a noise insulation scheme, penalties for aircraft that are found to be flying off-track, and a lowering of both the daytime and night-time noise violation limits.

LLA 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 NATS our air traffic control provider. Unlike many major UK airports, the majority of London Luton's noise policies and interventions have been developed voluntarily, demonstrating commitment to our local communities.

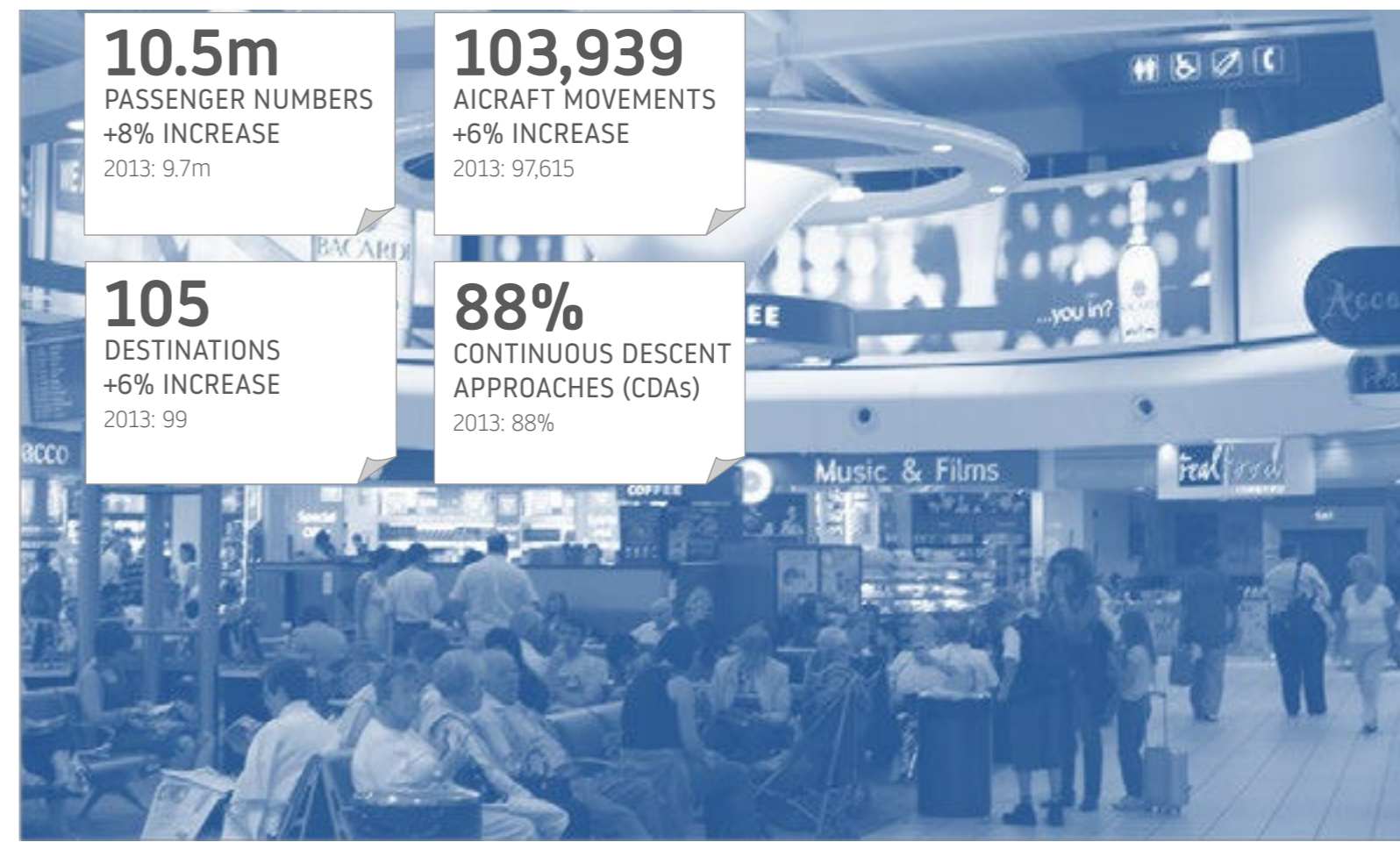
LLA is an industry leader in noise management and we are continuously looking at new ways to mitigate the impact of aircraft noise on the local community.



In 2015 we anticipate a new navigation technology (RNAV1) will be operational on one of the Airport's main departure routes to ensure aircraft stay on a more tightly defined flight path, designed to avoid populated areas as far as possible.

By listening to local people, I believe we continue to find an appropriate balance between the social, economic and environmental realities of our operations.

Neil Thompson
Operations Director



Air Traffic Data

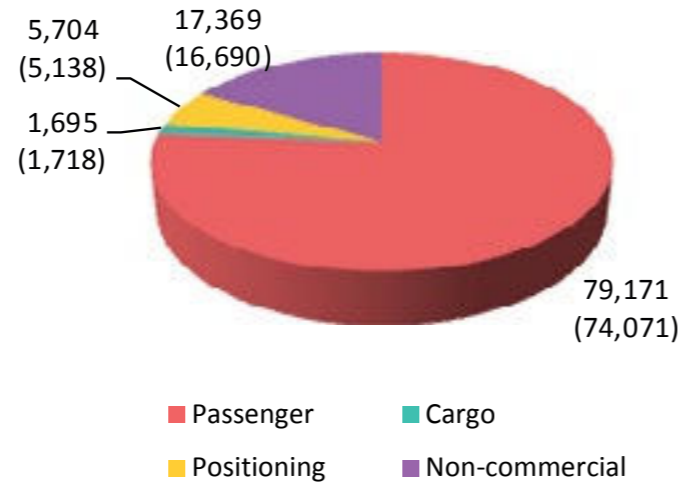
Aircraft movements

LLA handled a total of 103,939 aircraft movements during 2014, an increase of just over 6% compared to 2013. An aircraft movement is the take-off or landing of any aircraft from the Airport.

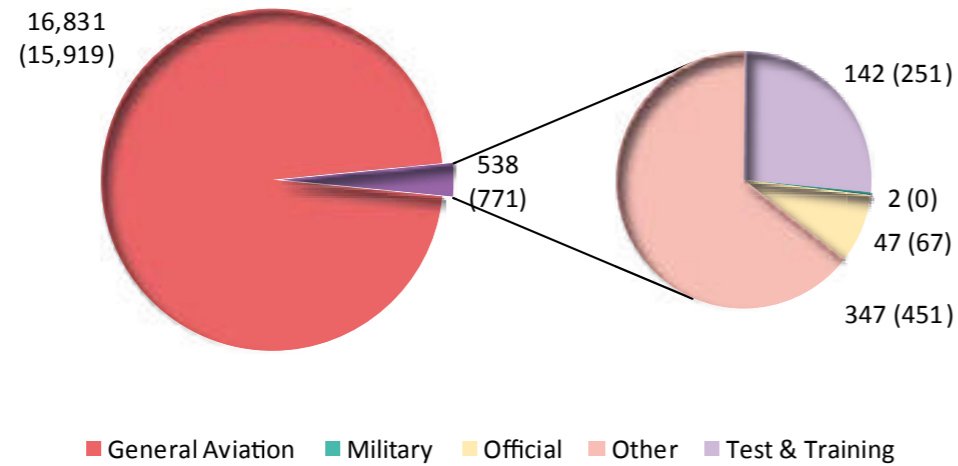
The majority of these aircraft movements consisted of 79,171 passenger flights, including commercial flights by executive aircraft (compared with 74,071 in 2013). Other movements included cargo, positioning flights and non-commercial flights.

For comparison purposes 2013 data is shown in the brackets.

Aircraft Movements



Non-Commercial Aircraft Movements

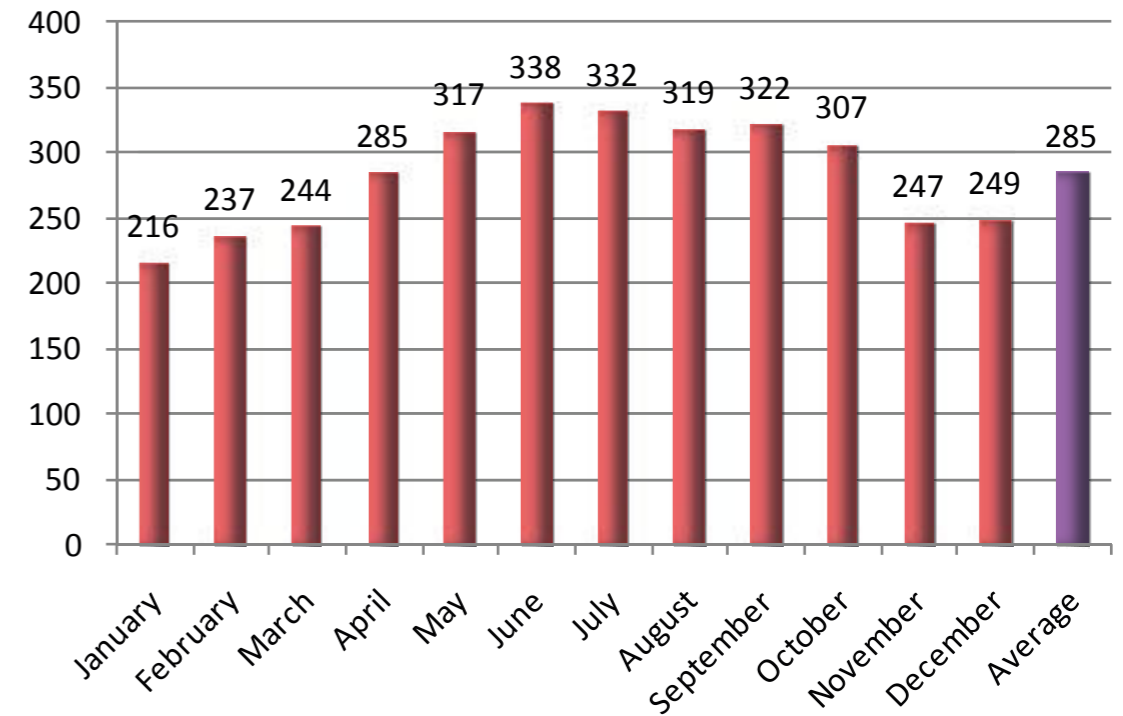


Movement Classification

- Commercial** – operating for hire or reward and includes cargo, passenger and positioning flights
- Non-Commercial** – not operating for hire and reward
- Cargo** – aircraft movements which are solely for freight. It should be noted that freight can also be carried on aircraft in other categories
- General Aviation** – private aircraft, helicopters and business jets not operating for hire or reward
- Passenger** – commercial passenger flights, including executive aircraft
- Positioning** – typically empty flights to/from other airports
- Military** – flights on military business
- Official** – flights solely for official purposes by British or foreign civil government departments
- Other** – other non-commercial movements, e.g. a departing aircraft that has made an unscheduled return to base
- Test & Training** – training flights involving aircraft and also flights following or during aircraft maintenance

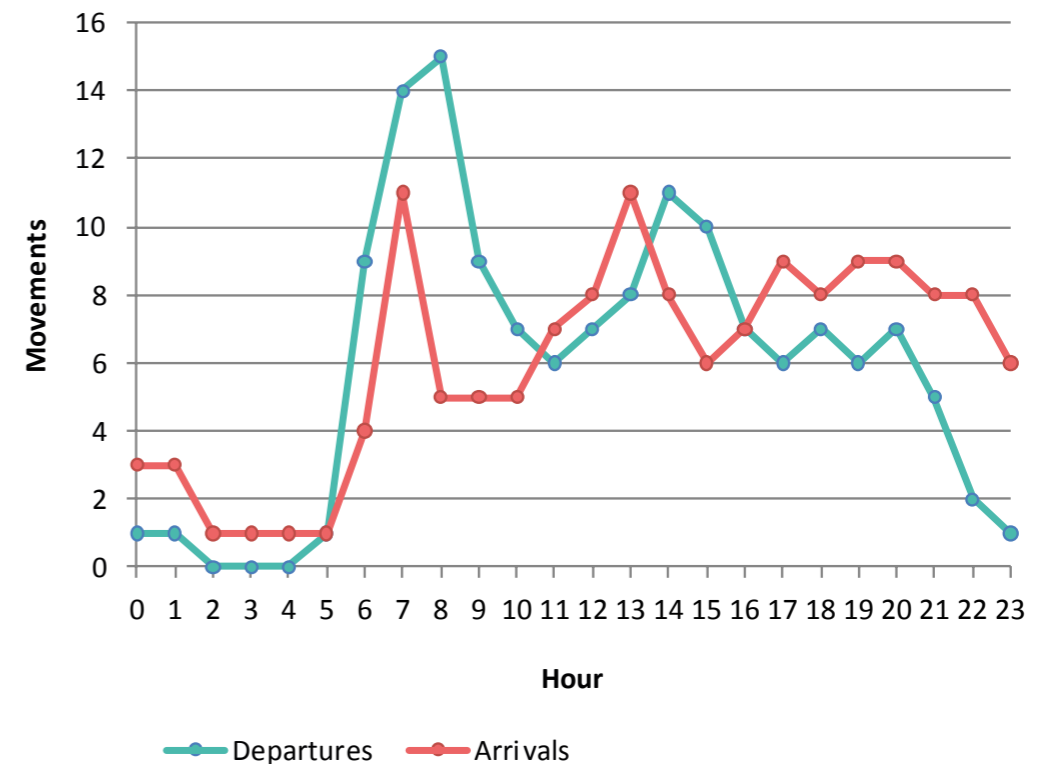
The graph below illustrates that the busiest time of year is May - October, with over 300 flights per day. Our busiest day of the year was on May 23rd with 401 aircraft movements. On the contrary, winter months are the quietest period of the year with less than 250 flights per day. On average there were 285 movements per 24 hours (in comparison with 267 in 2013).

Annual Average Daily Movements

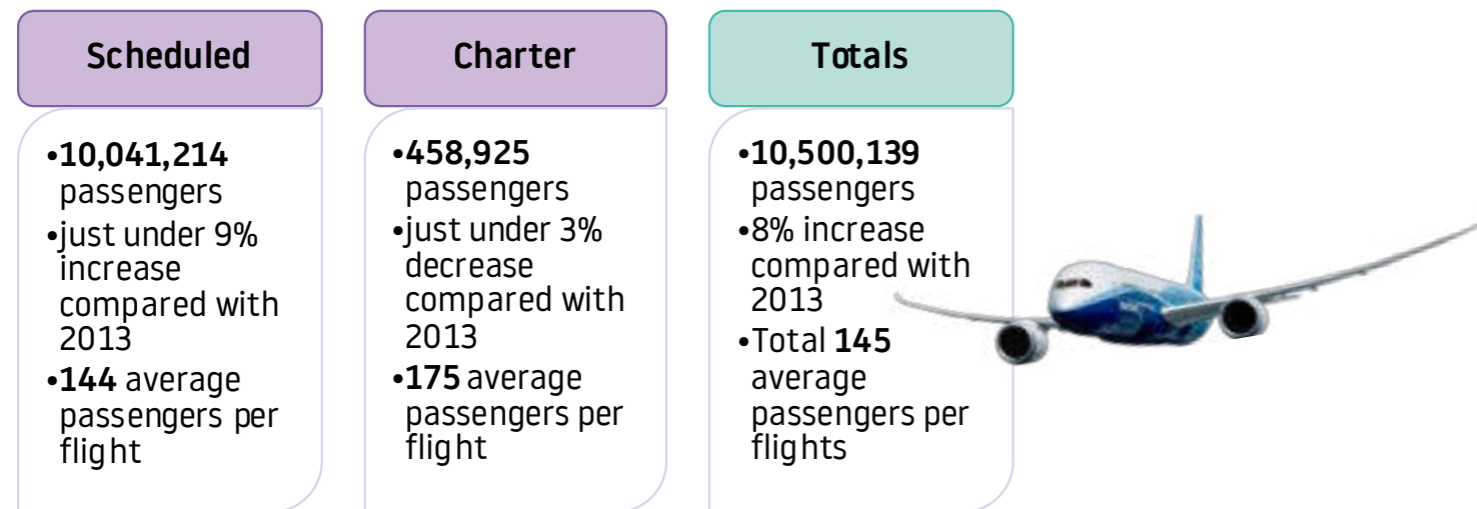


The busiest time on average during 2014 for departing aircraft was 07:00-08:00 hrs, with another peak between 14:00-15:00. The average busiest time for arrivals was 07:00-08:00 and 13:00-14:00 hrs. The graph also highlights a low level of average movements during the hours of 00:00-05:00 hrs.

Annual Average Hourly Movements

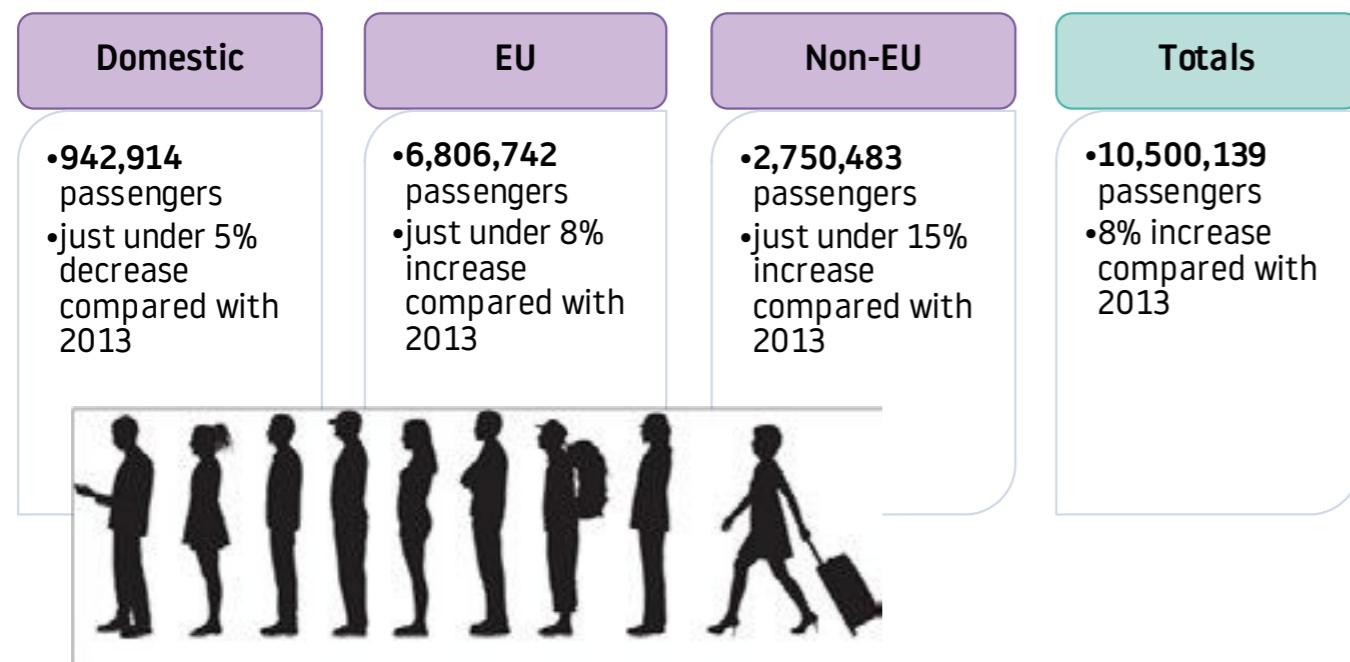


Passenger data



Charter flights are flights in which the aircraft has been chartered (or leased) by a company, typically a tour operator or an executive customer. Charter seats are typically not sold directly by the airline. Scheduled flights are regular flights organised by the company which owns the aircraft.

A total of 10,500,139 passengers were handled at LLA during 2014, 10,041,214 on scheduled flights (96%) and 458,925 on charter flights (4%). This represents an increase in passengers of 8% compared with 2013.



Cargo

Cargo operations represent 2% of all air transport movements at London Luton Airport. Night movements accounted for 62% of total cargo movements, relating primarily to postal flights or intra-European express delivery services moving time sensitive and perishable freight such as fresh food, medication and urgently needed technical equipment vital to supporting and sustaining economic growth. The flights carrying more general, less time-sensitive cargo already operate outside of the night-time period. This would include Formula 1 cars, live animals, clothing, machine parts and more.

Operator	Movements			Tonnes
	Day Movements	Night Movements	Total	Total
2014	709	1,167	1,876	27,500
2013	775	1,153	1,928	29,092
2013-2014 difference	-9%	+1%	-3%	-5%

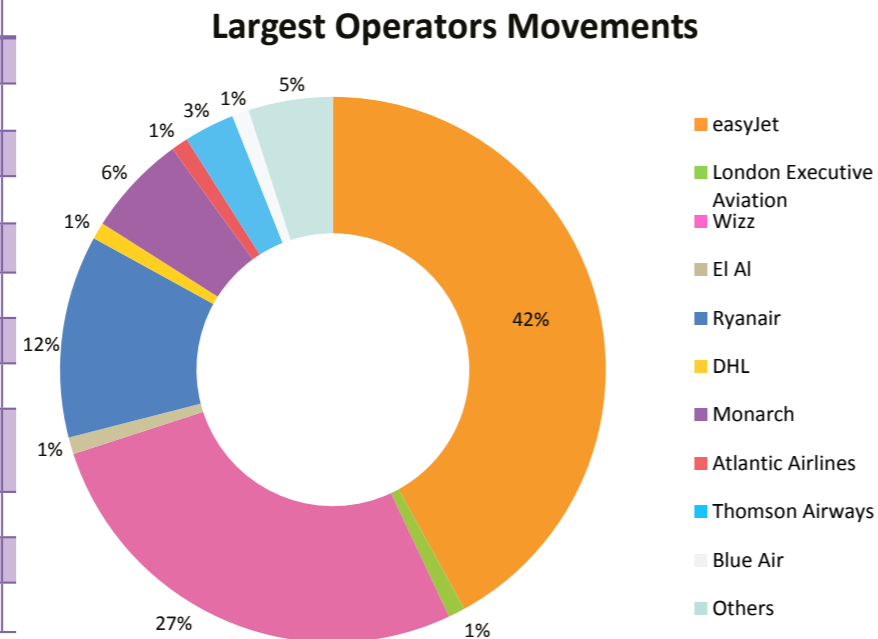
N.B. The cargo movement count is the total number of movements that carried cargo as opposed to flights that are primarily operated for the carriage of cargo. This is because a proportion of cargo tonnage is carried on passenger aircraft. Consequently the movement figures in this section will differ from figures in the Aircraft Movements piechart which shows dedicated cargo movements.



Airlines

London Luton Airport works very closely with its airline partners. The table below provides the movement statistics by the 10 largest operators.

Operator	Movements
easyJet	32,630
Wizz	20,644
Ryanair	8,973
Monarch	4,837
Thomson Airways	2,240
Blue Air	1,020
DHL	908
El Al	828
London Executive Aviation	547
Atlantic Airlines	485
Others	3,649
TOTAL	76,761



N.B This table includes movements for both passenger & cargo aircraft but excludes positioning flights and air-taxis.



Movements by aircraft type

	Aircraft Type	Movements	% of Total movements	
Passenger Aircraft	Airbus A320 & A320 sharklets ¹ (easyJet, Wizz Air, Monarch)	31,620	30.4%	
	Airbus A319 (easyJet)	25,120	24.2%	
	Boeing B737-800 winglets ¹ (Ryanair, Monarch, Thomson, El Al)	11,458	11.0%	
	Airbus A321 & A321 sharklets (Monarch)	2,562	2.5%	
	Boeing B737-400 (Blue Air)	992	1.0%	
	Boeing B757 & B767 family (Monarch, Thomson, El Al)	919	1.0%	
	MCD Douglas MD-82/83/87 (Blue Air)	20	0.0%	
	Other Passenger Aircraft	414	0.4%	
	Cargo	Airbus A300-600 (A306) (DHL, MNG Cargo)	1,138	1.0%
		BAe ATP (DHL, Atlantic Airlines)	576	0.6%
Boeing B737-300 & B737-400 (DHL)		198	0.0%	
Airbus A330-200 (A332) (MNG)		46	0.0%	
Other Cargo Aircraft		77	0.1%	
General Aviation		Gulfstream 5 and 500 series GLF5	2,793	3.0%
		Canadair Global Express GLEX	2,518	2.4%
	Cessna Citation Excel C56X	2,498	2.4%	
	Canadair Challenger CL60	1,933	2.0%	
	Gulfstream 4, 300 & 400 series GLF4	2,357	2.0%	
	Embraer Legacy 600 E135	1,569	1.5%	
	Canadair Challenger CL30	1,087	1.0%	
	Cessna Citation Jet C525	1,233	1.0%	
	Dassault Falcon FA7X	860	1.0%	
	Other Private Aircraft	11,469	11.0%	
	Helicopter	482	0.5%	
	TOTAL	103,939	100.0%	

The aim of this section is to provide the number of movements for a specific aircraft type. The groups are conditional, assuming that these are the typical aircraft types used for passengers, cargo and general aviation movements. As a result the number quoted here within this section will differ from those within the Aircraft Movements Section.

¹ - Winglets and sharklets are small aerodynamic surfaces mounted almost vertically at the wingtips. They significantly reduce the size of the wingtip vortex thus reducing induced drag, increasing lift-to-drag ratio and fuel efficiency of the aircraft. After 80's Airbus come up with a new name for winglets that designed specially for Airbus families and they called it sharklets. There is no difference between winglets and sharklets; the sharklet is just the another word for winglet.

Destinations



London Luton had the busiest year in its 76 year history with notable growth from Wizz Air, Monarch and El Al in particular, plus the addition of new Turkish carrier Atlasjet.

The following diagram shows the destinations flown / on sale to and from London Luton in 2014. Our airlines fly to 105 destinations across 34 different countries. Top 5 destinations by aircraft movements are:

1. Amsterdam
2. Budapest
3. Geneva
4. Dublin
5. Edinburgh

More information about our destinations can be found on the airport's website:
<http://www.london-luton.co.uk/en/>

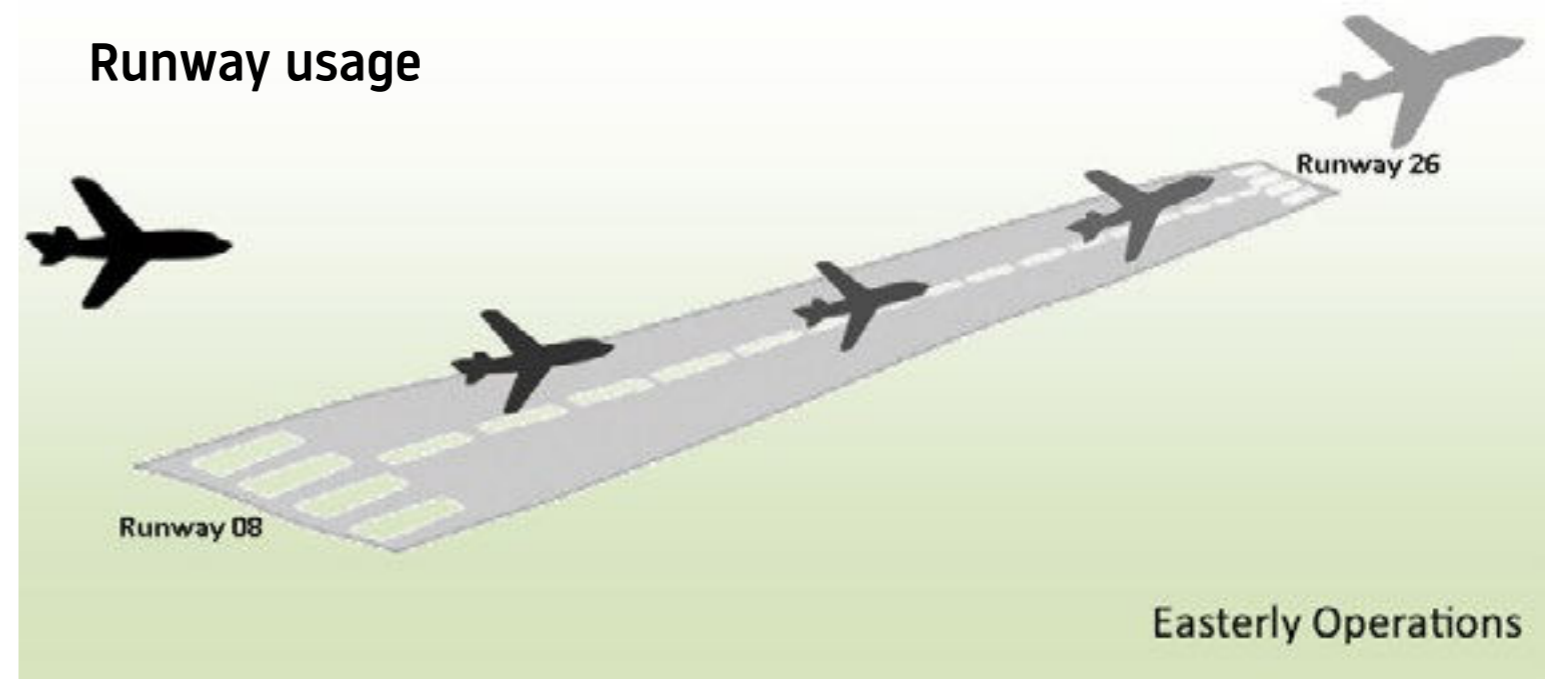
New Routes 2014

Destination	Launch	Airline
Basle, Switzerland	7-Nov-14	easyJet
Munich, Germany	3-Nov-14	easyJet
Copenhagen, Denmark	3-Nov-14	easyJet
Lyons, France	3-Nov-14	easyJet
Naples, Italy	29-Oct-14	easyJet
Poprad, Slovakia	28-Oct-14	Wizz Air
Szczecin, Poland	27-Oct-14	Wizz Air
Rome, Italy	26-Oct-14	easyJet
Sibiu, Romania	14-Jun-14	Wizz Air
Antalya, Turkey	2-May-14	Monarch
Istanbul, Turkey	2-May-14	Atlasjet
Naples, Italy	2-May-14	Monarch
Skiathos, Italy	16-May-14	Thomson
Catania, Italy	30-Mar-14	easyJet
Venice, Italy	13-Feb-14	easyJet

Routes Ending 2014

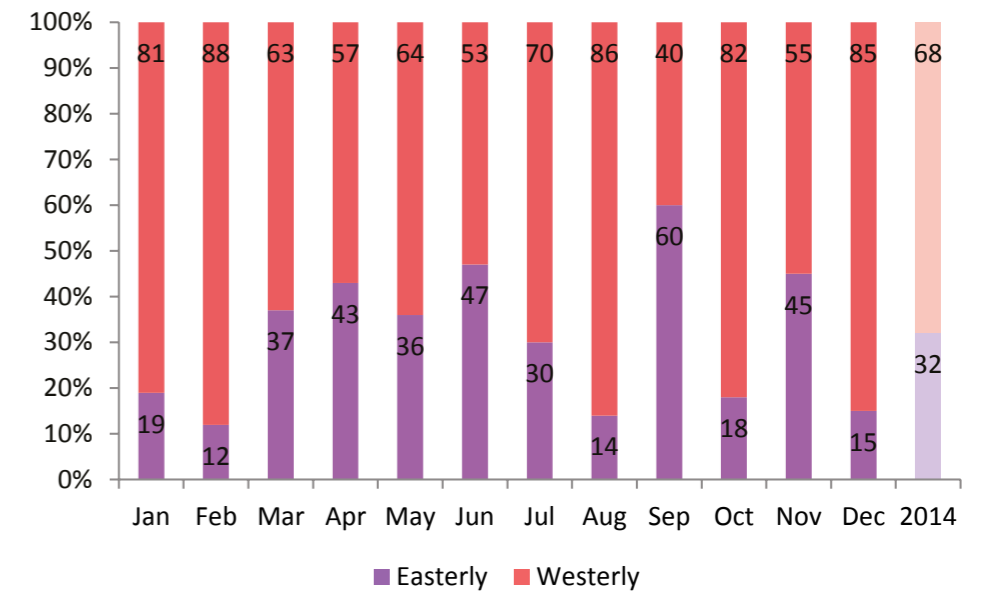
Destination	Launch	Airline
Istanbul, Turkey	29-Mar-14	easyJet
Trapani, Italy	1-May-14	Ryanair

Runway usage

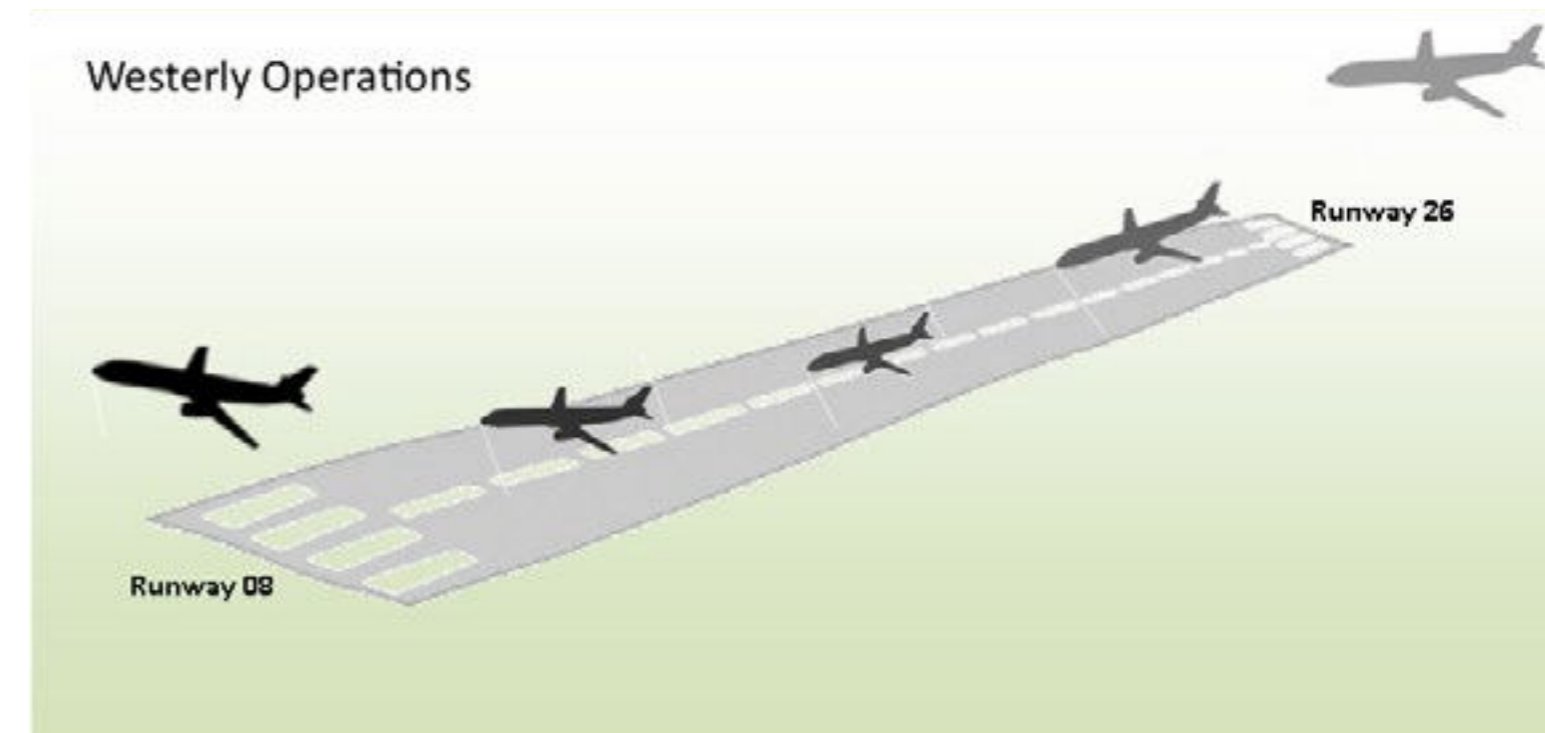


Runway Usage

Aircraft need to land and take off into the wind and therefore the prevailing wind direction determines the direction of airfield operation. A monthly breakdown is shown, highlighting higher than average levels of easterly operations over the spring period and in September 2014, in contrast to prolonged and sustained spells of westerly operations over the winter months, as well as in August 2014.



Westerly Operations



The runway split during 2014 was 32% easterly and 68% westerly (compared to 36% / 64% in 2013). A breakdown of runway usage over the last five years is also shown in the table, giving a historical split of 31% easterly and 69% westerly.


Year	Easterly	Westerly
2014	32%	68%
2013	36%	64%
2012	27%	73%
2011	28%	72%
2010	36%	64%
Average	31%	69%

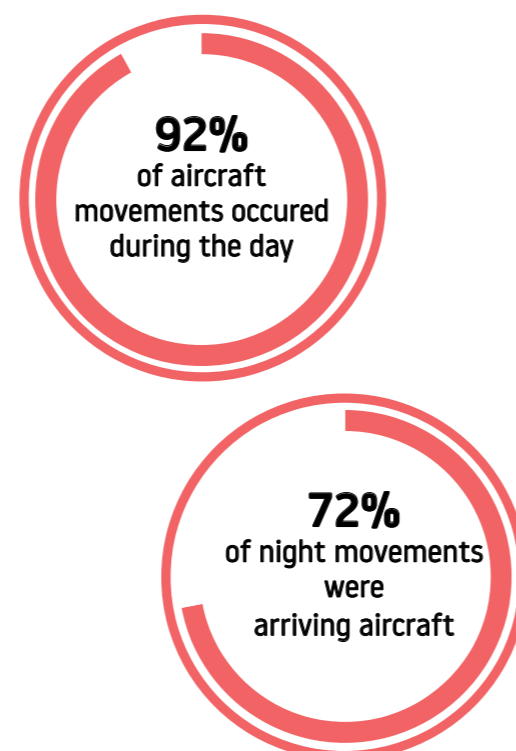
Day/Night ratio of movements

There were 8,613 night movements during 2014 (compared to 7,557 for 2013, an increase of 14%), an average 24 movements per night (compared to 21 last year).

Arriving aircraft accounted for 72% of total night movements, relating primarily to the last rotation of Luton based passenger aircraft scheduled to land back at the Airport at night, between 23:00 hrs and midnight.

The average ratio of total aircraft movements during 2014 was 92% day / 8% night (in line with 92% day / 8% night in 2013).

	Day	Night
 Departures	49,547	2,419
 Arrivals	45,779	6,194
TOTAL	95,326	8,613



The number of night movements quoted within this section will differ from those within the Noise Contour Section as the 8 hour Leq contour calculation period extends between 23:00 - 07:00, 7 days a week. The figures quoted here cover the night period, as defined in the Night Noise Policy for noise violation purposes, 23:00 until 06:00 Monday to Saturday and until 07:00 on Sunday.

Departing Aircraft

Aircraft departing London Luton Airport are required to follow specific departure flight paths, or Noise Preferential Routes (NPRs). These NPRs were designed to avoid flying over built-up areas wherever possible and there are 6 NPRs at London Luton, three at each end of the runway.

Our air traffic control service provider (NATS) removed the Dover standard instrument departure (SID) route on 29th May 2014 and replaced this with the existing Detling SID to enable more accurate fuel planning. The Clacton SID was renamed Match on 18th September 2014. The three NPRs at each end of the runway are now – Compton, Olney and Detling/Match. Associated with each NPR is a swathe of air space extending 1.5km each side of the NPR centre line, within which aircraft concentrate and are considered to be flying on track. Aircraft must follow the NPR controls applicable to the runway in use at that time.

When departing on Runway 08, towards the north east (e.g. Stevenage area) aircraft must stay within the NPR corridor until at least 3000ft altitude (or 4000ft at night). The same rules apply when departing on Runway 26, towards the south west (e.g. Hemel Hempstead).

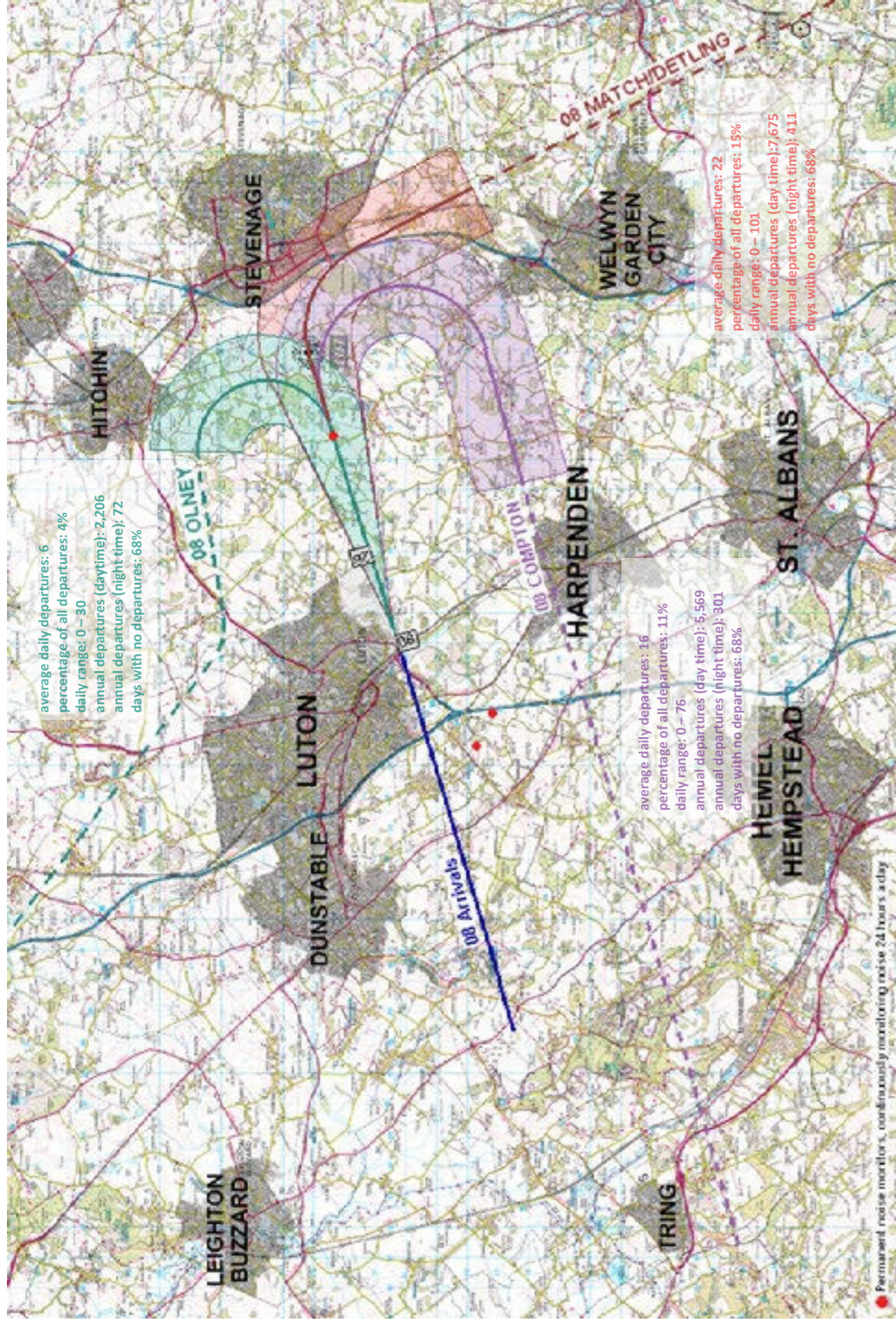
Once aircraft have cleared the designated NPR zone air traffic control (ATC) can instruct the pilots to fly a more direct heading towards their destination. This is known as vectoring. However ATC may direct aircraft off the NPR at any time if this is required for safe separation from other aircraft or for other safety issues (such as avoiding adverse weather).

There were 245 helicopter departures during 2014, on average less than 1 movement per day.

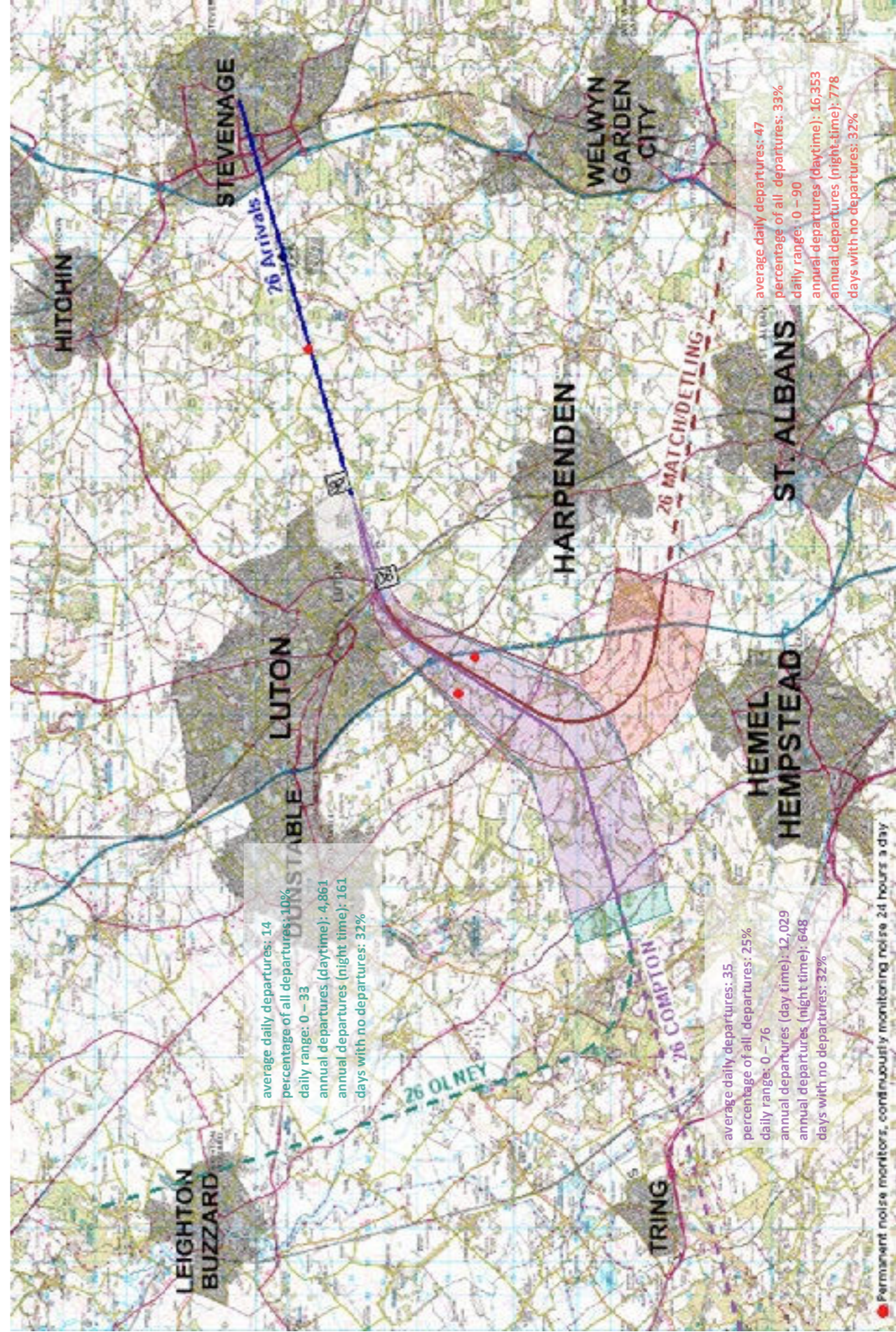
Two maps overleaf show indicative flight routes for westerly and easterly operations at London Luton Airport with detailed information about each departure route.



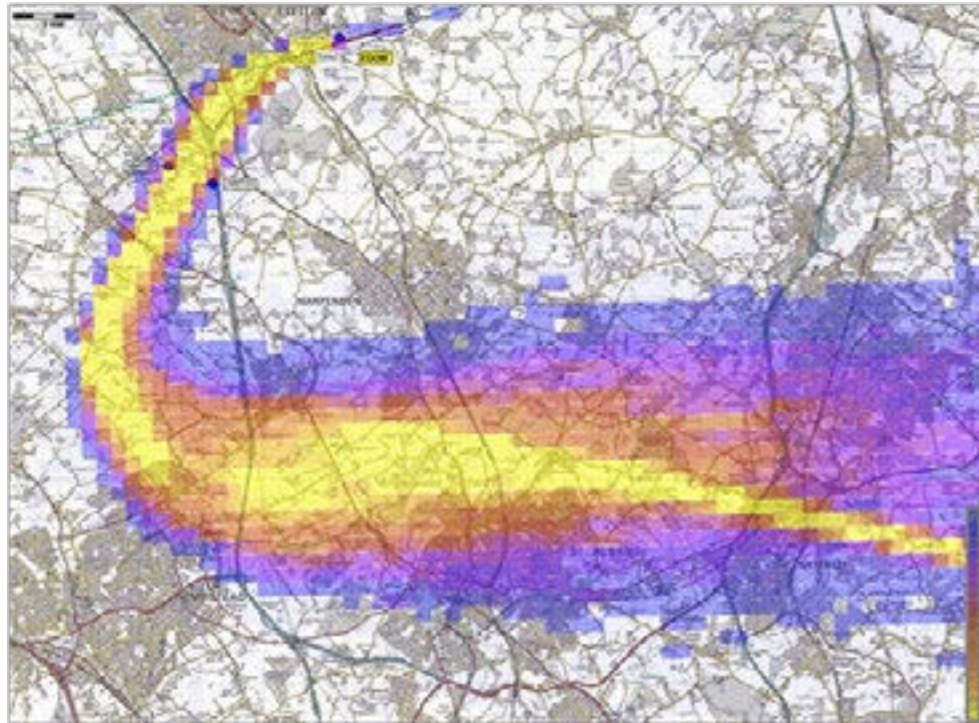
Plan showing Easterly (08) flight routes



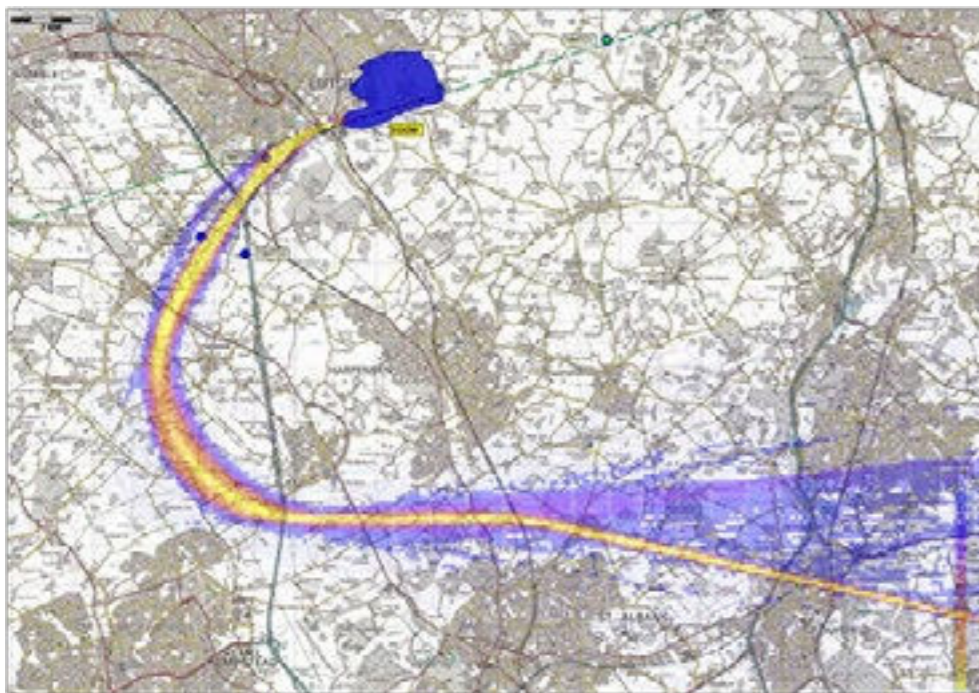
Plan showing Westerly (26) flight routes



Area Navigation (RNAV) technology



Current aircraft dispersal



Aircraft dispersal during the RNAV trials

Area Navigation (RNAV) is a new navigation technology that enables aircraft to fly a route more precisely.

In 2014 the Airport launched an airspace change consultation on the introduction of RNAV along the Runway 26 Brookmans Park departure route. This followed successful trials in 2013. The purpose of this change is to enable aircraft to more accurately fly the departure route, drawing aircraft away from densely populated areas that are currently overflown, thereby reducing noise disturbance. The proposal also slightly modifies the route, again to reduce noise disturbance.

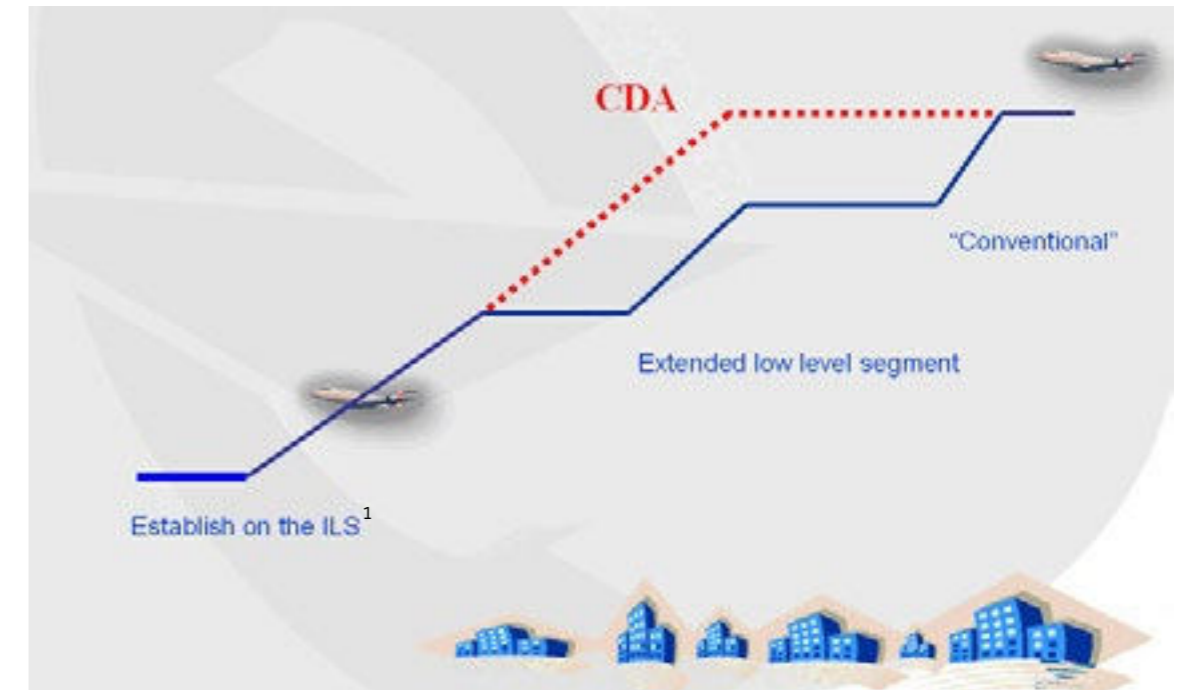
The proposed route passes between Markyate and Flamstead, Redbourn and Hemel Hempstead, as well as St. Albans and Harpenden but still remains within the current NPR corridor. The plot densities shown illustrate the current dispersal of aircraft along this route, and the dispersal seen during the RNAV trials.

The consultation took place over a 13 week period from 10th April 2014 until 9th July 2014. Over 1,400 responses were received during the consultation, with 90% of consultees supporting the adoption of RNAV.

An Airspace Change Proposal was therefore submitted to the CAA, and the implementation of the RNAV procedures is planned for August 2015.

Arriving Aircraft

Although there are no set routes for arriving aircraft there are long established procedures to mitigate the disturbance that can be caused on approach to the airfield. One of the most successful measures is a noise mitigation procedure called Continuous Descent Approach.



The conventional approach involves descending in steps using engine thrust to level off. In a Continuous Descent Approach, or CDA, an aircraft stays higher for longer and reduces periods of prolonged level flight at lower altitudes. When it's near the Airport the pilot, with engines idling, continuously descends straight to the runway where he completes the landing in the traditional manner. With CDA planes burn less fuel and therefore produce less emissions, but most importantly it reduces the noise by avoiding the engine thrust required for level flight.

The table compares the level of CDA performance by our main airline operators.

	Total Arrivals	CDA Compliance
Ryanair	4,500	98%
Thomson Airways	1,225	94%
easyJet	16,547	94%
Monarch	2,490	91%
Wizz Air	10,333	91%
London Executive Aviation	1,374	89%
Atlasjet	233	82%
Atlantic Airlines	283	88%
Blue Air	510	87%
European Air Transport	503	84%
Harrods Aviation	2,178	75%
NetJets	1,285	77%
Vista Jet	400	62%
El Al	417	71%
Others	9,695	91%
TOTAL	51,973	88%

¹ - An Instrument Landing System (ILS) is a ground-based instrument approach system that provides precision lateral and vertical guidance to an aircraft approaching and landing on a runway, using a combination of radio signals and, in many cases, high-intensity lighting arrays to enable a safe landing during instrument meteorological conditions (IMC).

Departure and arrival flight tracks

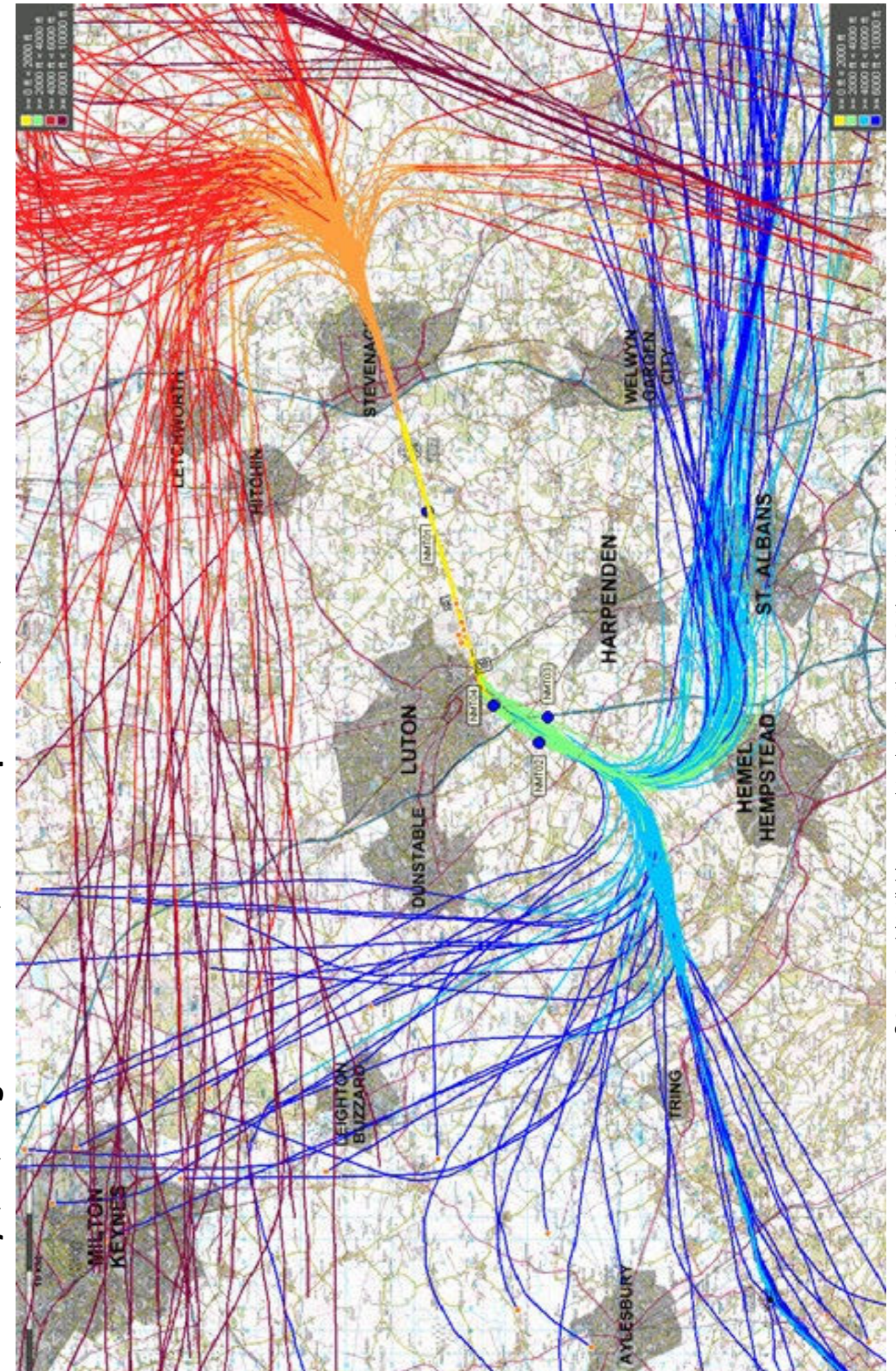
Maps overlaid display typical 24 hour periods of both westerly and easterly operations, with arriving traffic in red and with departing aircraft tracks in blue. The colour coding from yellow to brown and from yellow to dark blue represents different altitude bands up to 10,000ft above mean sea level.

The last two maps display aircraft track density plots for the summer period 16th June - 15th September 2014. A track density plot is a map which displays the pattern of aircraft flight track passing over the region around the Airport during a specific period. The system analyses the number of flights passing over each grid element of an array. The colour coding from purple to red represents the range 1 to over 147 flight tracks over a grid element. If any grid element is not colour-coded, the number of aircraft flight tracks passing over that element was less than 1 flight. The red areas represent locations where operations are more densely concentrated.

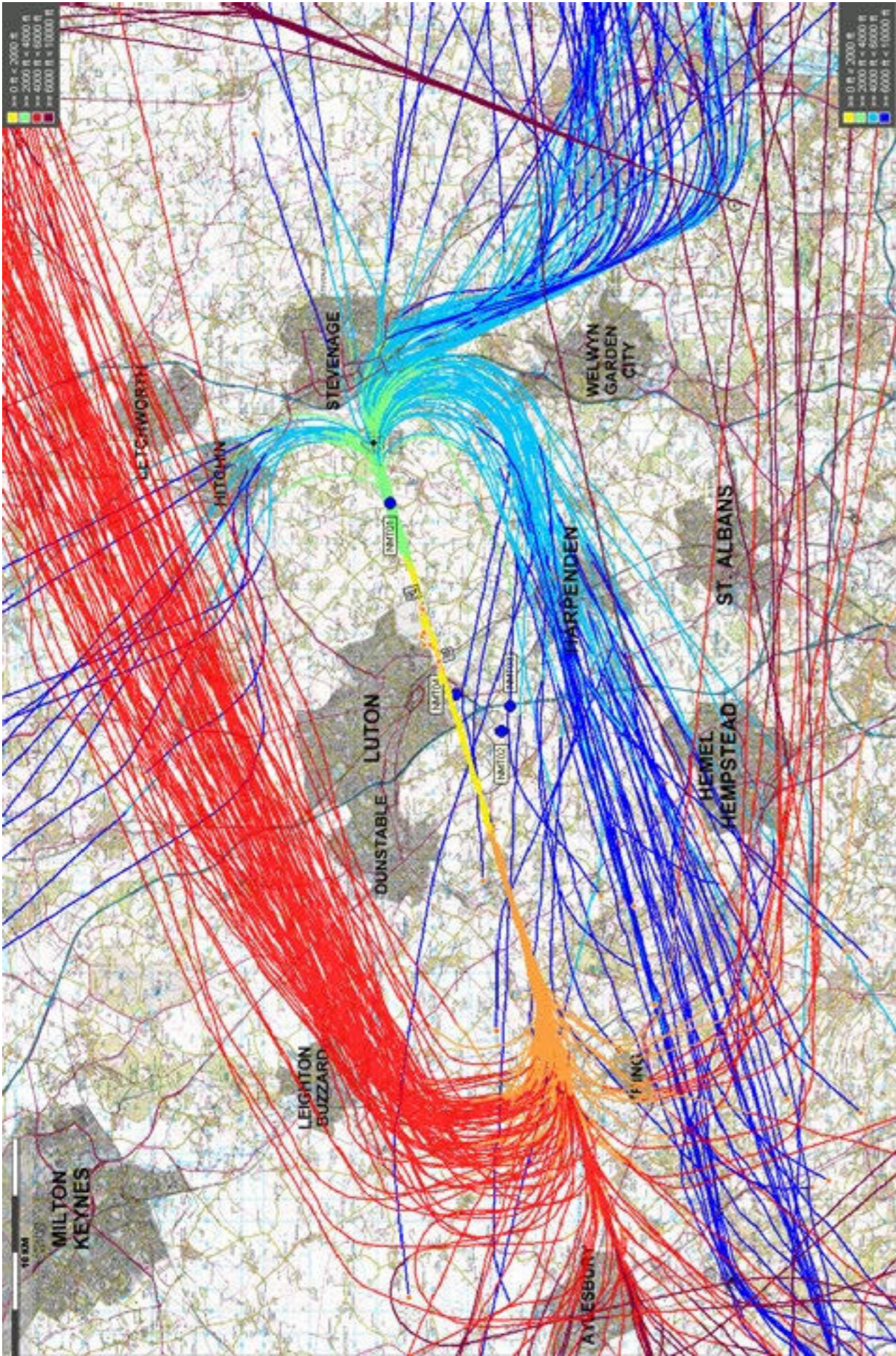
It should be noted that London Luton Airport's aircraft movements integrate with traffic travelling to and from other airports in the region, as the south east area in the UK is one of the world's busiest sectors of airspace. However the following sample flight tracks only include operations for London Luton Airport and overflights from other airports have been omitted for clarity.



Westerly (26) Flight Routes (24 hour period)

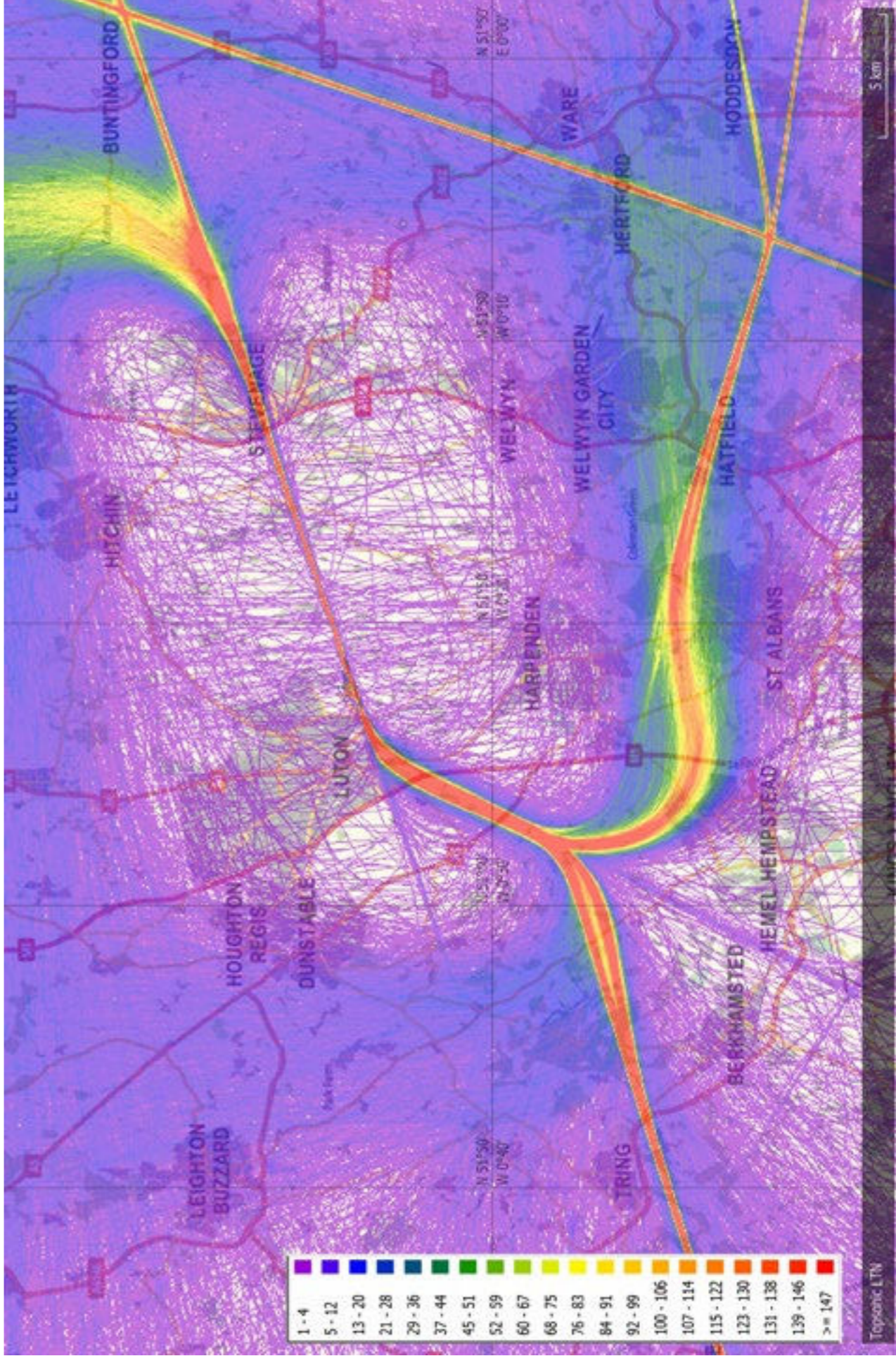


Easterly (08) Flight Routes (24 hour period)

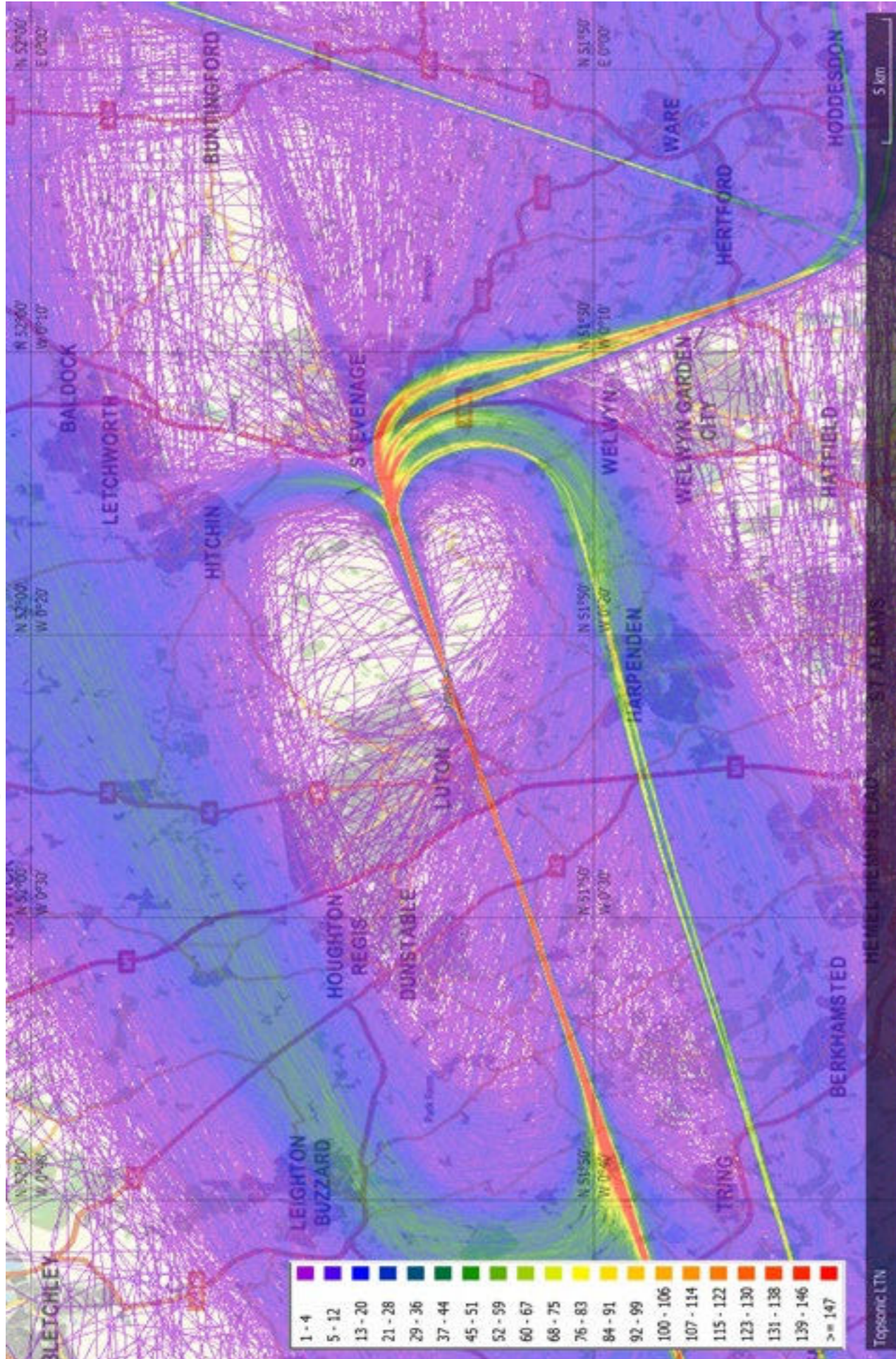


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Plot Density - 16th June - 15th September 2014 - westerly (26)



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Aircraft 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. Most airport related noise is created by aircraft approaching, taking-off and taxiing to and from the runway. The management and control of noise continues to be a major element of the Airport's policy to constantly seek to minimise and mitigate our environmental impact.

How is noise monitored?



People who live close to airports or under flight paths can often feel strongly about the disturbance to their lives from noise. Effects of noise include general distraction, speech interference and sleep disturbance which can lead to annoyance and complaints.

At LLA 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 6.5km from the aircraft start of roll, at either end of the runway within the neighbouring communities. This method records the maximum noise level at a point, rather than the way it is spread over the surrounding area. The Topsonic System was operational for 100% of the time during 2014.

New features and system enhancements continue to improve the functionality and capabilities available to the Airport Environment Office.

TraVis, an online flight-tracking tool enables the general public to see for themselves the actual flown tracks of LLA aircraft departures and arrivals. This can be viewed online at the following link on the airport website.

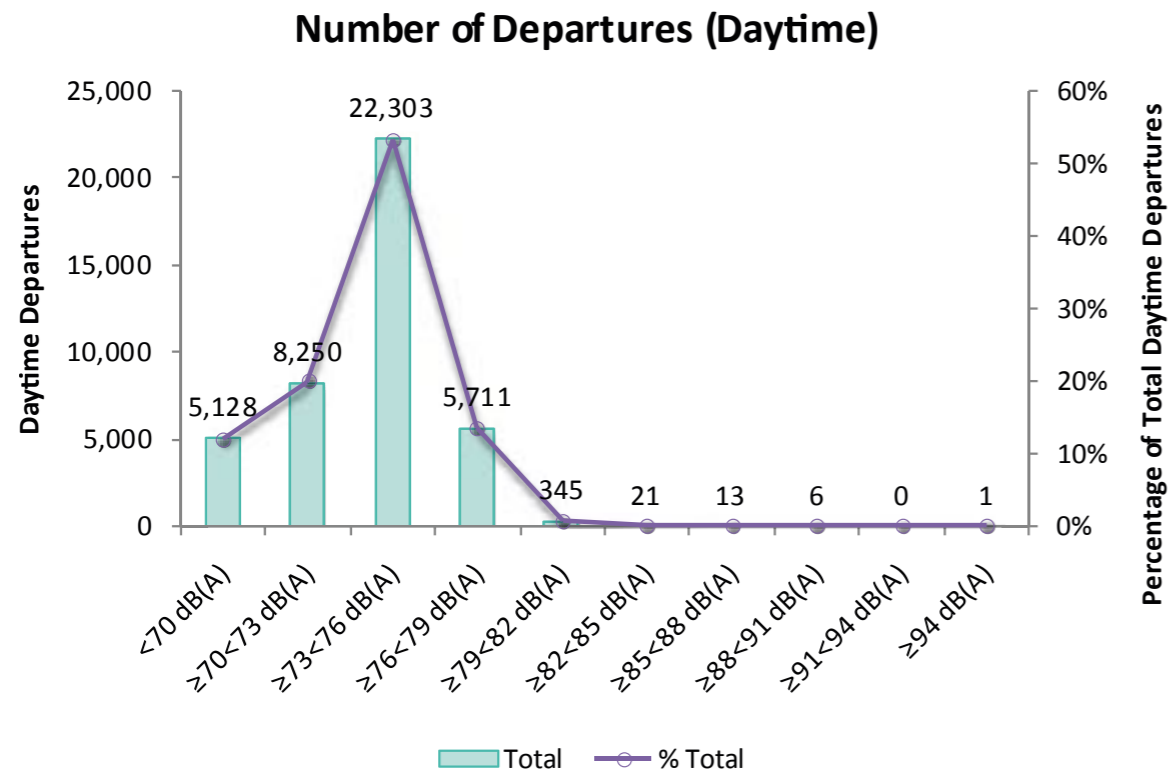


Noise violation levels



In 2014 LLA operated a noise violation policy whereby a surcharge of between 300% and 600% of the combined Landing and Navigation Service Charge is applied in respect of any landing prior to a take-off on which noise violation levels are exceeded. These violation limits encourage airlines to operate modern and quieter aircraft types. The noise violation level during the 2014 night period was 82 dB(A), and 94 dB(A) during the day.

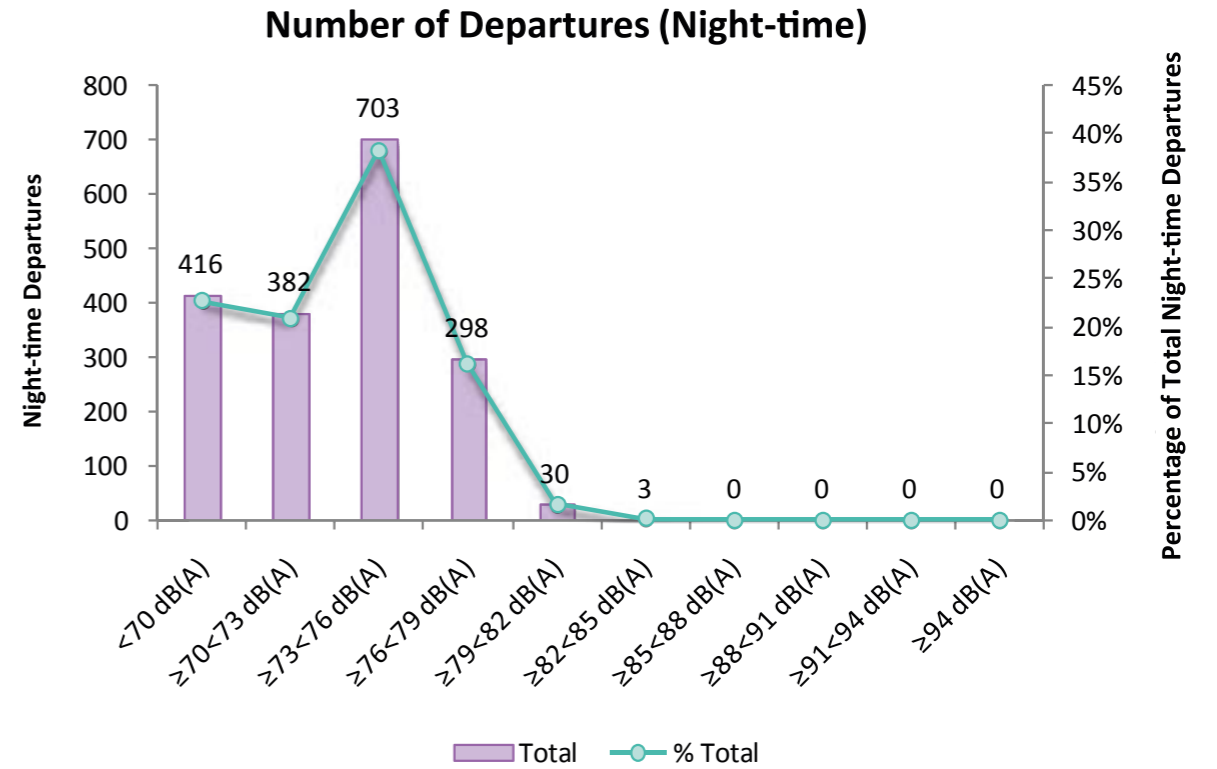
The following diagram identifies maximum daytime noise levels recorded by departing aircraft at the fixed noise monitoring terminals between 06:00 and 23:00 Monday to Saturday and from 07:00 until 23:00 on Sunday.



During the daytime 99% of correlated departing aircraft recorded maximum noise levels less than 79dB(A), with 85% registering below 76dB(A) and 32% of correlated daytime departures registering below 73dB(A). Throughout the year 386 correlated daytime departures (1%) registered maximum noise levels above 79dB(A), and there was only 1 daytime noise violation.

The diagram below represents maximum night-time noise levels recorded by departing aircraft at the fixed noise monitoring terminals between the hours 23:00 and 06:00 local time, Monday to Saturday and from 23:00 until 07:00 on Sunday.

During the night 98% of correlated departures recorded maximum noise levels below 79dB(A), with 82% below 76dB(A) and 44% of correlated night departures registering below 73dB(A). During the year 33 correlated night departures (2%) registered maximum noise levels above 79dB(A) with 3 departures exceeding the night noise violation level of 82dB(A).



Noise violations during 2014

There was one violation of the daytime noise level in 2014, and a total of three violations of the 82dB(A) night noise violation level (details below), compared to four night noise violations in 2013.

	Date / Time (Local)	Aircraft Type	Noise Level	Penalty
Daytime	09/07/2014 09:09 hrs	GLF3 (Executive Jet)	94.9 dB(A)	400% of runway charge
Night-time	01/05/2014 02:18 hrs	MD83 (Special Charter)	82.6 dB(A)	300% of runway charge
	01/05/2014 02:30 hrs	MD83 (Special Charter)	84.4 dB(A)	300% of runway charge
	12/11/2014 23:47 hrs	FA7X (Executive Jet)	82.5 dB(A)	300% of runway charge

All fines are passed to the London Luton Airport Community Trust Fund, further details of which can be found at



Noise Contours

Since 1989 the preferred measure of aircraft noise has been the A-weighted equivalent noise level Leq. This indicator takes account of all the noise energy that occurs over a particular time period and thus takes account of all the 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 LAeq averaged over the 16 hour period from 0700-2300 for an average day between the

16th June and 15th September. In addition, London Luton Airport also produces contours for the 8 hour night period between 2300 and 0700 for an average summer night in terms of the LAeq, 8h indicator.

Year on year changes in the noise impact are dependent on changes in the number and type of aircraft that used the Airport and also the departure routes flown. Changes in the size and shape of the contours can also depend on differences in

the runway usage which in turn depends on the relative proportion of westerly and easterly modes of operation, determined by the prevailing wind direction.

The noise contours for the Airport are produced using INM software (the Integrated Noise Model) version 7.0d, which is the method used by many other airports in the UK.

Annual noise contours summer 2014

Work has been completed on the production of the annual noise contours for summer 2014 covering the standard summer period from 16th June to 15th September inclusive, using the latest version of INM version 7.0d.

L _{Aeq, 16 hour} Daytime	Contour Area (km ²)					
	1984	1999	2013	2014	Difference 2013-2014	2015 (forecast)
>72	1.63	1.5	0.8	0.9	+0.1	0.9
>69	2.80	2.5	1.3	1.4	+0.1	1.5
>66	4.86	4.4	2.3	2.7	+0.4	2.9
>63	9.10	7.3	4.8	5.5	+0.7	7.8
>60	17.18	11.8	8.4	9.3	+0.9	9.6
>57	31.52	19.6	13.8	15.8	+2.0	16.5

Considering the 57 dB LAeq, 16h daytime noise contour there is an increase in area of approximately 14% when comparing the 2014 contour with the 2013. This is largely due to the 8% increase in movement numbers. The daytime movements increased from 23,649 in 2013 to 25,616 in 2014.

The corresponding 2015 contour is forecast to grow by 4% compared to the 2014 contour, largely due to a forecast 5% increase in movement numbers.

L _{Aeq, 8 hour} Night-time	Contour Area (km ²)					
	1984	1999	2013	2014	Difference 2013-2014	2015 (forecast)
>72	0.79	1.1	0.4	0.4	0.0	0.4
>69	1.39	1.8	0.6	0.6	0.0	0.7
>66	2.42	3.0	0.9	1.0	+0.1	1.1
>63	4.01	5.2	1.5	1.7	+0.2	1.8
>60	7.06	8.3	2.9	3.4	+0.5	3.8
>57	13.05	13.2	5.7	6.5	+0.8	6.9
>54	24.48	21.6	9.8	11.3	+1.5	11.7
>51	44.92	36.0	17.2	20.0	+2.8	20.5
>48	85.04	60.6	30.7	35.2	+4.5	36.6

Considering the 48 dB LAeq, 8h night-time noise contour there is also an increase of approximately 15% when comparing the 2014 contour with 2013 contour. This is largely due to the 21% increase in movement numbers. The night-time movements increased from 3,711 to 4,490.

The corresponding 2015 night contour is forecast to grow by 4% compared to 2014, despite a decrease in movement numbers of 5%. This is because the number of departures at night, particularly those by passenger jets is forecast to increase in 2015, and departures contribute more per aircraft than arrivals to the contour area.

The 2014 results are significantly below the 1984 values and also below the 1999 predicted values which, if exceeded, would require a noise reduction plan to be implemented.

Contour population counts

The population counts for this year were calculated using the CACI Ltd, 2013 postcode database. Each postcode in the database is described by a single geographical point, and if this point is within a contour then all of the dwellings and population in the postcode are counted.

L _{Aeq, 16 hour} Daytime	2013		2014	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	3	6	4	14
>63	383	1,064	483	1,281
>60	1,156	3,164	1,307	3,552
>57	2,975	7,128	2,905	7,290

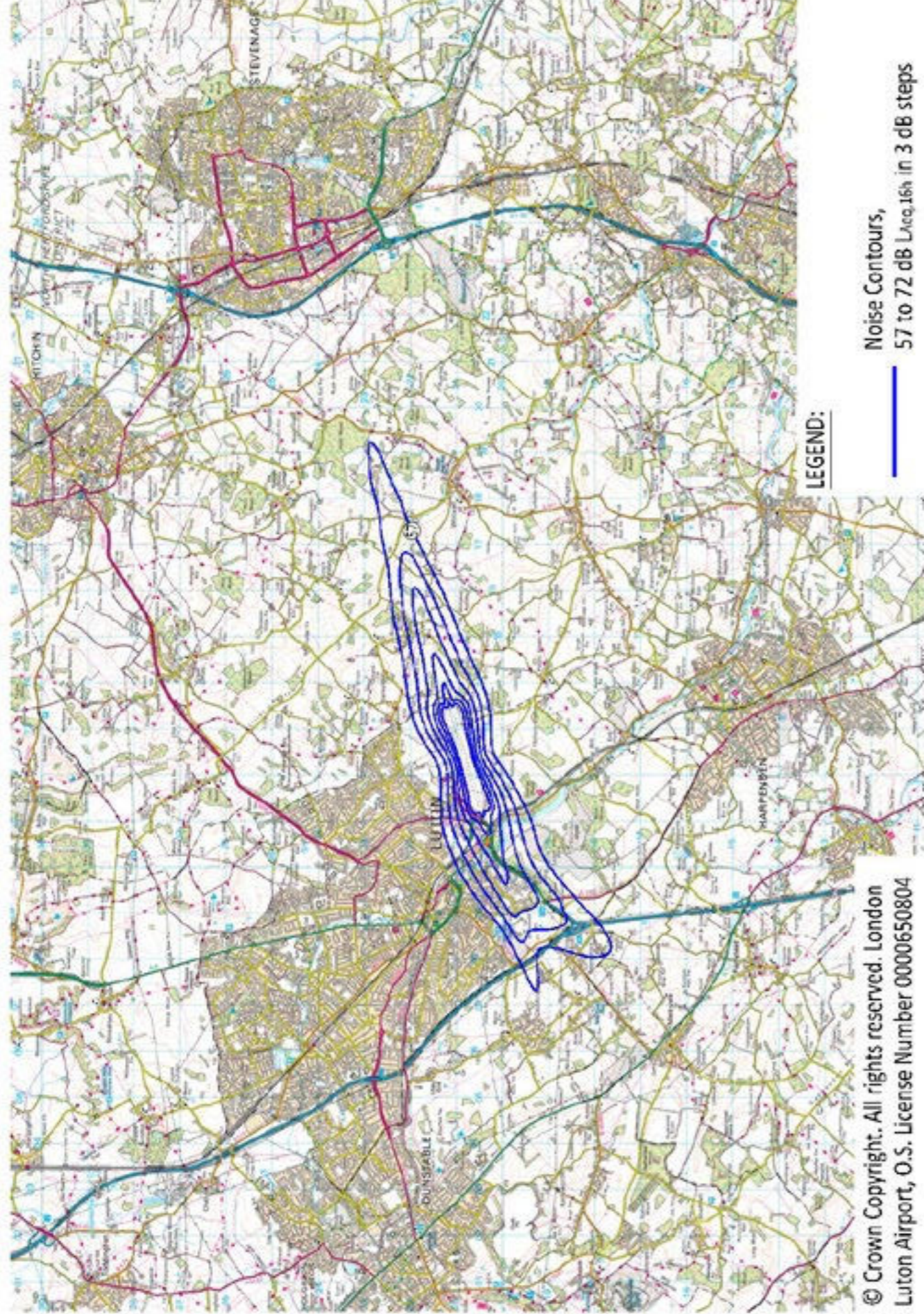
When looking at the daytime results there are generally increases in the number of dwellings and the population within the contours when comparing 2014 with 2013. For the 57 dB LAeq, 16h contour there is a small decrease of around 2% in the number of dwellings despite the contour being larger. The higher value contours show larger increases in line with the increase in contour area.

L _{Aeq, 8 hour} Night-time	2013		2014	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	0	0	0	0
>63	1	2	0	0
>60	10	27	136	389
>57	540	1,478	660	1,790
>54	1,619	4,377	1,624	4,442
>51	3,577	8,475	3,717	9,139
>48	6,390	14,974	6,583	16,040

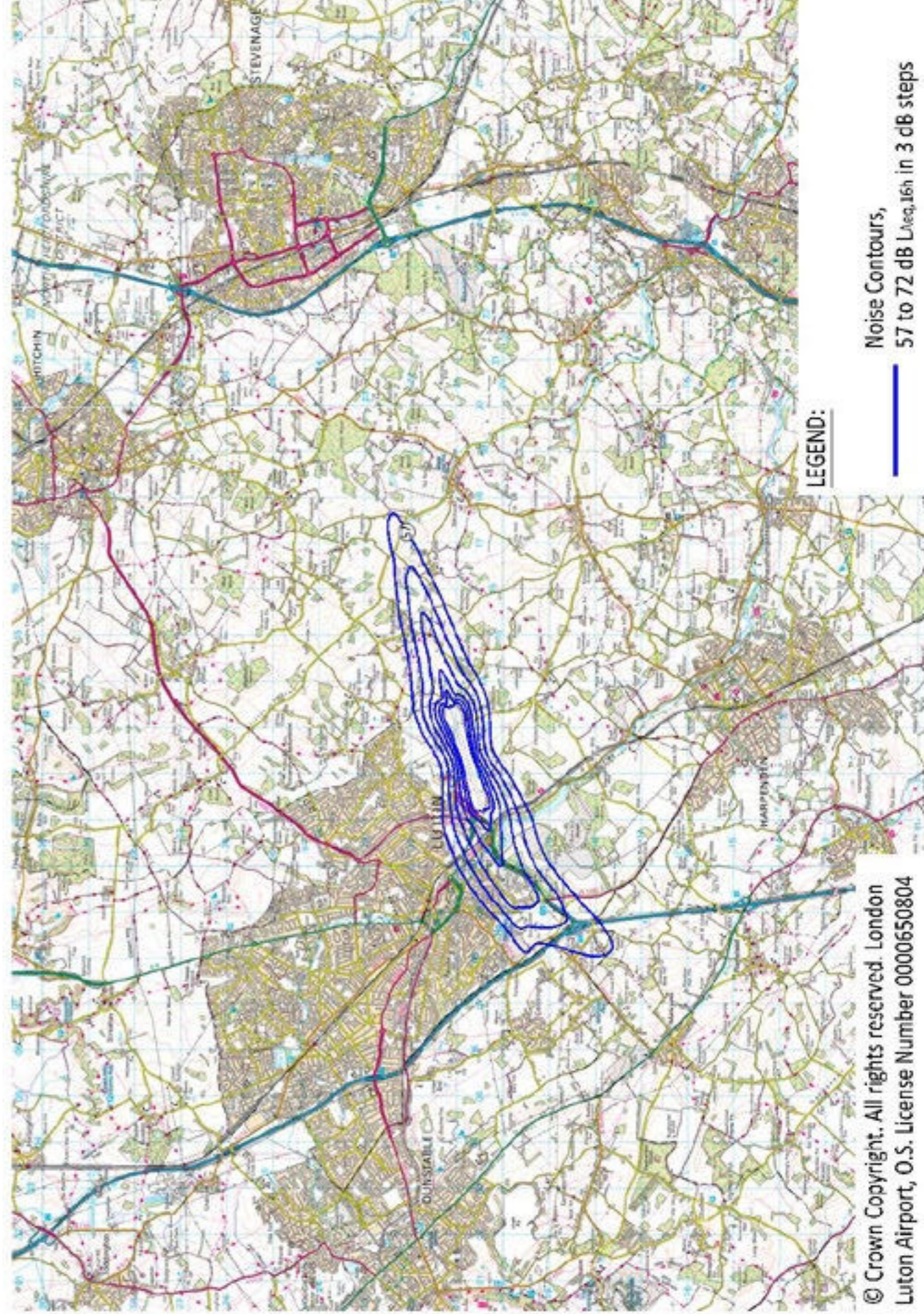
For the night-time contours there are increases in the numbers of dwellings and the population within the contours when comparing 2014 with 2013. For the 48 dB LAeq, 8h contour the increase is around 3% for the number of dwellings and around 7% for the population. This is mainly due to the increase in movements.

Please note in the above tables the results for households and resident populations are cumulative.

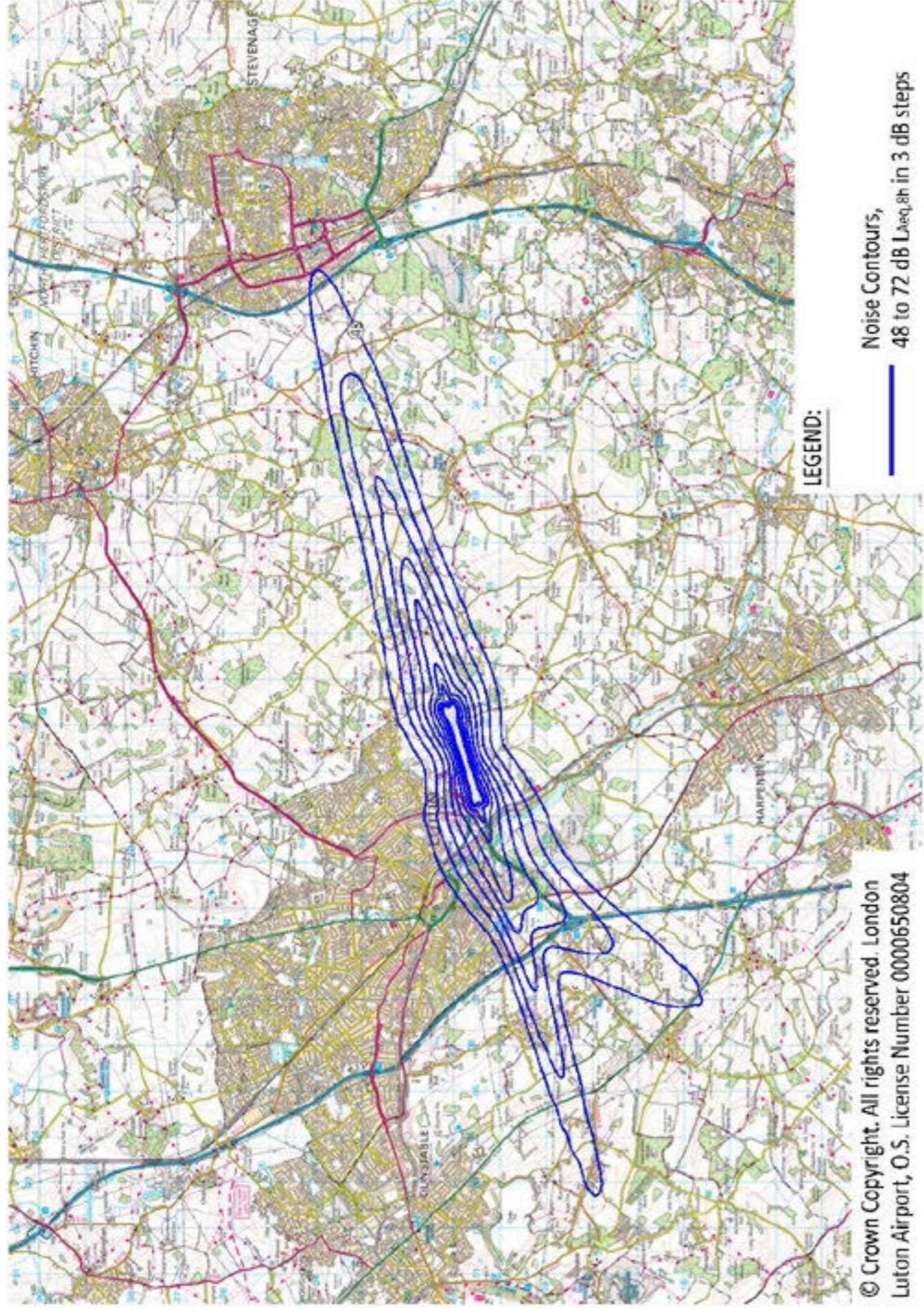
Annual Day Noise Contours Summer 2014



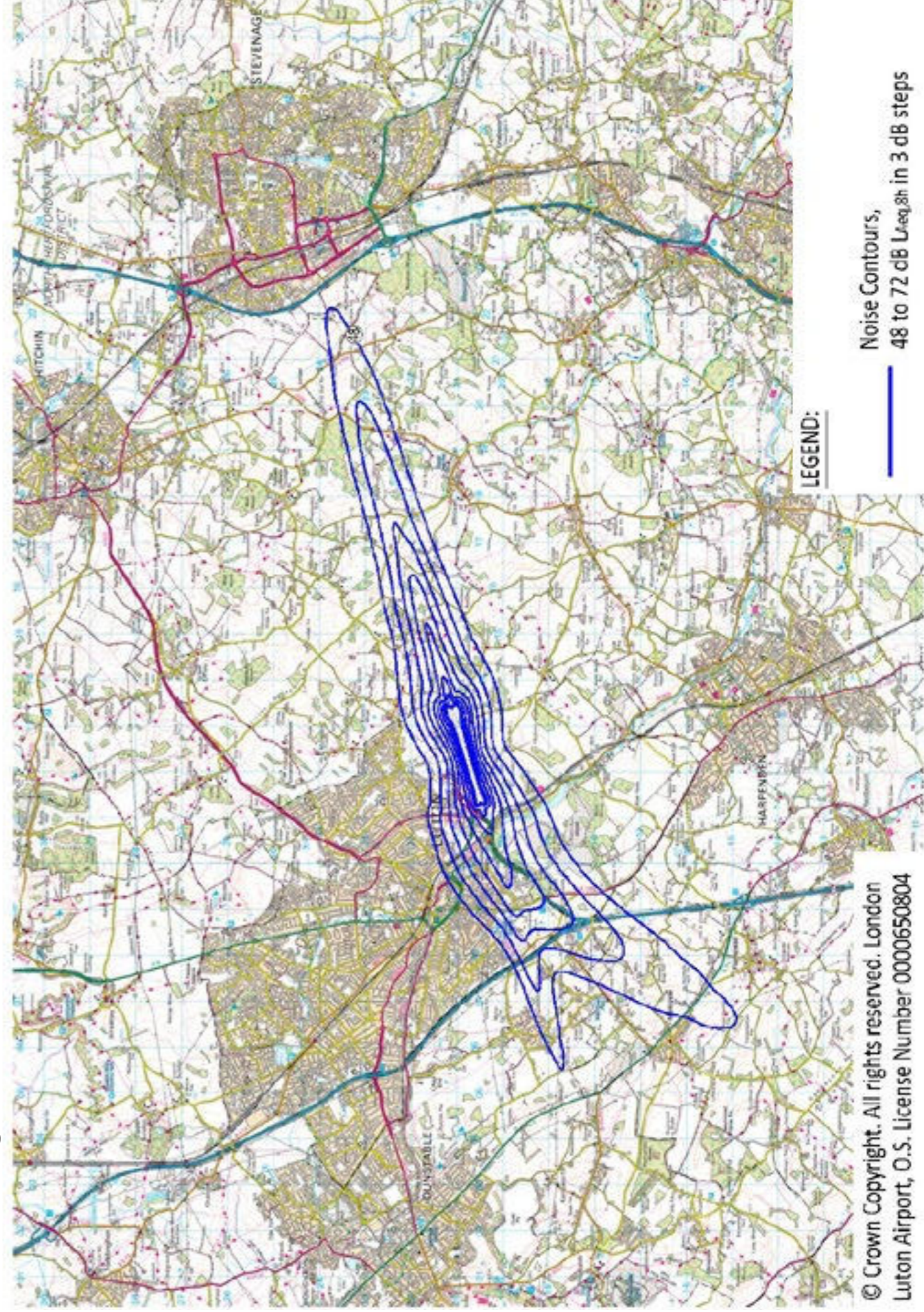
Annual Day Noise Contours Summer 2013



Annual Night Noise Contours Summer 2014



Annual Night Noise Contours Summer 2013



Annual noise contours 2014

Again using the latest INM software (version 7.0d) the annual Lden noise contours for 2014 have been produced in accordance with London Luton Airport's Noise Action Plan. The corresponding annual Lnight noise contours have also been produced, along with population and dwelling counts for each contour.

Lden is an A-weighted, Leq noise level, measured for an average 24 hr day between 1st January and 31st December 2014, with a 10dB penalty added to the level between 23.00 and 07.00 hours and a 5 dB penalty added to the level between 19.00 and 23.00 hours to reflect people's extra sensitivity to noise during the night and the evening.

Lnight is similarly an A-weighted Leq noise level, for an average 8 hour night period between 2300 and 0700 for the period 1st January to 31st December 2014.

Annual Lden Noise Contour Results

Contour Value (dB(A) L _{den})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2013	2014	2013	2014	2013	2014
>75	0.7	0.7	0	0	0	0
>70	1.6	1.6	0	0	0	0
>65	5.0	5.3	1,100	1,100	450	400
>60	12.4	13.1	5,200	5,600	1,900	1,950
>55	31.8	33.6	14,800	16,400	6,150	6,150

Annual Lnight Noise Contour Results

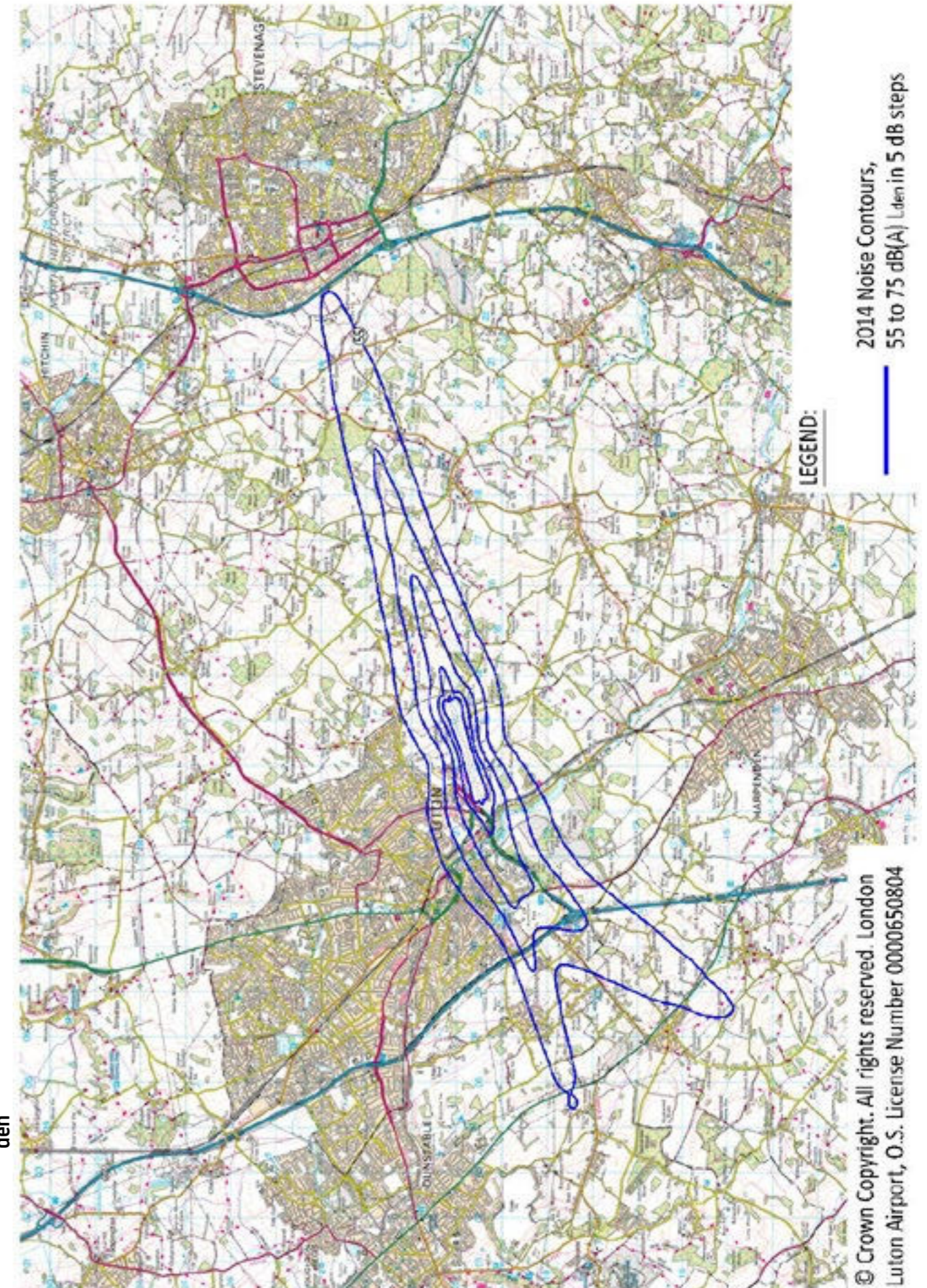
Contour Value (dB(A) L _{den})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2013	2014	2013	2014	2013	2014
>66	0.8	0.8	0	0	0	0
>63	1.2	1.3	0	0	0	0
>60	2.2	2.3	0	0	0	0
>57	4.6	4.7	800	800	300	350
>54	8.1	8.3	2,400	2,500	900	900
>51	14.2	14.9	6,100	6,300	2,350	2,250
>48	24.6	25.7	11,900	12,700	4,900	4,750

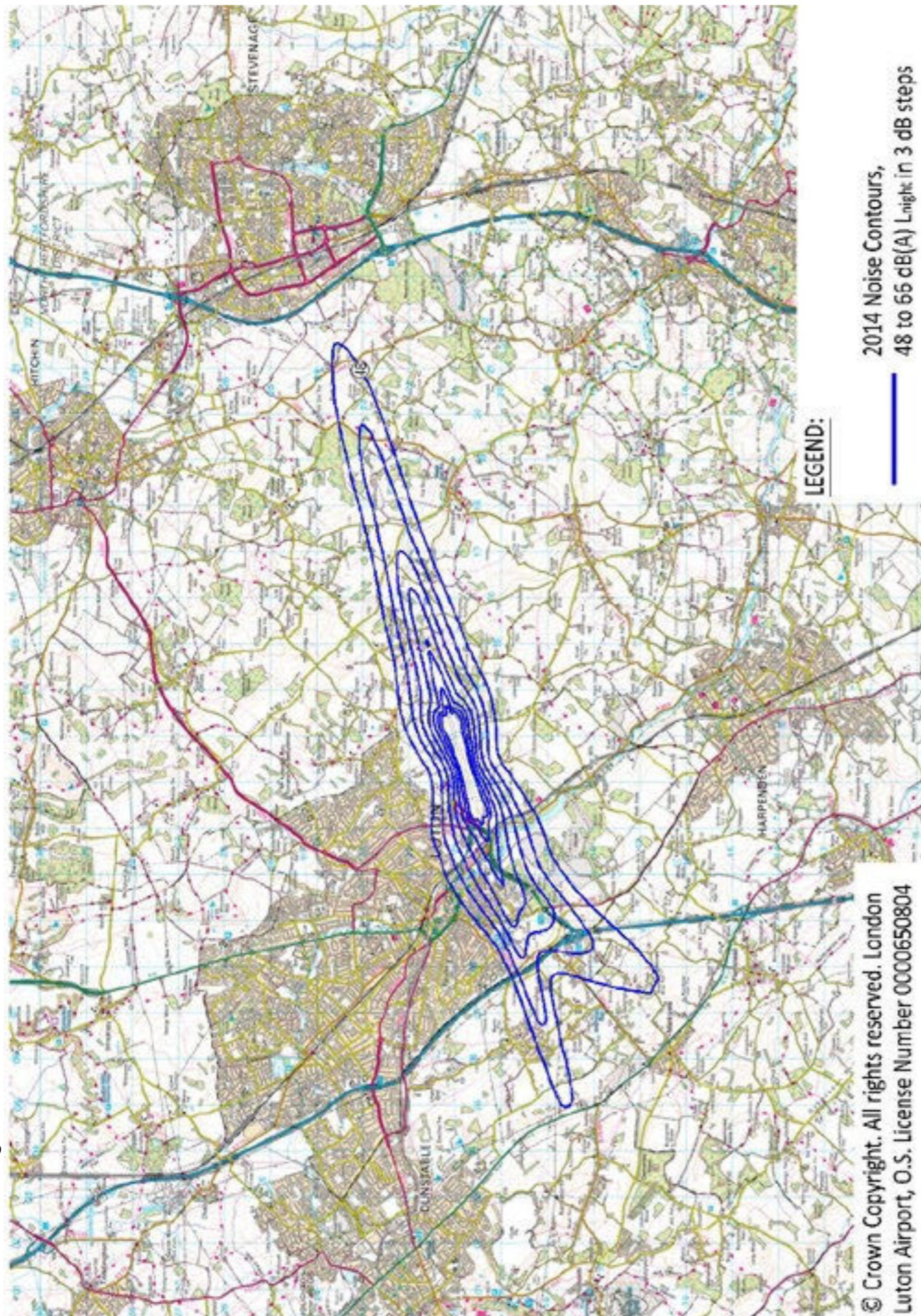
Please note that in Annual Summer contours and Annual Contours the number of dwellings has fallen, but population has risen. This kind of effect happens from time to time

¹ - Population counts rounded to nearest 100

² - Dwelling counts rounded to nearest 50

Annual L_{den} Noise Contours 2014





Correspondence and Complaints

We aim to investigate, log and respond to all correspondence in a timely and systematic manner, preferably within 10 working days. Where this is not possible an acknowledgement is sent by post within 5 working days to those who contact us. E-mail correspondence will automatically receive an acknowledgement by return.

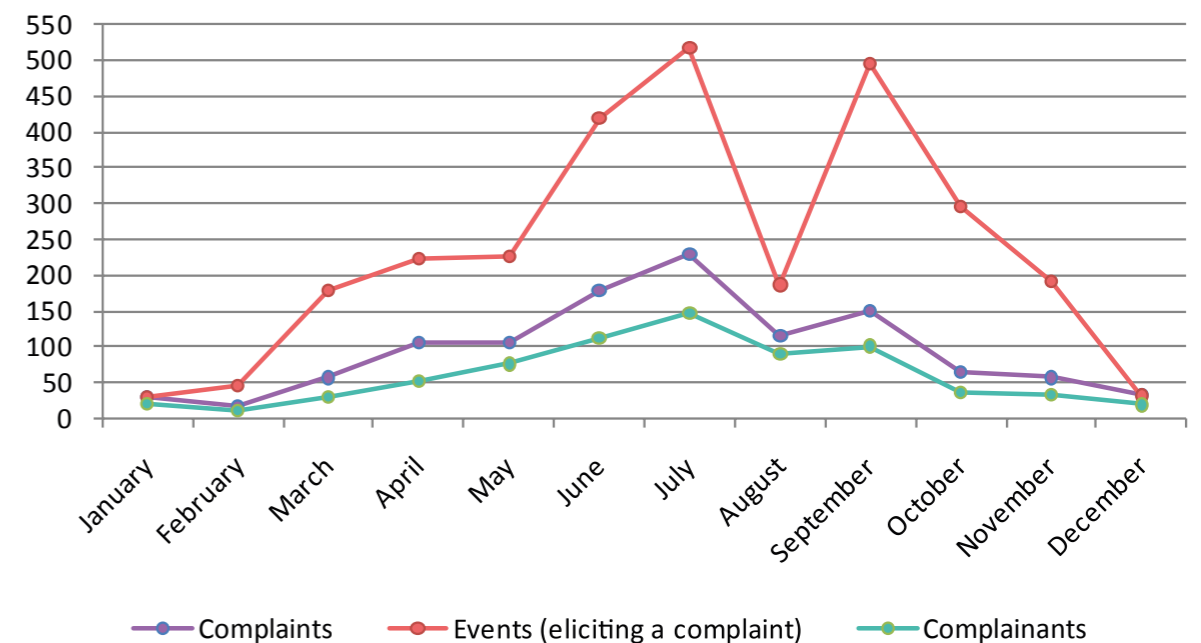
Complaint statistics can be extremely difficult to interpret as people's tolerance of noise and their perception of what causes annoyance varies widely. It is highly subjective and differs between neighbours experiencing the same levels of noise.

Total complaints relating to LLA aircraft operations

	2013	2014
Total No. of Complaints relating to LLA aircraft operations	1,022	1,146
No. of Complainants	379	457
No. of Events (eliciting a complaint)	2164 (1,606*)	2,836 (1,200**)
Average No. of Complaints per Complainant	2.7	2.5
Average No. of Events per Complainant	5.7 (4.2*)	6.2 (2.6**)
Average No. of Events per Complaint	2.1 (1.6*)	2.5 (1**)
No. of Aircraft Movements per Complaint	96	91
No. of Aircraft Movements per Event	45 (61*)	36 (87**)

During 2014 a total of 1,146 complaints (on average 3 complaints per 24 hours) relating to LLA aircraft operations were received, compared with 1,022 in 2013. The figure below shows the complaints statistics throughout 2014. More complaints were received in the summer months, correlating with an increase in aircraft activity.

Complaint Statistics throughout 2014

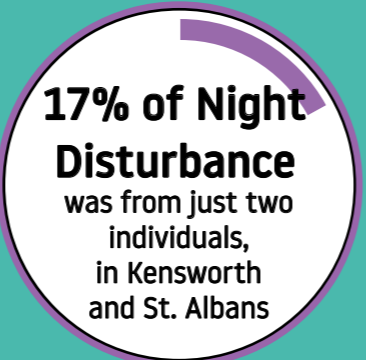
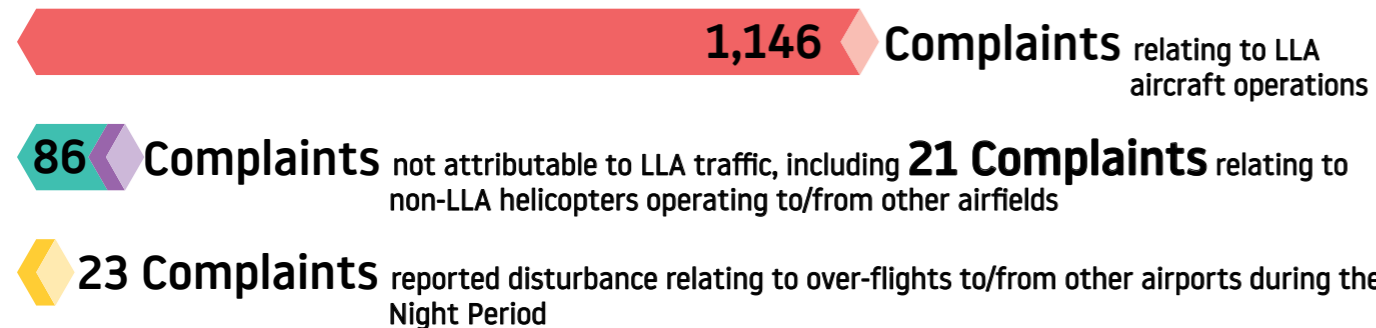


* - Figures excluding 558 events reported by just one resident of Harpenden

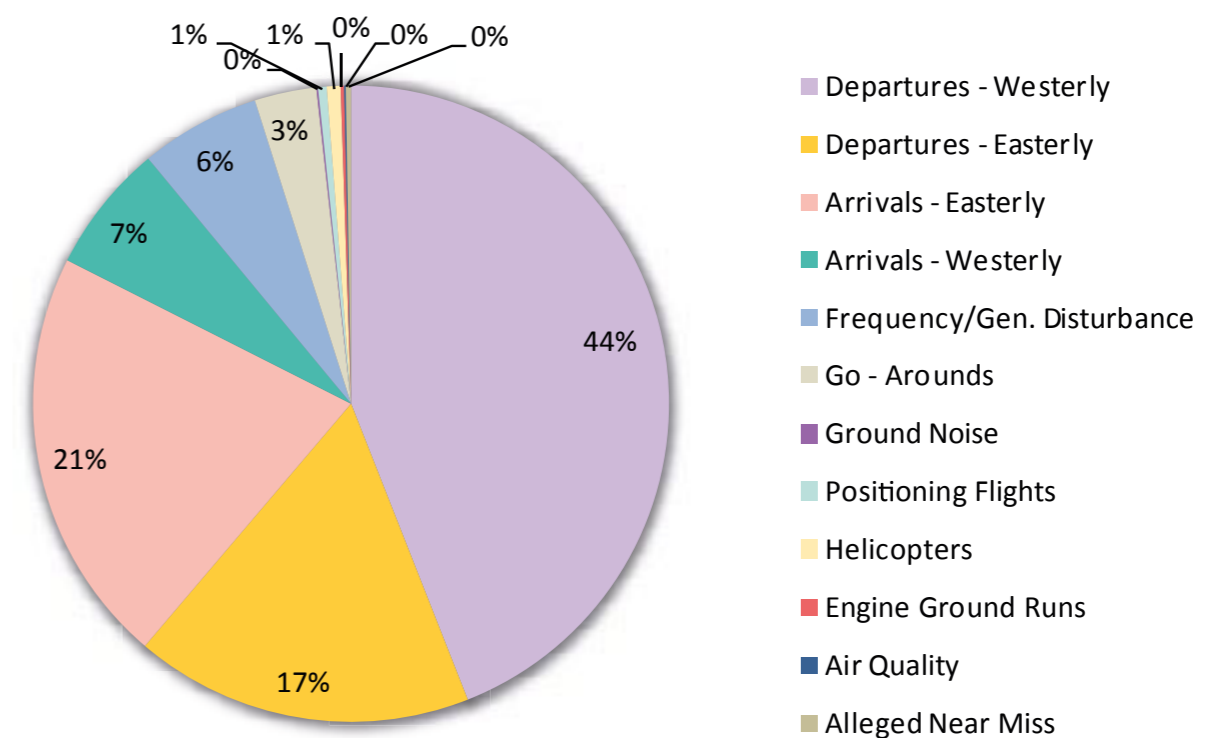
** - Figures excluding 1,636 events reported by three individuals, one resident in Harpenden, one resident in Kensworth and one resident in St Albans



During 2014, 768 events were reported by one individual in Harpenden but, in agreement with the LLACC, these events are no longer included in statistics although a total of 23 complaints from this complainant, reporting general disturbance and frequency (both day and night), have been incorporated in all statistics.



Nature of Disturbance



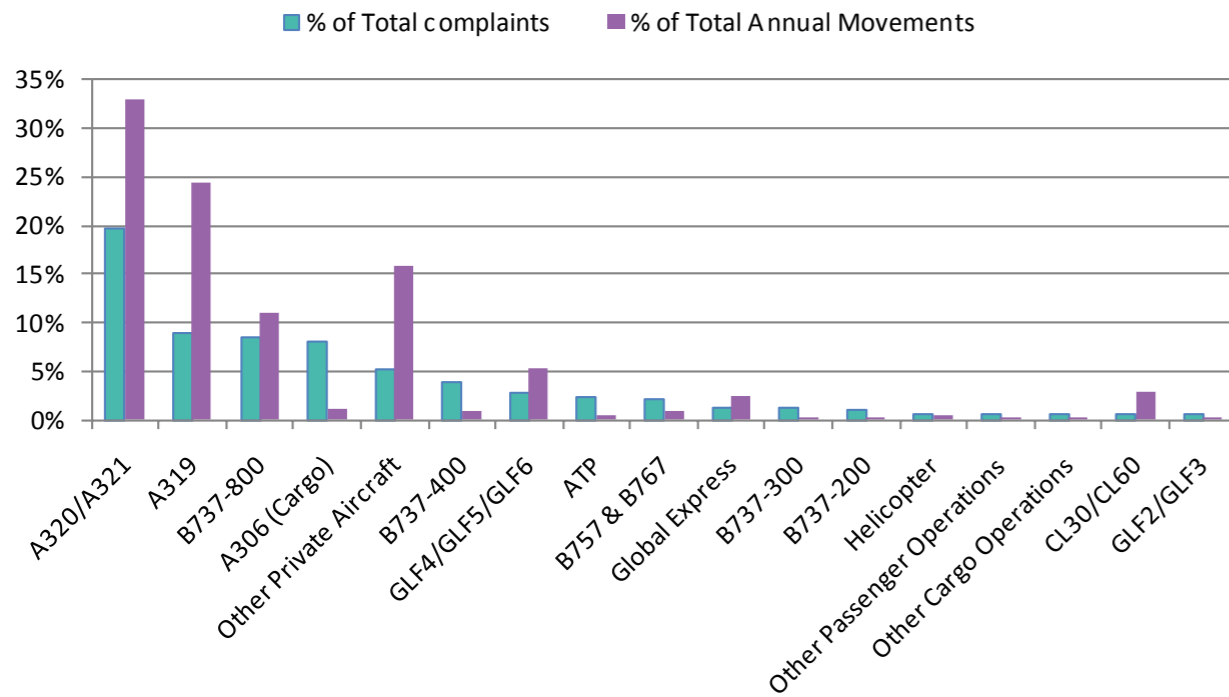
Within the 504 complaints concerning westerly departures 158 were of a general nature, 314 reported specific aircraft following the Match/Detling route, 13 related to aircraft on the Compton route and 13 related to aircraft following the Olney heading. Six other complaints involved positioning flights following off-airways flight routes.

Of the 197 complaints attributed to easterly departures 35 were of a general nature, 122 related to aircraft following the Compton heading, 26 related to aircraft on Olney flight route and 11 to aircraft on the Match/Detling heading. A further 3 complaints involved positioning flights following off-airways flight routes.

Whilst 189 of the 243 complaints concerning easterly arrivals reported general disturbance, 55 related specifically to aircraft on approach to land from the Lorel Reporting Point.

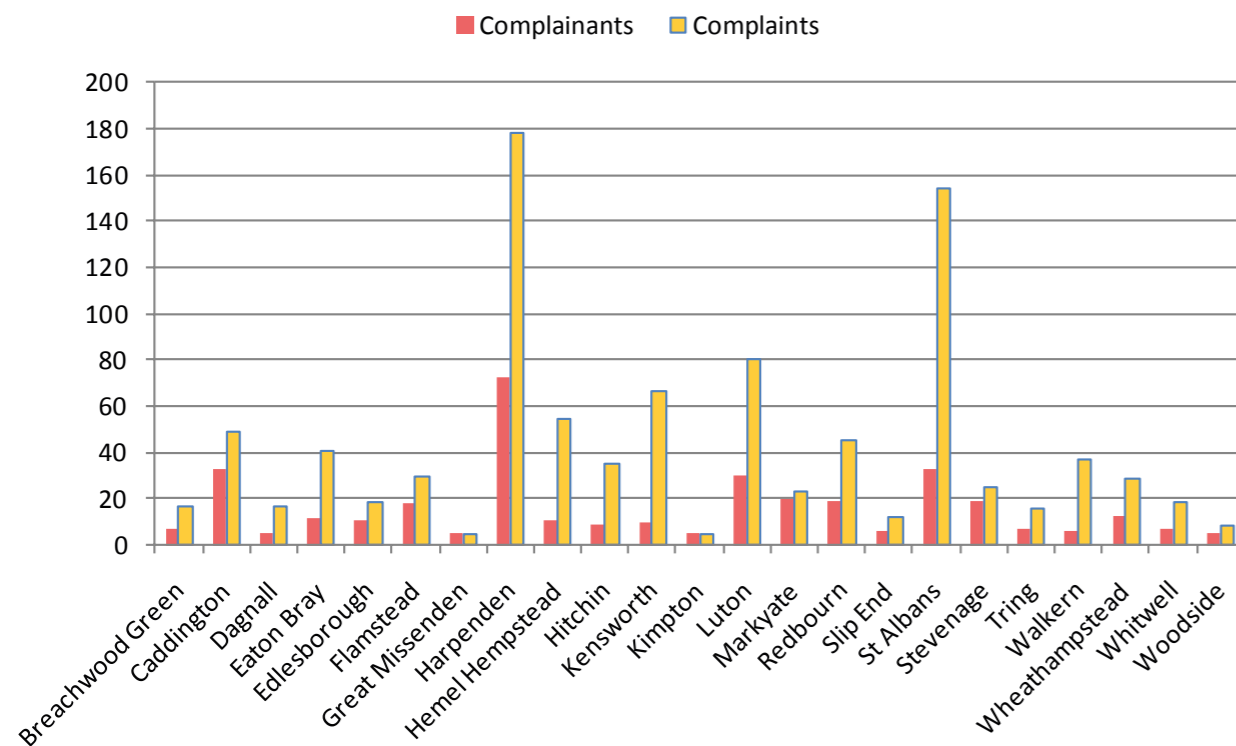
Complaints by aircraft type

Of the 1,146 complaints relating to LLA aircraft operations registered during the year 795 complaints (69%) were clearly correlated to a specific aircraft type, although many complaints were of a general nature. The diagram below shows aircraft types generating complaints.

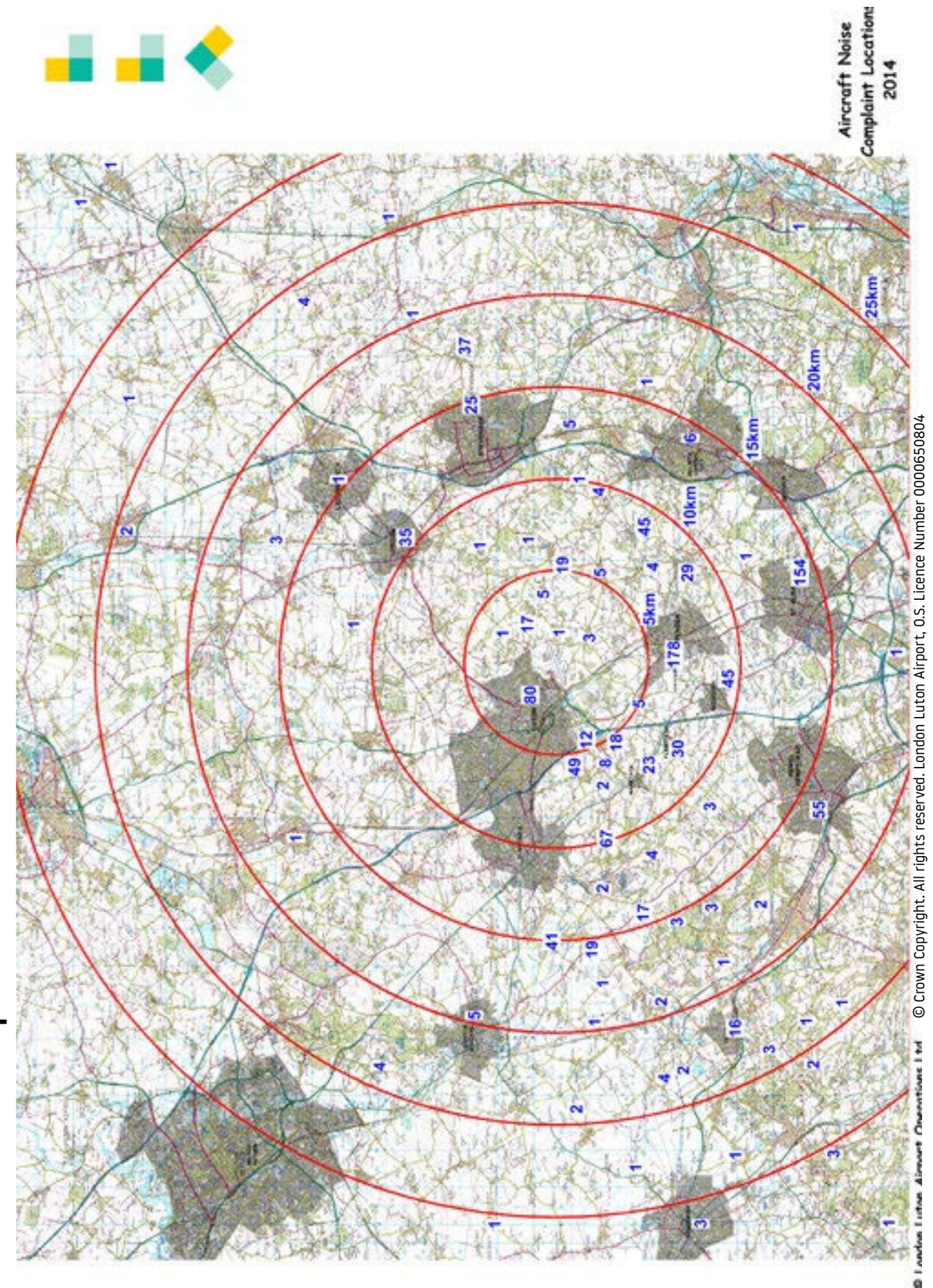


It can be seen that the majority of the complaints are related to the quietest aircraft. This is mainly due to the frequency of these quieter, modern aircraft types compared to the small percentage of older generation aircraft.

Location of Complainants (5+)



Location of Complainants 2014



Communication method

The following table shows the mode of communication used to contact London Luton Airport regarding noise.

Communication Method	% of Total Complaints
E-mail	72%
Telephone	27.7%
Letter	0.3%

Any concerns relating to aircraft operations associated with London Luton Airport can be reported to the Airport Environment Office by the following means:

Postal Address **Airport Environment Office**
London Luton Airport
Navigation House
Airport Way
Luton
Beds
LU2 9LY

Direct Telephone **(01582) 395382 (24 hours)**
Direct email* **noise@ltn.aero**

* A link also exists on the www.london-luton.co.uk website, providing a template for reporting concerns relating to aircraft activity, which is then sent directly to the Airport Environment Office for logging, investigation and response.



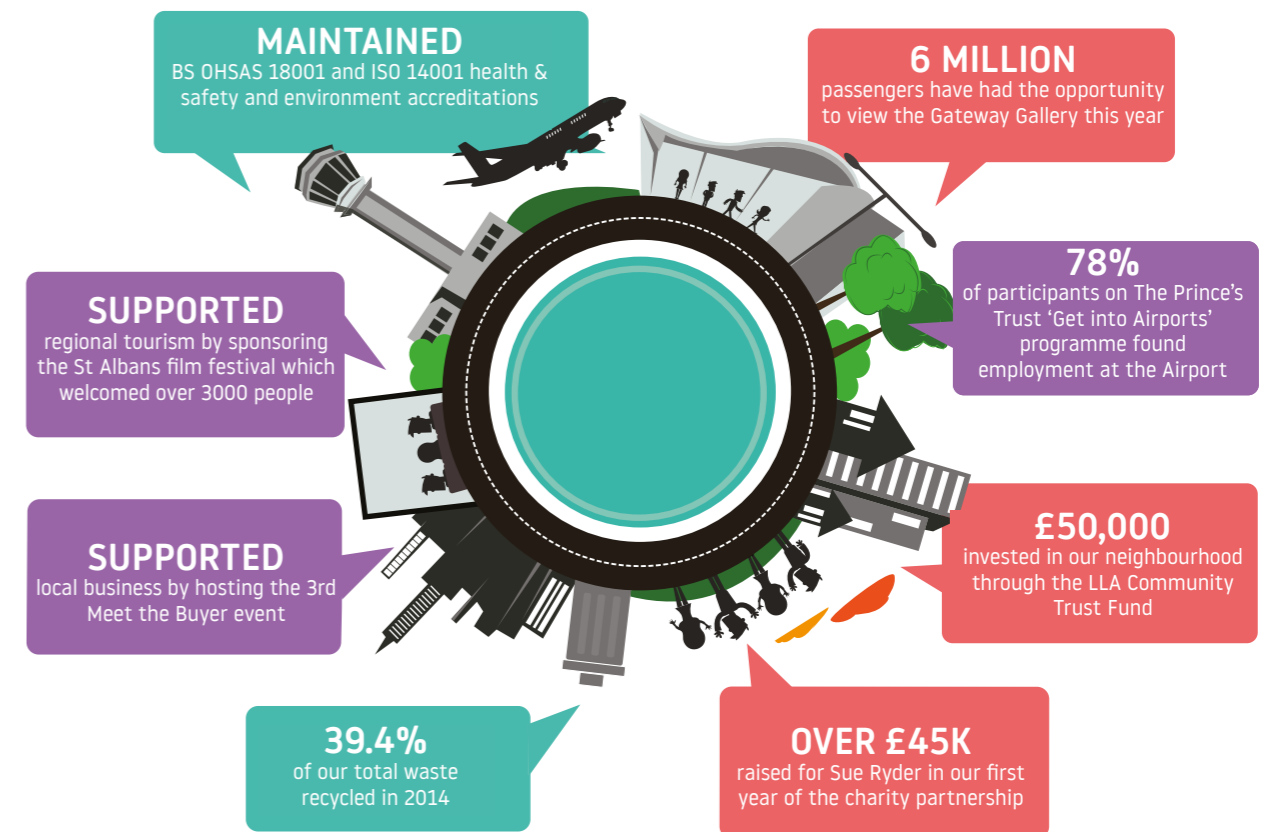
Community Relations

Through the Airport Consultative Committee, which meets each quarter, London Luton Airport maintains a close working relationship with representatives of its local authorities and resident groups. Information on the Airport Consultative Committee including meeting minutes and its representatives can be found at the following link:

<http://www.llacc.com/>

Our five year Community Relations Strategy forms part of LLA corporate social responsibility programme and sets out how we will facilitate community development and meet the needs of key stakeholders. Initiatives are delivered by the Airport in collaboration with key community partners. In 2014 we made eight commitments to ensure that we continued to play a positive role in our local community. The following figure summarises the progress made against these commitment during the year.

Community engagement strategy achievements



Employment

Employment at and surrounding London Luton Airport contributes significant economic benefits to Luton as a whole and to the sub-region. A large number of businesses are based in Luton due to the presence of the Airport. Thus any analysis of the Airport's impact upon the locality needs to contain an economic perspective, and this includes employment.

An analysis of employers within and around the Airport boundary has been conducted, and the Inter Departmental Business Register (IDBR) was used as the main data source. This Office for National Statistics (ONS) dataset is a comprehensive list of UK businesses that is used by government for statistical purposes. It provides a sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analyses of business activity, representing nearly 99% of economic activity (source: ONS website www.statistics.gov.uk).

An initial list was received from London Luton Airport of companies within its boundary. The listing was matched against the IDBR. Companies outside the Airport boundary were identified by the street names/areas as follows:

- ❖ Spittlesea Road
- ❖ Part of Frank Lester Way
- ❖ President Way
- ❖ Wigmore House
- ❖ Part of Airport Way
- ❖ Barratt Industrial Park
- ❖ Airport Executive Park

Fourteen companies which appeared on the list but not the IDBR had imputed figures gained from the Airport operator and/or planning applications.

Total employment in and around the Airport

Using main section headings from the Standard Industrial Classification 2007 (SIC 2007), the following was found. Data has been rounded to the nearest hundred, as per ONS guidelines.

Standard Industrial Classification 2007, Section Names	Total Employees
Accommodation and Food Service Activities	500
Administrative and Support Service Activities	1,800
Financial and Insurance Activities	<100*
Manufacturing	1,400
Professional, Scientific and Technical Activities	<100*
Public Administration & Defence; Compulsory Social Security	<100*
Real Estate Activities	<100*
Transportation and Storage	4,400
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	<100*
Grand Total	8,500

* - Figures have been suppressed where there are less than three companies in a given Section and/or employment in that sector is less than 100 in accordance with the regulations covering the use of IDBR data.

There are approximately 8,500 employees working in the vicinity of the Airport, a slight increase of 1% compared to the previous year. (Due to confidentiality reasons we are bound by the Office for National Statistics protocols to round to the nearest 100 when reporting IDBR figures)

Employment by working pattern

The IDBR provides employment figures by full and part time working pattern. The total full time figures (where a breakdown by full/part time was provided) was 7,000 employees. This was a slight increase from the previous year's figures. The figure for part time employees was 1,200 which was a slight decrease from last year's figures.

There were several companies who did not state their full/part time working split on the IDBR therefore the figures above do not add to the total employment figures.

The percentage split of full/part time employees found at the Airport compared to that found in Luton as a whole is as follows:

	Full Time Employees	Part Time Employees
Vicinity of LLA	81.3%	14.1%
Luton UA	76.9% (confidence limit 3.1)	23.1% (confidence limit 3.1)

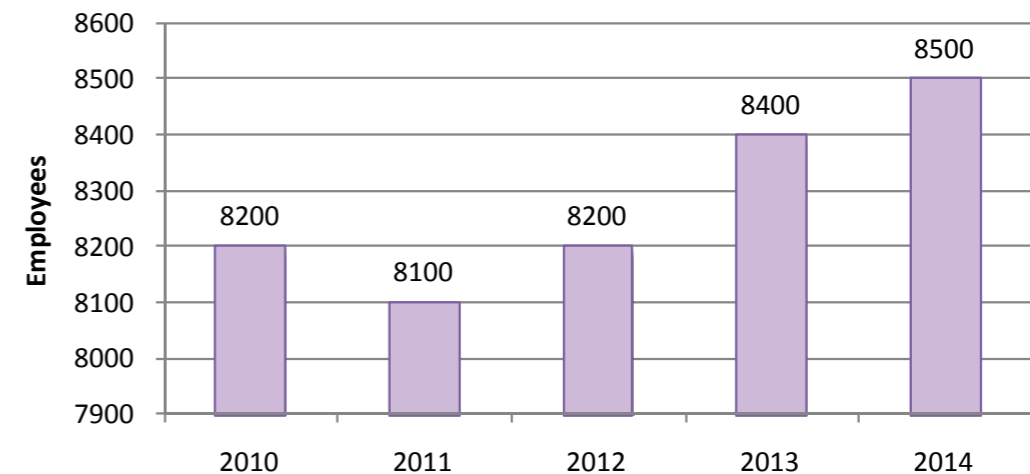
Source for Luton UA Figures: Annual Population Survey, Office for National Statistics Oct 2013 – Sept 2014, latest data. Figures are percentages of those in employment.

Full and part time working patterns in the vicinity of the Airport differs from that found within Luton as a whole, with the Airport having an increased proportion of full time workers.

Time series

The following figures from 2010 to 2014 show the estimated employment levels in the vicinity of the Airport

Estimate of Employment in the vicinity of London Airport by Year



Source: AMR Employment Surveys 2010- 2014

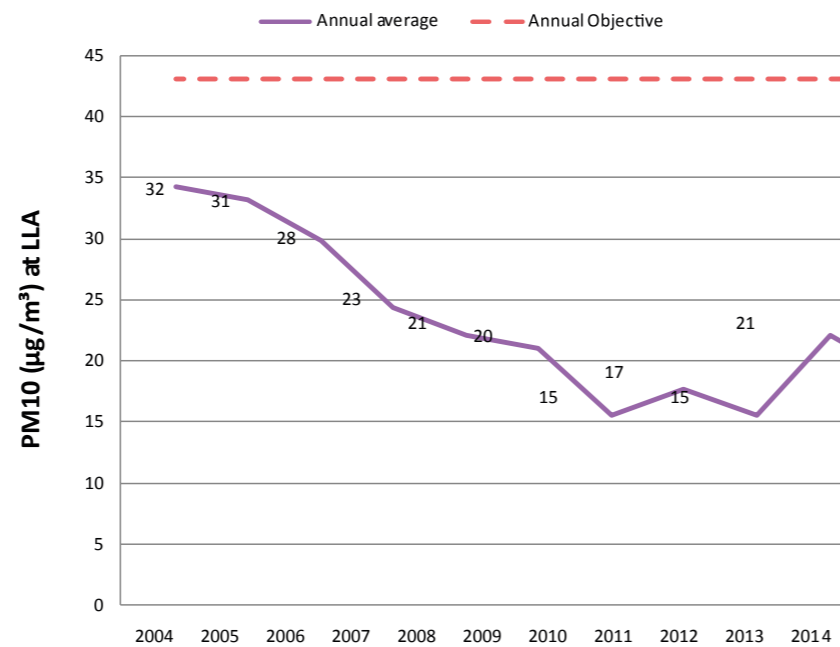
Air Quality

London Luton Airport has been monitoring air quality in and around the Airport environment since 2003. Air quality data collected at LLA is integrated into a monitoring programme incorporating data collected by the surrounding Local Authorities, with a monthly report available to view online at www.ukairquality.net. The parameters we measure are PM₁₀ and NO₂.

PM₁₀ (Particulates measuring 10µm or less)

PM₁₀ is one of the main contributors to reduced ambient air quality. Particulate matter describes fine particles including dust and soot which are suspended in the air. When you breathe in these particles they can stick to the surface of your lungs, and in areas of high pollution can cause respiratory health problems. Local sources include emissions from vehicles and aircraft engines, wear of brakes, tyres, and construction debris.

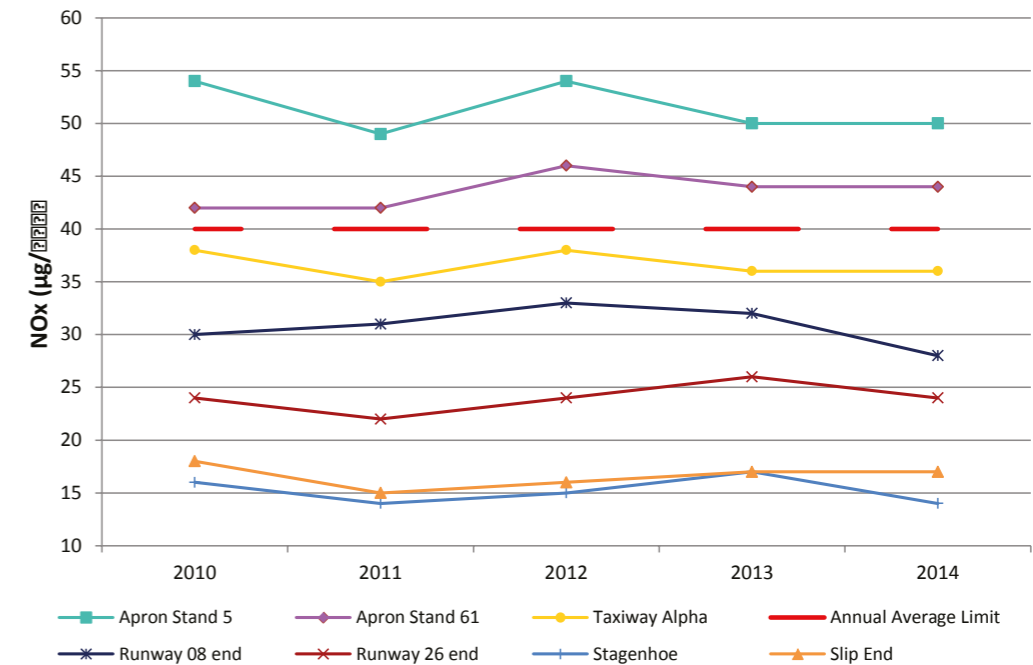
PM₁₀ is monitored from one location in the middle of the Airport site. The graph shows that the readings have remained well within the annual mean local air quality objective of 40µg m³, and are decreasing over time. There were 6 occurrences of moderate pollution exceeding the daily mean of 50 µg m³, which is well within the objectives laid out in the Air Quality (England) Regulations 2000 (as amended).



Nitrogen Dioxide (NO₂)

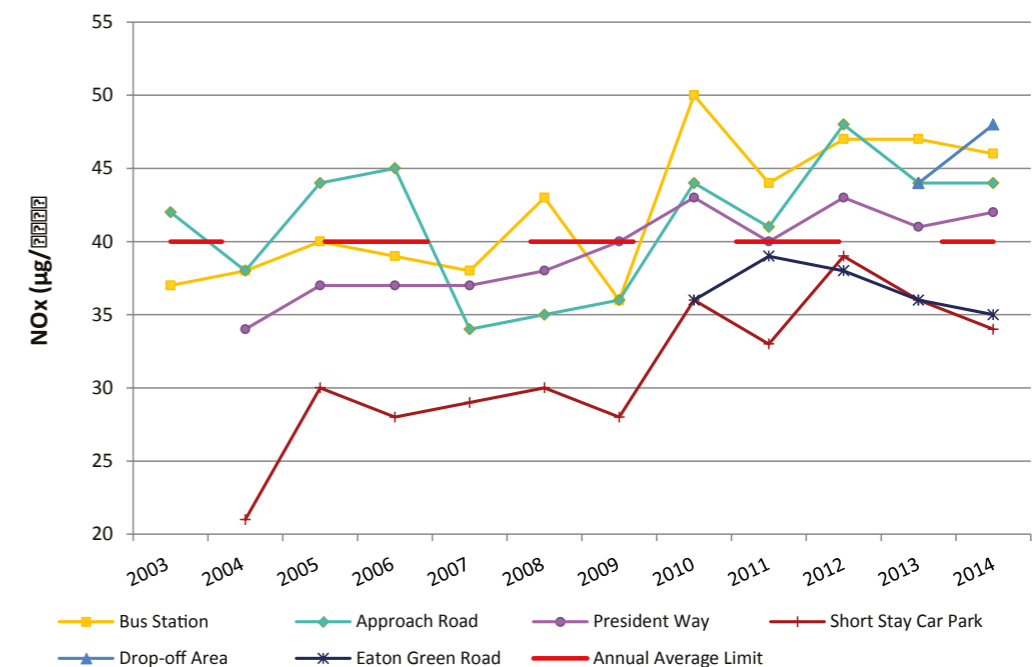
NO₂ in high concentrations can cause a wide variety of health and environmental impacts. The gases are produced from the combustion of fuels such as diesel and aviation fuel. NO₂ is currently measured from 14 locations around LLA. The annual mean local air quality objective of 40µg m³ also applies to NO₂.

Airport apron, runway and under the flight paths



NO₂ levels at the closest residential receptors to the Airport, and also along the aircraft flight paths are significantly below the the objective level laid out in the Air Quality (England) Regulations 2000 (as amended). Levels monitored at the roads around the Airport, in the car parks and on the apron are a little higher, with some exceeding the objective level. This illustrates that vehicle movements have more of a detrimental impact on air quality than aircraft around LLA.

Roads, car parks and bus station



Surface Access

LLA aims to improve access to London Luton Airport, particularly by public transport in order to reduce the contribution that journeys make to total airport-related CO2 emissions and also to air pollution. LLA's current Airport Surface Access Strategy runs from 2012-2017, with short and long term targets and action plans to encourage more sustainable travel amongst airport passengers and employees. These targets are being monitored regularly, as part of the wider Local Transport Plan (LTP) monitoring framework.

Modes of Transport

Passengers transport mode share (CAA Data)

The Civil Aviation Authority (CAA) undertakes continual passenger surveys at many of the major airports in the UK, including London Luton.

In common with other airports, LLA uses this survey data to assess trends in passenger 'modal shift' from private to public transport. The table shows the weighted

CAA data for 2009 to 2013. The CAA statistics suggest that 32% of airport passengers chose to use public transport in 2013. LLA aims to achieve 40% by 2017.

%	2009	2010	2011	2012	2013
Private Car - Drop Off	28	27	27	27	28
Private Car - Park	27	24	23	23	23
Rail	17	17	15	17	16
Bus/Coach	14	15	16	16	16
Taxi	14	15	18	17	17

Staff transport mode share

LLA aims to reduce the proportion of staff travelling alone by car to and from London Luton Airport to 60% or lower by 2017. Whilst employee travel does not generate as many trips as passengers, it is as important consideration as employees making a more

sustainable travel choice will give daily results due to the frequency of their need to commute to work. Staff travel surveys are undertaken once every 2 years, and the results since 2010 are presented in the table below.

%	2008	2010	2012	2014
Drive alone	72	66	66	62
Car share	10	12	8	11
Taxi	2	1	1	0
Motorcycle	1	1	1	1
Rail	5	5	5	10
Bus/Coach	6	7	9	8
Cycle	1	2	2	2
Walk	3	5	6	7

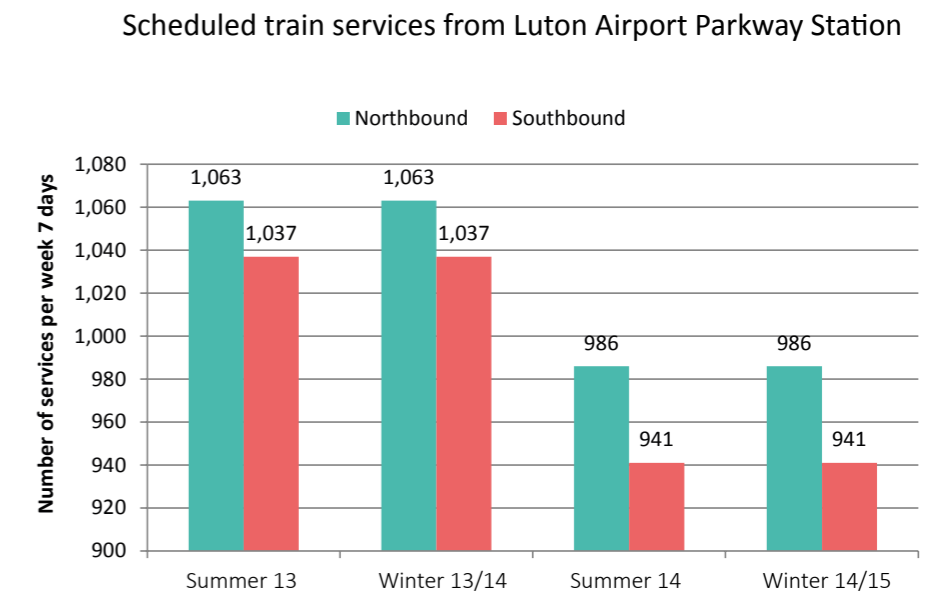


Public Transport Services

Train Services

The graph shows the number of scheduled train services per week from Luton Airport Parkway Station appear to have dropped from the previous year, although it is believed this was due to an error in the 2013 calculation.

During this period, the franchise changed from First Capital Connect to Govia Thameslink Railway.



The table below represents passenger numbers by ticket type that travelled through Luton Parkway Station for the last 4 years. This illustrates changes of patronage to Parkway Station and possibly modal change. The figures have been taken from the Office of Rail and Road Station Usage estimates. These are published annually.

The most recent statistics are quoted. In displaying these figures, season ticket holders have been shown after the sub-total, as it is a reasonable assumption that generally these travellers will not be air travellers. The figures show a steady increase in rail passenger numbers using Luton Parkway Station. In 2013 the Northern Entrance to the station was opened, providing access from Kimpton Road. Later paragraphs will refer to changes to bus services that may influence these

Ticket Type	2010-11	2011-12	2012-13	2013-14
Full tickets	1,033,698	1,241,776	1,252,397	1,283,612
Reduced/concession	840,880	740,064	825,124	915,187
Sub-total	1,874,578	1,981,840	2,077,521	2,198,799
Season tickets	437,542	447,764	460,614	468,454
Total	2,312,120	2,429,604	2,538,135	2,667,253

Bus and Coach Services

Some National Express services make scheduled stops within the Town Centre, also allowing for patronage between the Town Centre and the Airport.

All buses must comply with the accessibility regulations by 1st January 2017, and all coaches by 1st January 2020. These vehicles are gradually being phased in, with many routes offering accessible services already.

Within this monitoring period, Greenline service 757 has resumed a direct service to the Airport via Luton Railway Station. It is also noted that between Summer 2014 and the Winter schedule, there was a reduction in the number of buses on service A1 between the Airport and Victoria Station.

The Arriva 'A' service which operates along a fast and dedicated route from Houghton Regis/ Dunstable to the Airport, has made a number of changes to its timetable over the period and extended operation of its services commencing at 04:30 until midnight, potentially providing staff with an alternative to car travel.



The rise in services calling at the Airport and the opening of a northern entrance to Luton Parkway Station, with a footpath leading to Kimpton Road, is helping to promote public transport as a means of getting to and from the Airport.

Bus and Coach Services From London Luton Airport

Local	Summer 13	Winter 13/14	Summer 14	Winter 14/15
Luton Railway Station	319	586	460	483
Others	1,830	1,577	1,643	1,651
Sub-total	2,149	2,163	2,103	2,134

National	Summer 13	Winter 13/14	Summer 14	Winter 14/15
Central London	454	833	1,152	1,043
Others	700	1,015	567	574
Sub-total	1,154	1,848	1,719	1,617
Total	3,303	4,011	3,822	3,751

Airport - Airport Link	Summer 13	Winter 13/14	Summer 14	Winter 14/15
Birmingham	91	91	84	84
East Midlands	0	91	35	28
London Gatwick	70	203	77	77
London Heathrow	154	336	189	189
London Stansted	182	133	126	126
Manchester	7	7	14	14
Total*	504	861	525	518

* - As some services call at more than one airport, the total number of actual departures will be less than the sum of the disaggregated services to each airport. This information represents a general guide to the number of services based on the information available from the various bus operators.

Road Traffic and Car Parks

The information contained in this section is based on traffic counts conducted at 8 sites during the period 12th-18th September 2014. This period is comparable with previous summer traffic counts and avoids any periods when significant changes in traffic characteristics can occur. Overall, traffic flows

have remained at the 2013 level. The table and graph below show an increase in 12hr/5day traffic flows between 2013 and 2014 on 2 of the 8 monitored roads, the highest increase being +1,040 (+10.0%) on Vauxhall Way (south). The most significant decrease in traffic was -1,452 (-21.5%) on

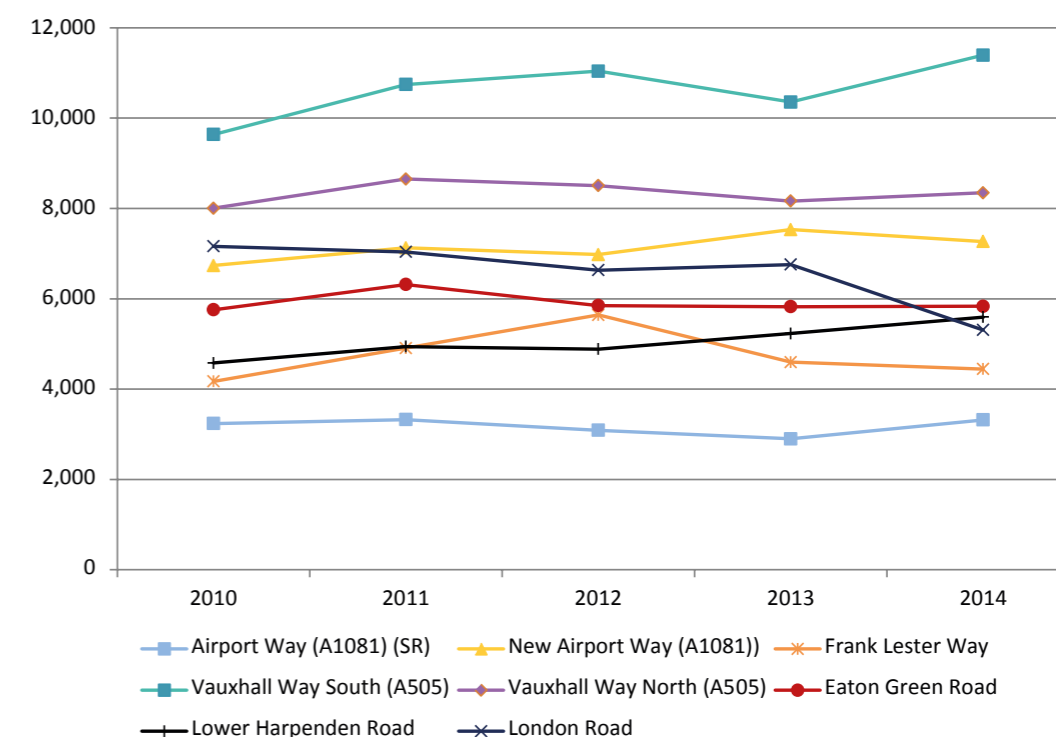
Lower Harpenden Road. However, it should be noted that this occurred during construction of the J10a improvement works. These works will also have contributed to the increase in traffic on Lower Harpenden Road resulting from drivers seeking to avoid the J10a works.

Summer 2009 - 2014 Traffic Counts (Average 12 hrs/5 day)

	Map ref	2010	2011	2012	2013	2014
Airport Way (A1081) (SR)	599	3,237	3,323	3,088	2,897	3319
New Airport Way (A1081))	925	6,735	7,127	6,979	7,532	7268
Frank Lester Way	445	4,170	4,908	5,642	4,597	4445
Sub-total		14,142	15,358	15,709	15,026	15,032

	Map ref	2010	2011	2012	2013	2014
Vauxhall Way South (A505)	520	9,638	10,746	11,039	10,355	11395
Vauxhall Way North (A505)	603	8,005	8,652	8,505	8,164	8348
Eaton Green Road	677	5,755	6,317	5,849	5,826	5835
Lower Harpenden Road	106	4,576	4,942	4,885	5,232	5594
London Road	393	7,163	7,037	6,634	6,759	*5307
Sub-total		35,137	37,694	36,912	36,336	36,479
Total		49,279	53,052	52,621	51,362	51,511

Summer 2010 - 2014 Traffic Counts - average 12 hrs/5 day



* - Site impacted by J10a works

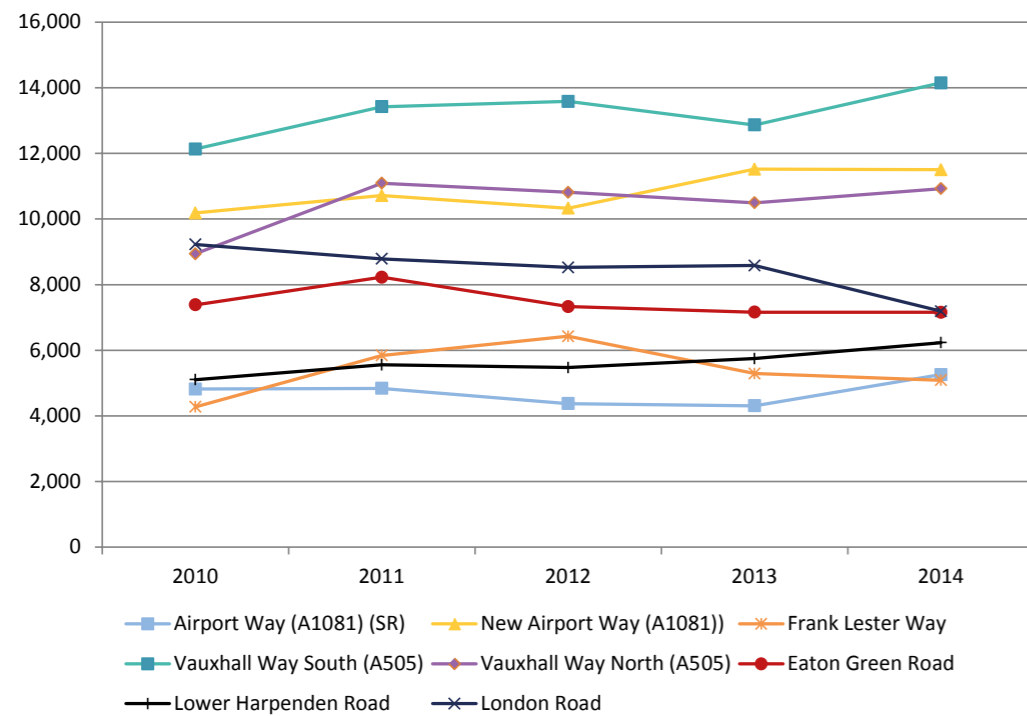
For the 24-hour week (24/7), the table and graph below reveal similar patterns to the 12hr/5day traffic counts. The highest increase in traffic is +1,281 (10.0%) on Vauxhall Way (south), while the most significant decrease in traffic is -1,392 (-16.2%) on Lower Harpenden Road.

Summer 2009 - 2014 Traffic Counts (Average 12 hrs/7 day)

	Map ref	2010	2011	2012	2013	2014
Airport Way (A1081) (SR)	599	4,818	4,840	4,374	4,309	5,256
New Airport Way (A1081))	925	10,185	10,714	10,330	11,518	11,503
Frank Lester Way	445	4,275	5,842	6,426	5,289	5,086
Sub-total		19,928	21,396	21,130	21,116	21,845

	Map ref	2010	2011	2012	2013	2014
Vauxhall Way South (A505)	520	12,131	13,421	13,582	12,865	14,146
Vauxhall Way North (A505)	603	8,939	11,093	10,813	10,496	10,924
Eaton Green Road	677	7,383	8,226	7,330	7,161	7,155
Lower Harpenden Road	106	5,104	5,555	5,475	5,746	6,232
London Road	393	9,225	8,788	8,523	8,582	*7190
Sub-total		42,782	47,083	45,723	44,850	45,647
Total		62,710	68,479	66,853	65,966	67,492

Summer 2010 - 2014 Traffic Counts - average 12 hrs/7 day



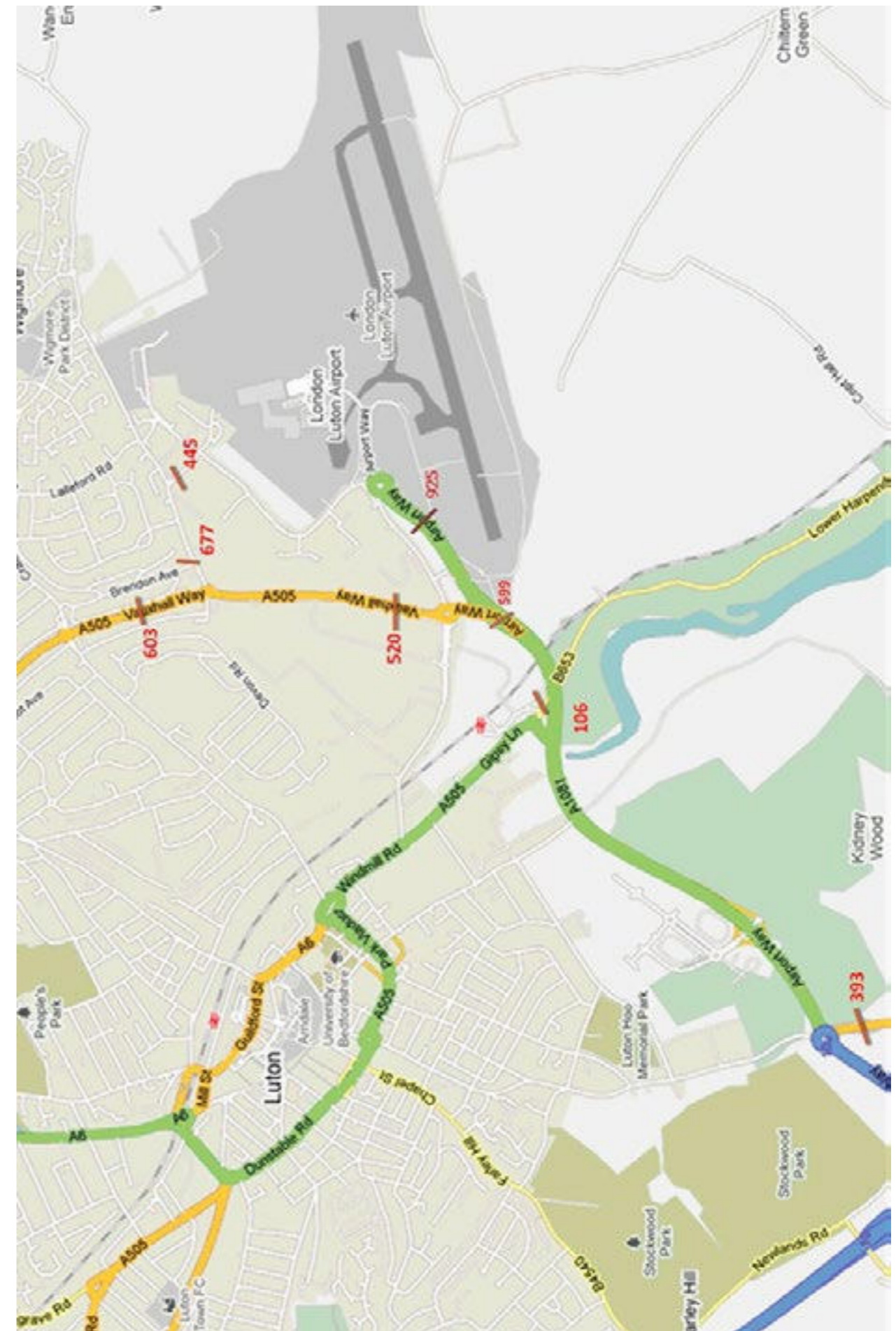
Traffic flow along Airport Way (SR) has consistently decreased over the five years to 2014, which is expected given that Airport Way (new) opened in 2009. However, it is possible that this route may start to show a slight increase from this period onwards as it is now part of the Luton Dunstable Busway route to the terminal, although part of the increase indicated by the traffic counts was probably due drivers avoiding the J10a works.

This data indicates that Vauxhall Way axis continues to accommodate the highest traffic volumes in this vicinity. This is due to its strategic location and connectivity to other district and arterial roads into and out of Luton. It is likely that the completion of East Luton Corridor engineering operations and increased activities in and around London Luton Airport have resulted in significant redistribution of traffic flow in the area.

** - Site impacted by J10a works

Overall, traffic flows have shown a small increase of 2% between 2013 and 2014. See the map for indicative location of these observation points.

Summer 2009 - 2014 Traffic Counts (Average 12 hrs/7 day)



On site Car Parks or Car Parks within the airport boundary

Car Parks	Spaces	Area m2
Short Term	1,556	39,373
Mid Term	2,780	65,000
Long Term	3,400	72,150
Passenger Total	7,736	176,523
Staff Total	3,835	97,270
Total	11,571	273,793

Whilst the Surface Access Strategy seeks to encourage passengers and staff to travel to LLA by sustainable means, there will always be some passengers and staff who choose to travel by car. Policies LLA1 and LLA2 of the Borough of Luton Local Plan set out the criteria for airport car parking, both on and off site.

Staff and passenger car parking capacity has again remained unchanged during 2014.

Off site Car Parks or Car Parks outside the airport boundary

Policy LLA2 seeks to resist off site airport related parking, unless in exceptional circumstances. However, the existence of these sites should be acknowledged and monitored. Only authorised car parks are noted in the following table, although others may occur around the Airport boundary.

Operator	Spaces*	Area ha
Airpaks (Slip End)	3,510*	5.97
Paige Airport Parking (Slip End)	1,600*	2.49
Central Car Storage	264*	0.56
Thurlow Nunn Kimpton Road**	125	1.11
Latimer Road**	200	0.42
Total	5,710	10.55

Sustainable Travel Improvements during 2014

During 2014 a number of improvements were made to surface access. In September 2014 GTR took over the Thameslink franchise, and have been working with LLA on a number of improvements to rail access. Branding and way-finding has been improved in the terminal, at Luton Airport Parkway and at St. Pancras to direct passengers to and from London Luton Airport by train. GTR has also rolled out a marketing campaign dedicated to promoting the use of the Thameslink to get to LLA. Ticketing machines have been introduced in arrivals and additional early morning services have been confirmed for introduction in 2015.

EasyBus launching a new bus service from London Luton Airport to London Liverpool Street in October 2014. This route replaced their service to Baker Street and comprises of 120 services per day in the summer and 106 services per day in the winter.

LLA also commissioned two assessments to be undertaken during 2014, both of which were shared with relevant bus and coach operators. One looked at potential service improvements to Hemel Hempstead, and the other looked at areas not served by buses along the Luton and Dunstable Guided Busway.

* - Numbers of spaces given relates to the number approved as part of planning conditions imposed at the time of determination of the application

** - Unauthorised sites

Planning and Development

Through the local transport plan, Luton Borough Council (LBC) set out the policies, strategies and schemes for Luton, Dunstable and the Houghton Regis area. The current Local Transport Plan (LTP3) for Luton covers the period 2011-2026 and can be accessed through LBC's website.

Airport planning and development

London Luton Airport's planning consent for a £100m development was granted by Luton Borough Council to application 12/01400/FUL in June 2014.

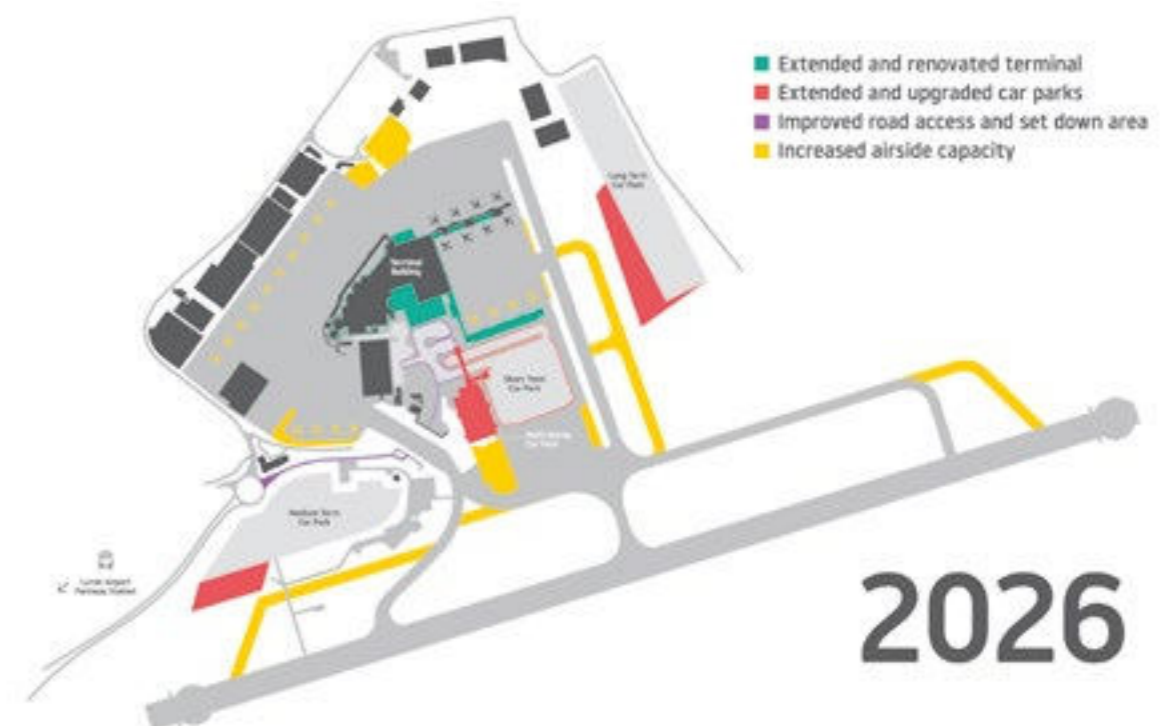
Before the plans were formally submitted, proposals to improve the Airport were subject to two public consultations. 65% of respondents who took part in the consultation on LLA development plans said they supported proposals to develop the Airport. They all stated their support for the economic benefits to Luton and the wider region, and the need to generate 5,100 new jobs, including a contribution to a reduction in youth unemployment.

The proposals involve measures to optimise the capacity of the Airport in four key areas, each of which is linked. For the project to achieve its objectives of improving passenger experience whilst increasing capacity to 18 mppa, all of these measures are required.

1. **Taxiways.** The current layout of the taxiways leads to aircraft ground congestion during peak periods. The proposals include:

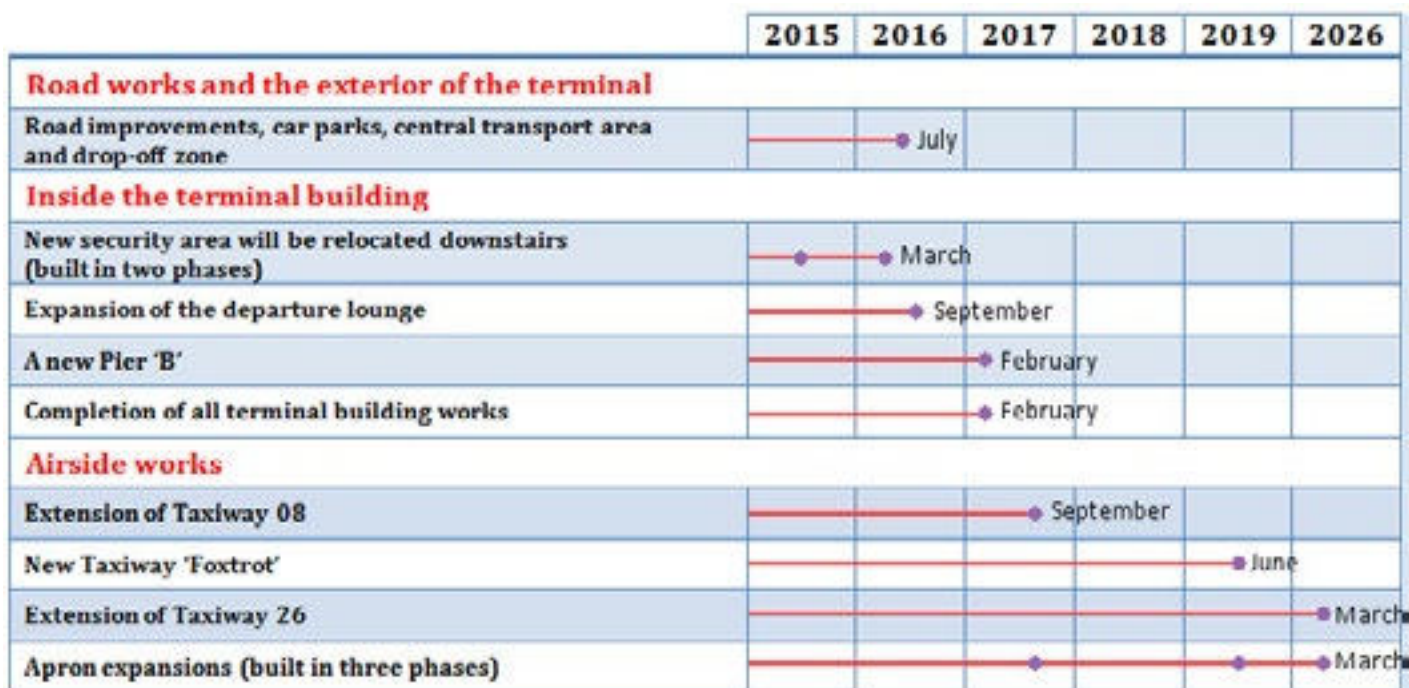
- a parallel taxiway to the east of the Central Terminal Area (CTA) to enhance circulation in and around the aircraft stands, and
- new parallel taxiway extensions for either end of the runway (currently many aircraft have to back track on the runway to maximise the distance available for take-off, which has an impact on the runway's capacity).

Improving the ground movement of aircraft is also likely to result in a reduction in flight delays and the ground running of aircraft engines.



- 2. Piers, Stands and Aprons.** An increase in the number of aircraft landing and taking off also requires an increase in the capacity of the infrastructure to handle the aircraft and passengers.
- A number of new stands are proposed, replacing and improving existing stands, with as many as possible as 'contact' stands i.e. where a passenger can access the aircraft directly from the terminal building.
 - A new two-storey pier is being provided to service the new contact stands and reduce the need for bussing.
 - Additional aircraft parking will also be required and where possible development of the emerging option has focused on making best use of existing areas through their extension and reconfiguration.
- 3. Terminal.** In order for the Airport terminal building to be able to handle the increase in the number of passengers the current building will be reconfigured with a small amount of additional new build between the newer part of the building and the original passenger terminal, incorporating the current bus drop area. At the same time as reconfiguring the terminal to increase its capacity the opportunity will be taken to focus on delivering an improved passenger experience and service at the Airport, this will include:
- Up to 20 security passenger screening lanes;
 - 15 immigration passenger screening lanes;
 - Up to 8 international and 1 domestic passenger reclaim belts;
 - Increased retail, catering, circulation and seating areas.
- 4. Road Access and Car Parking.** The proposals seek to improve the movement of traffic in the Airport, by
- Dualling the road from the Holiday Inn Roundabout to a newly configured road system in front of the Central Terminal Area
 - A new multi-storey car park is proposed next to the CTA that will enable easy passenger access to the terminal and at the same time minimise the amount of land required for the car park

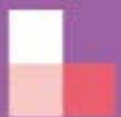
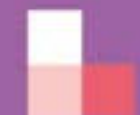
Construction will take place over three phases:



ANNEX F - AIRPORT ANNUAL MONITORING REPORT 2015

Annual Monitoring Report 2015

Employment and the Surface Access sections will be provided as an addendum to the main document.



London
Luton
Airport



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Foreword

2015 was an exciting year for London Luton Airport (LLA). Not only did we see rapid growth in passenger numbers – an increase of 16.9% over the year – but we also broke ground on a £110million project to transform the airport.

While many residents are excited by the jobs and opportunities that the airport’s growth will bring, we understand that others will also have had concerns over whether there will be an increase in aircraft noise.

Reducing the impact of aircraft noise as the airport expands is a major undertaking. What’s more, unlike most airports around the UK, the majority of LLA’s noise policies and interventions have been developed voluntarily rather than through regulation.

The progress made has been the result of extensive collaboration and cooperation between the local community, our commercial partners and the staff at LLA. As a result of this constructive approach, and following extensive planning, 2015 saw the introduction of a range of major new initiatives to tackle the impact of airport operations..

We have not only reduced noise violation limits, but we have also made sure these limits have a real impact by introducing financial penalties for operators who exceed them. Those fines are paid into LLA’s Community Trust Fund, meaning that the money raised directly benefits the local community.

In August 2015 we also introduced new Area Navigation (RNAV) technology to enable aircraft to follow tighter flight paths. This change, which was introduced with the support of over 90% of residents in consultation, has reduced the number of people directly overflown on one of our main departure routes from approximately 13,000 people to 3,000.

Finally, following extensive engagement with our airline partners, we now have 87% of operators employing ‘Continuous Descent Approach’ (CDA) procedures. This keeps arriving aircraft at higher



altitudes for longer, which both reduces noise and cuts carbon emissions.

We’ve made great strides in 2015. However, we also recognise that there is still much more we can do, particularly as we continue to grow.

We are working with the Civil Aviation Authority (CAA) and National Air Traffic Services (NATS) to further increase the proportion of flights using CDA procedures. We hope to introduce RNAV technology on all our flight paths over the next few years. We are working with airlines to further encourage the use of quieter aircraft.

By continuing to work closely with the CAA, NATS and local residents we are confident that we can continue our steady progress in reducing the impact of noise through this year and in the future. We will continue to report on our performance on noise management for local residents and welcome feedback.

Our aim is to ensure not only that local residents enjoy the economic benefits of the airport’s success, but also that we continue to engage with local residents to mitigate and as far as possible reduce our environmental impact.

Neil Thompson
Operations Director
London Luton airport



Key Monitoring Indicators

Parameter		2015	2014
Total Aircraft Movements	↑	116,412	103,939
Day Movements (07:00 - 23:00)	↑	103,220	91,331
Night Movements (23.00 - 07.00)	↑	13,192	12,597
Early Morning Movements (06.00 - 07.00)	↑	4,778	4,617
Total Scheduled Passengers	↑	11,807,292	10,041,214
Total Charter Passengers	↑	471,893	458,925
Total Passengers	↑	12,279,185	10,500,139
Number of Destinations	↑	118	105
Number of New Airlines	↑	4	1
Number of New Routes	↑	20	15
Westerly/Easterly Runway Split (%)	-	72/28	68/32
Night Quota Used (3,500 Limit)	-	2,480	-
Average Ratio of Aircraft movements % (day/night)	-	89/11	88/12
Track Violations	-	62	-
Departure Noise Infringements (Day)	↑	15	1
Departure Noise Infringements (Night)	↑	9	3
Fines transferred into Community Trust Fund	-	£52,000	-
24hr CDA (% achievement)	↓	87%	88%
No. Departures Recorded at ≥ 85 dB(A) during Day (Night)	-	13 (0)	22 (0)
No. Departures Recorded at ≥ 76 dB(A) during Day (Night)	-	7,871 (1,209)	8,240 (1,046)
No. Departures Recorded at ≥ 70 dB(A) during Day (Night)	-	36,879 (4,266)	34,680 (3,919)
Night Noise Contour Area (48 dB L _{Aeq, 8h})	↑	35.3km ²	35.2km ²
Population within Night Noise Contour (48 dB L _{Aeq, 8h})	↓	14,681	16,040
Dwellings within Night Noise Contour (48 dB L _{Aeq, 8h})	↓	5,539	6,583
Noise Complaints	↓	960	1,146
Complainants	↓	355	457
Number of New Complainants	↓	158	173
Largest Source of Complaints	-	Depos. West	Depos. West
Number of PM ₁₀ exceedances	↓	0	6

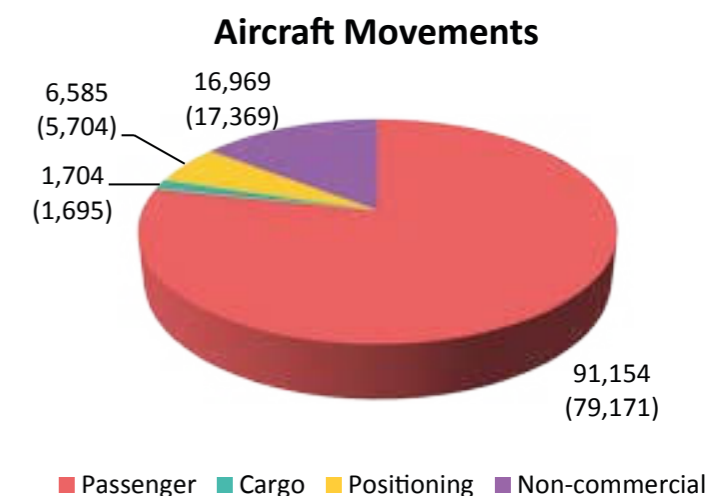
Air Traffic Data

Aircraft movements

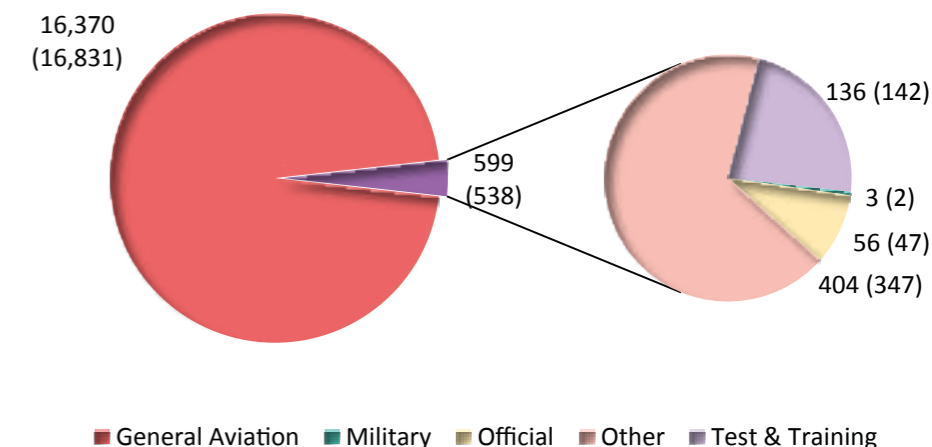
LLA handled a total of 116,412 aircraft movements during 2015, an increase of 12% compared to 2014. An aircraft movement is the take-off or landing of any aircraft from the airport.

The majority of aircraft movements were passenger flights at 91,154 movements this includes commercial flights by executive aircraft (compared with 79,171 in 2014). Other movements included cargo, positioning flights and non-commercial flights.

For comparison purposes 2014 data is shown in brackets.



Non-Commercial Aircraft Movements

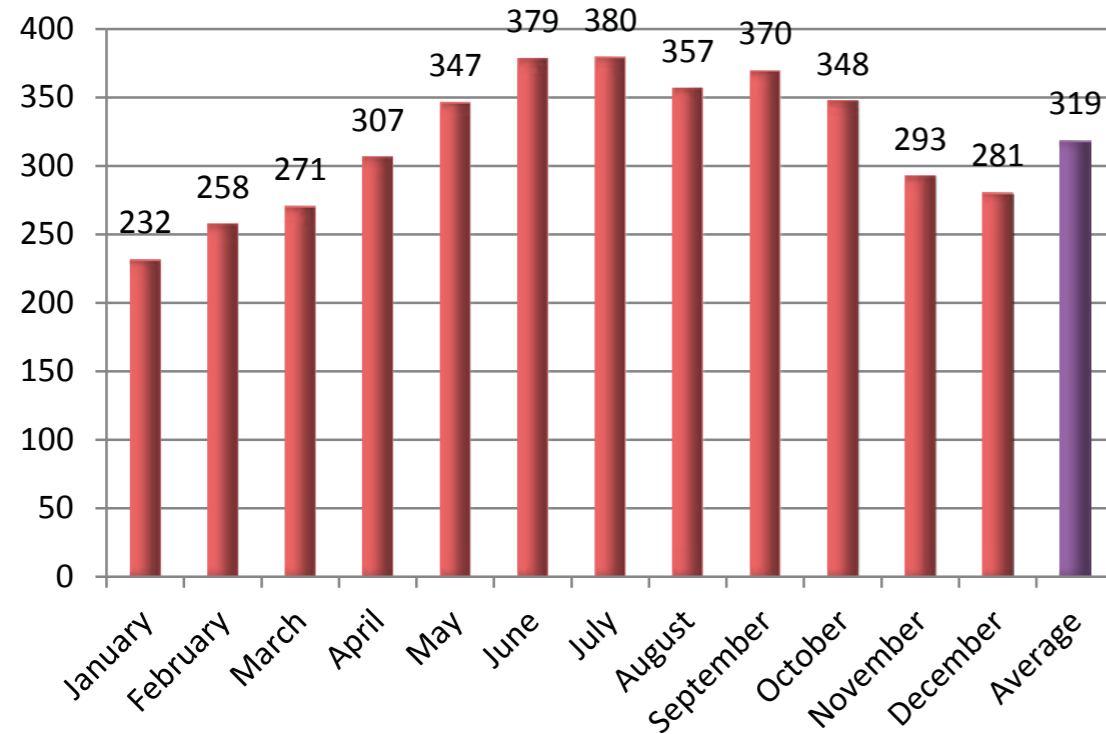


Movement Classification

- Commercial** – operating for hire or reward and includes cargo, passenger and positioning flights
- Non-Commercial** – not operating for hire and reward
- Cargo** – aircraft movements which are solely for freight. It should be noted that freight can also be carried on aircraft in other categories
- General Aviation** – private aircraft, helicopters and business jets not operating for hire or reward
- Passenger** – commercial passenger flights, including executive aircraft
- Positioning** – typically empty flights to/from other airports
- Military** – flights on military business
- Official** – flights solely for official purposes by British or foreign civil government departments
- Other** – flights coming for maintenance and or departing aircraft that have made an unscheduled return to base
- Test & Training** – training flights involving aircraft and also flights following or during aircraft maintenance

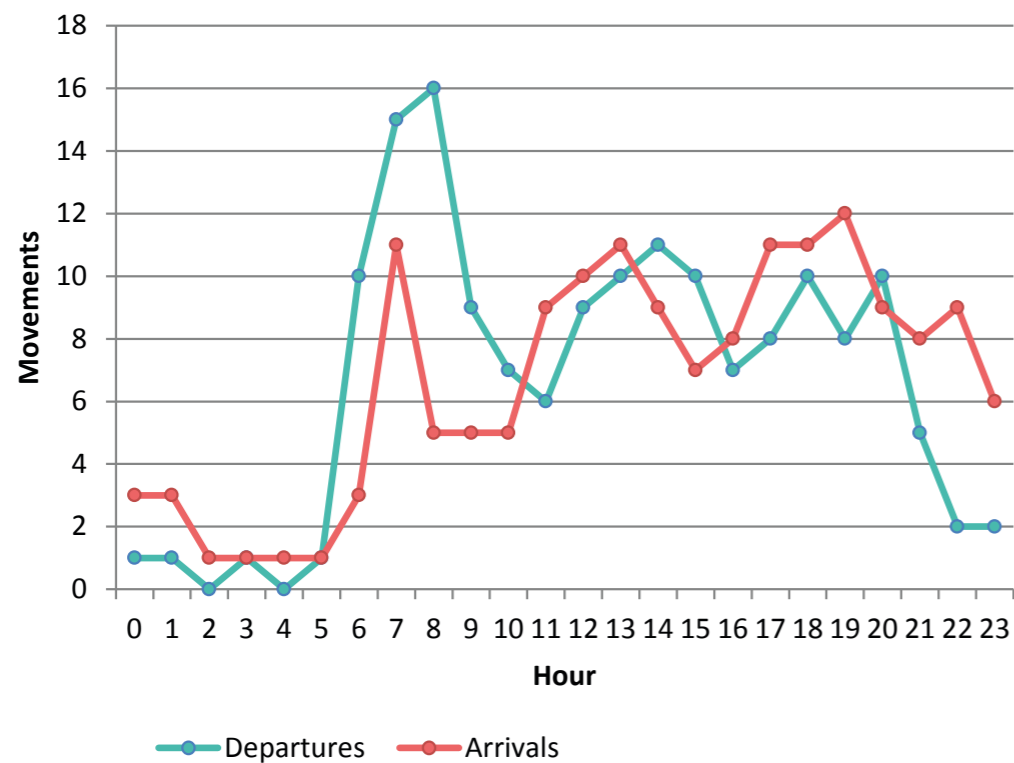
The graph below illustrates that the busiest time of year is May - October, with over 340 flights per day. **Our busiest day of the year was on May 22nd with 425 aircraft movements.** In comparison, winter months are the quietest, with less than 300 flights per day. On average there were 319 movements per 24 hours (in comparison with 285 in 2014).

Annual Average Daily Movements



The busiest time on average during 2015 for departing aircraft was 06:00-08:00 hrs, with another peak between 13:00-15:00. The average busiest time for arrivals was 07:00-08:00 and 12:00-13:00 hrs. The graph also highlights a low level of average movements during the hours of 00:00-05:00 hrs.

Annual Average Hourly Movements



Passenger data

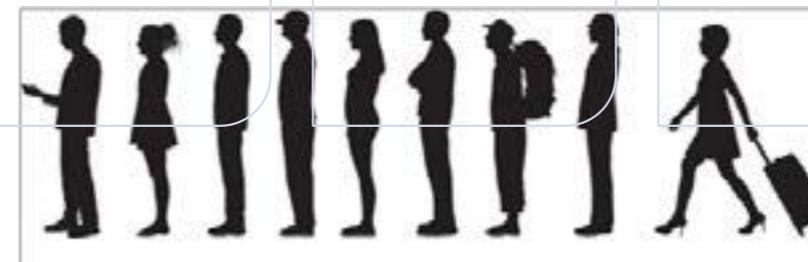
Scheduled	Charter	Totals
<ul style="list-style-type: none"> • 11,807,292 passengers • just under 18% increase compared with 2014 • 147 average passengers per flight 	<ul style="list-style-type: none"> • 471,893 passengers • just under 3% increase compared with 2014 • 178 average passengers per flight 	<ul style="list-style-type: none"> • 12,279,185 passengers • 17% increase compared with 2014 • Total 147 average passengers per flights



Charter flights are flights in which the aircraft has been chartered (or leased) by a company, typically a tour operator or an executive customer. Charter seats are typically not sold directly by the airline. Scheduled flights are regular flights organised by the company which owns the aircraft.

A total of 12,279,185 passengers were handled at LLA during 2015; 11,807,292 on scheduled flights (96%) and 471,893 on charter flights (4%). This represents an increase in passengers of 17% compared with 2014.

Domestic	EU	Non-EU	Totals
<ul style="list-style-type: none"> • 949,336 passengers • just under 1% increase compared with 2014 	<ul style="list-style-type: none"> • 8,148,633 passengers • just under 20% increase compared with 2014 	<ul style="list-style-type: none"> • 3,181,216 passengers • just under 16% increase compared with 2014 	<ul style="list-style-type: none"> • 12,279,185 passengers • 17% increase compared with 2014



Movements by aircraft type

	Aircraft Type	Movements	% of Total movements
Passenger Aircraft (84,421 movements)	Airbus A320 & A320 sharklets ¹ (easyJet, Wizz Air, Monarch)	39,393	33.8%
	Airbus A319 (easyJet)	26,420	22.7%
	Boeing B737-800 winglets ¹ (Ryanair, Monarch, Thomson, EI Al)	12,046	10.3%
	Airbus A321 & A321 sharklets ¹ (Monarch)	2,667	2.3%
	Boeing B737-400 (Blue Air)	924	0.8%
	Boeing B757 & B767 family (Monarch, Thomson, EI Al)	1,325	1.1%
	MCD Douglas MD-82/83/87 (Blue Air)	20	0%
	Other Passenger Aircraft	1,626	1.4%
Cargo (2,112 movements)	Airbus A300-600 (A306) (DHL, MNG Cargo)	1,276	1.1%
	BAe ATP (DHL, Atlantic Airlines)	403	0.3%
	Boeing B737-300 & B737-400 (DHL)	190	0.2%
	Boeing B757-200 (DHL)	225	0.2%
	Other Cargo Aircraft	18	0%
General Aviation (29,420 movements)	Gulfstream 5 and 500 series GLF5	2,592	2.2%
	Canadair Global Express GLEX	3,096	2.7%
	Cessna Citation Excel C56X	2,522	2.2%
	Canadair Challenger CL60	1,851	1.6%
	Gulfstream 4, 300 & 400 series GLF4	2,043	1.8%
	Embraer Legacy 600 E135	1,360	1.2%
	Canadair Challenger CL30	1,409	1.2%
	Cessna Citation Jet C525	1,233	1.1%
	Dassault Falcon FA7X	931	0.8%
	Other Private Aircraft	12,383	10.6%
	Helicopter	468	0.4%
TOTAL	116,421	100%	

The aim of this section is to provide the number of movements for a specific aircraft type. The groups are conditional, assuming that these are the typical aircraft types used for passengers, cargo and general aviation movements. As a result the number quoted here within this section will differ from those within the Aircraft Movements Section.

¹ - Winglets and sharklets are small aerodynamic surfaces mounted almost vertically at the wingtips. There is no difference between winglets and sharklets; the term sharklet is just the name used by Airbus for the winglets fitted to their aircraft.

Destinations

London Luton had the busiest year in the airport's 77 year history, making it the fastest growing major London airport in percentage terms in 2015. This significant growth comprised of increased capacity and new routes with established airlines and the arrival of four new airlines SunExpress, Iberia (Air Nostrum), La Compagnie and VLM.

The following diagram shows the destinations flown/on sale to and from London Luton in 2015. Our airlines fly to 118 destinations across 36 different countries. In total 20 new routes were launched from LLA in 2015.



New Routes 2015

Destination	Launch	Airline
Innsbruck, Austria	20-Dec-15	easyJet
Tel Aviv, Israel	3-Dec-15	Monarch
Ovda, Israel	3-Dec-15	Monarch
Chisinau, Moldova	27-Oct-15	Wizz Air
Iasi, Romania	25-Oct-15	Blue Air
Vienna, Austria	23-Oct-15	easyJet
Iasi, Romania	16-Sep-15	Wizz Air
Izmir, Turkey	11-Jul-15	SunExpress
Constanta, Romania	16-Jun-15	Wizz Air
Ohrid, Macedonia	15-Jun-15	Wizz Air

Destination	Launch	Airline
Bodrum, Turkey	17-May-15	easyJet
Split, Croatia	16-May-15	easyJet
Naples, Italy	1-May-15	Thomson
Essasouira, Morocco	1-May-15	easyJet
Waterford, Ireland	27-Apr-15	VLM Airlines
Porto, Portugal	26-Apr-15	easyJet
Antalya, Turkey	25-Apr-15	easyJet
Vigo, Spain	30-Mar-15	Air Nostrum
New York, USA	29-Mar-15	La Compagnie
Copenhagen, Denmark	26-Mar-15	Ryanair

Routes Ending 2015

Destination	Launch	Airline
Munich, Germany	1-Nov-15	Monarch

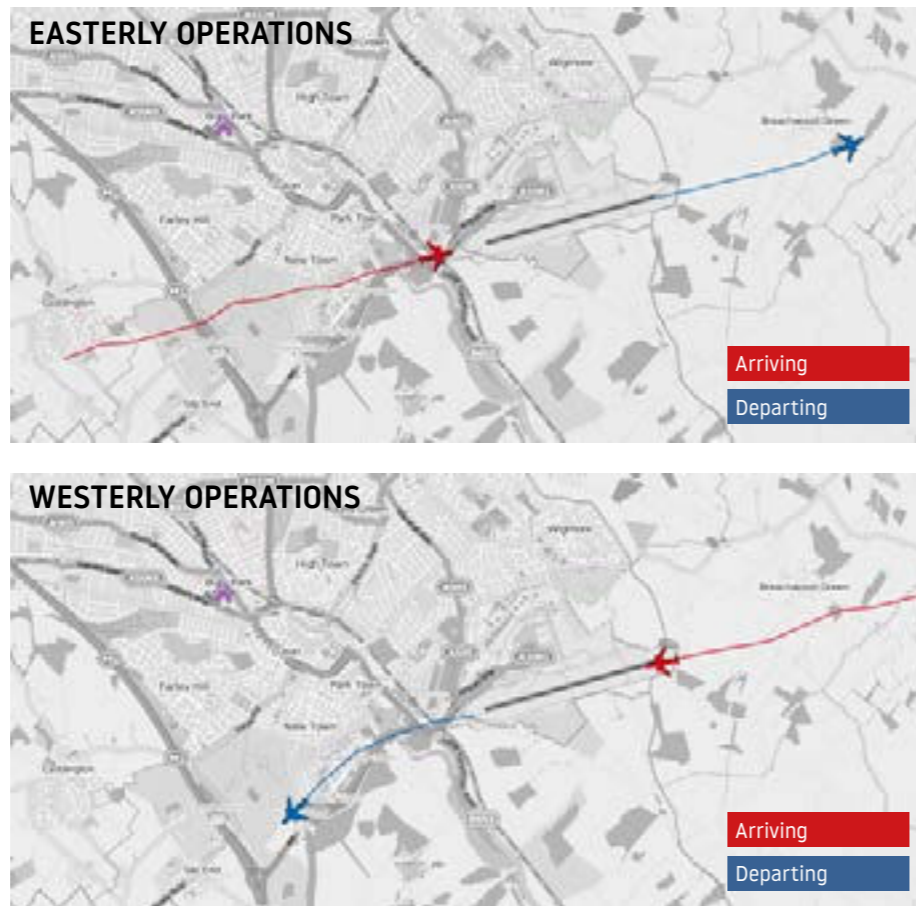
More information about our destinations can be found on the airport's website:
<http://www.london-luton.co.uk/inside-lla/destination-map>

Runway usage

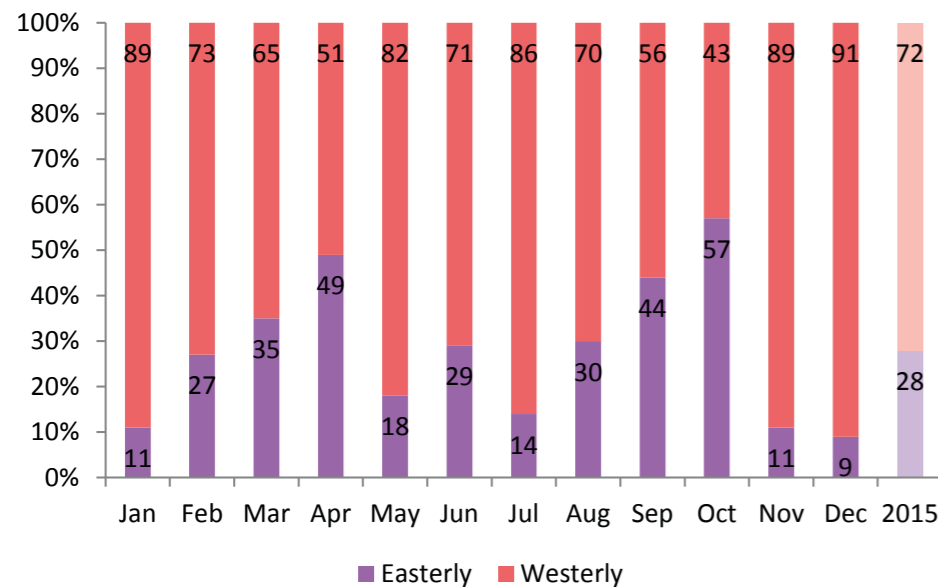
Aircraft need to land and take off into the wind and therefore the prevailing wind direction determines the direction of airfield operation. South westerly and westerly winds prevail for much of the year, typically around 70 per cent of the time.

Wind speeds and directions recorded at higher altitudes can vary considerably from those recorded at ground level. The position of the wind is under constant review by NATS which is why the operation can change direction more than once in a day. However it is also not unusual for the runway to operate in the same direction for several weeks.

A monthly breakdown is shown, highlighting higher than average levels of easterly operations over the spring and autumn periods 2015, in contrast to prolonged and sustained spells of westerly operations over the winter and summer months of 2015.



Runway Usage



Year	Easterly	Westerly
2015	28%	72%
2014	32%	68%
2013	36%	64%
2012	27%	73%
2011	28%	72%
Average	30%	70%

The runway split during 2015 was 28% easterly and 72% westerly (compared to 32% / 68% in 2014). A breakdown of runway usage over the last five years is also shown in the table, giving a historical split of 30% easterly and 70% westerly.

Night Flights

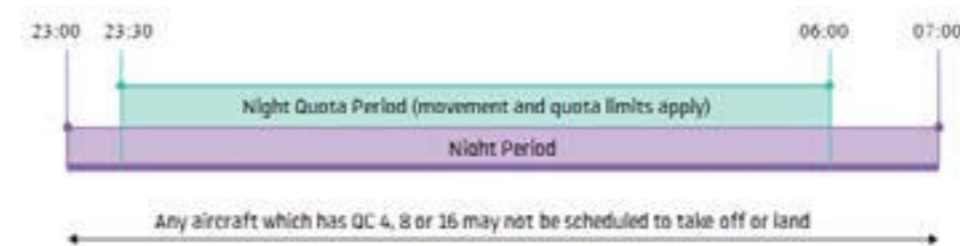


Night Flying Restrictions

As from 1st April 2015 London Luton airport introduced new night restrictions as part of the planning conditions.

These restrictions have been put in place to limit and mitigate noise disturbance from aircraft operating at night, to prohibit aircraft of certain types from operating, as well as limiting the number of occasions on which aircraft may take off or land.

The night flying restrictions contain a 12 month period aircraft movement limit and a 12 month period quota count limit. The quota count (QC) means that points are allocated to different aircraft types according to how noisy they are. The noisier the aircraft type, the higher the points allocated. This provides an incentive for airlines to use quieter aircraft types.



The table overleaf records the QC bands identified by the certified noise levels, and gives some typical example aircraft, some of which operate from LLA.

The 'Night Quota Period'

The 'Night Quota Period' is from 23:30 to 06:00 hours local, during which period aircraft movements (take-off or landing) are restricted by a limit on the number of movements with noise quotas as an additional measure.

Aircraft are certified by the International Civil Aviation Organisation (ICAO) according to the noise they produce during specific certification tests conducted by the manufacturer. They are classified separately for both take off and landing. The points are then allocated to different aircraft types according to how noisy they are.

The 'Early Morning Shoulder Period'

The 'Early Morning Shoulder Period' is 06:00 to 07:00 hours local. During this period aircraft movements (take-off or landing) are restricted by a limit on the number of movements (the same as the Night Quota Period).

Aircraft movement and quota count limits (per 12 month period)

Condition 11(f) requires that for the Night Quota Period (2330 - 0600) the following limits shall not be exceeded:

- 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 7,000.

Certificated noise level (EPNdB)	Typical aircraft	Quota Count
Greater than 101.9	Some B741/B742, AN124/AN225	QC 16
99 to 101.9	Some B744, MD8	QC 08
96 to 98.9	B732, MD10	QC 04
93 to 95.9	B772, A306, A333	QC 02
90 to 92.9	A320/A321, some B738, B752, B788	QC 01
87 to 89.9	A319/A320, some B734, B738, B788	QC 0.5
84 to 86.9	A319/A320, GLEX, FA7X/F900/F2TH	QC 0.25
Less than 84	Challenger series (eg CL60), ATP, C525/C550	QC 0

Condition 11(h) requires that for the Early Morning Shoulder Period (0600 - 0700) the total annual movements by aircraft in any 12 month period shall be limited to 7,000.

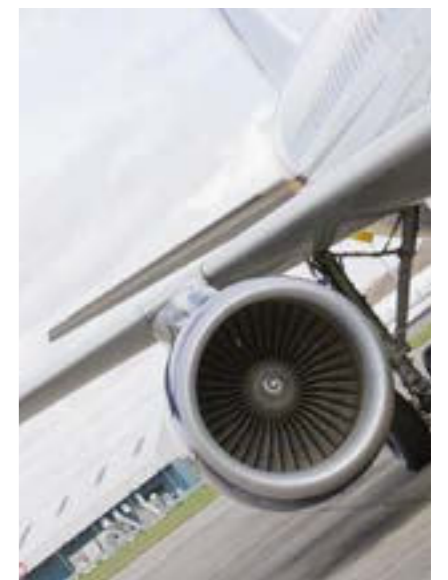
The table below provides total aircraft annual movements and noise quota per 12 month period and compares those against the limits set by planning conditions.

	Night Quota Period (2330 - 0600)		Early Morning Shoulder (0600 - 0700)
	Movements Limited to 9,650	Quota Count Limited to 3,500	Movements Limited to 7,000
Jan 2015	348	128.25	232
Feb 2015	305	109.25	226
Mar 2015	357	128.00	293
Apr 2015	575	204.25	447
May 2015	723	245.00	487
Jun 2015	811	270.25	511
Jul 2015	786	289.25	521
Aug 2015	700	259.00	544
Sep 2015	772	280.50	523
Oct 2015	658	239.00	469
Nov 2015	413	162.75	269
Dec 2015	396	164.50	256
Total for preceding 12 months	6,844	2,480.00	4,778

There were no night time aircraft movements with a QC value of greater than 2 in 2015. Of the 133 QC 2 aircraft movements in 2015, 111 were departures by Airbus A300-600 aircraft.

Marginally Compliant Chapter 3 aircraft

Taking the year as a whole, of the 115,279 movements where Chapter 3 categorisation is applicable, only 42 are known to be marginally compliant. These movements were all by a single aircraft, a Boeing 737-200. A further 40 aircraft movements were by aircraft with unknown classification. These comprised 7 different aircraft; an Antonov 12, an Antonov 72, two Boeing 767-200s, two Boeing 767-300s, and a Dassault Falcon 20.



Day/Night ratio of movements

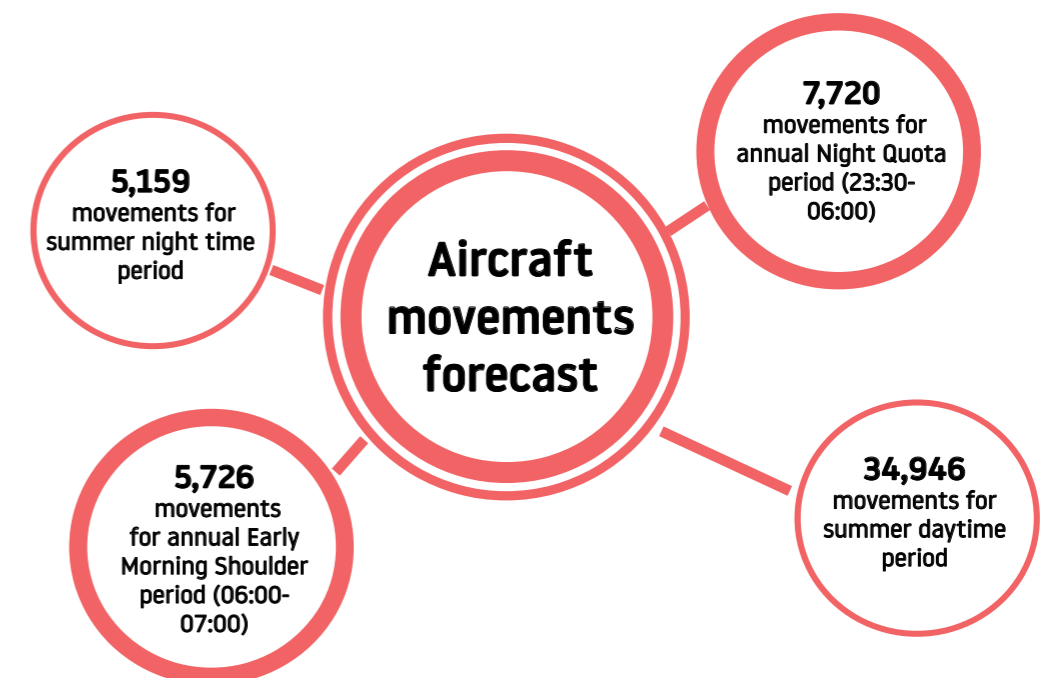
There were 13,192 night movements during 2015 (compared to 12,598¹ for 2014, an increase of 5%), an average 36 movements per night (compared to 35 last year). Arriving aircraft accounted for 56%

of total night movements, relating primarily to the last rotation of Luton based passenger aircraft scheduled to land back at the airport at night, between 23:00 hrs and midnight. 61% of total night

departures took off between 0600 - 0700 in the morning. The average ratio of total aircraft movements during 2015 was 89% day / 11% night (in line with 88% day / 12% night in 2014).

2015	Day Movements (0700 - 2300)	Night Movements (2300 - 0700)		
	Day Movements	Night Quota Period (2330 - 0600)	Early Morning Shoulder (0600 - 0700)	Total Night Movements (2300 - 0700)
Departures	52,455	1,932	3,526	5,751
Arrivals	50,765	4,912	1,252	7,441
TOTAL	103,220	6,844	4,778	13,192

The figure below shows forecast aircraft movements for 2016, separated into the daytime and night time periods.



¹ - The figures quoted for 2014 cover the revised night period that has been extended by one hour, between 2300hrs and 0700hrs, as opposed to a shorter night period that was previously used.

Departing Aircraft

All propeller-driven aircraft with Maximum Take Off Mass (MTOM) over 5,700kg and all jet aircraft leaving London Luton airport are required to follow specific departure routes known as Noise Preferential Routes (NPRs). These are established by consultation with the Safety and Airspace Regulatory Group (SARG) at the CAA and the London Luton airport Consultative Committee; they are designed to avoid flying over built-up areas wherever possible.

There are three Standard Instrument Departure (SID) routes for each runway – OLNEY, COMPTON and DETLING/MATCH. On the 20th August 2015 LLA introduced Area Navigation (RNAV1) procedures for aircraft departing the airport along the westerly Match/Detling SIDs.

Associated with each NPR is a swathe of airspace extending 1.5km (1km for RNAV) each side of the NPR centre line, within which aircraft concentrate and are considered to be flying on track. Aircraft must follow the NPR controls applicable to the runway in use at that time.

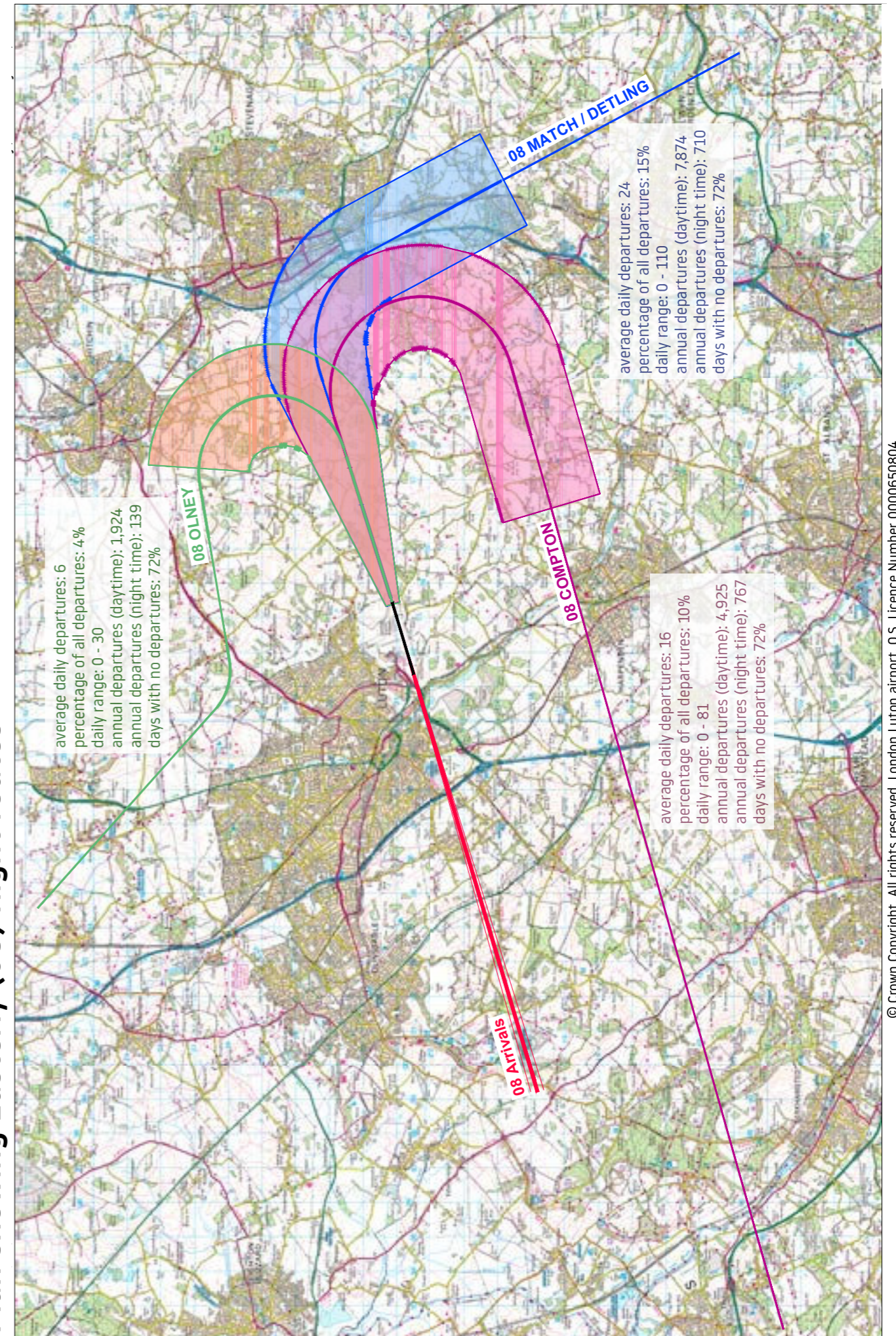
In the UK, the obligations of Noise Preferential Routings for aircraft following conventional SIDs cease when a height of 3,000ft (between 07:00hrs to 23:00hrs local time) and 4,000ft (during night time, 23:00hrs to 07:00hrs local time) has been reached. The obligations of the RNAV1 NPR ceases when a height of 4,000ft has been reached at all times.

Once aircraft have reached the NPR restricted altitude they will be considered no longer on the Noise Preferential Route. At that stage the aircraft may be directed by Air Traffic Controllers onto a different heading in order to integrate with the overall flow of traffic, this is known as vectoring. However on RNAV1 Match/Detling SID should not be vectored before the Railway line between St Albans and Harpenden, unless this is required for safe separation from other aircraft or for other safety issues (such as avoiding adverse weather).

Two maps overleaf show indicative flight routes for westerly and easterly operations at London Luton airport with detailed information about each departure route.

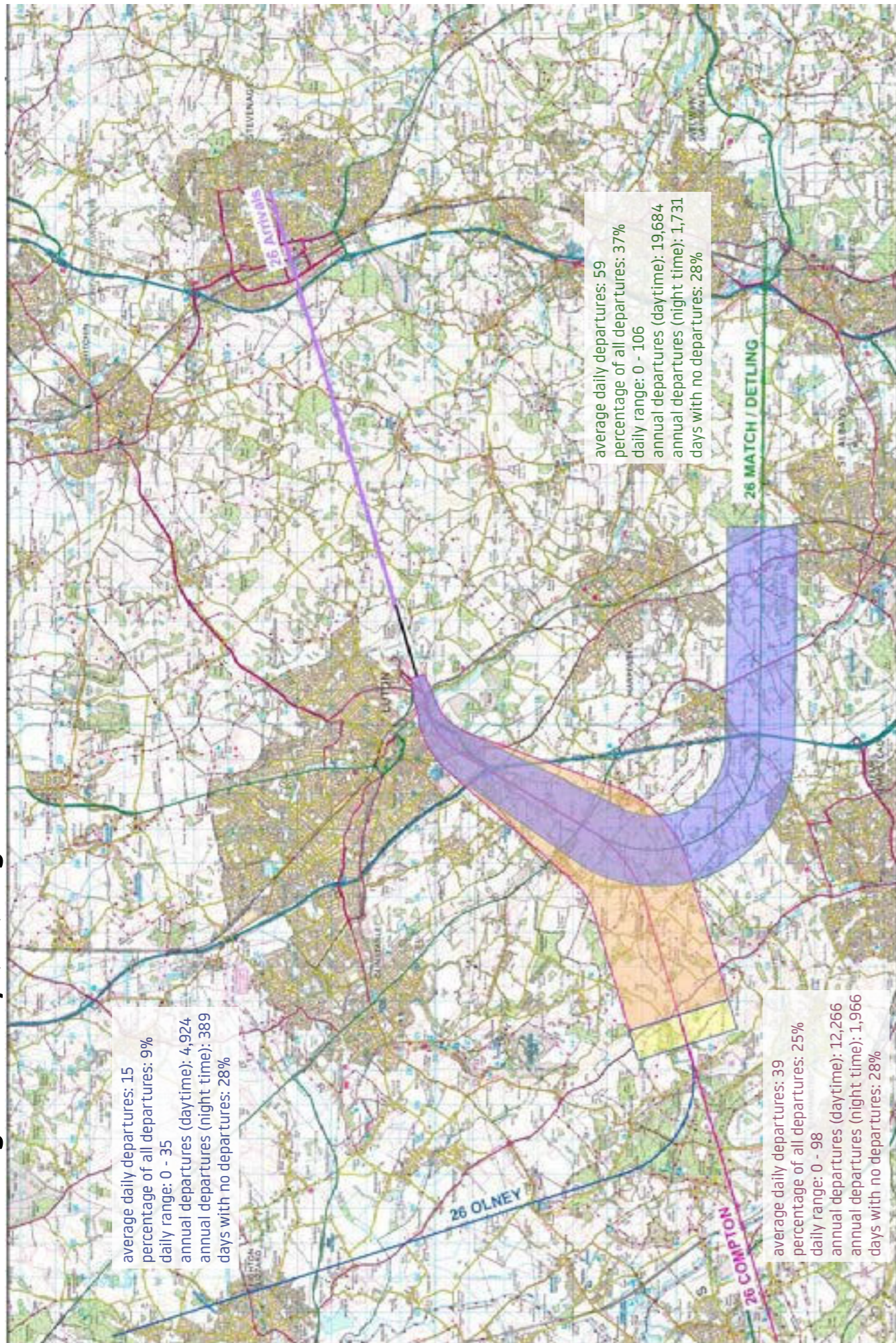


Plan showing Easterly (08) flight routes



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Plan showing Westerly (26) flight routes



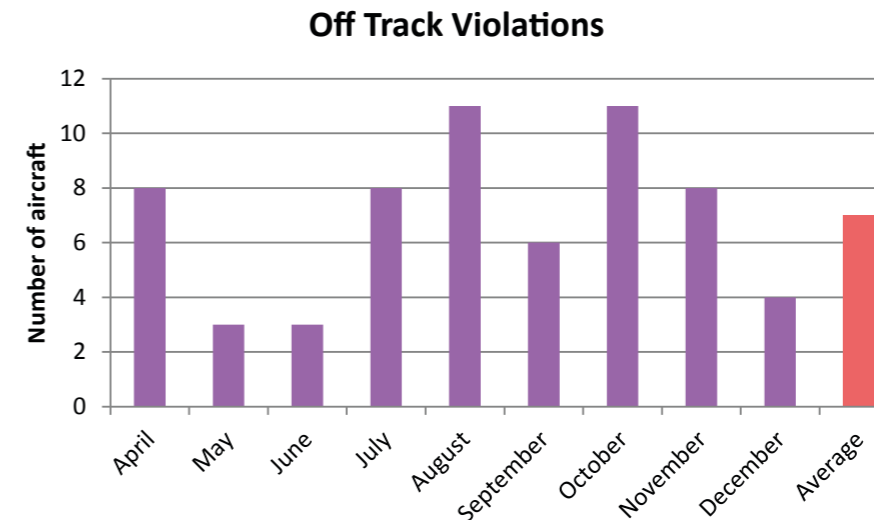
On Track performance

On the 1st April 2015 London Luton airport implemented a Track Violation Penalty System as part of the noise related planning conditions. Using the Aircraft Noise and Track Monitoring System the airport's specialist flight operations team evaluates the radar tracks and investigate them with required input from ATC and airlines. A departure is deemed to have complied with the Noise Preferential Routing if the portion of flight below the appropriate vectoring altitude is flown wholly within the Lateral Swathe (LS). Where the aircraft is clearly flying outside the LS, the aircraft is identified as causing a "possible" track violation and is subject to a nominal fine.

As always, safety prevails and there may be cases which involve vectoring an aircraft sooner than at the NPR height restriction. If ATC identifies any valid justification that could explain the deviation from the track, then the operator causing it will be exempt from the fine. Valid justifications include:

- Safety or operational reasons, i.e ATC vectoring
- Weather avoidance due to thunderstorm activity (as instructed by ATC)
- Emergencies

The diagram below shows off-track violations over the previous 9 month period. The on track performance for this period was 99.51%



The breakdown of the violations by aircraft type is shown in the tables below

A/C Type	No Violations	A/C Type	No Violations
ATP	7	C525	1
CL60	6	C25A	1
GLF5	5	GLF6	1
GLEX	5	B462	1
H25B	4	FA50	1
C550	3	B737	1
CL30	3	BBJ3	1
GLF4	3	EA50	1
F900	2	A319	1
C680	2	B732	1
C25B	2	C510	1
GL5T	2	A320	1
C56X	2	TOTAL	62
LJ60	2		
FA50	2		



£52,000, the total of all collected fines transferred to Community Trust Fund

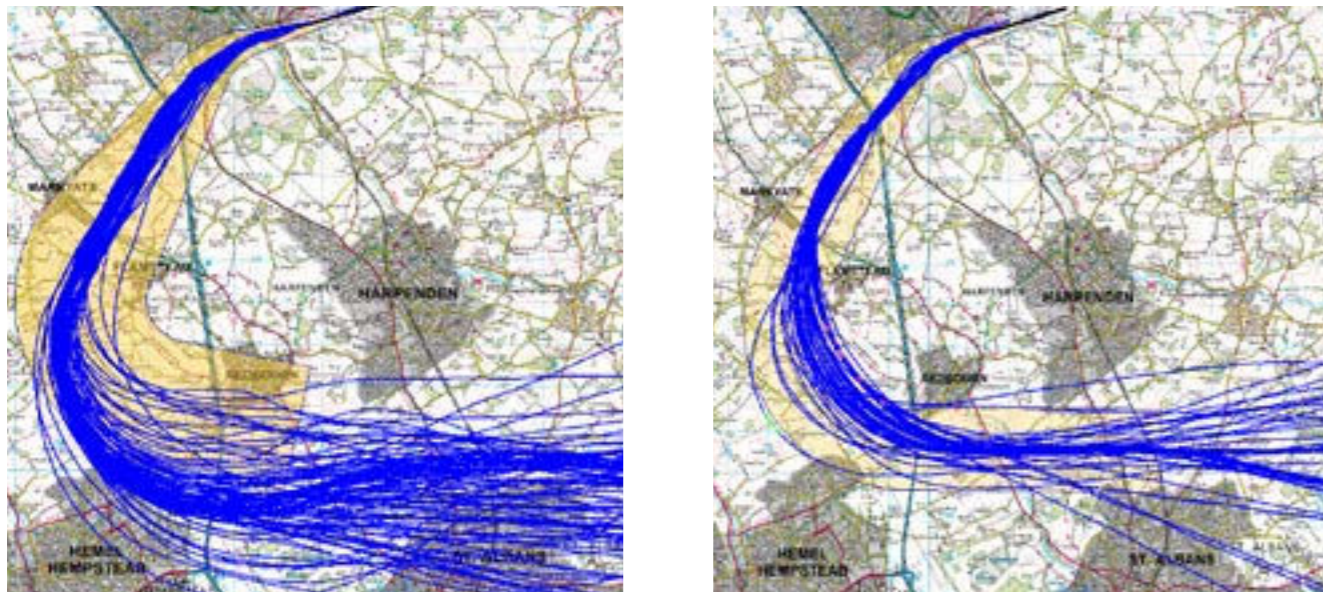
Area Navigation (RNAV) procedures

Following on from a successful consultation, in which over 90% of feedback received from over 1400 responses was in favour of the new route, RNAV1 flight procedures were introduced on our westerly Match/Detling departure route on the 20th August 2015. This was designed to keep aircraft much closer to the centreline of the route using modern GPS procedures as opposed to older ground based radio beacons. This also allowed a reduction in the width of the corridor from 3km to 2km and means the number of people directly overflown has been reduced from approximately 13,000 to 3,000 people.

After implementation the Flight Operations Department at London Luton airport closely monitored the route. For the majority of flights we saw RNAV working as predicted which had positive effects for our local communities. However, some aircraft were still vectored by Air Traffic Control earlier than expected which resulted in some overflights for the north of St Albans. The Flight Operations team have been in close contact with Air Traffic Control in Swanwick regarding this issue, sending daily tracks of where aircraft had been vectored. This has resulted in some improvement. Work will be on-going to improve this although there are occasions when vectoring is required, for safety reasons or to avoid bad weather.

In November 2015, the Flight Operations team noticed that aircraft had been following a tighter curve of the RNAV route and were therefore closer to Flamstead. Through investigation and communication with pilots it was discovered that this is due to strong south-westerly winds during that time. Winds were sometimes between 45-50knots at aerodrome level and therefore at 3000-4000ft these winds are even stronger. Unfortunately this is not something which can be avoided with the RNAV procedures or conventional procedures.

The final step of the Airspace Change Process is the publication of a Post-Implementation Review, this will be published by the CAA a year after implementation.



Aircraft using conventional procedures and aircraft using RNAV procedures (above)

Required Navigation Performance (RNP) procedures

LLA is currently in the process of improving track adherence further on the westerly Match/Detling routes by introducing the latest flight procedural technology (known as RNP). The Flight Operations Department started the Airspace Change Process in 2015 and have begun the design process. The team is hoping to conduct live flight trials in late 2016, with a consultation during 2017.

Following this work, the next steps are to adopt new procedures on the remainder of our departure routes and also our arrival routes.

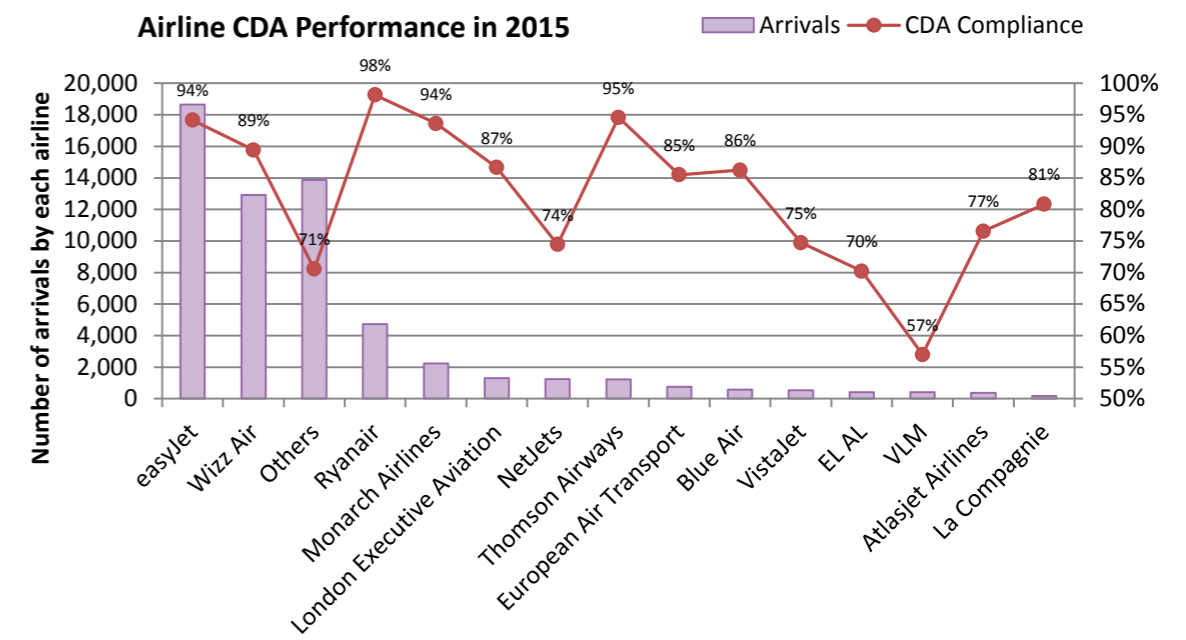
Arriving Aircraft

Although there are no set routes for arriving aircraft there are long established procedures to mitigate the disturbance that can be caused on approach to the airfield. One of the most successful measures is a noise mitigation procedure called Continuous Descent Approach (CDA).



The conventional approach involves descending in steps using engine thrust to level off. In a Continuous Descent Approach, or CDA, an aircraft stays higher for longer and reduces periods of prolonged level flight at lower altitudes. When it's near the airport the pilot, with low power engines, continuously descends straight to the runway where they complete the landing in the traditional manner. With CDA planes burn less fuel and therefore produce less emissions, but most importantly it reduces the noise by avoiding the engine thrust required for level flight.

The overall CDA achievement was 87% with several major LLA operators achieving higher performance – easyJet, Ryanair, Monarch and Thomson Airways. The chart compares the level of CDA performance by our main airline operators.



¹ - An Instrument Landing System (ILS) is a ground-based instrument approach system that provides precision lateral and vertical guidance to an aircraft approaching and landing on a runway, using a combination of radio signals and, in many cases, high-intensity lighting arrays to enable a safe landing during instrument meteorological conditions (IMC).

Departure and arrival flight tracks

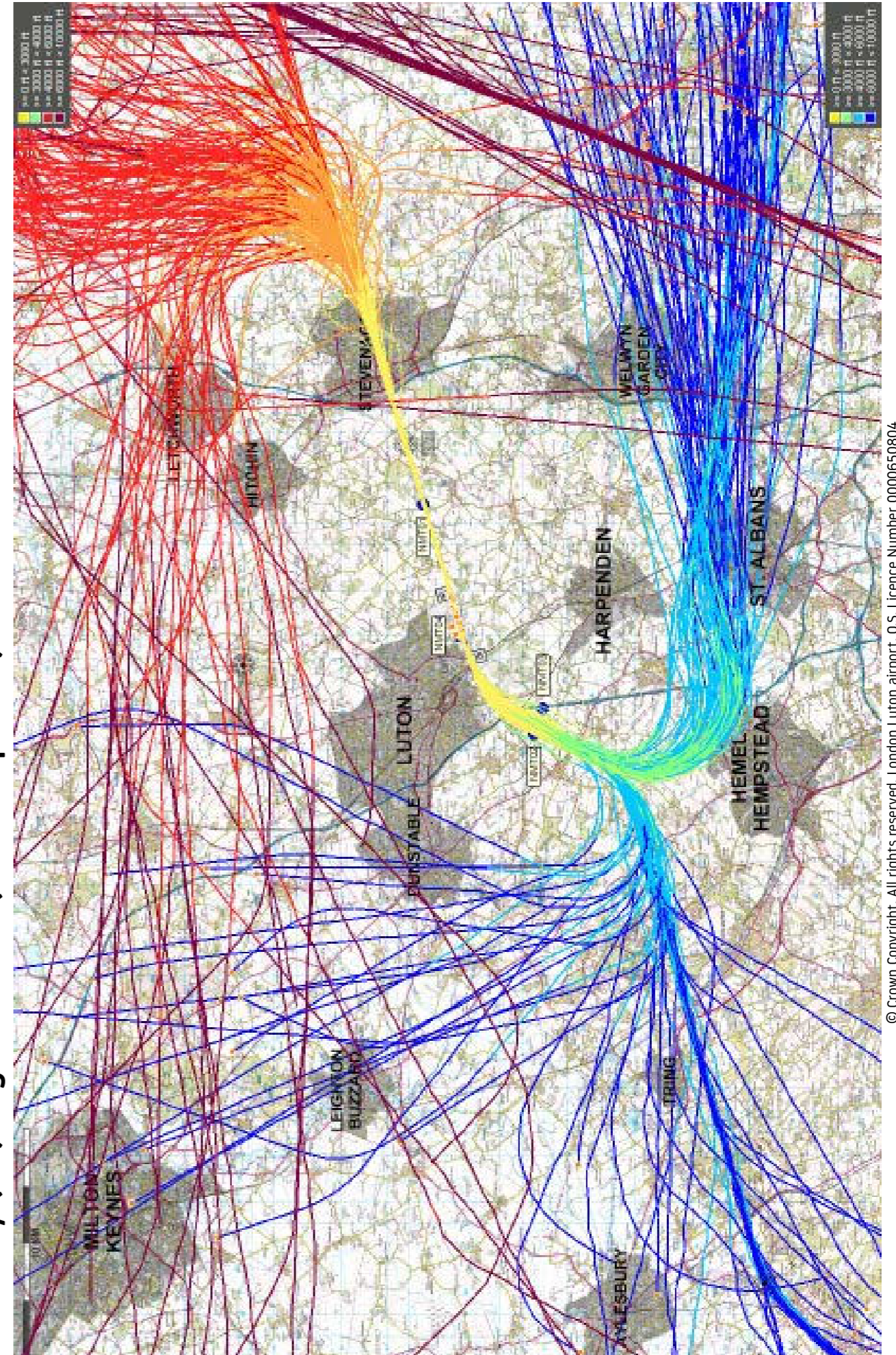
Maps overlaid display typical 24 hour periods of both westerly and easterly operations, with arriving traffic in red and with departing aircraft tracks in blue. The colour coding from yellow to brown and from yellow to dark blue represents different altitude bands up to 10,000ft above mean sea level.

The last two maps display aircraft track density plots for the summer period 16th June - 15th September 2015. A track density plot is a map which displays the pattern of aircraft flight track passing over the region around the airport during a specific period. The system analyses the number of flights passing over each grid element of an array. The colour coding from purple to red represents the range 1 to over 147 flight tracks over a grid element. If any grid element is not colour-coded, the number of aircraft flight tracks passing over that element was less than 1 flight. The red areas represent locations where operations are more densely concentrated.

It should be noted that London Luton airport's aircraft movements integrate with traffic travelling to and from other airports in the region, as the south east area in the UK is one of the world's busiest sectors of airspace. However the following sample flight tracks only include operations for London Luton airport and overflights from other airports have been omitted for clarity.

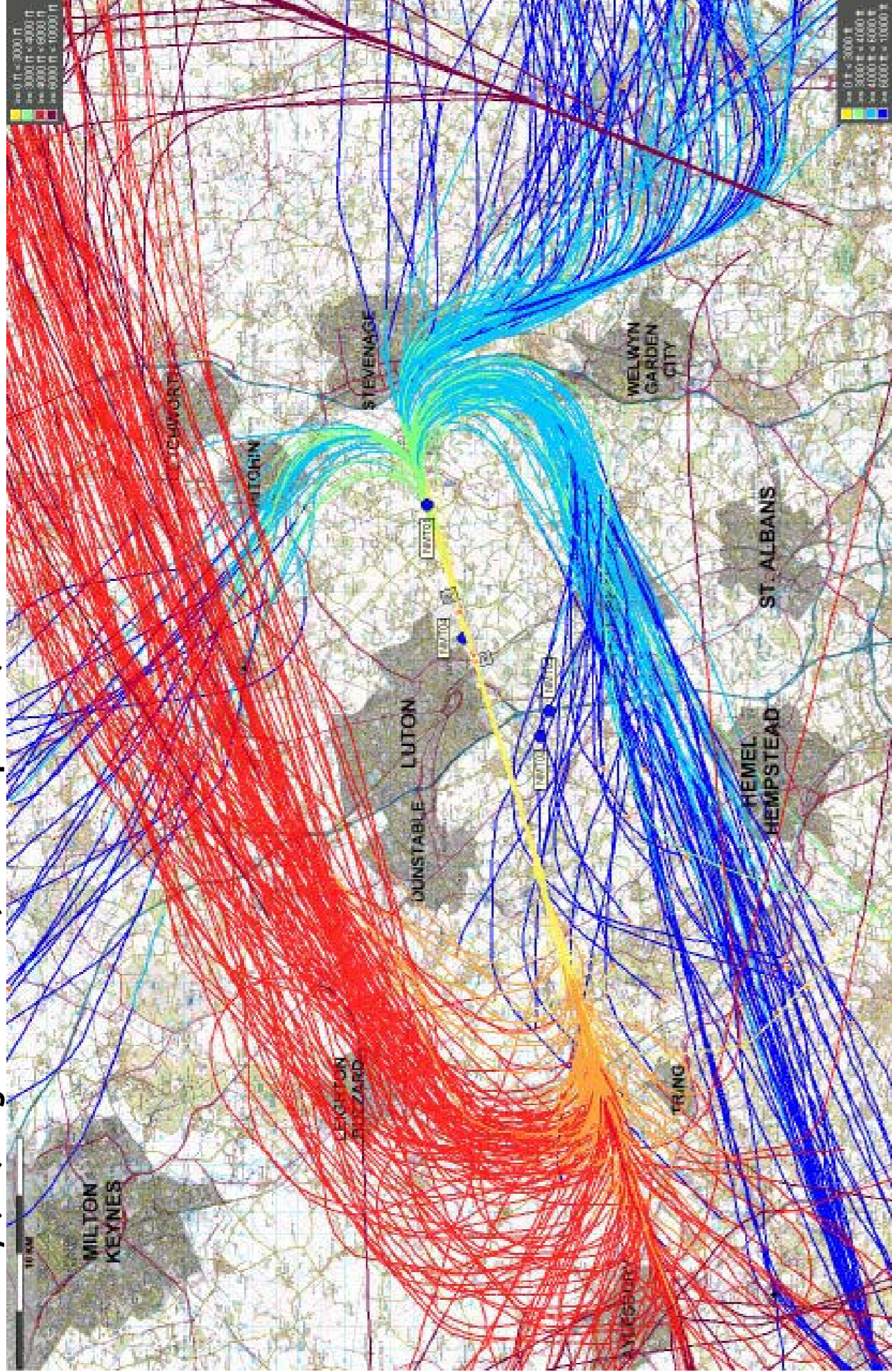


Westerly (26) Flight Routes (24 hour period)



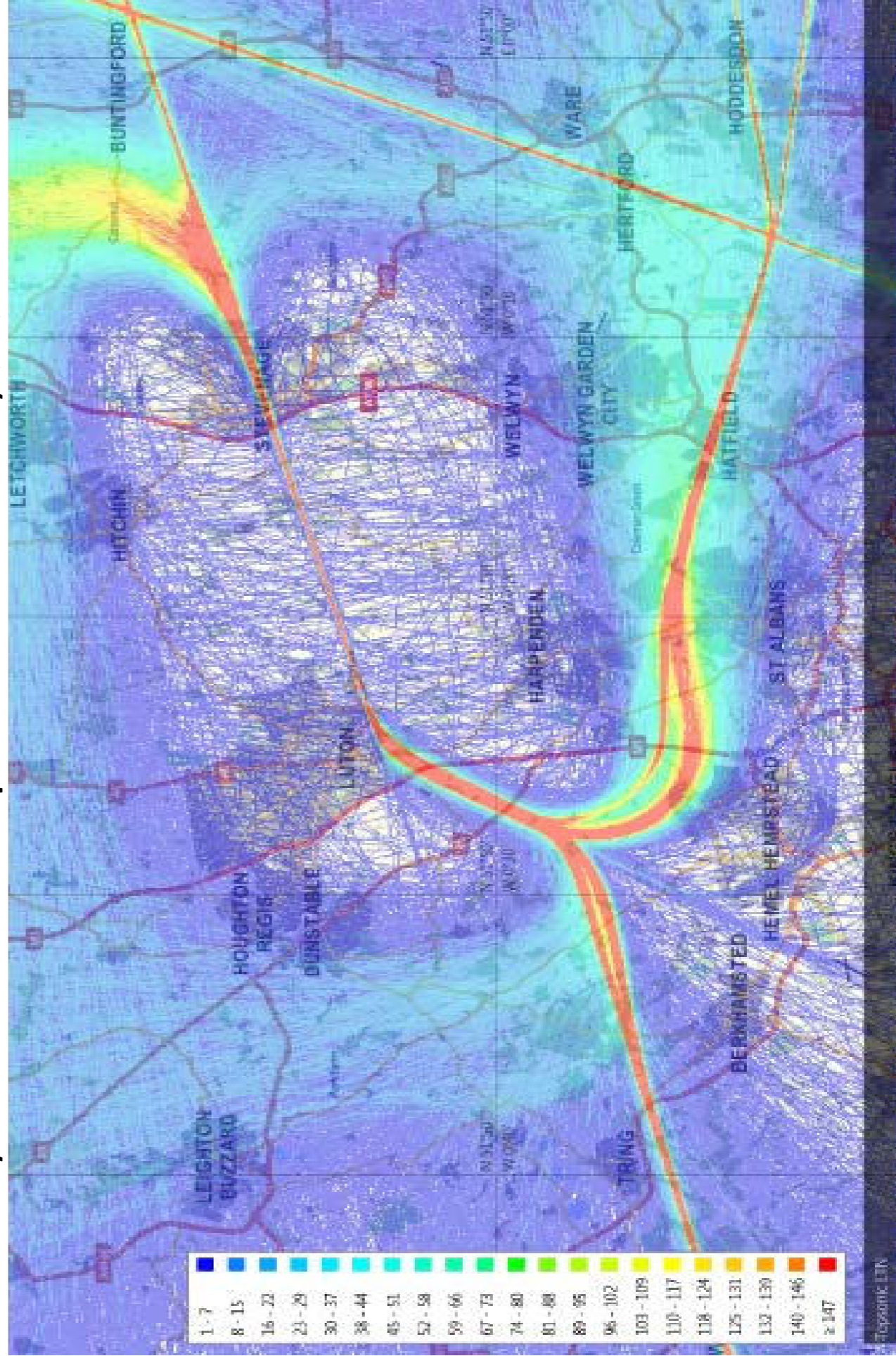
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Easterly (08) Flight Routes (24 hour period)

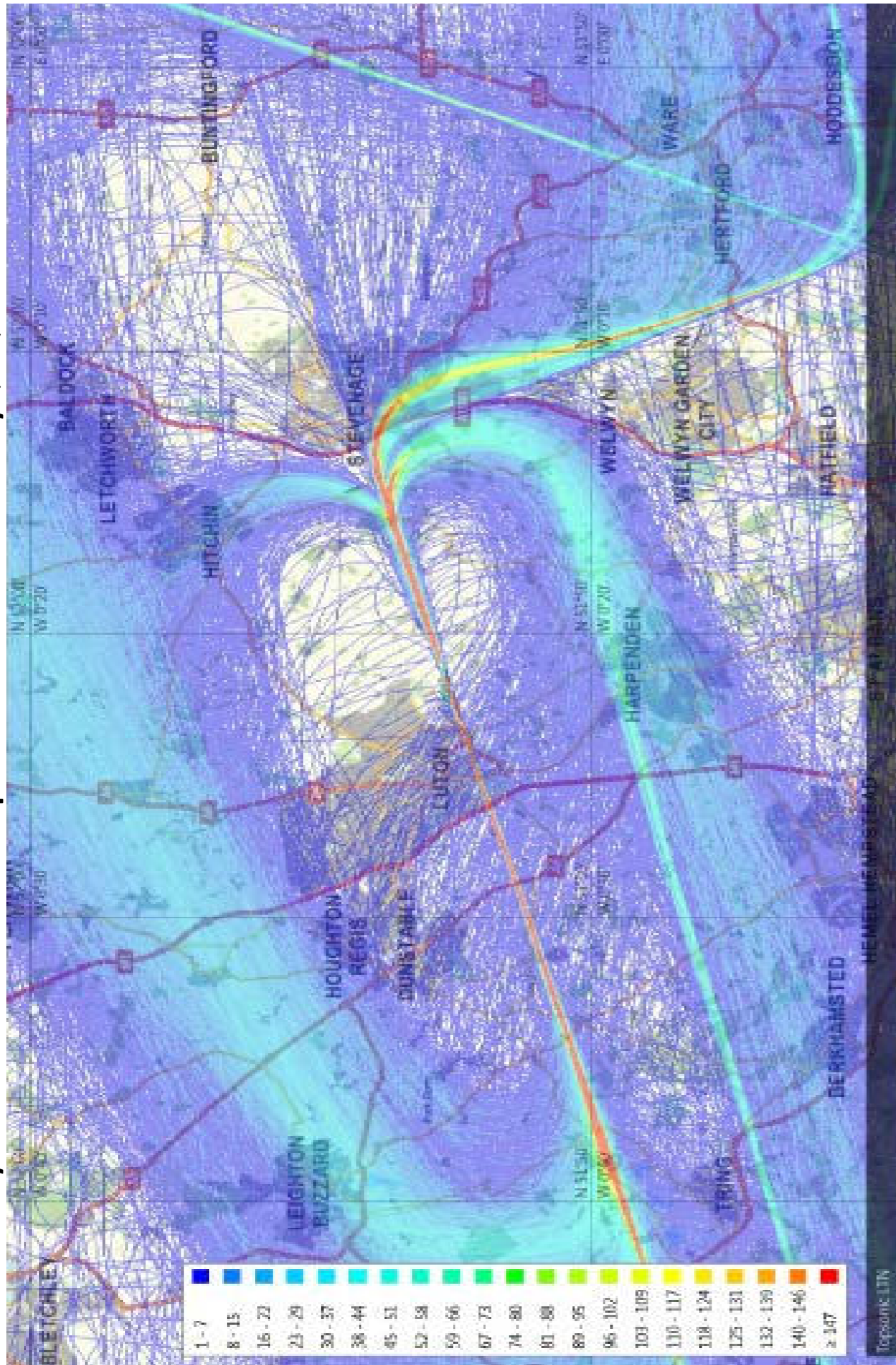


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Plot Density - 16th June - 15th September 2015 - Westerly (26)



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Aircraft 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. Most airport related noise is created by aircraft approaching, taking-off and taxiing to and from the runway. The management and control of noise continues to be a major element of the airport's policy to constantly seek to minimise and mitigate our environmental impact.

How is noise monitored?

People who live close to airports or under flight paths can often feel strongly about the disturbance to their lives from noise. Effects of noise include general distraction, speech interference and sleep disturbance which can lead to annoyance and complaints.

At LLA 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 6.5km from the aircraft start of roll, at either end of the runway within the neighbouring communities. This method records the maximum noise level at a point, rather than the way it is spread over the surrounding area.

New features and system enhancements continue to improve the functionality and capabilities available to the Flight Operations Department.

TraVis, an online flight-tracking tool enables the general public to see for themselves the actual flow tracks of LLA aircraft departures and arrivals. This can be viewed online at the following link on the airport website.

<http://travisltn.topsonic.aero/>



Noise violation levels



During the 1st Quarter 2015 the day and night Noise Violation Limits (NVLs) were still 94 dB(A) and 82 dB(A) respectively. However, as from 1st April 2015 a progressive reduction in the daytime (0700-2300) NVL was implemented, as well as a voluntary reduction in the night-time (2300-0700) NVL. These were set to 82 dB(A) and 80 dB(A) respectively. The limits encourage airlines to operate modern and quieter aircraft types.

The following table identifies daytime and night-time noise levels correlated to departing aircraft at the fixed noise monitoring terminals.

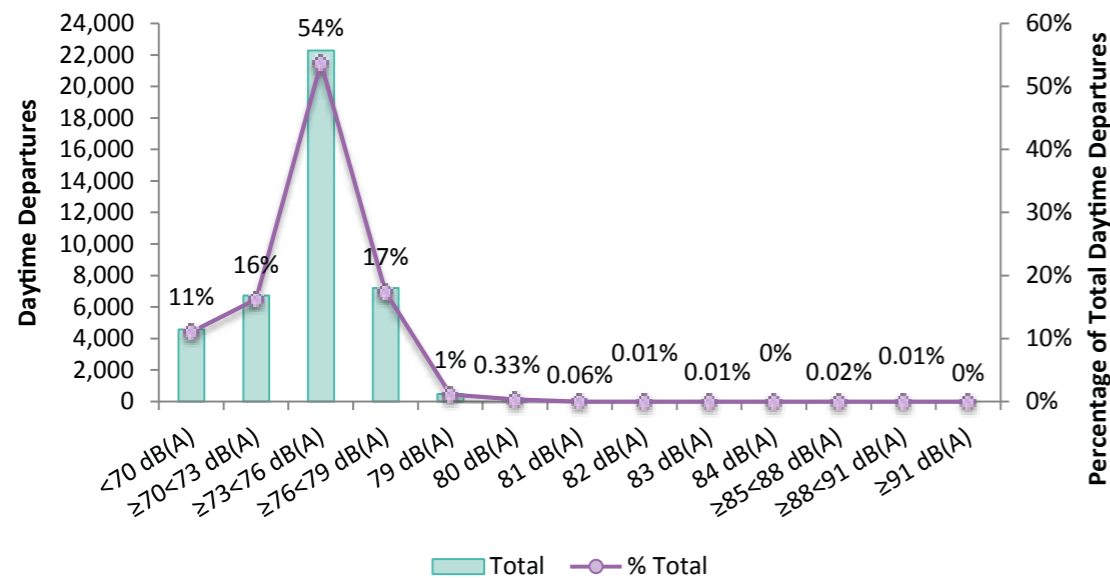
(Any aircraft exceeding the Daytime Noise Violation Limit of 82dB(A), between 07:00 hrs and 23:00 hrs and the Night-time Noise Violation Limit of 80dB(A), between 23:00 and 07:00, is fined accordingly).

db (A)	Number of Departures													Total
	<70	>=70 <73	>=73 <76	>=76 <79	79	80	81	82	83	84	>=85 <88	>=88 <91	>=91	
Daytime	4,580	6,724	22,284	7,215	467	138	26	5	5	2	9	4	0	41,459
Night-time	563	772	2,285	1,082	88	28	7	2	2	0	0	0	0	4,829

During the daytime 98% of correlated departing aircraft recorded maximum noise levels less than 79dB(A), with 81% registering below 76dB(A). Throughout the year 656 correlated daytime departures (2%) registered maximum noise levels above 79dB(A).

There were 20 correlated departing aircraft which recorded a maximum noise level greater than 82dB, 5 of these instances were recorded before 1st April 2015 and not subject to the new NVL's, therefore there were only 15 daytime noise violations.

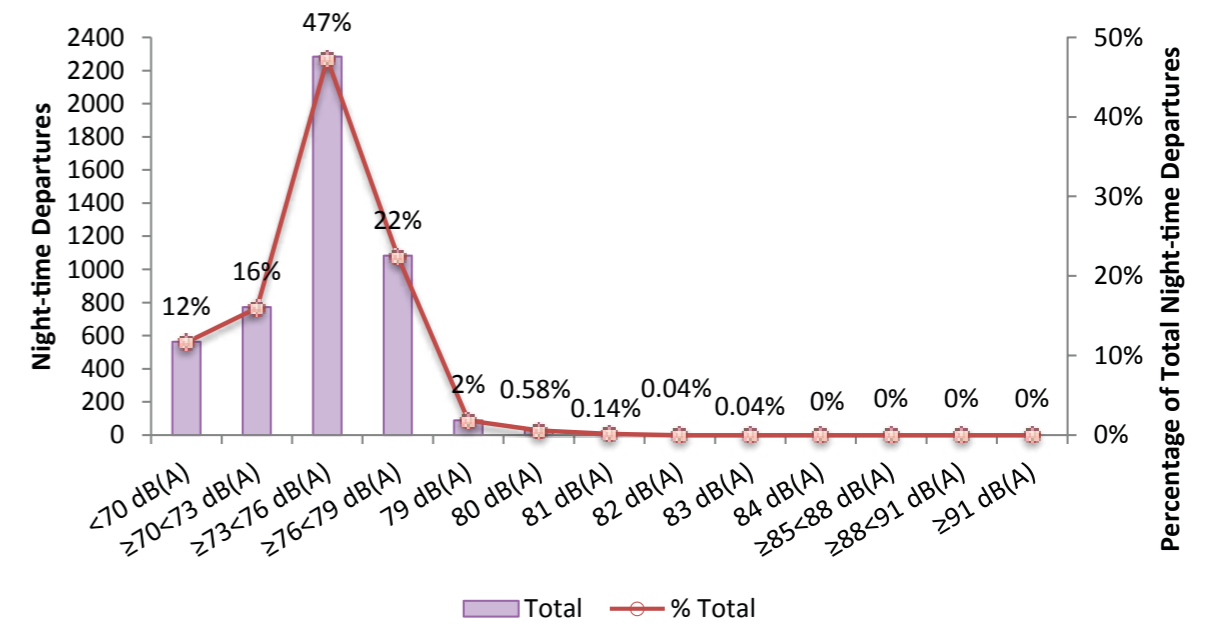
Number of Departures (Daytime)



During the night 97% of correlated departures recorded maximum noise levels below 79dB(A), with 75% below 76dB(A). During the year 127 correlated night departures (3%) registered maximum noise levels above 79dB(A).

There were 11 correlated departing aircraft which recorded a maximum noise level greater than 80dB. However, 2 of these instances were recorded before 1st April 2015 and not subject to the new NVL's, therefore there were only 9 night-time noise violations.

Number of Departures (Night-time)



Noise violations during 2015

There were 15 violations of the daytime noise level in 2015, and a total of 9 violations of the 80dB(A) night noise violation level (details below), compared to four night noise violations in 2014.

	Date / Time (Local)	Aircraft Type	Noise Level	Penalty
Daytime	09/04/2015	Boeing 737-200	85dB (A)	£100
	18/04/2015	Boeing 737-200	85dB (A)	£100
	26/05/2015	MD-83	83dB (A)	£100
	15/06/2015	Boeing 737-200	89dB (A)	£500
	02/07/2015	Boeing 737-200	86dB (A)	£500
	16/07/2015	Boeing 737-200	89dB (A)	£500
	18/07/2015	Boeing 737-200	84dB (A)	£100
	30/08/2015	Boeing 737-200	88dB (A)	£500
	30/08/2015	Dassault Falcon 900	84dB (A)	£100
	07/09/2015	Gulfstream III	85dB (A)	£100
	10/09/2015	Airbus A320	85dB (A)	£100
	23/09/2015	Antonov 12	83dB (A)	£100
	27/11/2015	Boeing 737-200	85dB (A)	£100
	19/10/2015	Boeing 737-200	86dB (A)	£500
	19/12/2015	Boeing 737-200	83dB (A)	£100
Night-time	13/04/2015	Boeing 737-400	81dB (A)	£100
	05/06/2015	Boeing 737-800	83dB (A)	£100
	05/06/2015	Boeing 737-800	82dB (A)	£100
	07/06/2015	Boeing 737-800	83dB (A)	£100
	20/06/2015	Boeing 737-400	81dB (A)	£100
	24/06/2015	Dassault Falcon 900	81dB (A)	£100
	04/09/2015	Boeing 737-800	81dB (A)	£100
	02/12/2015	Boeing 737-200	81dB (A)	£100
	18/12/2015	Airbus A306	81dB (A)	£100

All fines are passed to the London Luton airport Community Trust Fund, further details of which can be found at

Noise Contours

Since 1989 the preferred measure of aircraft noise, recognised by UK Government, has been the A-weighted equivalent noise level Leq. This indicator takes account of all the noise energy that occurs over a particular time period and thus takes account of all the 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 LAeq averaged over the 16 hour period from 0700-2300

for an average day between the 16th June and 15th September. When planning permission was given in 2014 for development at London Luton Airport a number of conditions were imposed. Condition 12 requires that daytime and night-time contours are produced on an annual basis for the previous summer period based on actual aircraft movement data and for the following summer period based on predicted aircraft movement data. The areas of these contours

are to be compared to the area limits contained in Condition 12. Year on year changes in the noise impact are dependent on changes in the number and type of aircraft that used the airport and also the departure routes flown. Changes in the size and shape of the contours can also depend on differences in the runway usage which in turn depends on the relative proportion of westerly and easterly modes of operation, determined by the prevailing wind direction.

Annual noise contours summer 2015

The table below shows the annual noise contours for summer 2015 covering the standard summer period from 16th June to 15th September inclusive, using the latest version of INM software (the Integrated Noise Model) version 7.0d which is the method used by many other airports in the UK.

L _{Aeq, 16 hour} Daytime	Contour Area (km ²)					
	1984	1999	2014	2015	Difference 2014-2015	2016 (forecast)
>72	1.63	1.5	0.9	0.9	0.0	1.0
>69	2.80	2.5	1.4	1.5	+0.1	1.7
>66	4.86	4.4	2.7	2.5	-0.2	2.9
>63	9.10	7.3	5.5	4.9	-0.6	5.7
>60	17.18	11.8	9.3	9.0	-0.3	10.1
>57	31.52	19.6	15.8	17.2	+1.4	18.8

Considering the summer 2015 daytime noise contour there is an increase in area of approximately 9% when comparing the 2015 contour with the 2014 driven by a 15% increase in movements. Due to the updated departure profiles, based on information provided by easyJet, used for the 2015 contours the higher value contours have decreased in area between 60 and 66 dB, despite the increase in movement numbers. The daytime movements increased from 25,616 in 2014 to 29,679 in 2015. The 2016 contours are forecast to grow by 9% to 16% compared to the 2015 contour, largely due to a forecast 11% increase in movement numbers.

L _{Aeq, 8 hour} Night-time	Contour Area (km ²)					
	1984	1999	2014	2015	Difference 2014-2015	2016 (forecast)
>72	0.79	1.1	0.4	0.4	0.0	0.4
>69	1.39	1.8	0.6	0.6	0.0	0.7
>66	2.42	3.0	1.0	1.0	0.0	1.1
>63	4.01	5.2	1.7	1.7	0.0	1.7
>60	7.06	8.3	3.4	3.0	-0.4	3.1
>57	13.05	13.2	6.5	5.7	-0.8	5.8
>54	24.48	21.6	11.3	10.8	-0.5	11.0
>51	44.92	36.0	20.0	20.2	+0.2	20.8
>48	85.04	60.6	35.2	35.3	+0.1	36.3

Considering the summer 2015 night-time noise contour there is very slight increase in the area when comparing the 2015 contour with 2014 contour, while the higher value contours, 54 to 60 dB have decreased in area. The night-time movements decreased slightly from 4,490 to 4,376.

The summer 2016 night-time contour is forecast to grow by 3% compared to the 2015 contour, despite almost no change in movement numbers. This is attributed to the increase in movements by the main passenger types, in particular the Boeing 737-800.

The 2015 results are significantly below the 1984 values and also below the 1999 predicted values which, if exceeded, would require a noise reduction plan to be implemented. The resulting summer 2016 forecast daytime contour has an area of 18.8 km² below the planning limit of 19.4 km², and the summer 2016 forecast night-time contour has an area of 36.3 km², below the planning limit of 37.2 km².

Contour population counts

The population counts for this year were calculated using the CACI Ltd, 2014 postcode database. Each postcode in the database is described by a single geographical point, and if this point is within a contour then all of the dwellings and population in the postcode are counted.

L _{Aeq, 16 hour} Daytime	2014		2015	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	0	0	0	0
>63	500	1,300	250	700
>60	1,300	3,600	750	2,200
>57	2,900	7,300	2,600	7,100

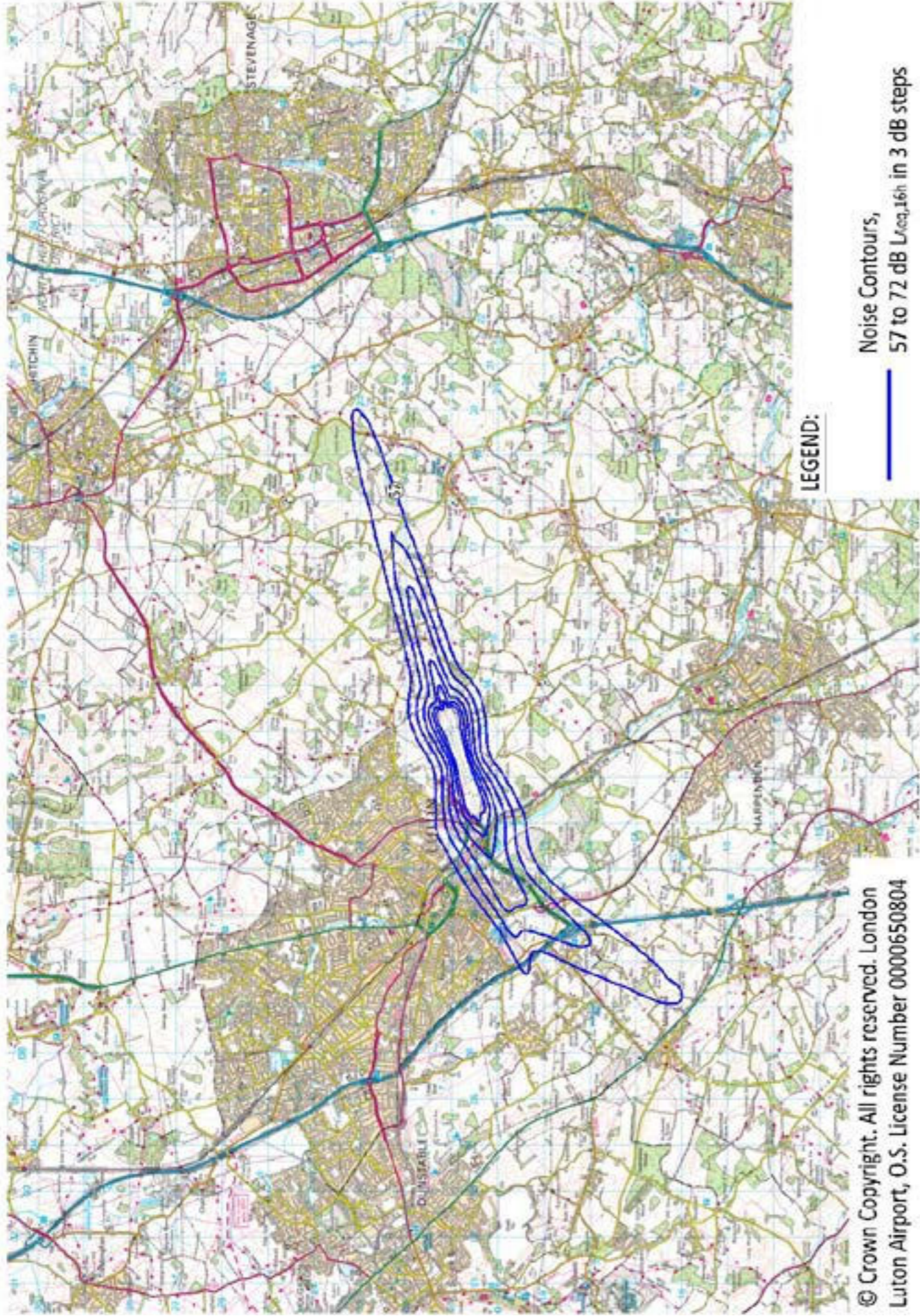
When looking at the daytime results there are generally decreases in the number of dwellings and the population within the contours when comparing 2015 with 2014. For the summer 2015 daytime contour the decrease in population is around 2% for the higher value contours the decrease is significantly greater. The summer 2015 daytime contour also contains fewer dwellings and a lower population despite an increase in overall area, this is due to the change in shape of the contour, with the areas where noise has increased being sparsely populated and the areas where there has been a decrease in noise being more densely populated.

L _{Aeq, 8 hour} Night-time	2014		2015	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	0	0	0	0
>63	0	0	0	0
>60	150	400	0	0
>57	650	1,800	400	1,200
>54	1,600	4,400	1,050	3,000
>51	3,700	9,100	2,850	7,700
>48	6,600	16,000	5,550	14,700

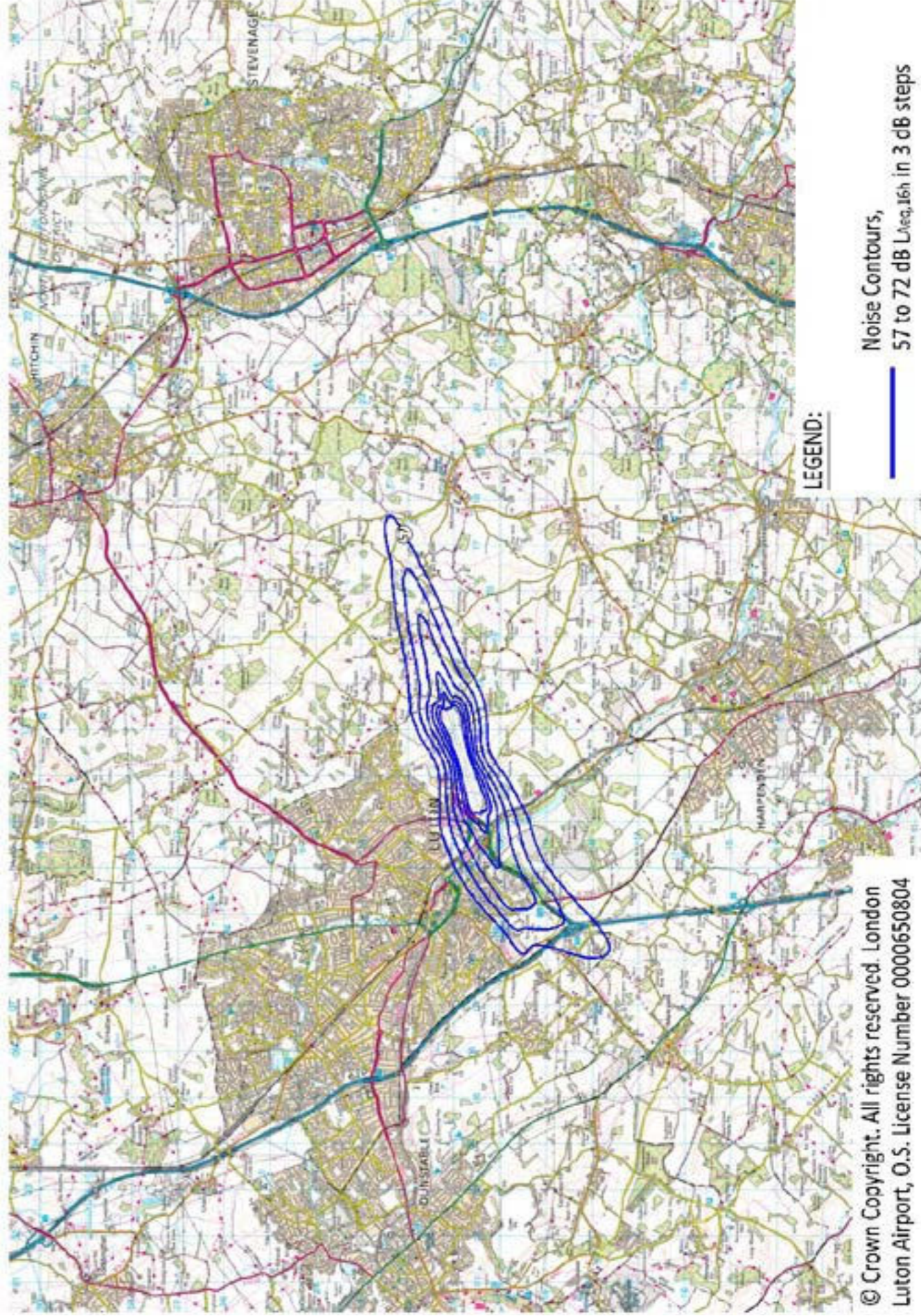
For the night-time contours there are consistent decreases in the numbers of dwellings and the population within the contours when comparing 2015 with 2014. For the summer 2015 night-time contour the decrease in population is around 8%. As for the daytime contours the reductions are due the changed shape of the contour due to the new departure route profiles.

Please note in the above tables the results for households and resident populations are cumulative.

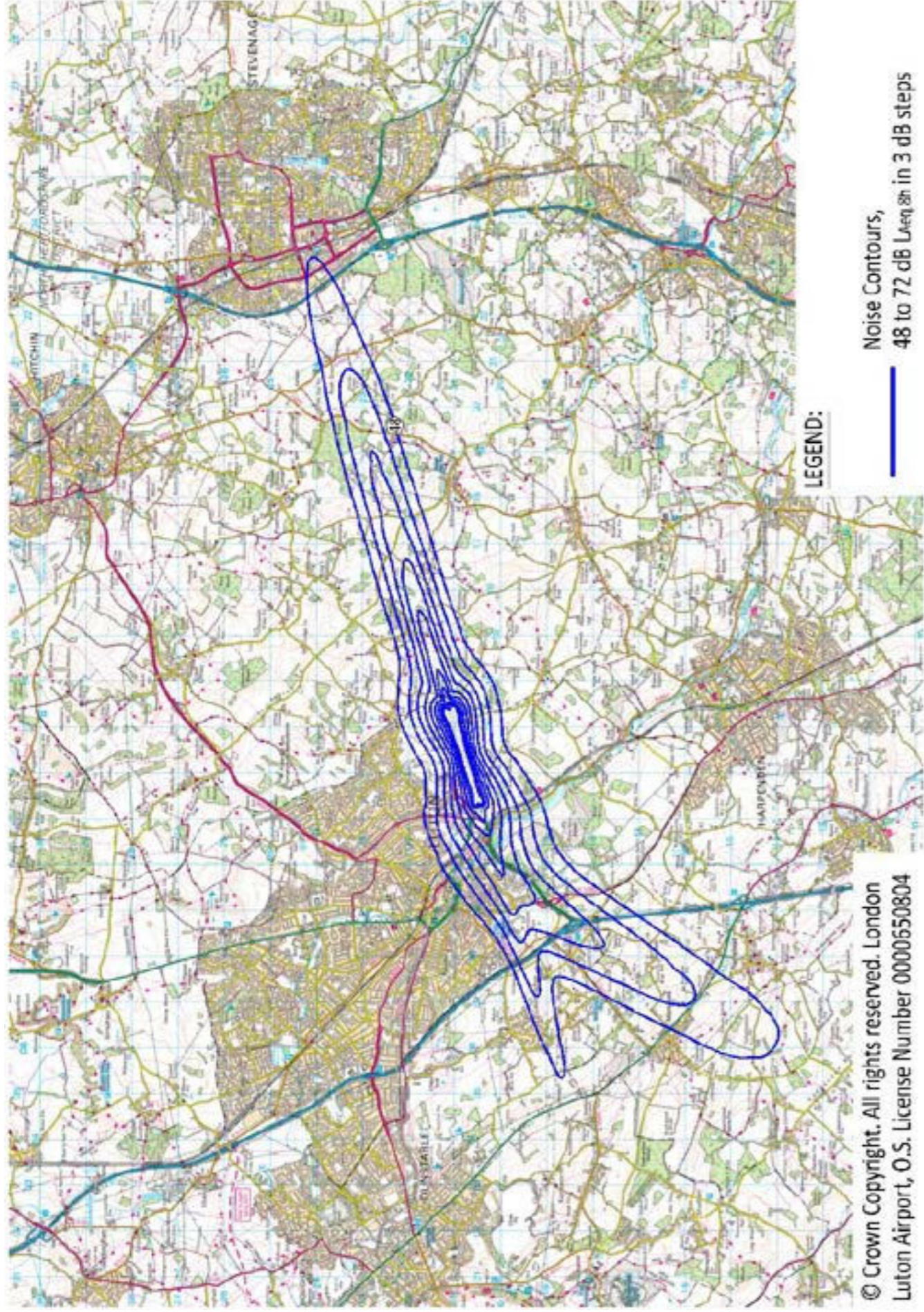
Annual Day Noise Contours Summer 2015



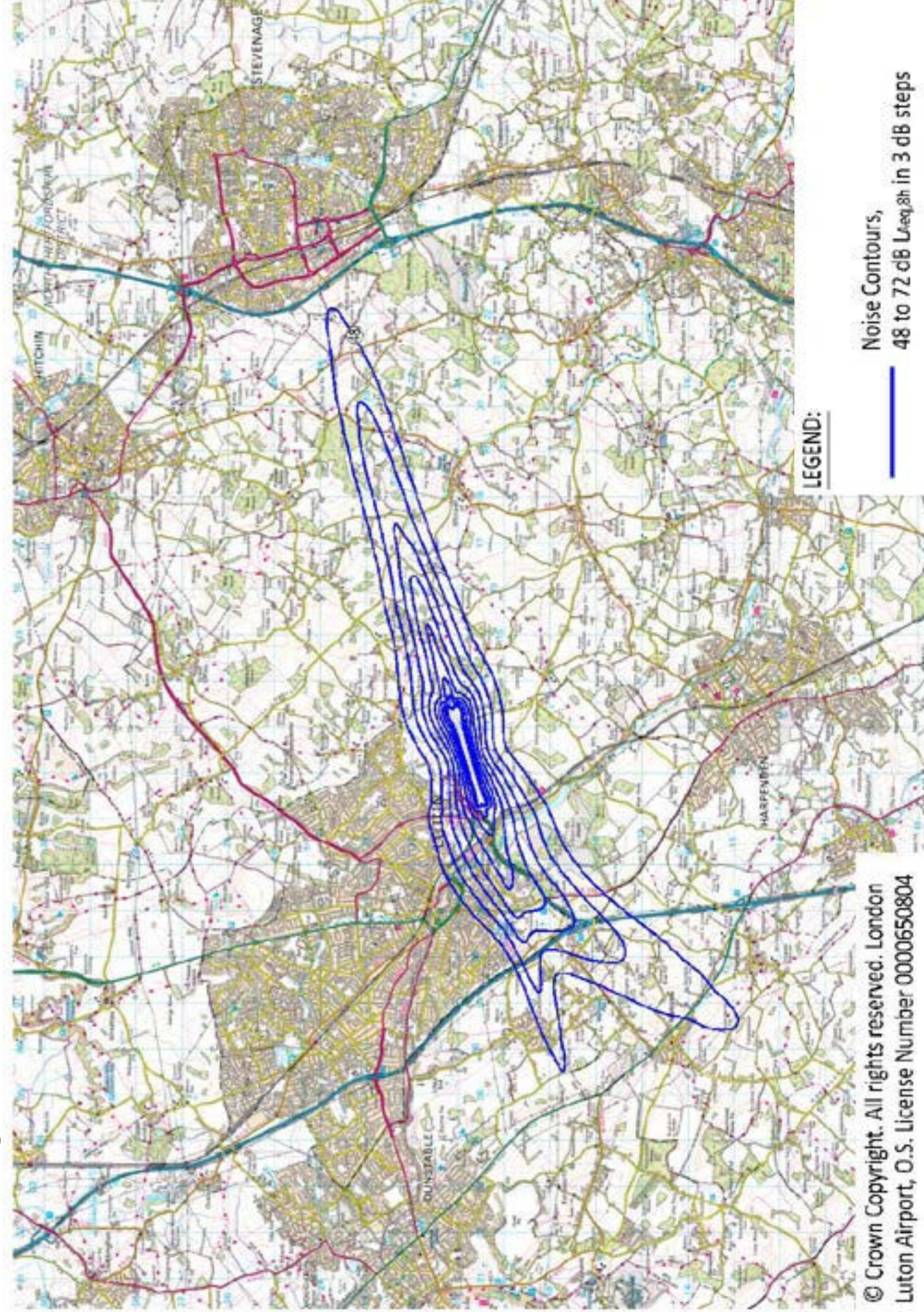
Annual Day Noise Contours Summer 2014



Annual Night Noise Contours Summer 2015



Annual Night Noise Contours Summer 2014



Annual Noise Contours 2015

The annual Lden noise contours for 2015 have been produced in accordance with London Luton airport's Noise Action Plan. The corresponding annual Lnight noise contours have also been produced, along with population and dwelling counts for each contour.

Compared to annual summer 2015 noise contours Lden is an A-weighted, Leq noise level, measured for an average 24 hr day between 1st January and 31st December 2015, with a 10dB penalty added to the level between 23.00 and 07.00 hours and a 5 dB penalty added to the level between 19.00 and 23.00 hours to reflect people's extra sensitivity to noise during the night and the evening.

Lnight is similarly an A-weighted Leq noise level, for an average 8 hour night period between 2300 and 0700 for the period 1st January to 31st December 2015.

Annual Lden Noise Contour Results

Contour Value (dB(A) L _{den})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2014	2015	2014	2015	2014	2015
>75	0.7	0.8	0	0	0	0
>70	1.6	1.7	0	0	0	0
>65	5.3	4.7	1,100	500	400	200
>60	13.1	13.6	5,600	4,700	1,950	1,700
>55	33.6	35.7	16,400	14,800	6,150	5,550

Annual Lnight Noise Contour Results

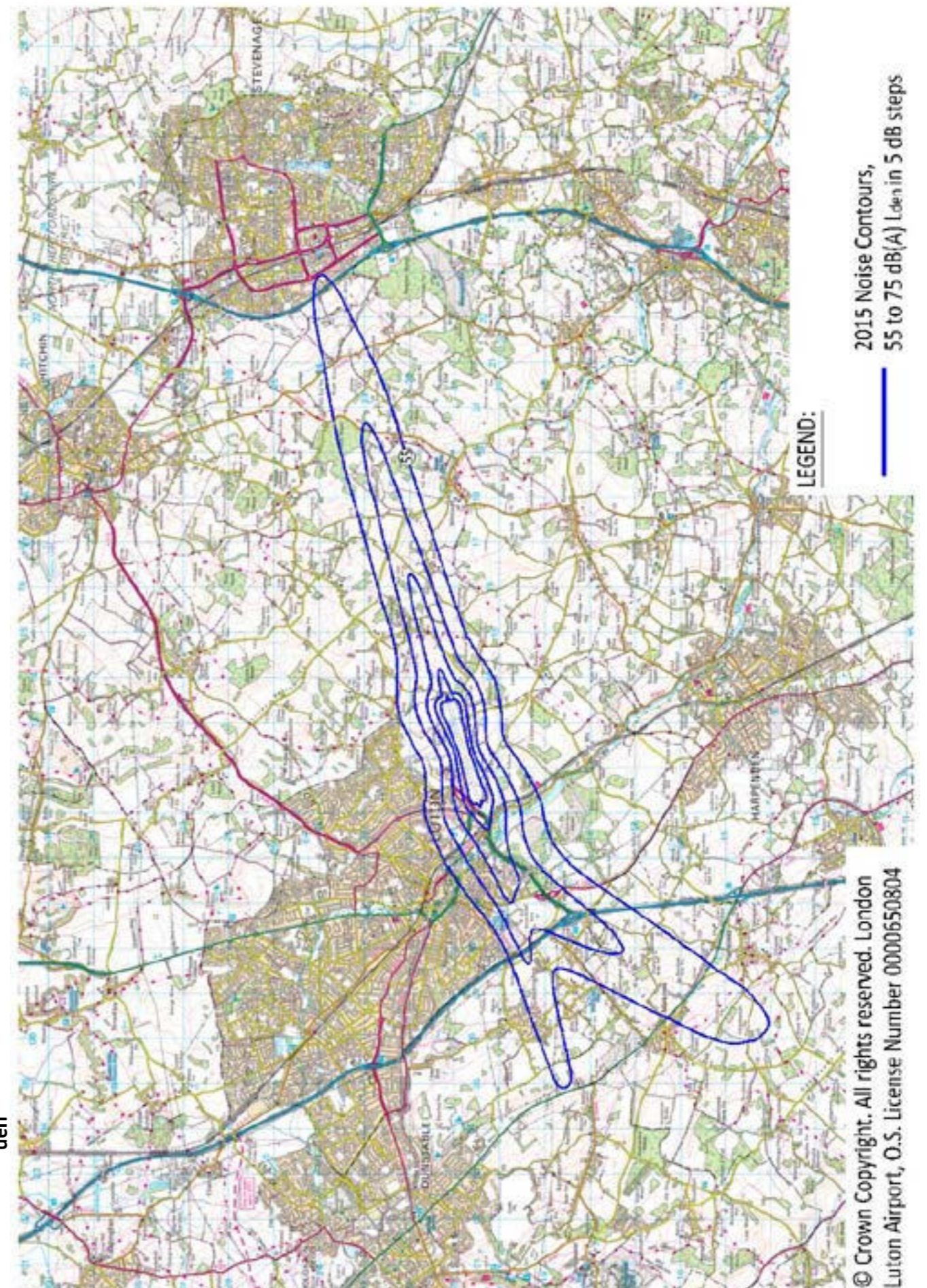
Contour Value (dB(A) L _{den})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2014	2015	2014	2015	2014	2015
>66	0.8	0.8	0	0	0	0
>63	1.3	1.3	0	0	0	0
>60	2.3	2.2	0	0	0	0
>57	4.7	4.3	800	400	350	150
>54	8.3	7.8	2,500	2,000	900	700
>51	14.9	15.0	6,300	5,200	2,250	1,850
>48	25.7	27.1	12,700	10,900	4,750	4,100

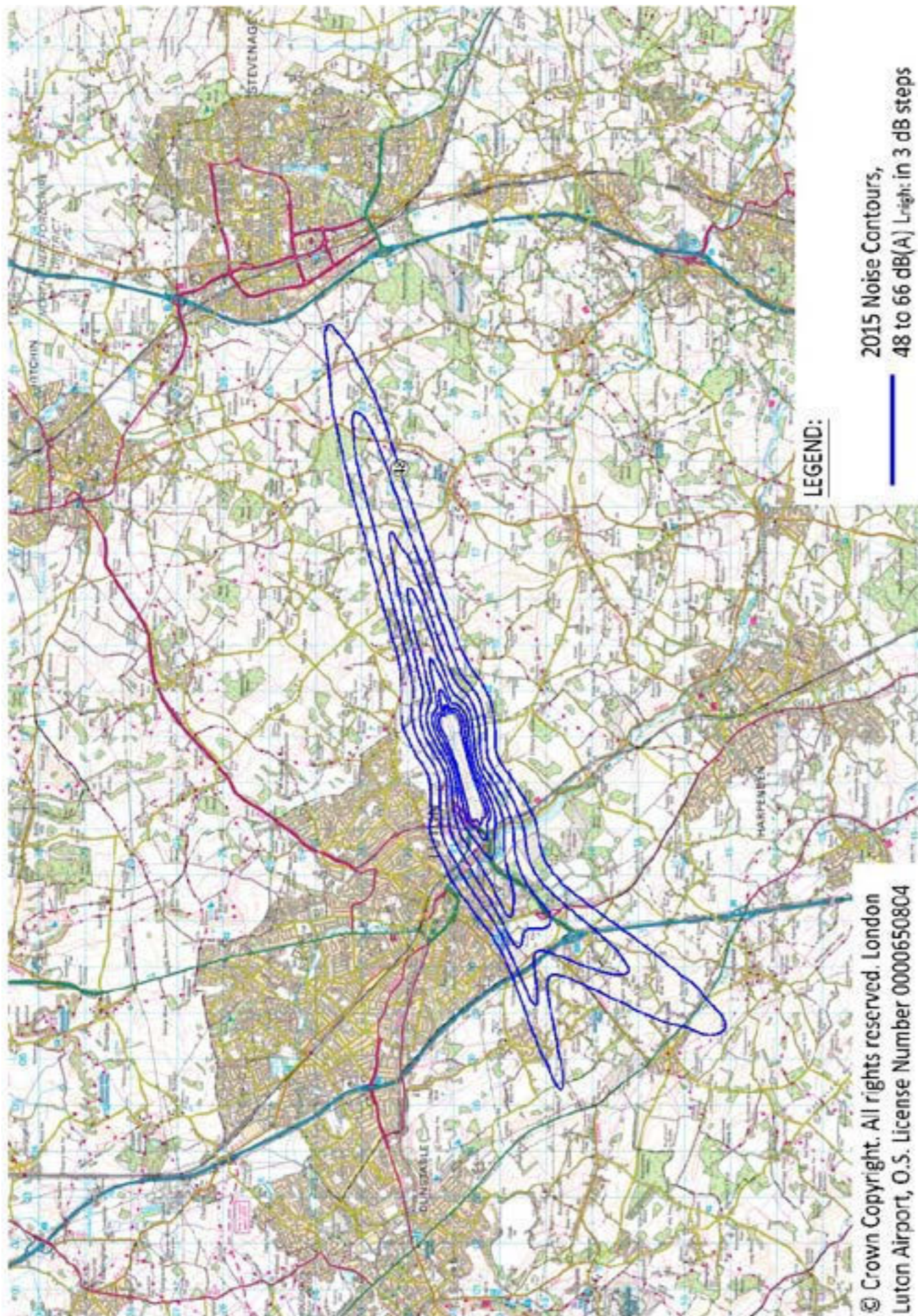
The population and dwellings within all the contours has decreased, despite in some cases increasing areas. The contours have narrowed at locations close to the airport, reducing the area of southern Luton contained within the contours. As this area is more densely populated the reduction in area here more than outweighs increases in other more rural areas. This narrowing of the contours is due to the modified departure profiles.

¹ - Population counts rounded to nearest 100

² - Dwelling counts rounded to nearest 50

Annual L_{den} Noise Contours 2015





Correspondence and Complaints

We aim to investigate, log and respond to all correspondence in a timely and systematic manner, preferably within 10 working days. Where this is not possible an acknowledgement is sent by post within 5 working days to those who contact us. E-mail correspondence will automatically receive an acknowledgement by return.

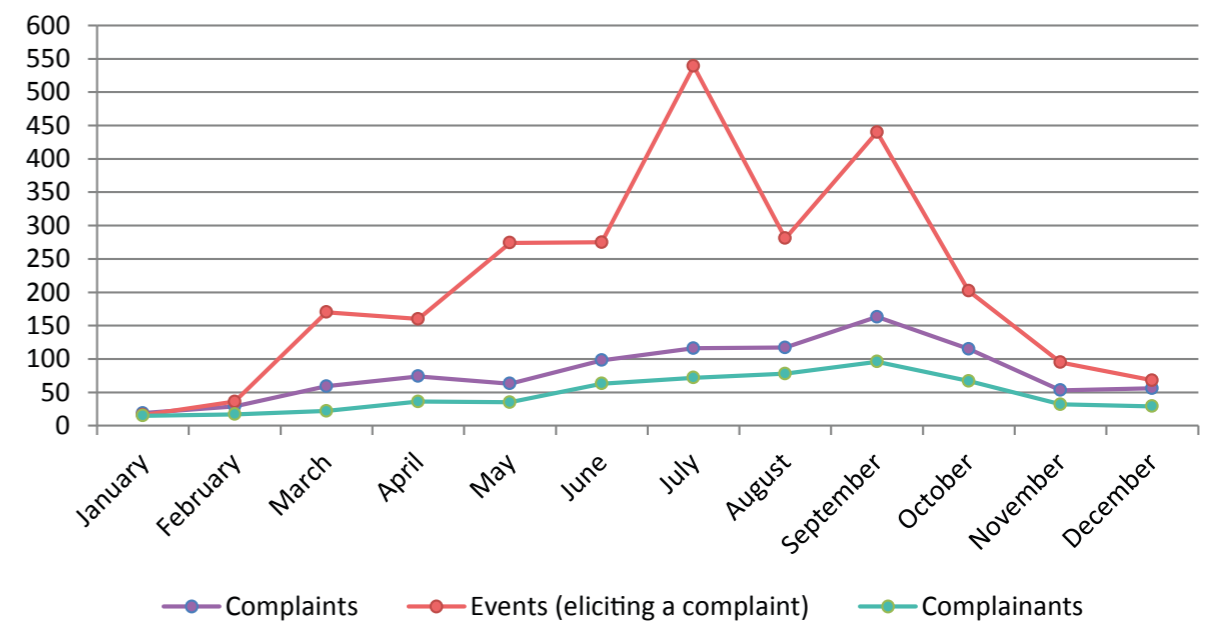
Complaint statistics can be extremely difficult to interpret as people's tolerance of noise and their perception of what causes annoyance varies widely. It is highly subjective and differs between neighbours experiencing the same levels of noise.

Total complaints relating to LLA aircraft operations

	2014	2015
Total No. of Complaints relating to LLA aircraft operations	1,146	960
No. of Complainants	457	355
No. of Events (eliciting a complaint)	2,836 (1,200*)	2,552 (1,098**)
Average No. of Complaints per Complainant	2.5	2.7
Average No. of Events per Complainant	6.2 (2.6*)	7.2 (3.1**)
Average No. of Events per Complaint	2.5 (1.0*)	2.7 (1.1**)
No. of Aircraft Movements per Complaint	91	121
No. of Aircraft Movements per Event	36 (87*)	45.6 (106**)

During 2015 a total of 960 complaints (on average 3 complaints per 24 hours) relating to LLA aircraft operations were received, compared with 1,146 in 2014. The figure below shows the complaints statistics throughout 2015. More complaints were received in the summer months, correlating with an increase in aircraft activity.

Complaint Statistics throughout 2015



* - Figures excluding 1,636 events reported by three individuals, one resident in Harpenden, one resident in Kensworth and one resident of St Albans

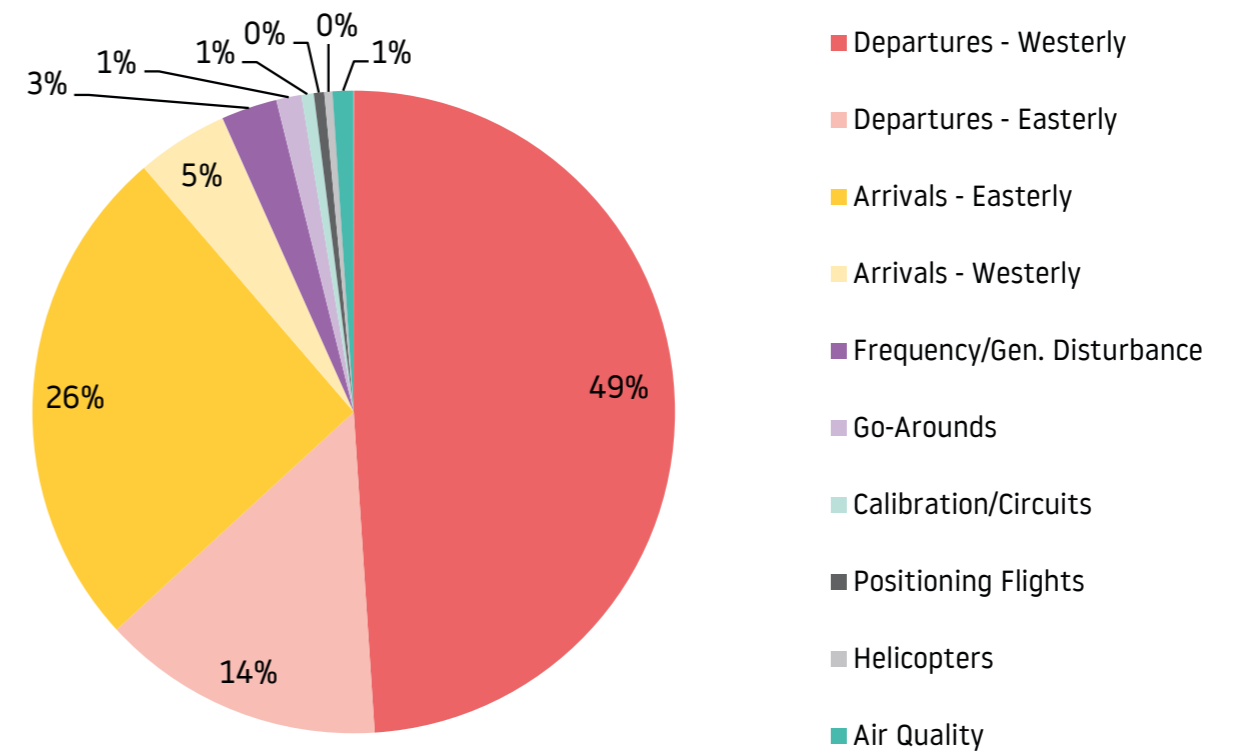
** - Figures excluding 1,454 events reported by two individuals, one resident in Kensworth and one resident in St Albans



During 2015, 1162 events were reported by one individual in St Albans but, in agreement with the LLACC, these events are no longer included in statistics although a total of 92 complaints from this complainant, reporting general disturbance and frequency (both day and night), have been incorporated in all statistics.



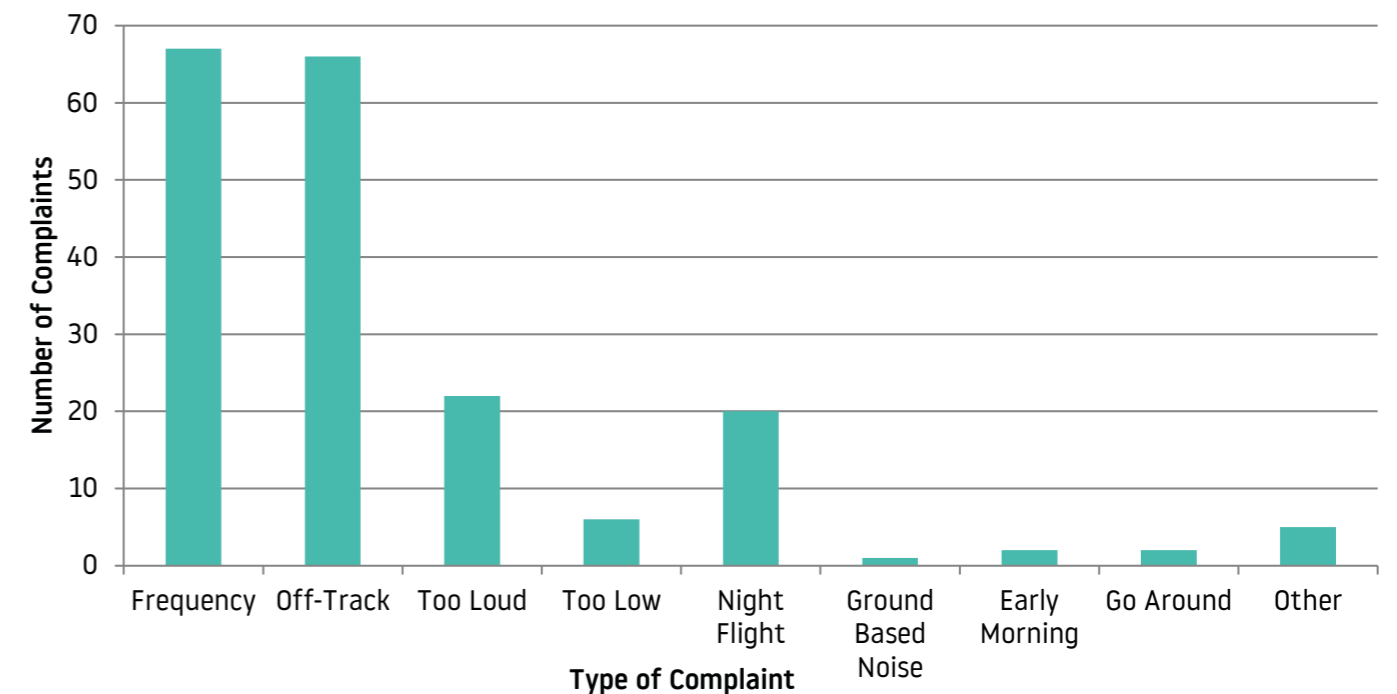
Nature of Disturbance



Within the 473 complaints concerning westerly departures 65 were of a general nature, 373 reported specific aircraft following the Match/Detling route, 24 related to aircraft on the Compton route and 6 related to aircraft following the Olney heading. Five other complaints involved positioning flights following off-airways flight routes.

Of the 138 complaints attributed to easterly departures 8 were of a general nature, 102 related to aircraft following the Compton heading, 7 related to aircraft on Olney flight route and 18 to aircraft on the Match/Detling heading. A further 3 complaints involved positioning flights following off-airways flight routes.

Whilst 187 of the 244 complaints concerning easterly arrivals reported general disturbance, 57 related specifically to aircraft on approach to land from the Lorel Reporting Point.



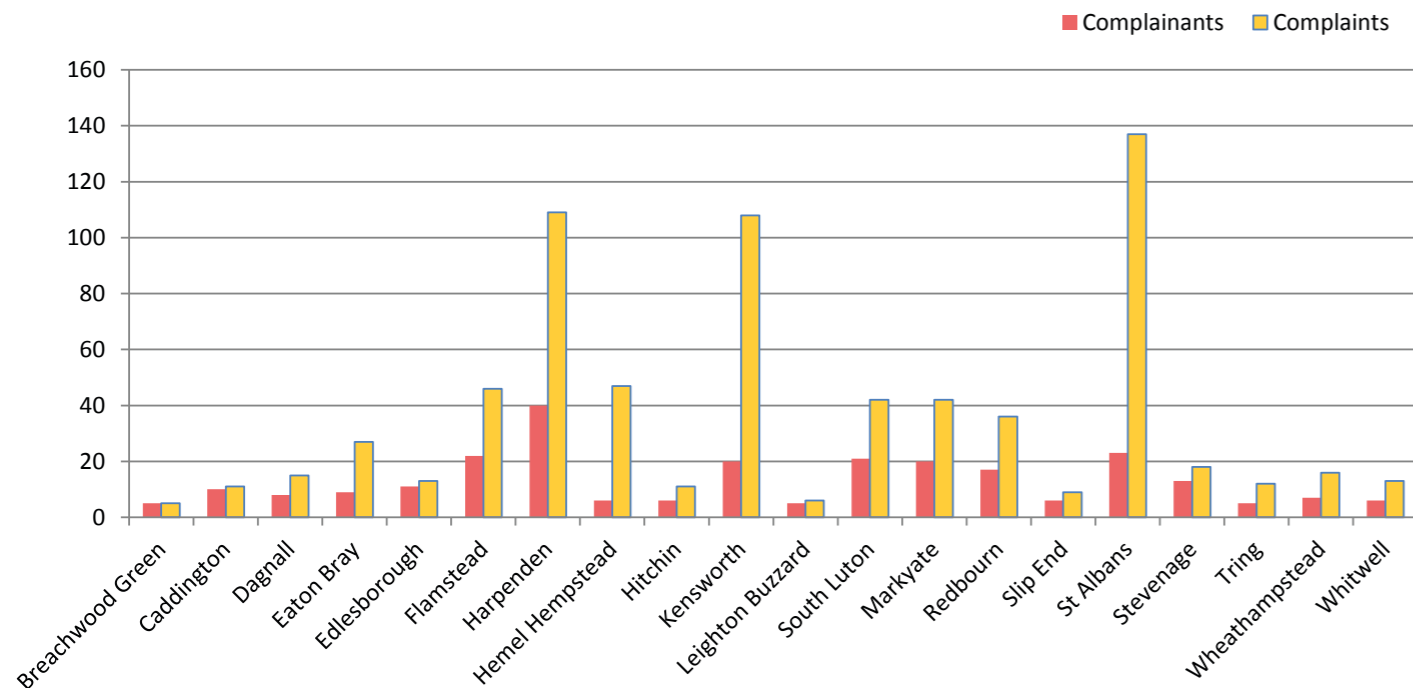
Complaints by aircraft type

Of the 960 complaints relating to LLA aircraft operations registered during the year 574 complaints (60%) were clearly correlated to a specific aircraft type, although many complaints were of a general nature. The diagram below shows aircraft types generating complaints.

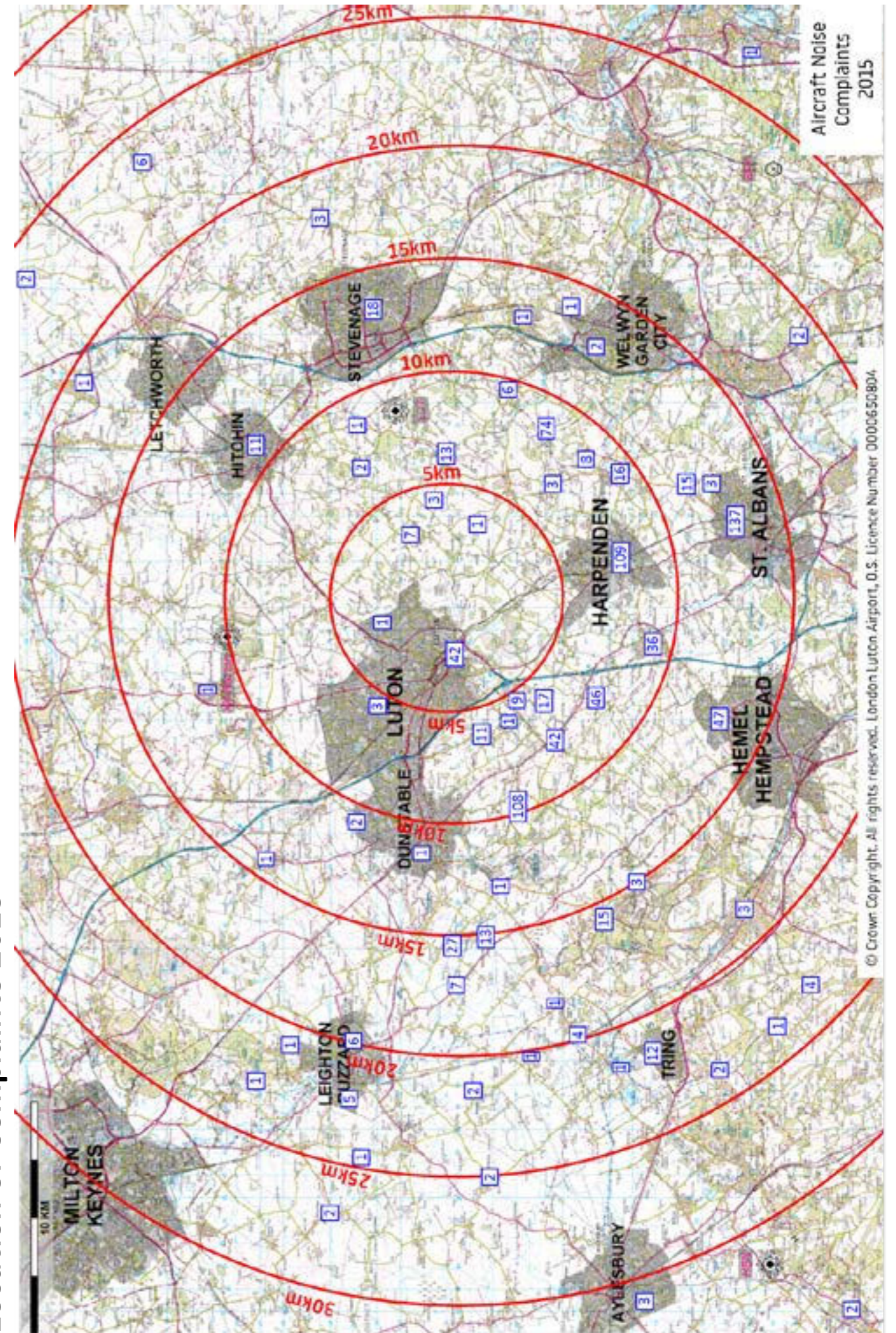
Aircraft Type	No. of Correlated Complaints	% of Total Complaints	Annual No. of Movements of Aircraft Type	Movements of Aircraft Type per Correlated Complaint
A320/A321	168	29.30%	42,060	250
A319	69	12.00%	26,554	385
B737-800	67	11.70%	12,046	180
A306 (Cargo)	83	14.50%	1,276	15
B737-400	34	5.90%	1,000	29
GLF4/GLF5/GLF6	10	1.70%	5,500	550
ATP	12	2.10%	403	34
B757 & B767	27	4.70%	1,550	57
B737-300	8	1.40%	316	40
B737-200	8	1.40%	42	5
Helicopter	4	0.70%	468	117
CL30/CL60	7	1.20%	3,260	466
GLF2/GLF3	0	0.00%	439	0
Other Private Aircraft	42	7.30%	20,046	477
Other Cargo Aircraft	1	0.20%	8	8
Other Passenger Aircraft	34	5.90%	34	1

It can be seen that the majority of the complaints are related to the quietest aircraft. This is mainly due to the frequency of these quieter, modern aircraft types compared to the small percentage of older generation aircraft.

Location of Complainants (5+)



Location of Complaints 2015



Communication method

The following table shows the method of communication used to contact London Luton airport regarding noise.

Communication Method	% of Total Complaints
E-mail	75%
Telephone	24%
Letter	0.7%
TraVis	0.3%

Any concerns relating to aircraft operations associated with London Luton Airport can be reported to the Flight Operations team by the following means:

Postal Address	Flight Operations London Luton Airport Navigation House Airport Way Luton Beds LU2 9LY
Direct Telephone	(01582) 395382 (24 hours)
Direct email	noise@ltn.aero
TraVis	www.travisltn.topsonic.aero



Community Relations

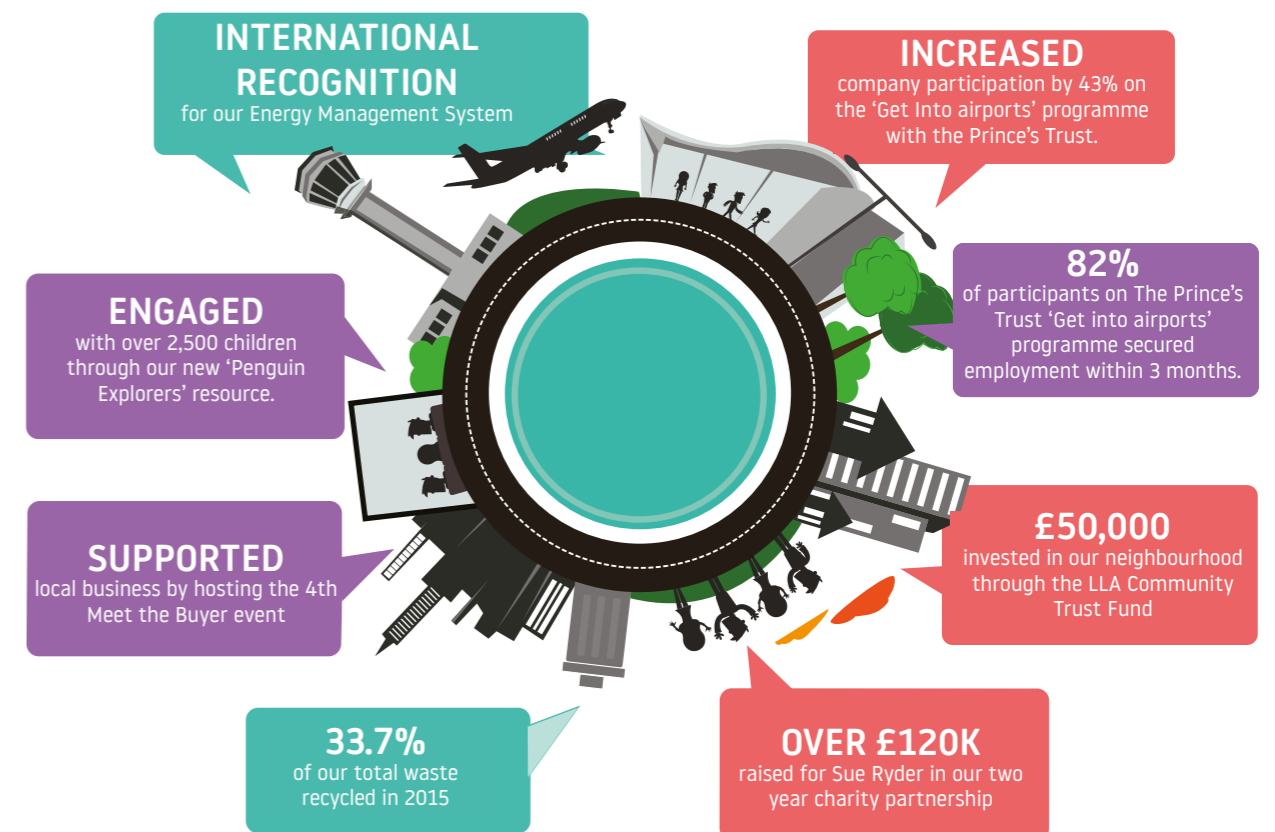
Through the London Luton Airport Consultative Committee (LLACC), which meets each quarter, London Luton airport maintains a close working relationship with representatives of its local authorities and resident groups. Information on the airport Consultative Committee including meeting minutes and its representatives can be found at the following link: <http://www.llacc.com/>

In 2015, members of the airport also went out into the community in the form of Public Surgeries. These allow local residents to approach the members of the airport team directly with aircraft concerns. The Flight Operations team is then able to explain the operations and the airport's actions in reducing the disturbance for our local communities on a one-to-one basis. In 2015, Public Surgeries were held in Redbourn, Markyate, Pepperstock and Kensworth. These will continue to be scheduled in 2016.

Our five year Community Relations Strategy forms part of LLA's corporate social responsibility programme and sets out how we will facilitate community development and meet the needs of key stakeholders. Initiatives are delivered by the airport in collaboration with key community partners. In 2015 we made nine commitments to ensure that we continued to play a positive role in our local community. The following figure summarises the progress made towards these commitments during the year.

We achieved 8 out of 9 of these commitments with one requiring more work. Due to a change in the waste disposal service provider and significantly increased passenger numbers, the airport has not reached its desired target of 45% of total waste being recycled.

Community engagement strategy achievements



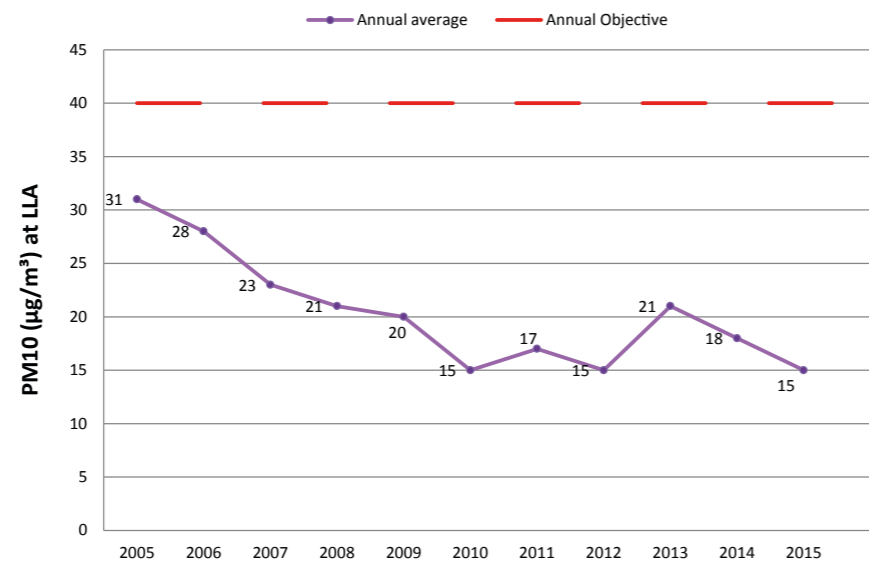
Air Quality

London Luton airport has been monitoring air quality in and around the airport environment since 2003. Air quality data collected at LLA is integrated into a monitoring programme incorporating data collected by the surrounding Local Authorities, with a monthly report available to view online at www.ukairquality.net. The parameters we measure are PM₁₀ and NO₂.

PM₁₀ (Particulates measuring 10µm or less)

PM₁₀ is one of the main contributors to reduced ambient air quality. Particulate matter is made of fine particles including dust and soot which are suspended in the air. When you breathe in these particles they can stick to the surface of your lungs, and in areas of high pollution can cause respiratory health problems. Local sources include emissions from vehicles and aircraft engines, wear of brakes, tyres, and construction debris.

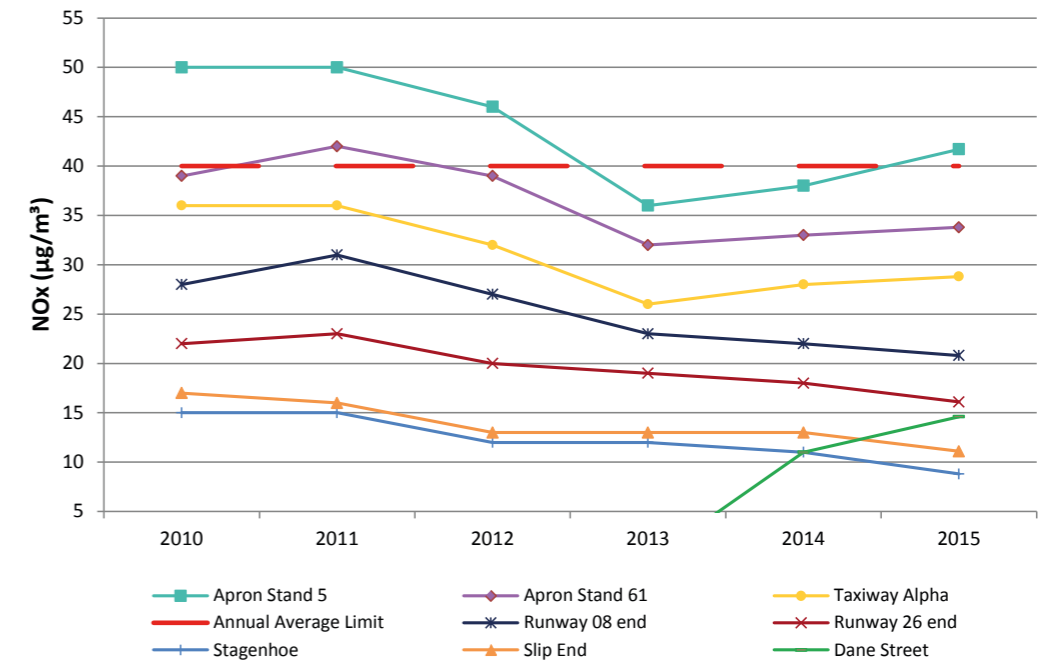
PM₁₀ is monitored from one location in the middle of the airport site. The graph shows that the readings have remained well within the annual mean local air quality objective of 40µg/m³, and are decreasing over time. There were no pollution occurrences exceeding the daily mean of 50 µg/m³ during the year.



Nitrogen Dioxide (NO₂)

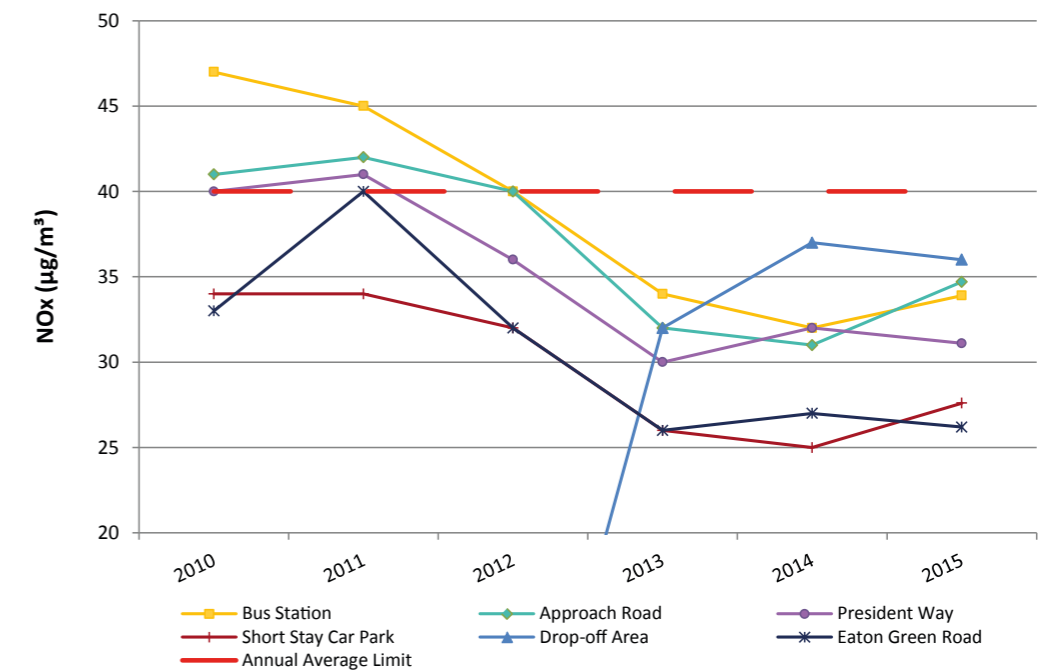
NO₂ in high concentrations can cause a wide variety of health and environmental impacts. The gas is produced from the combustion of fuels such as diesel and aviation fuel. NO₂ is currently measured from 14 locations around LLA, and the results have a bias-adjustment factor applied using national database factors. The annual mean local air quality objective of 40µg/m³ also applies to NO₂.

Airport apron, runway and under the flight paths



NO₂ levels at the closest residential receptors to the airport, and also along the aircraft flight paths are significantly below the the objective level laid out in the Air Quality (England) Regulations 2000 (as amended). Levels monitored by the roads around the airport, in the car parks and on the apron are a little higher, with one location on the main apron slightly exceeding 40 µg/m³. A project is underway to standardise equipment on the apron which will help reduce pollution levels.

Roads, car parks and bus station



Surface Access

LLA aims to improve access to London Luton airport, particularly by public transport in order to reduce the contribution that journeys make to total airport-related CO2 emissions and also to air pollution. LLA's current airport Surface Access Strategy runs from 2012-2017, with short and long term targets and action plans to encourage more sustainable travel amongst airport passengers and employees. These targets are being monitored regularly, as part of the wider Local Transport Plan (LTP) monitoring framework.

Modes of Transport

Passengers transport mode share (CAA Data)

The Civil Aviation Authority (CAA) undertakes continual passenger surveys at many of the major airports in the UK, including London Luton. In common with other airports, LLA uses this survey data to assess trends in passenger

'modal shift' from private to public transport. The table shows the weighted CAA data for 2010-2014. The CAA statistics suggest that 29% of airport passengers chose to use public transport in 2014. LLA aims to achieve 40%

by 2017, and has invested in improvements to the bus station in 2015, increasing the number of stands from 11 to 18. Plans for a new passenger transit system from Luton airport Parkway to the airport terminal are also being developed.

%	2010	2011	2012	2013	2014
Private Car - Drop Off	27	27	27	28	25
Private Car - Park	24	23	23	23	28
Rail	17	15	17	16	14
Bus/Coach	15	16	16	16	15
Taxi	15	18	17	17	17

Staff transport mode share

LLA aims to reduce the proportion of staff travelling alone by car to and from London Luton airport to 60% or lower by 2017. Whilst employee travel does not generate as many trips as passengers, it is as important consideration as employees making a more

sustainable travel choice will give daily results due to the frequency of their need to commute to work. Staff travel surveys are undertaken once every 2 years, and the results since 2010 are presented in the table below.

%	2008	2010	2012	2014
Drive alone	72	66	66	62
Car share	10	12	8	11
Taxi	2	1	1	0
Motorcycle	1	1	1	1
Rail	5	5	5	10
Bus/Coach	6	7	9	8
Cycle	1	2	2	2
Walk	3	5	6	7



Road Traffic and Car Parks

The information contained in this section is based on traffic counts conducted at 8 sites during the period 9th-28th September 2015. This period is comparable with previous summer traffic counts and avoids any periods when significant changes in traffic characteristics can occur. The flows on London Road, in comparing 2014 flows

with those in previous years, appear to have been suppressed as a result of the works at Junction 10a in 2014; similarly the flows on Lower Harpenden Road were higher during the works. As a result flow comparisons between 2014 and 2015 are not meaningful, and any comparisons in the remainder of this section are therefore made

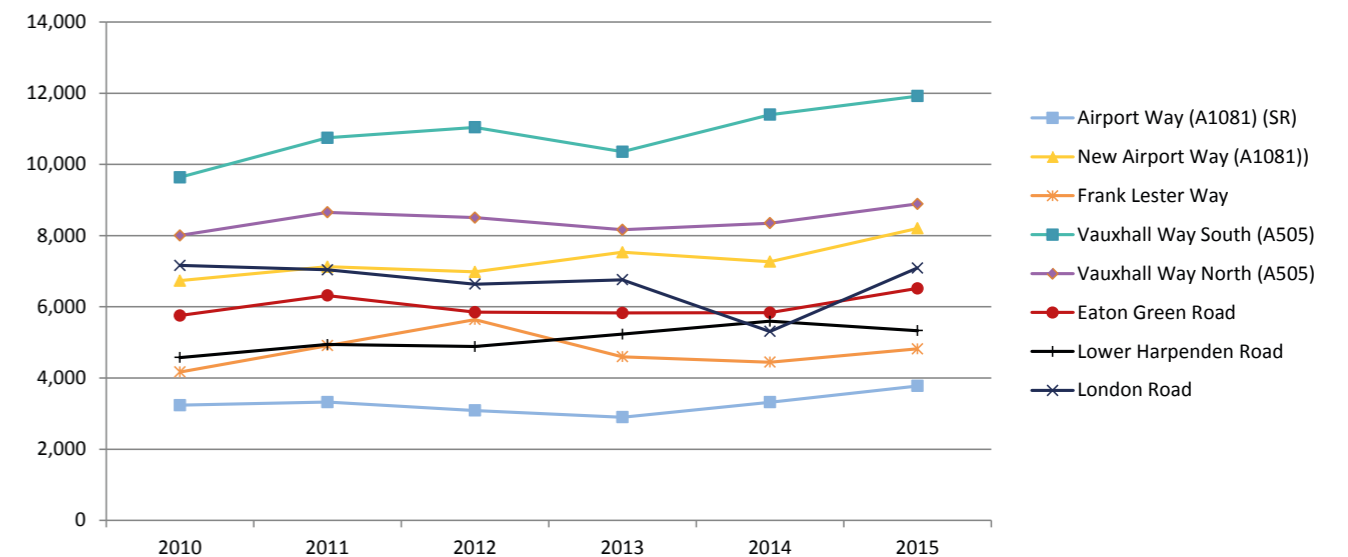
between 2013 and 2015 flows. The table and graph below show an increase in 12hr/5day traffic flows between 2013 and 2015 on all of the 8 monitored roads, with the highest percentage increase being +30.3% on old airport Way (+878 vehicles) and the second highest +15.1% (+1,562 vehicles) on Vauxhall Way (south).

Summer 2010 - 2015 Traffic Counts (Average 12 hrs/5 day)

	Map ref	2010	2011	2012	2013	2014	2015
Airport Way (A1081) (SR)	599	3,237	3,323	3,088	2,897	3,319	3,775
New Airport Way (A1081))	925	6,735	7,127	6,979	7,532	7,268	8,204
Frank Lester Way	445	4,170	4,908	5,642	4,597	4,445	4,818
Sub-total		14,142	15,358	15,709	15,026	15,032	16,797

	Map ref	2010	2011	2012	2013	2014	2015
Vauxhall Way South (A505)	520	9,638	10,746	11,039	10,355	11,395	11,917
Vauxhall Way North (A505)	603	8,005	8,652	8,505	8,164	8,348	8,889
Eaton Green Road	677	5,755	6,317	5,849	5,826	5,835	6,517
Lower Harpenden Road	106	4,576	4,942	4,885	5,232	5,594	5,331
London Road	393	7,163	7,037	6,634	6,759	*5,307	7,090
Sub-total		35,137	37,694	36,912	36,336	36,479	39,654
Total		49,279	53,052	52,621	51,362	51,511	56,451

Summer 2010 - 2015 Traffic Counts - average 12 hrs/5 day



* - Site impacted by J10a works

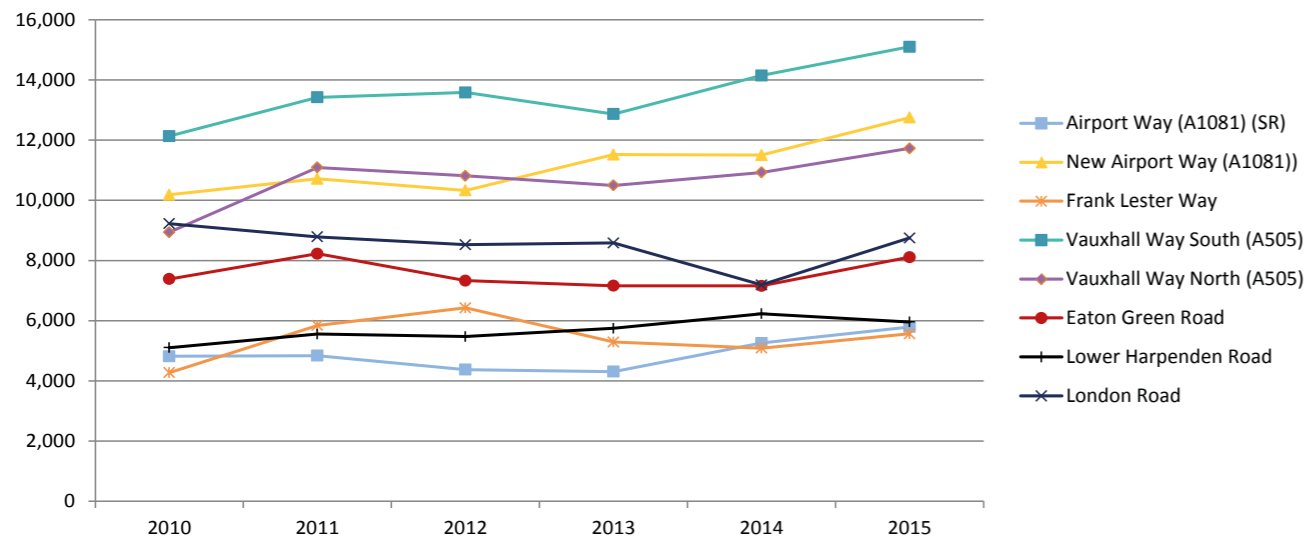
For the 24-hour week (24/7), the table and graph below reveal similar patterns to the 12hr/5day traffic counts. The highest increase in traffic is +34.4% on old airport Way (+1,482 vehicles) and the second highest is +17.4% (+2,236 vehicles) on Vauxhall Way (south).

Summer 2010 - 2015 Traffic Counts (Average 24 hrs/7 day)

	Map ref	2010	2011	2012	2013	2014	2015
airport Way (A1081) (SR)	599	4,818	4,840	4,374	4,309	5,256	5,791
New airport Way (A1081))	925	10,185	10,714	10,330	11,518	11,503	12,751
Frank Lester Way	445	4,275	5,842	6,426	5,289	5,086	5,564
Sub-total		19,928	21,396	21,130	21,116	21,845	24,106

	Map ref	2010	2011	2012	2013	2014	2015
Vauxhall Way South (A505)	520	12,131	13,421	13,582	12,865	14,146	15,101
Vauxhall Way North (A505)	603	8,939	11,093	10,813	10,496	10,924	11,726
Eaton Green Road	677	7,383	8,226	7,330	7,161	7,155	8,109
Lower Harpenden Road	106	5,104	5,555	5,475	5,746	6,232	5,959
London Road	393	9,225	8,788	8,523	8,582	*7,190	8,747
Sub-total		42,782	47,083	45,723	44,850	45,647	49,642
Total		62,710	68,479	66,853	65,966	67,492	73,748

Summer 2010 - 2015 Traffic Counts - average 12 hrs/7 day



A general conclusion in comparing the 2014 and 2015 data is that flows increased on all but one of the 8 monitored roads, with the greatest increases in flows (both absolute numbers and % change) being on London Road. The only monitored road where flows reduced over the same period was on the Lower Harpenden Road. However, as it has already been mentioned both London Road and Lower Harpenden Road traffic counts are not meaningful as a result of the works at Junction 10a in 2014.

The map overleaf indicates location of these observation points.

* - Site impacted by J10a works

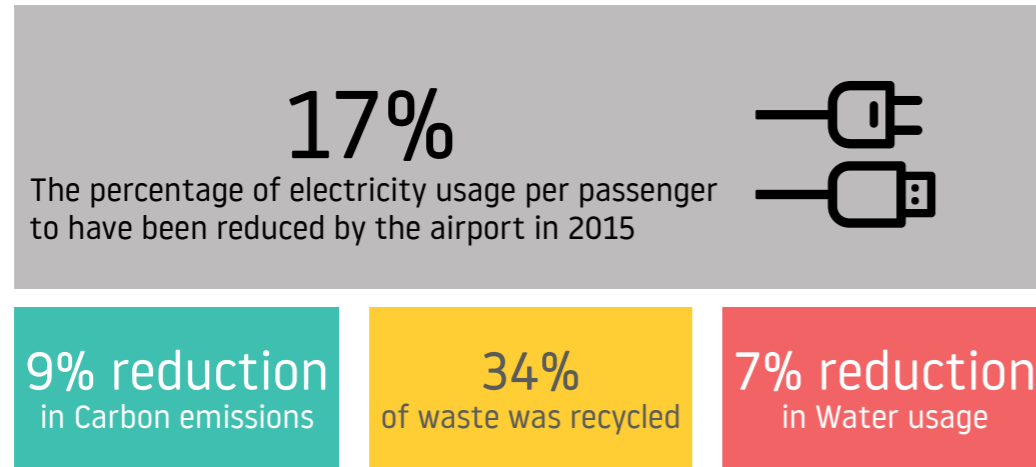
Local Highway Network



Sustainability

LLAOL is committed to operating in a way that maximises the socio-economic benefits for the local and regional area whilst minimising the environmental impacts. To ensure this vision is shared and supported, we work closely with airlines, stakeholders and business partners to promote this approach across the airport, ensuring that the full benefits that London Luton Airport can bring to the region are realised.

LLAOL aims to continuously improve on environmental performance in many different areas across the Airport. In 2015 the following was achieved:



The airport maintained the ISO14001 international accreditation for Environmental Management System and the ISO50001 international accreditation for Energy Management.

Sustainable Travel Improvements during 2015

During 2015 construction works began to redevelop the road network, parking, taxi and drop-off facilities at the terminal entrance along with the bus station. Further information on these upgrades can be found under 'Planning and Development'.

Overnight rail services from Luton Airport Parkway begin at the end of 2015, making rail a viable transport option for 2-3 million more airport passengers per year. The shuttle buses from Luton Airport Parkway up to the airport terminal were also rebranded, and improved ticket machine facilities were installed.

A new bus service began running up to the airport in 2015, operated by Metroline. The 714 service runs from New Barnet, through London Colney, St Albans and Harpenden before travelling up to the airport.

Major improvements to Junction 10a of the M1 have recently been completed in conjunction with the Highways Agency and Luton Borough Council. These works have relieved congestion at this junction, providing seamless dual carriageway access from the M1 to the airport approach road.

A survey on issues relating to luggage on public transport to and from the airport was also undertaken in August 2015, with the results reported back to transport operators.

Planning and Development

Through the local transport plan, Luton Borough Council (LBC) set out the policies, strategies and schemes for Luton, Dunstable and the Houghton Regis area. The current Local Transport Plan (LTP3) for Luton covers the period 2011-2026 and can be accessed through LBC's website.

Airport planning and development

London Luton airport's planning consent for a £110m development was granted by Luton Borough Council in 2014. The ambitious project aims to greatly enhance the passenger experience with an extensive terminal upgrade, better road access, and a new multi-storey car park.

During 2015 enabling works were undertaken in preparation for the official commencement of re-development on the 1st January 2016. Two construction contractors were also appointed in 2015, these were McLaughlin & Harvey and Whitemountain.

The redevelopment is currently on schedule with a number of key milestones already reached in 2015.

Security Search Area

In November 2015 the security search area was relocated to a larger space on the ground floor along with the introduction of new equipment which has helped speed up security checks. The area will be expanded further in future to increase the number of security lanes.

Temporary Arrivals

The arrivals hall moved to its temporary location in 2015, this has enabled terminal works to commence inside the terminal area and the security hall to be moved in to its place.

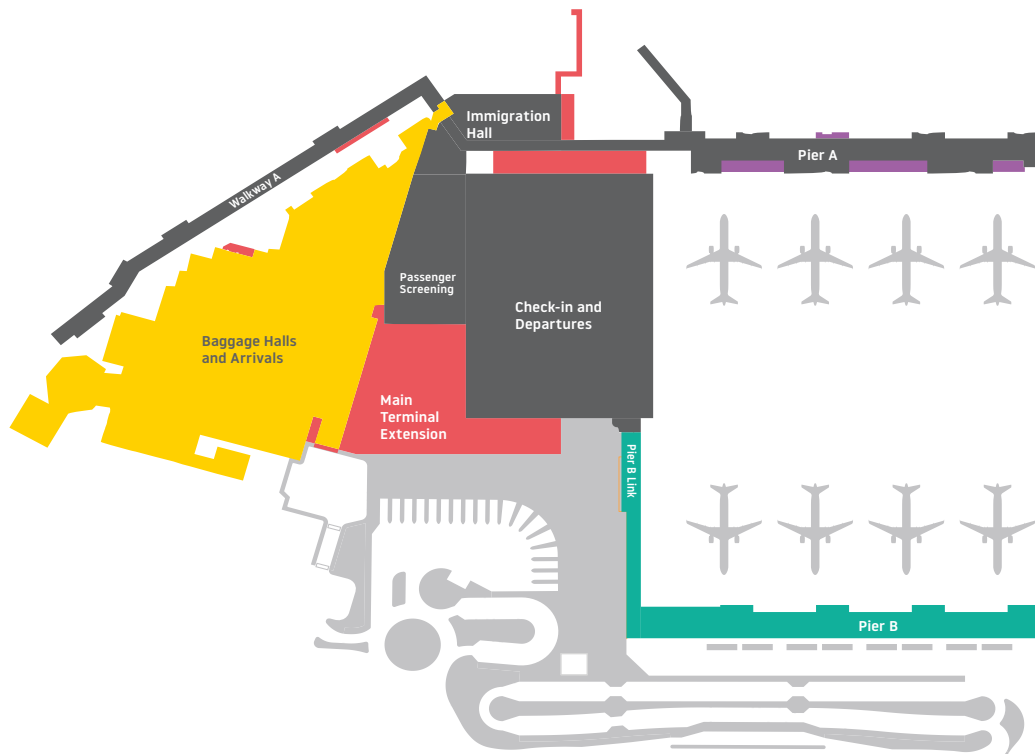
Bus Interchange

2015 saw the opening of the new bus interchange area, this now offers more routes and increased frequency of the bus routes.

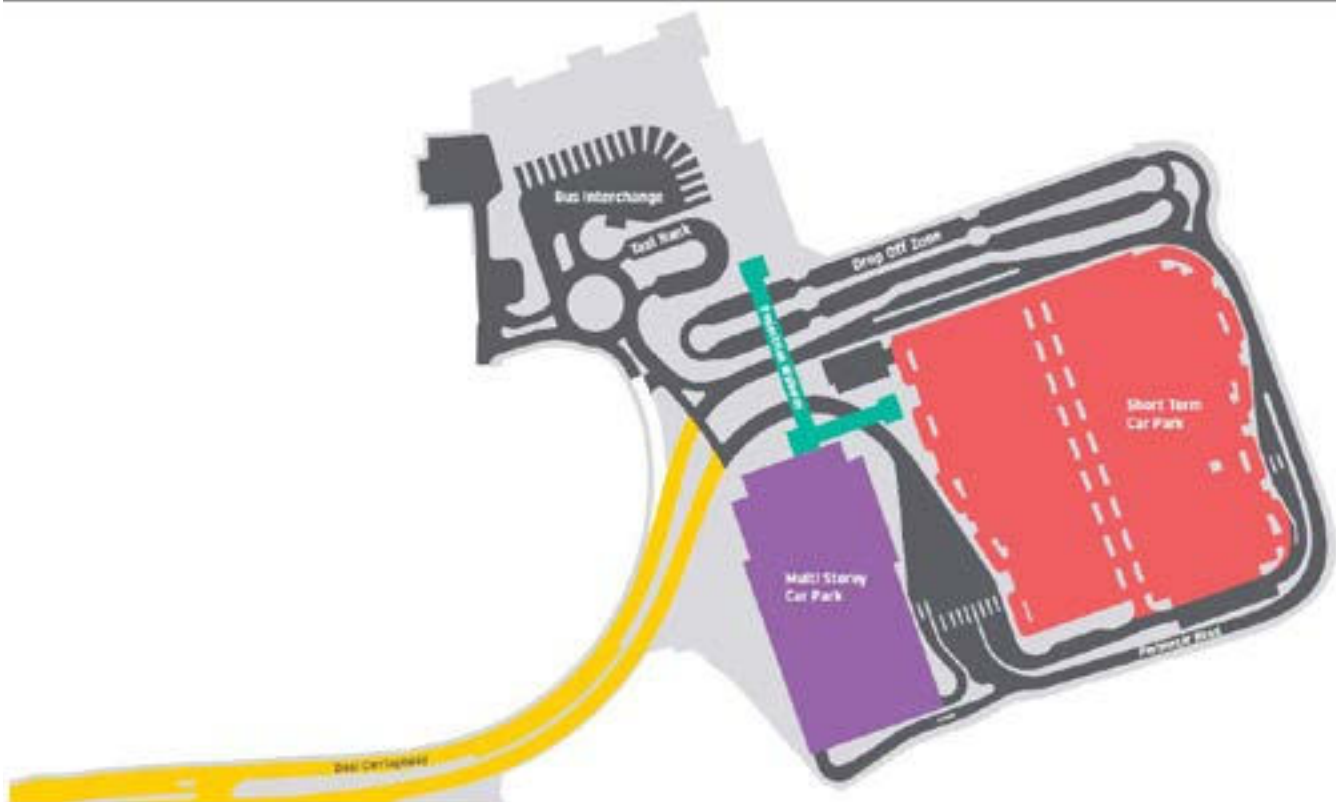
Below are two maps showing the extent of the works.



The following two maps show the timescales and description of the works both airside and landside.



Main Terminal Extension		Pier A Extensions		New Pier		Baggage Reclaim	
Start Date	Completion Date	Start Date	Completion Date	Start Date	Completion Date	Start Date	Completion Date
January 2016	June 2017	April 2016	October 2016	March 2016	End of 2017	April 2017	End of 2017



Short Term Car Park		Multi Storey Car Park		Pedestrian Walkway		Dual Carriageway	
Start Date	Completion Date	Start Date	Completion Date	Start Date	Completion Date	Start Date	Completion Date
July 2015	October 2016	January 2016	July 2016	November 2015	July 2016	January 2016	September 2016

ANNEX G - AIRPORT ANNUAL MONITORING REPORT 2016

Annual Monitoring Report **2016**



London
Luton
Airport



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Foreword

2016 was a record year for London Luton Airport (LLA). 14.5million passengers chose to travel with us, making it our busiest year on record.

Demand for air travel across the UK is increasing rapidly. Moreover, the airspace over our local region is among the busiest in the world: over 4,000 flights a day operating in and out of London airspace, which means we cannot act alone to change flightpaths to and from LLA.

In response to increased demand, we are making the biggest investment in our history to transform the airport. The redevelopment of our terminal will bring huge benefits for passengers, but it is vitally important to us that the local community also shares in the success of the airport.

At LLA, our aim is always to work constructively with the local community and our partners to strike the right balance between maximising the positive social and economic benefits of a successful airport to the local area and the UK as a whole while minimising the impact of aircraft noise.

The economic benefits of the airport are easy to quantify.

Once the current development is complete, LLA will contribute £1.4billion per year to the local economy and £2.3billion nationally. It will support over 37,700 jobs, which on average pay £11,000 per year more than the national average wage. Residents of the Three Counties took more than 4.5 million flights from LLA last year, equivalent to 2.3 trips per person.

But we recognise that the airport's growth may give rise to questions about noise levels.

LLA already operates under the most stringent noise restrictions of any major UK airport. But we are continually looking to do more. As the airport continues its growth and development, we are evolving our approach to noise management. We are committed to:



1. Inviting and listening to feedback

We hold regular noise surgeries and are available to listen to your concerns 365 days per year.

2. Acting on the feedback we receive

Whether it is introducing new mitigation initiatives, buying new noise monitors or simplifying our complaints system, we act on your feedback.

3. Communicate transparently

We update the community with quarterly monitoring reports, through our consultative committee and a new monthly email newsletter: 'Inform'.

4. Input into national policy-making

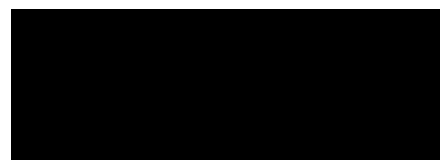
Airspace changes depend on national policies. LLA will make sure your views are heard in national consultations.

This Annual Noise Monitoring Report is one example of how we put those principles into action. We hope it answers some of the questions you may have over the impact of the airport's transformation.

If you have any further queries please don't hesitate to contact the team by calling 01582 395382 or emailing noise@ltn.aero.

Neil Thompson

*Operations Director
London Luton airport*



Key Monitoring Indicators

Parameter		2016	2015
Total Aircraft Movements	↑	131,435	116,412
Day Movements (07:00 - 23:00)	↑	116,686	103,220
Night Movements (23.00 – 07.00)	↑	14,749	13,192
Early Morning Movements (06.00 – 07.00)	↑	5,161	4,778
Total Scheduled Passengers	↑	14,092,180	11,807,292
Total Charter Passengers	↓	459,657	471,893
Total Passengers	↑	14,551,837	12,279,185
Number of Destinations	↑	135	118
Number of New Airlines	-	4	4
Number of New Routes	↑	23	20
Westerly/Easterly Runway Split (%)	-	70/30	72/28
Night Quota Used (3,500 Limit)	↑	2,663.75	2,480
Average Ratio of Aircraft movements % (day/night)	-	89/11	89/11
Track Violations (covers period Apr-Dec 15)	↑	91	62*
Departure Noise Infringements (Day)*	↑	21	15
Departure Noise Infringements (Night)*	↓	3	9
Fines transferred into Community Trust Fund	↑	£75,700	£52,000
24hr Continuous Decent Approach (% achievement)	↑	90%	87%
No. Departures Recorded at ≥ 85 dB(A) during Day (Night)	-	8 (1)	13 (0)
No. Departures Recorded at ≥ 76 dB(A) during Day (Night)	-	6,379 (943)	7,871 (1,209)
No. Departures Recorded at ≥ 70 dB(A) during Day (Night)	-	42,667 (4,511)	36,879 (4,266)
Night Noise Contour Area (48 dB L _{Aeq, 8h})	↑	36.5km ²	35.3km ²
Population within Night Noise Contour (48 dB L _{Aeq, 8h})	↑	16,105	14,681
Dwellings within Night Noise Contour (48 dB L _{Aeq, 8h})	↑	6,767	5,539
Noise Complaints	↑	3,612	960
Complainants	↑	814	355
Number of New Complainants	↑	525	158
Largest Source of Complaints	-	Deps. West	Deps. West
Number of PM ₁₀ exceedances	-	0	0

*Please note that the data shown for noise infringements in 2015, includes those that received a violation between January-March 2015, when the noise limits were greater. New lower noise limits were put in place in April 2015.

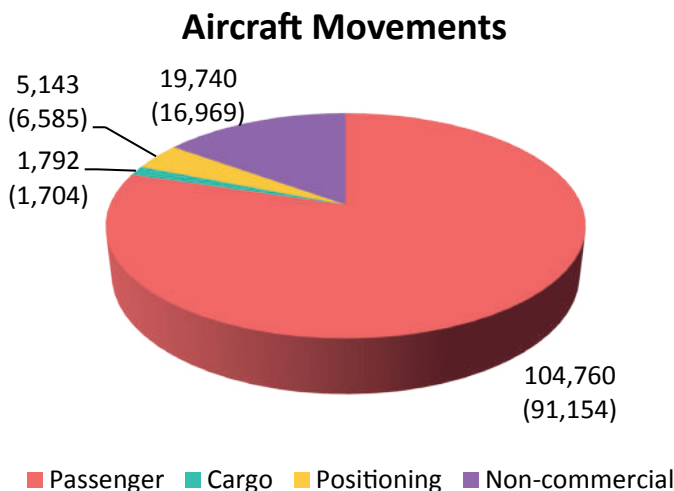
Air Traffic Data

Aircraft movements

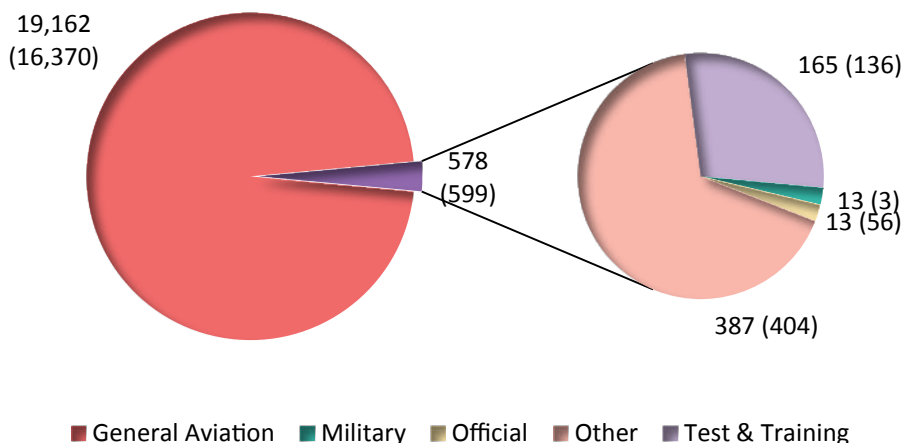
LLA handled a total of 131,435 aircraft movements during 2016, an increase of 13% compared to 2015. An aircraft movement is the take-off or landing of any aircraft from the airport.

The majority of aircraft movements were passenger flights at 104,760 movements. This includes commercial flights by executive aircraft (compared with 91,154 in 2015). Other movements included cargo, positioning flights and non-commercial flights.

For comparison purposes 2015 data is shown in brackets.



Non-Commercial Aircraft Movements



Movement Classification

Commercial – operating for hire or reward and includes cargo, passenger and positioning flights

Non-Commercial – not operating for hire and reward

Cargo – aircraft movements which are solely for freight. It should be noted that freight can also be carried on aircraft in other categories

General Aviation – private aircraft, helicopters and business jets not operating for hire or reward

Passenger – commercial passenger flights, including executive aircraft

Positioning – typically empty flights to/from other airports

Military – flights on military business

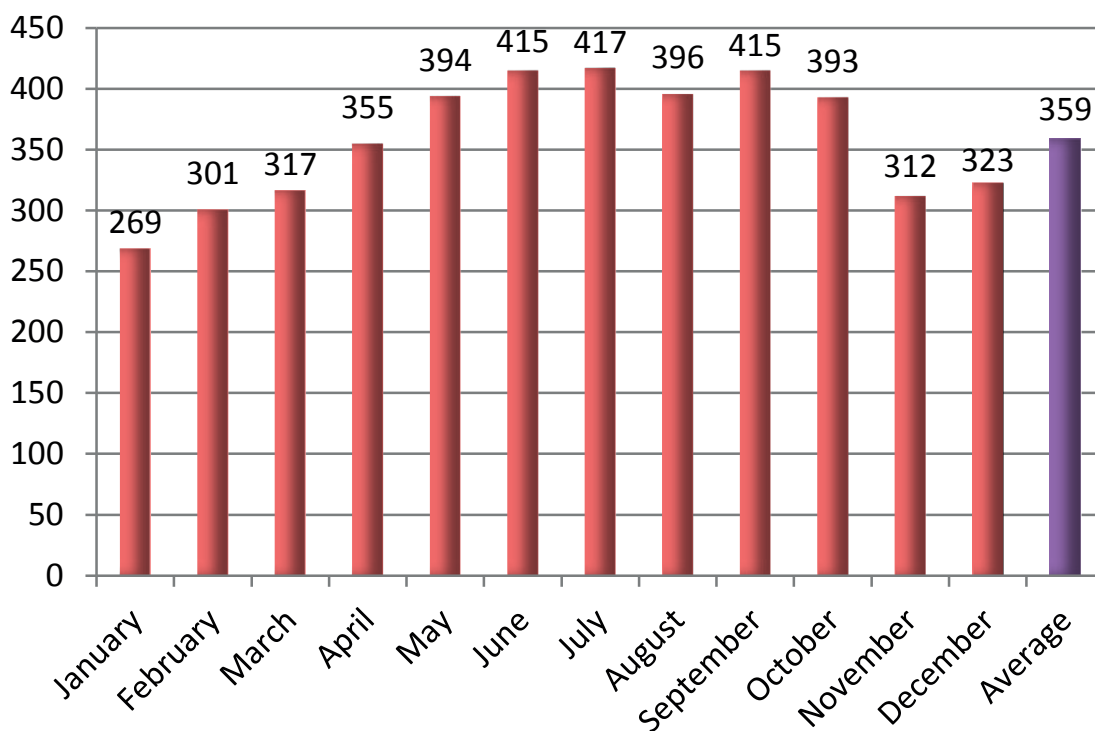
Official – flights solely for official purposes by British or foreign civil government departments

Other – flights coming for maintenance and or departing aircraft that have made an unscheduled return to base

Test & Training – training flights involving aircraft and also flights following or during aircraft maintenance

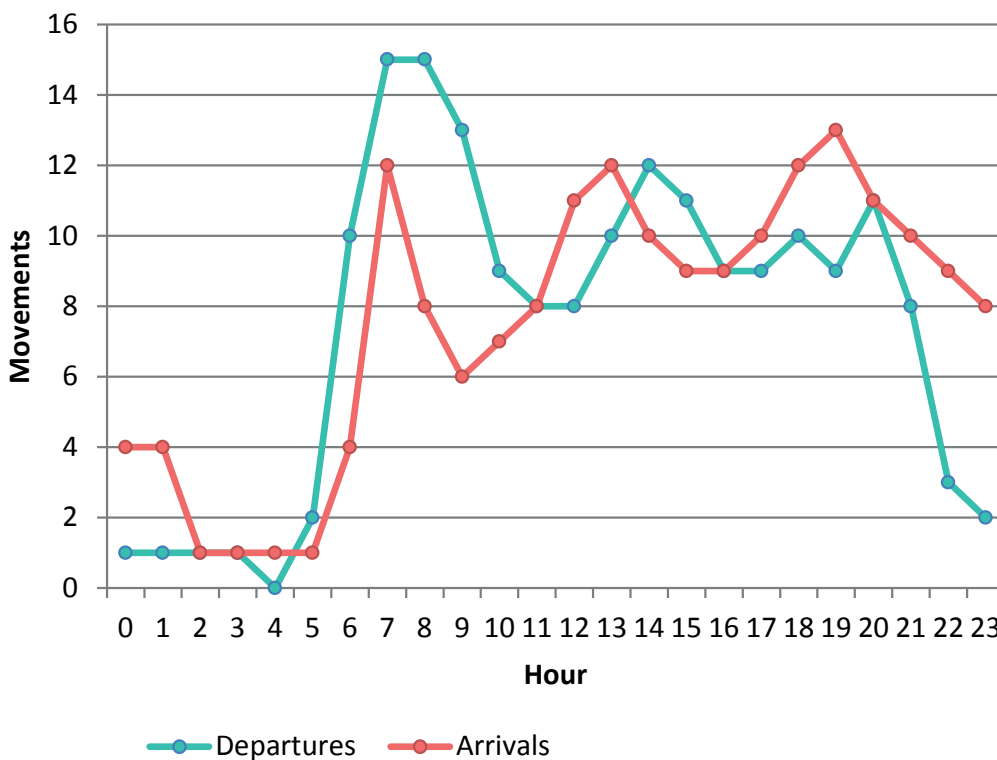
The graph below illustrates that the busiest time of year is May - October, with over 390 flights per day. **Our busiest day of the year was September 9th with 463 aircraft movements.** In comparison, winter months are the quietest, with just over 300 flights per day. On average there were 359 movements per 24 hours (compared to 319 in 2015).

Annual Average Daily Movements

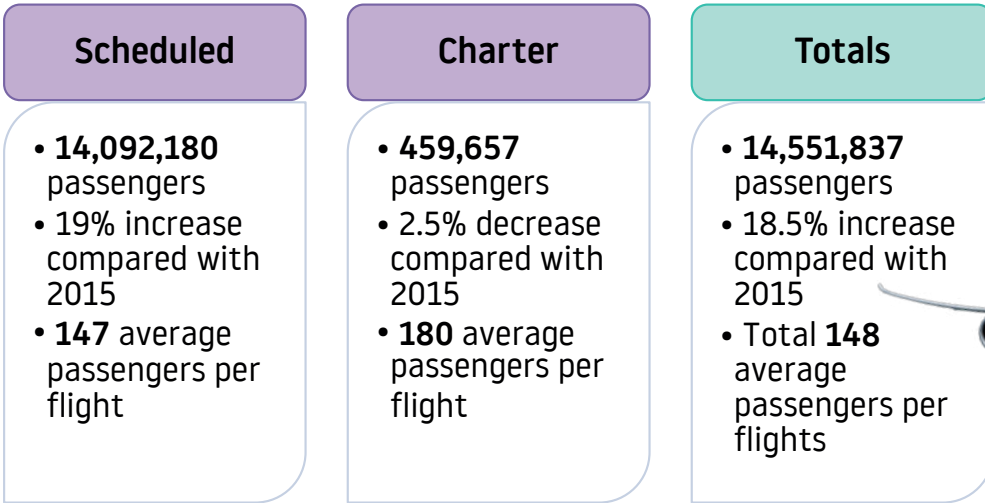


The busiest time on average during 2016 for departing aircraft was 06:00-09:00 hrs, with another peak between 13:00-15:00. The average busiest time for arrivals was 07:00-08:00 and 12:00-14:00 hrs. The graph also highlights a low level of average movements during the hours of 00:00-05:00 hrs.

Annual Average Hourly Movements

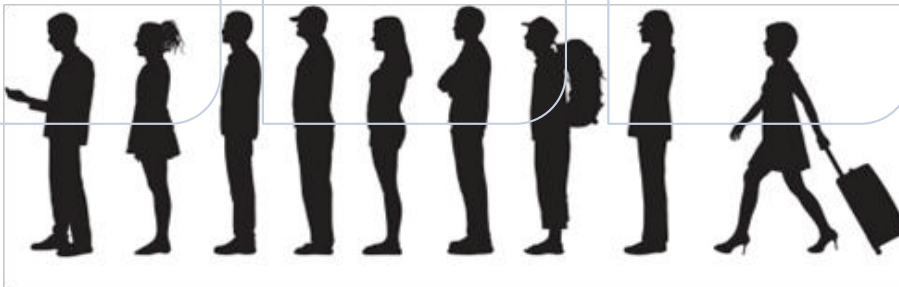
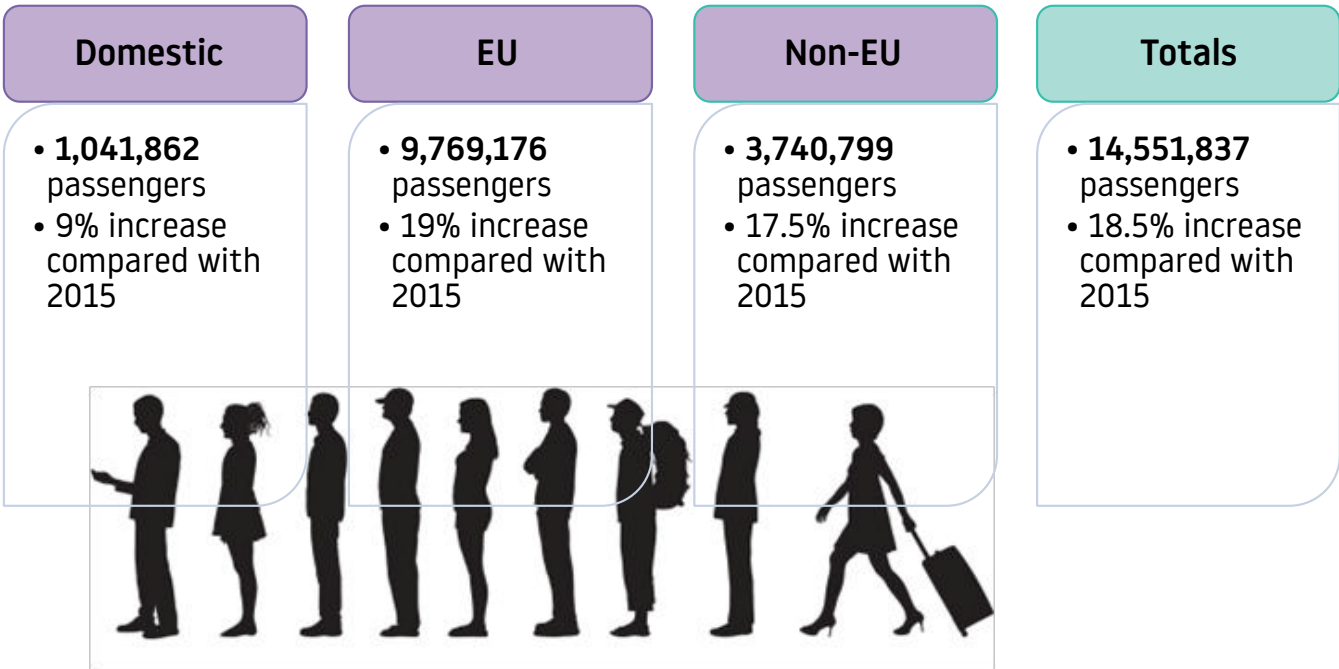


Passenger data



Charter flights are flights in which the aircraft has been chartered (or leased) by a company, typically a tour operator or an executive customer. Charter seats are typically not sold directly by the airline. Scheduled flights are regular flights organised by the company which owns the aircraft.

A total of 14,551,837 passengers were handled at LLA during 2016; 14,092,180 on scheduled flights (97%) and 459,657 on charter flights (3%). This represents an increase in passengers of 18.5% compared with 2015.



Cargo

Cargo operations represent just under 2% of all air transport movements at London Luton Airport. Night movements accounted for 70% of total cargo movements. These were primarily postal flights or intra-European express delivery services moving time sensitive and perishable freight such as fresh food, medication and urgently needed technical equipment vital to supporting and sustaining economic growth. The flights carrying more general, less time-sensitive cargo already operate outside of the night-time period. This would include Formula 1 cars, live animals, clothing, machine parts and more.

Operator	Movements			Tonnes
	Day Movements	Night Movements	Total	Total
2016	648	1,515	2,163	25,788
2015	739	1,279	2,018	28,041
2016/2015 comparison	-12%	+18%	+7%	-8%

N.B. The cargo movement count is the total number of movements that carried cargo as opposed to flights that are primarily operated for the carriage of cargo. This is because 3% of total cargo tonnage was carried on passenger aircraft. Consequently the movement figures in this section will differ from figures in the Aircraft Movements piechart which shows dedicated cargo movements.

25,788

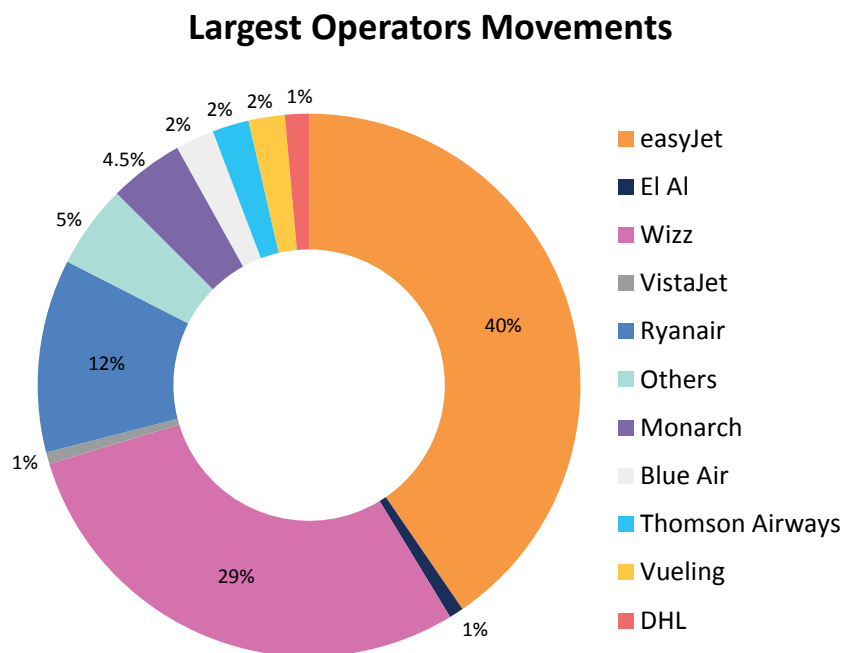
tonnes of cargo was carried on 2,163 passenger and cargo aircraft.



Airlines

London Luton Airport works very closely with its airline partners. The table below provides the movement statistics by the 10 largest operators.

Operator	Movements
easyJet	41,625
Wizz	29,868
Ryanair	11,846
Monarch	4,587
Blue Air	2,364
Thomson Airways	2,252
Vueling	2,219
DHL	1,469
El Al	888
VistaJet	715
Others	5,150
TOTAL	102,938



N.B This table includes movements for both passenger & cargo aircraft but excludes positioning flights and air-taxis.



Movements by aircraft type

	Aircraft Type	Movements	% of Total movements
Passenger Aircraft (99,640 movements)	Airbus A320 & A320 sharklets ¹ (easyJet, Wizz Air, Monarch)	45,281	34.5%
	Airbus A319 (easyJet)	28,000	21.3%
	Boeing B737-800 winglets ¹ (Ryanair, Thomson, Blue Air, El Al)	15,437	11.7%
	Airbus A321 & A321 sharklets ¹ (Wizz Air, Monarch)	6,673	5.1%
	Boeing B737-400 (Blue Air)	1,340	1.0%
	Boeing B757 & B767 family (Thomson, El Al)	1,280	1.0%
	MCD Douglas MD-82/87	54	0%
	Other Passenger Aircraft	1,575	1.2%
Cargo (2,189 movements)	Airbus A300-600 (A306) (DHL, MNG Cargo)	1,134	0.9%
	BAe ATP (West Atlantic)	476	0.4%
	Boeing B737-300 & B737-400 (DHL)	154	0.1%
	Boeing B757-200 (DHL)	390	0.3%
	Other Cargo Aircraft	35	0%
General Aviation (29,033 movements)	Gulfstream 5 and 500 series GLF5	2,277	1.7%
	Canadair Global Express GLEX	3,806	2.9%
	Cessna Citation Excel C56X	2,896	2.2%
	Canadair Challenger CL60	1,483	1.1%
	Gulfstream 3, 4, & 400 series GLF3/GLF4	1,735	1.3%
	Gulfstream 650 GLF6	1,042	0.8%
	Embraer Legacy 600 E135	1,720	1.3%
	Canadair Challenger CL30	997	0.8%
	Cessna Citation Jet C525	1,351	1.0%
	Dassault Falcon FA7X	871	0.7%
	Other Private Aircraft	10,855	8.3%
Helicopter	573	0.4%	
TOTAL	131,435	100%	

The aim of this section is to provide the number of movements for a specific aircraft type. The groups are conditional, assuming that these are the typical aircraft types used for passengers, cargo and general aviation movements. As a result the number quoted here within this section will differ from those within the Aircraft Movements Section.

¹ - Winglets and sharklets are small aerodynamic surfaces mounted almost vertically at the wingtips. There is no difference between winglets and sharklets; the term sharklet is just the name used by Airbus for the winglets fitted to their aircraft.

Destinations

London Luton Airport has seen thirty three months of consecutive passenger growth (correct as of January 2017) making 2016 the busiest year ever in the airport's history. This significant growth comprised of increased capacity and new routes with established airlines and the arrival of four new airlines Vueling, Transavia France, Adria Airways and Fly Kiss.

The map below shows the destinations flown/on sale to and from London Luton in 2016. Our airlines fly to 135 destinations across 35 different countries.



New Routes 2016

Destination	Launch	Airline
Turin, Italy	10-Dec-16	easyJet
Brest, France	7-Nov-16	flyKiss
Clermont Ferrand, France	7-Nov-16	flyKiss
Satu Mare, Romania	31-Oct-16	Wizz Air
Tuzla, Bosnia	30-Oct-16	Wizz Air
Tenerife, Spain	20-Sep-16	easyJet
Toulouse, France	19-Sep-16	easyJet
Lanzarote, Spain	19-Sep-16	easyJet
Suceava, Romania	19-Aug-16	Wizz Air
Zurich, Switzerland	1-Aug-16	Vueling
San Sebastian, Spain	26-Jul-16	Air Nostrum
Pristina, Kosovo	19-Jun-15	Adria Airways

Destination	Launch	Airline
Olsztyn-Mazury, Poland	18-Jun-16	Wizz Air
Dubrovnik, Croatia	24-May-16	easyJet
Larnaca, Cyprus	24-Apr-16	Blue Air
Paris Orly, France	22-Apr-16	Transavia
Vilnius, Lithuania	2-Apr-16	Ryanair
Kaunas, Lithuania	29-Mar-16	Wizz Air
Turin, Italy	27-Mar-16	Blue Air
Jersey, UK	27-Mar-16	easyJet
Palanga, Lithuania	23-Mar-16	Wizz Air
Amsterdam, Netherlands	18-Mar-16	Vueling
Barcelona, Spain	17-Mar-16	Vueling

Routes Ending 2016

Whilst there were 23 new routes launched from LLA in 2016, four have ended; these include Istanbul, New York, Ercan and Waterford.

More information about our destinations can be found on the airport's website:

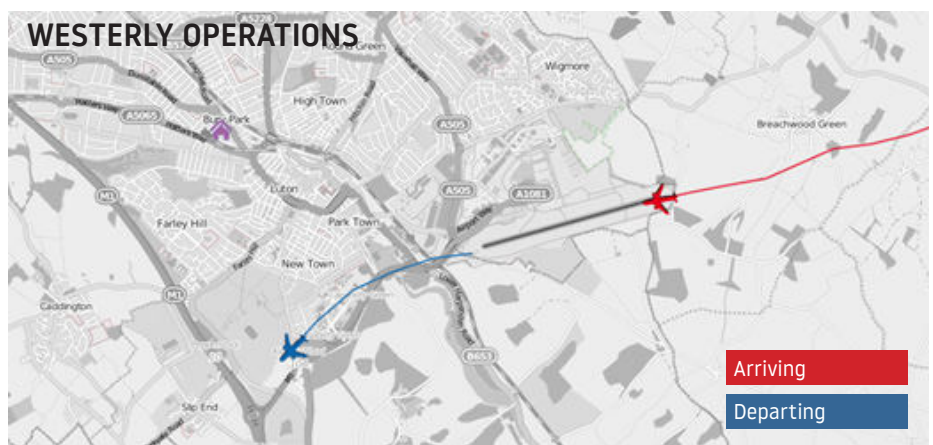
<http://www.london-luton.co.uk/inside-lla/destination-map>

Runway usage

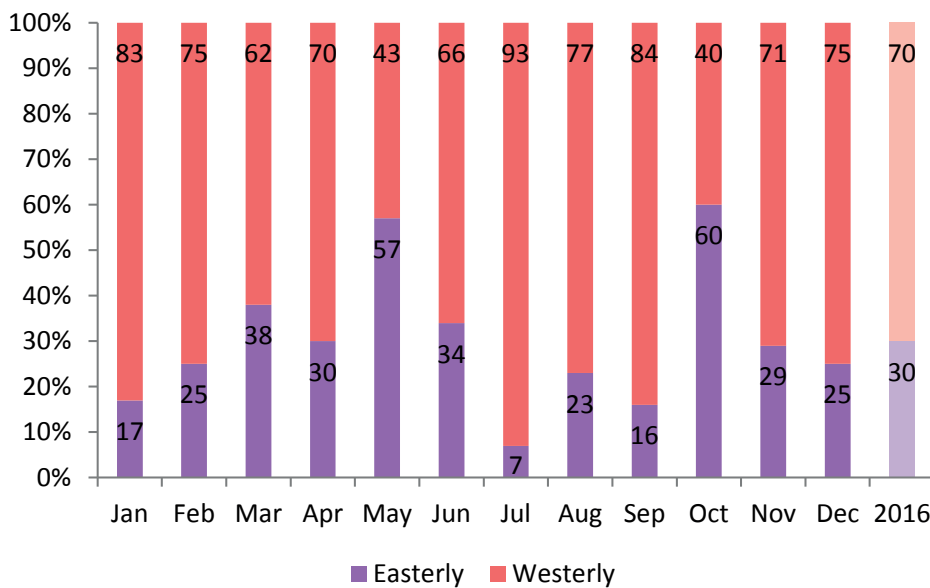
Aircraft need to land and take off into the wind and therefore the prevailing wind direction determines the direction of airfield operation. South westerly and westerly winds prevail for much of the year, typically around 70 per cent of the time.

Wind speeds and directions recorded at higher altitudes can vary considerably from those recorded at ground level. The position of the wind is under constant review by NATS which is why the operation can change direction more than once in a day. However it is also not unusual for the runway to operate in the same direction for several weeks.

A monthly breakdown is shown, highlighting unusually prolonged spells of westerly operations over the summer and increased levels of easterly operations over the winter and spring months of 2016.



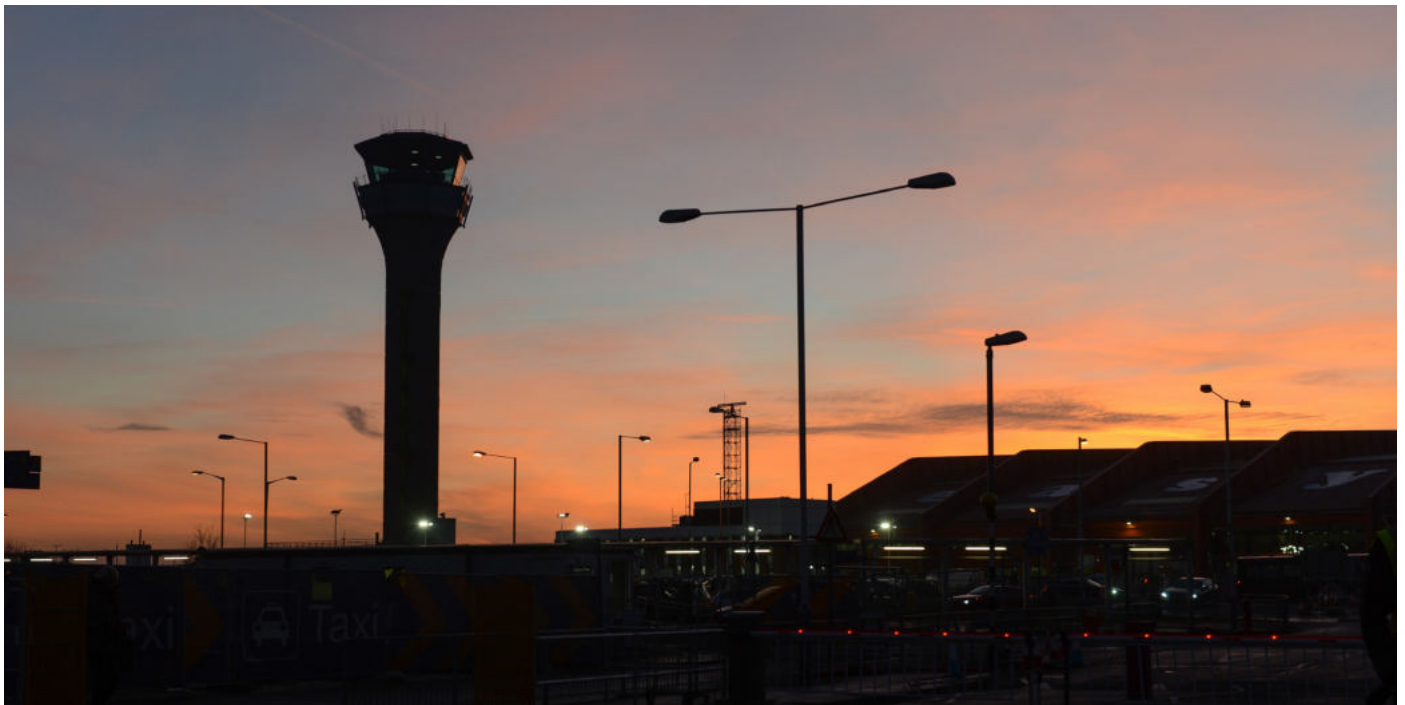
Runway Usage



Year	Easterly	Westerly
2016	30%	70%
2015	28%	72%
2014	32%	68%
2013	36%	64%
2012	27%	73%
Average	31%	69%

The runway split during 2016 was 30% easterly and 70% westerly (compared to 28% / 72% in 2015). A breakdown of runway usage over the last five years is also shown in the table, giving a historical split of 31% easterly and 69% westerly.

Night Flights

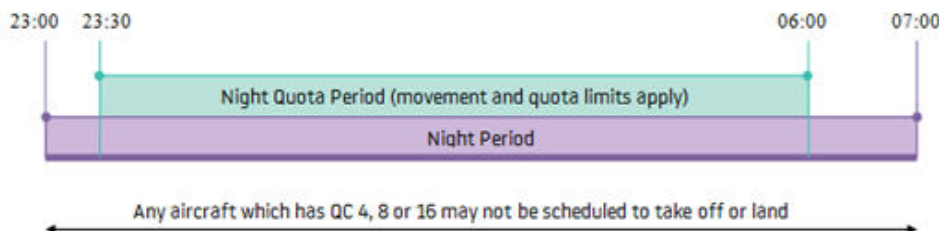


Night Flying Restrictions

As from 1st April 2015 London Luton Airport introduced new night restrictions as part of the planning conditions imposed by Luton Borough Council.

These restrictions have been put in place to limit and mitigate noise disturbance from aircraft operating at night, to prohibit aircraft of certain types from operating, as well as limiting the number of occasions on which aircraft may take off or land.

The night flying restrictions contain a 12 month period aircraft movement limit and a 12 month period quota count limit. The quota count (QC) means that points are allocated to different aircraft types according to how noisy they are. The noisier the aircraft type, the higher the points allocated. This provides an incentive for airlines to use quieter aircraft



The table overleaf records the QC bands identified by the certified noise levels, and gives some typical example aircraft, some of which operate from LLA.

The 'Night Quota Period'

The 'Night Quota Period' is from 23:30 to 06:00 hours local, during which period aircraft movements (take-off or landing) are restricted by a limit on the number of movements with noise quotas as an additional measure.

Aircraft are certified by the International Civil Aviation Organisation (ICAO) according to the noise they produce during specific certification tests conducted by the manufacturer. They are classified separately for both take off and landing. The points are then allocated to different aircraft types according to how noisy they are.

The 'Early Morning Shoulder Period'

The 'Early Morning Shoulder Period' is 06:00 to 07:00 hours local. During this period aircraft movements (take-off or landing) are restricted by a limit on the number of movements (the same as the Night Quota Period).

Aircraft movement and quota count limits (per 12 month period)

Condition 11(f) requires that for the Night Quota Period (2330 - 0600) the following limits shall not be exceeded:

- 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.

Certificated noise level (EPNdB)	Typical aircraft	Quota Count
Greater than 101.9	Some B741/B742, AN124/AN225	QC 16
99 to 101.9	Some B744, MD8	QC 08
96 to 98.9	B732, MD10	QC 04
93 to 95.9	B772, A306, A332	QC 02
90 to 92.9	A320/A321, some B738, B752, B788	QC 01
87 to 89.9	A319/A320, some B734, B738, B788	QC 0.5
84 to 86.9.	A319/A320, GLEX, FA7X/F900/F2TH	QC 0.25
Less than 84	Challenger series (eg CL60), ATP, C525/C550	QC 0

Condition 11(h) requires that for the Early Morning Shoulder Period (0600 - 0700) the total annual movements by aircraft in any 12 month period shall be limited to 7,000.

The table below provides total aircraft annual movements and noise quota per 12 month period and compares those against the limits set by planning conditions.

	Night Quota Period (2330 - 0600)		Early Morning Shoulder (0600 - 0700)
	Movements Limited to 9,650	Quota Count Limited to 3,500	Movements Limited to 7,000
Jan 2016	360	133.25	250
Feb 2016	366	151.75	259
Mar 2016	396	166.50	313
Apr 2016	576	201.75	509
May 2016	745	250.75	544
Jun 2016	940	301.00	485
Jul 2016	931	309.50	556
Aug 2016	834	293.75	539
Sep 2016	801	267.00	576
Oct 2016	746	253.25	525
Nov 2016	388	156.25	296
Dec 2016	420	179.00	309
Total for preceding 12 months	7,503	2,663.75	5,161

There were no night time aircraft movements with a QC value of greater than 2 in 2016. Of the 129 QC 2 aircraft movements in 2016, 111 were departures by Airbus A300-600 aircraft.

Marginally Compliant Chapter 3 aircraft

Taking the year as a whole, of the 130,044 movements where Chapter 3 categorisation is applicable, only 52 are known to be marginally compliant. These movements were all by a single aircraft, a Boeing 737-200. A further 37 aircraft movements were by aircraft with unknown classification. These comprised 9 different aircraft; three Antonov 12s, a Boeing 767-200, three Boeing 767-300s, a Dassault Falcon 20, and a Gulfstream 3.



Day/Night ratio of movements

There were 14,749 night movements during 2016 (compared to 13,192 in 2015, an increase of 12%), an average of 40 movements per night (compared to 36 last year). Arriving aircraft accounted for 57%

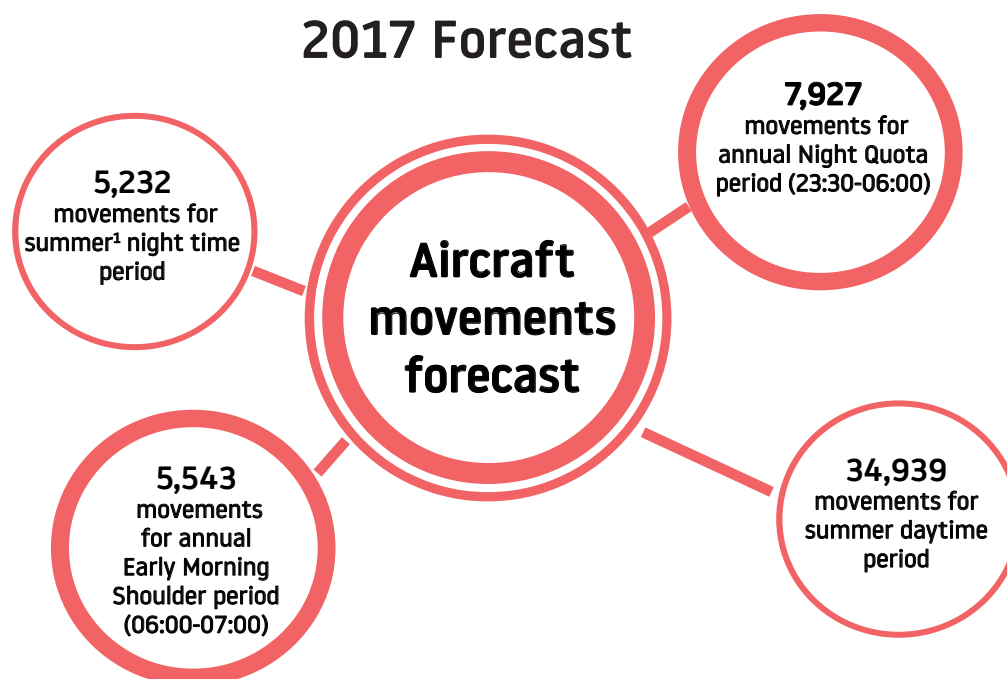
of total night movements, relating primarily to the last rotation of Luton based passenger aircraft scheduled to land back at the airport at night, between 23:00 hrs and midnight. 60% of total night

departures took off between 0600 - 0700 in the morning.

The average ratio of total aircraft movements during 2016 was 89% day / 11% night (in line with 89% day / 11% night in 2015).

2016	Day Movements (0700 - 2300)	Night Movements (2300 - 0700)		
	Day Movements	Night Quota Period (2330 - 0600)	Early Morning Shoulder (0600 - 0700)	Total Night Movements (2300 - 0700)
Departures	59,446	2,066	3,789	6,272
Arrivals	57,240	5,437	1,372	8,477
TOTAL	116,686	7,503	5,161	14,749

The figure below shows forecast aircraft movements for 2017, separated into daytime and night time periods.



¹ - Summer time covers period from 16th June until 15th September

Departing Aircraft

All propeller-driven aircraft with Maximum Take Off Mass (MTOM) over 5,700kg and all jet aircraft leaving London Luton Airport are required to follow specific departure routes known as Noise Preferential Routes (NPRs). These are established by consultation with the Safety and Airspace Regulatory Group (SARG) at the CAA and the London Luton Airport Consultative Committee, and they are designed to avoid flying over built-up areas wherever possible.

There are four Standard Instrument Departure (SID) routes for each runway – OLNEY, COMPTON, MATCH and DETLING.

Associated with each NPR is a swathe of airspace extending 1.5km (1km for RNAV) each side of the NPR centre line, within which aircraft concentrate and are considered to be flying on track. Aircraft must follow the NPR controls applicable to the runway in use at that time.

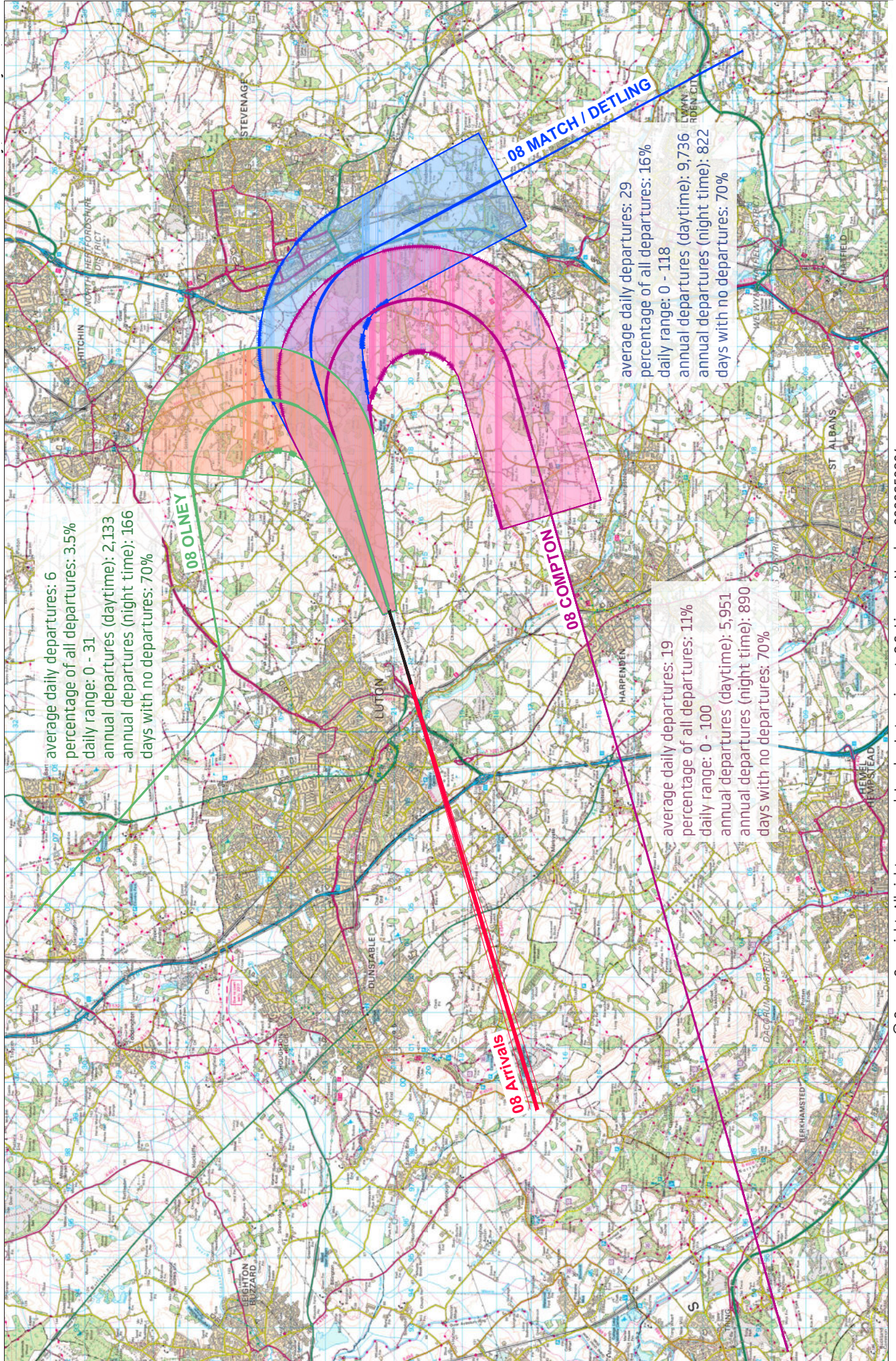
In the UK, the obligations of Noise Preferential Routings for aircraft following conventional SIDs cease when a height of 3,000ft (between 07:00hrs to 23:00hrs local time) and 4,000ft (during night time, 23:00hrs to 07:00hrs local time) has been reached. The obligations of the RNAV NPR ceases when a height of 4,000ft has been reached at all times.

Once aircraft have reached the NPR restricted altitude they will be considered no longer on the Noise Preferential Route. At that stage the aircraft may be directed by Air Traffic Controllers onto a different heading in order to integrate with the overall flow of traffic, this is known as vectoring. However on RNAV Match/Detling SID aircraft should not be vectored before the railway line between St Albans and Harpenden, unless this is required for safe separation from other aircraft or for other safety issues such as avoiding adverse weather.

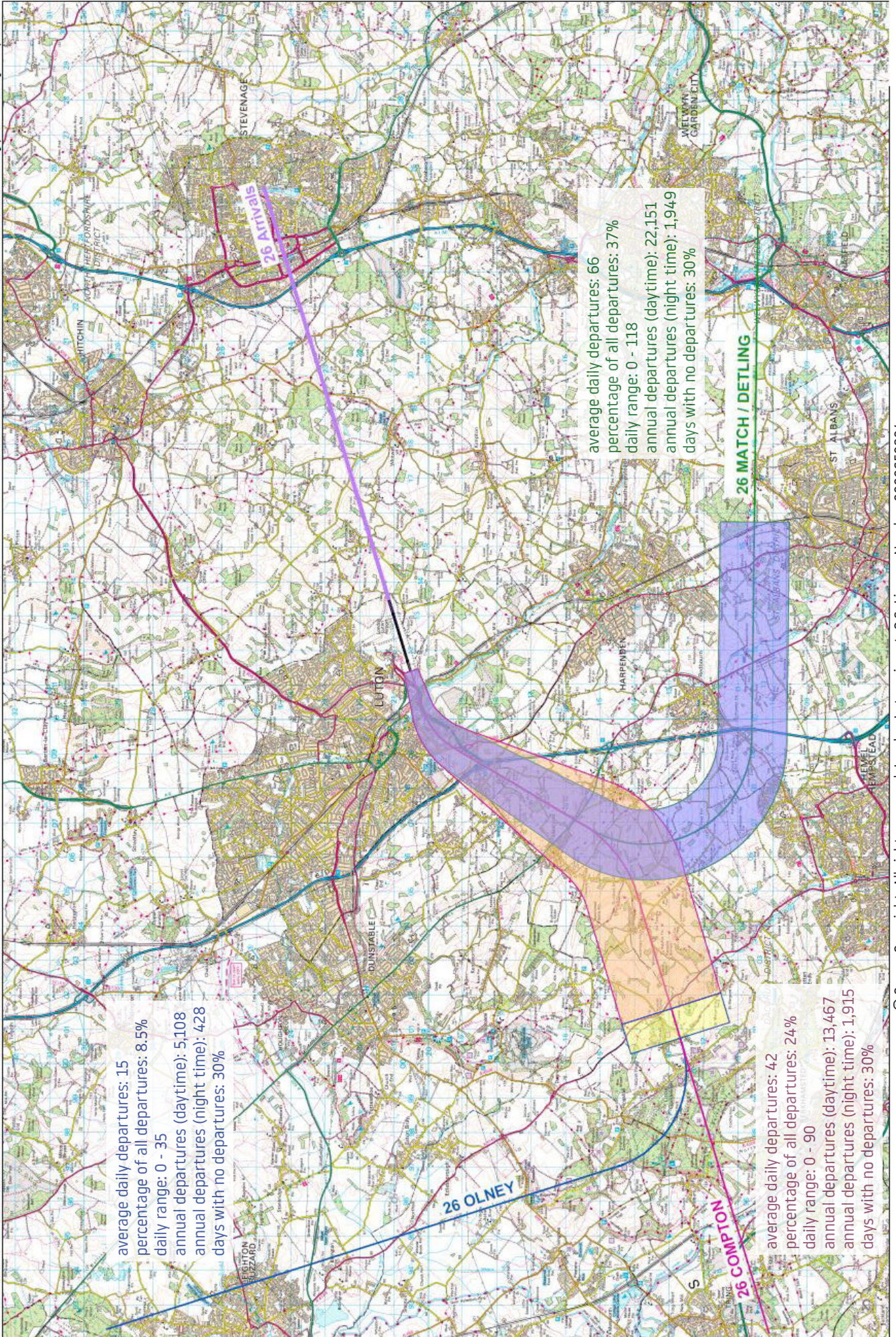
Two maps overleaf show indicative flight routes for westerly and easterly operations at London Luton Airport with detailed information about each departure route.



Plan showing Easterly (08) flight routes



Plan showing Westerly (26) flight routes



On Track performance

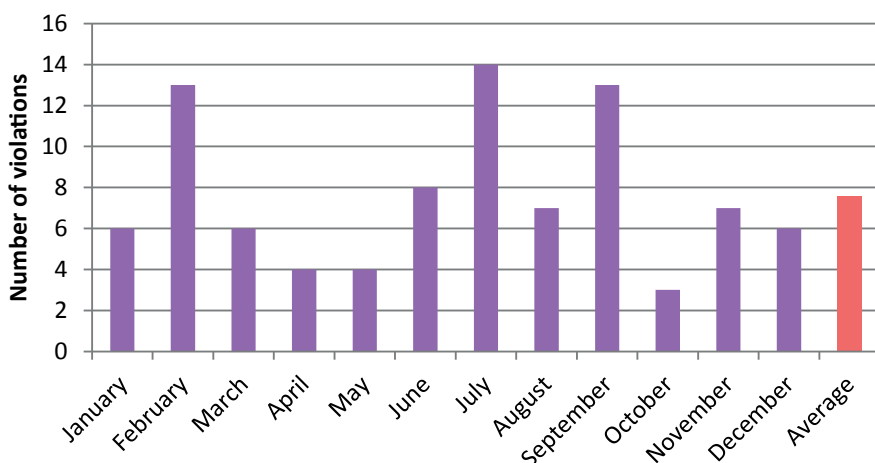
On the 1st April 2015 London Luton Airport implemented a Track Violation Penalty System as part of the noise related planning conditions. Using the airport’s Aircraft Noise and Track Monitoring System, the Flight Operations Team evaluates the radar tracks and investigates them with required input from Air Traffic Control (ATC) and airlines. A departure is deemed to have complied with the Noise Preferential Routing if the portion of flight below the appropriate vectoring altitude is flown wholly within the Lateral Swathe (LS). Where the aircraft is clearly flying outside the LS, the aircraft is identified as causing a “possible” track violation and is subject to a nominal fine. This money is transferred to our Community Trust Fund which awards grants to community projects.

As always, safety is paramount and there may be cases which involve vectoring an aircraft sooner than at the NPR height restriction. If ATC identifies any valid justification that could explain the deviation from the track, then the operator causing it will be exempt from the fine. Valid justifications include:

- Safety or operational reasons, i.e ATC vectoring
- Weather avoidance due to thunderstorm activity (as instructed by ATC)
- Emergencies

The diagram below shows off-track violations by month in 2016. The track keeping performance was 99.6%. This calculation includes deviations for weather, traffic avoidance and those identified as violations.

Off Track Violations



The breakdown of the violations by aircraft type is shown in the tables below.

A/C Type	No Violations
GLF6	11
CLF4	6
GL5T	5
C25A, C56X, CL30, CL60, F2TH	20
ATP, A320, GLEX	9
A321, C550, E55P, FA7X, GLF5, LJ55, MD82	14
A333, B732, B734, B737, B738, B752, B753, B763, BE40, C500, C510, C525, C560, C650, C680, CRJ2, E35L, E50P, F50, F900, G280, GALX, H25B, LJ31, PC12, SW4	26
TOTAL	91



£75,700, the total of all collected fines transferred to Community Trust Fund

Area Navigation (RNAV) procedures

Following on from a successful consultation, in which over 90% of feedback received from over 1400 responses was in favour of the new route, RNAV1 flight procedures were introduced on our westerly Match/Detling departure route on the 20th August 2015. This was designed to keep aircraft much closer to the centreline of the route using modern GPS procedures as opposed to older ground based radio beacons. This also allowed a reduction in the width of the corridor from 3km to 2km and means the number of people directly overflown has been reduced from approximately 13,000 to 3,000 people.

After implementation the Flight Operations Team at London Luton Airport closely monitored the route. For the majority of flights we saw RNAV working as predicted which had positive effects for our local communities. However, there were some track adherence issues with a small number of aircraft types, which resulted in some aircraft flying further south before turning over Hemel Hempstead and others cutting the corner of the route and flying directly over Flamstead. Until we could understand the full issue at hand, these operators were stopped from using RNAV route and reverted to the conventional route until the technical issues have been resolved.

In collaboration with the operators and aircraft manufacturers, LLA found a possible solution to the issue. The RNAV flight procedure a slight amendment and validation before being submitted to the CAA for approval, and implementation. The solution has been tested to ensure that it would work for all operators and not have any negative effect on those already using the RNAV procedure. The proposal was submitted to the CAA in July 2016 and notification of approval was received in October 2016. The amended procedure will be implemented in February 2017.

The final step of the Airspace Change Process is the Post-Implementation Review (PIR). This is usually conducted by the CAA twelve months after implementation; however, as there were only 85% of aircraft using the route in 2016 and implementation of the amended procedure is scheduled for February 2017, the review was delayed. CAA will confirm timescales and a list of PIR requirements in 2017.

Next Steps in Airspace Change

Aircraft currently departing on the 26 Match/Detling route, have a number of altitude constraints due to the interaction with other neighbouring airport flight paths, London Luton Airport is planning to explore the opportunities to remove these constraints when safe and possible to do so.

LLA is still exploring options for the Required Navigation Performance (RNP) route design; the location of RNP route needs to be carefully considered and LLA will be exploring the options of RNP in conjunction with increasing the altitude of aircraft. Investigations with NATS are ongoing to understand what steps need to be taken in order to achieve this.

Following this work, the next step within our programme would be to adopt new modernised procedures on the remainder of our departure routes and also our arrival routes.

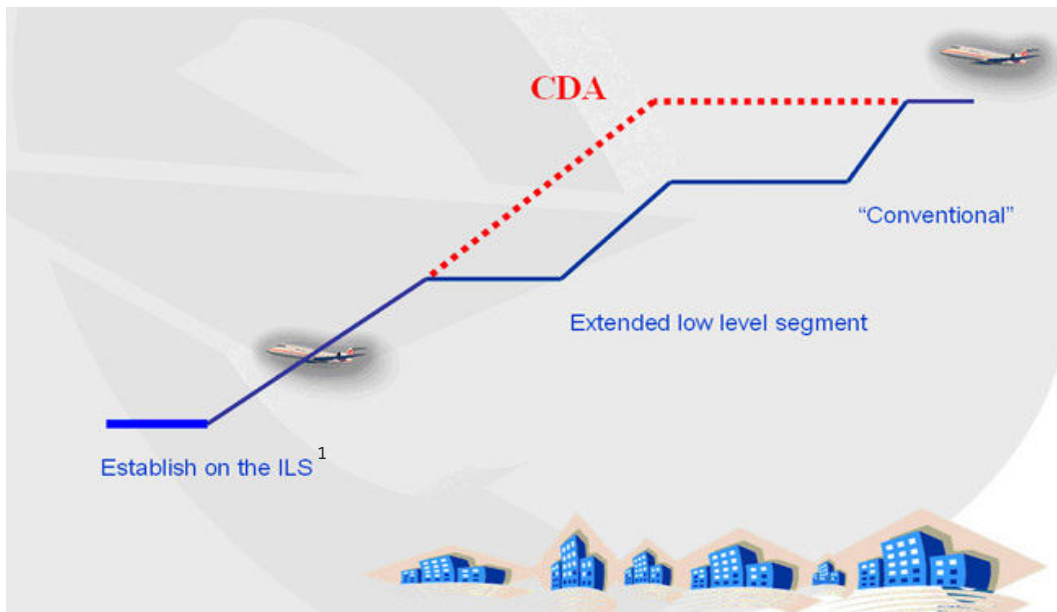
The Sky's the Limit

The London airspace is a particularly busy area and requires modernisation. The current airspace has not changed in the last 50 years despite the increase in movements from all airports. It is critical that the industry and Government now work together to deliver modernisation. In 2016, an industry campaign 'The Sky's the Limit' was set up to call on the Government to prioritise its work on airspace, noise and support industry efforts to do so. London Luton Airport strongly supports this campaign.

More information and videos regarding The Sky's the Limit campaign are available on their website which can be accessed <http://theskysthelimit.aero/>

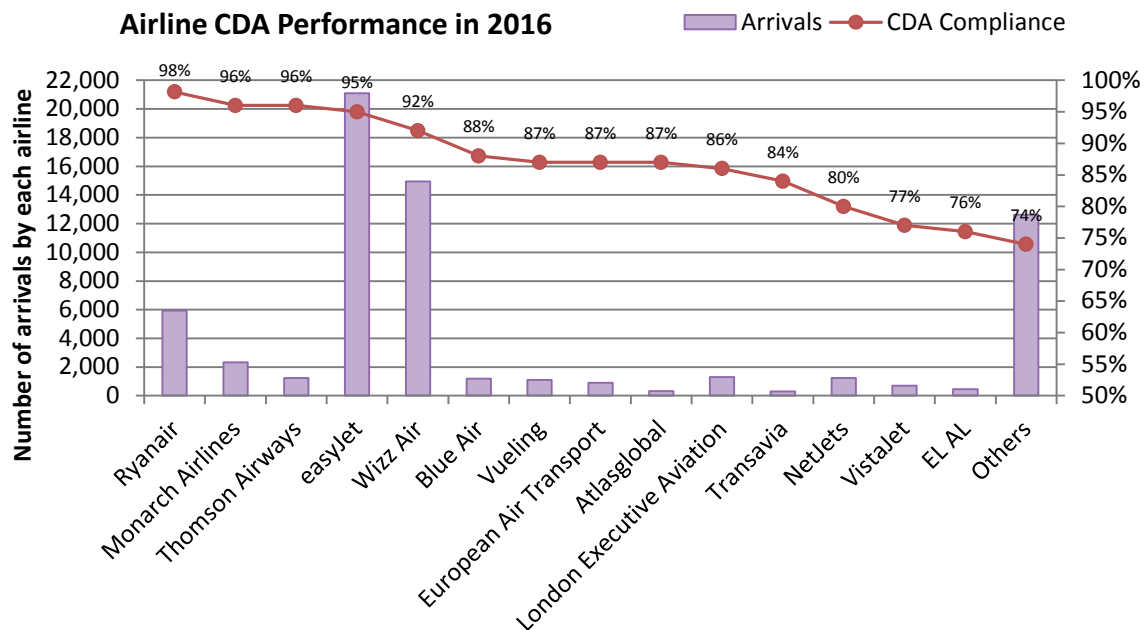
Arriving Aircraft

Although there are no set routes for arriving aircraft there are long established procedures to mitigate the disturbance that can be caused on approach to the airfield. One of the most successful measures is a noise mitigation procedure called Continuous Descent Approach (CDA).



The conventional approach involves descending in steps using engine thrust to level off. In a Continuous Descent Approach, or CDA, an aircraft stays higher for longer and descends at a continuous rate to the runway threshold therefore reducing periods of prolonged level flight at lower altitudes. With CDA less fuel is burnt, less emissions are produced but most importantly it reduces the noise by avoiding the use of engine thrust required for level flight.

The overall CDA achievement was 90% with several major LLA operators achieving higher performance; easyJet, Wizz Air, Ryanair, Monarch and Thomson Airways. The chart compares the level of CDA performance by our main airline operators.



¹ - An Instrument Landing System (ILS) is a ground-based instrument approach aid based on two radio beams which together provide lateral and vertical guidance to an aircraft approaching and landing on a runway.

Departure and arrival flight tracks

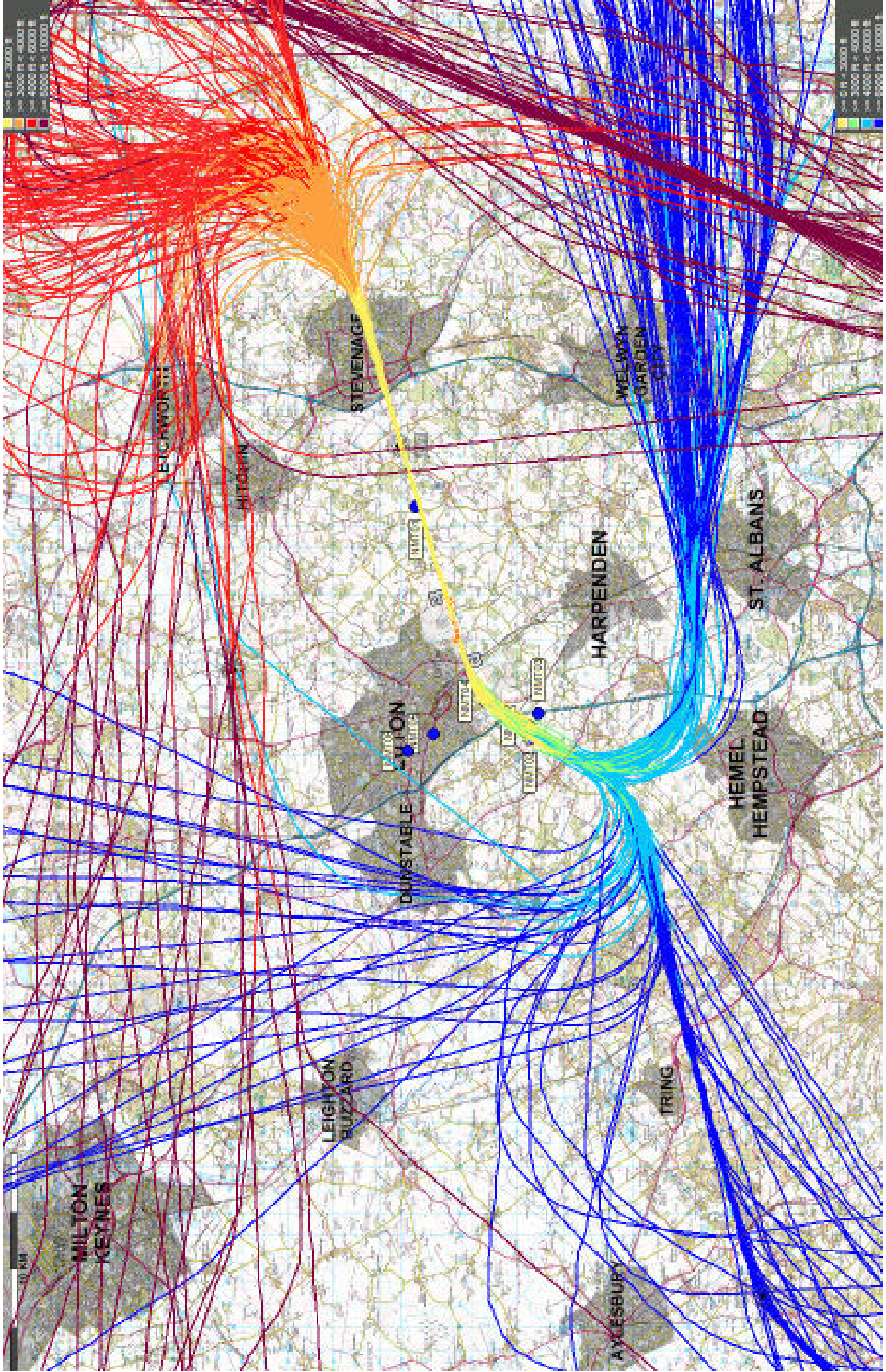
Maps overleaf display typical 24 hour periods of both westerly and easterly operations, with arriving traffic in red and with departing aircraft tracks in blue. The colour coding from yellow to brown and from yellow to dark blue represents different altitude bands up to 10,000ft above mean sea level.

The last two maps display aircraft track density plots for the summer period 16th June - 15th September 2016. A track density plot is a map which displays the pattern of aircraft flight track passing over the region around the airport during a specific period. The system analyses the number of flights passing over each grid element of an array. The colour coding from purple to red represents the range 1 to over 147 flight tracks over a grid element. If any grid element is not colour-coded, the number of aircraft flight tracks passing over that element was less than 1 flight. The red areas represent locations where operations are more densely concentrated.

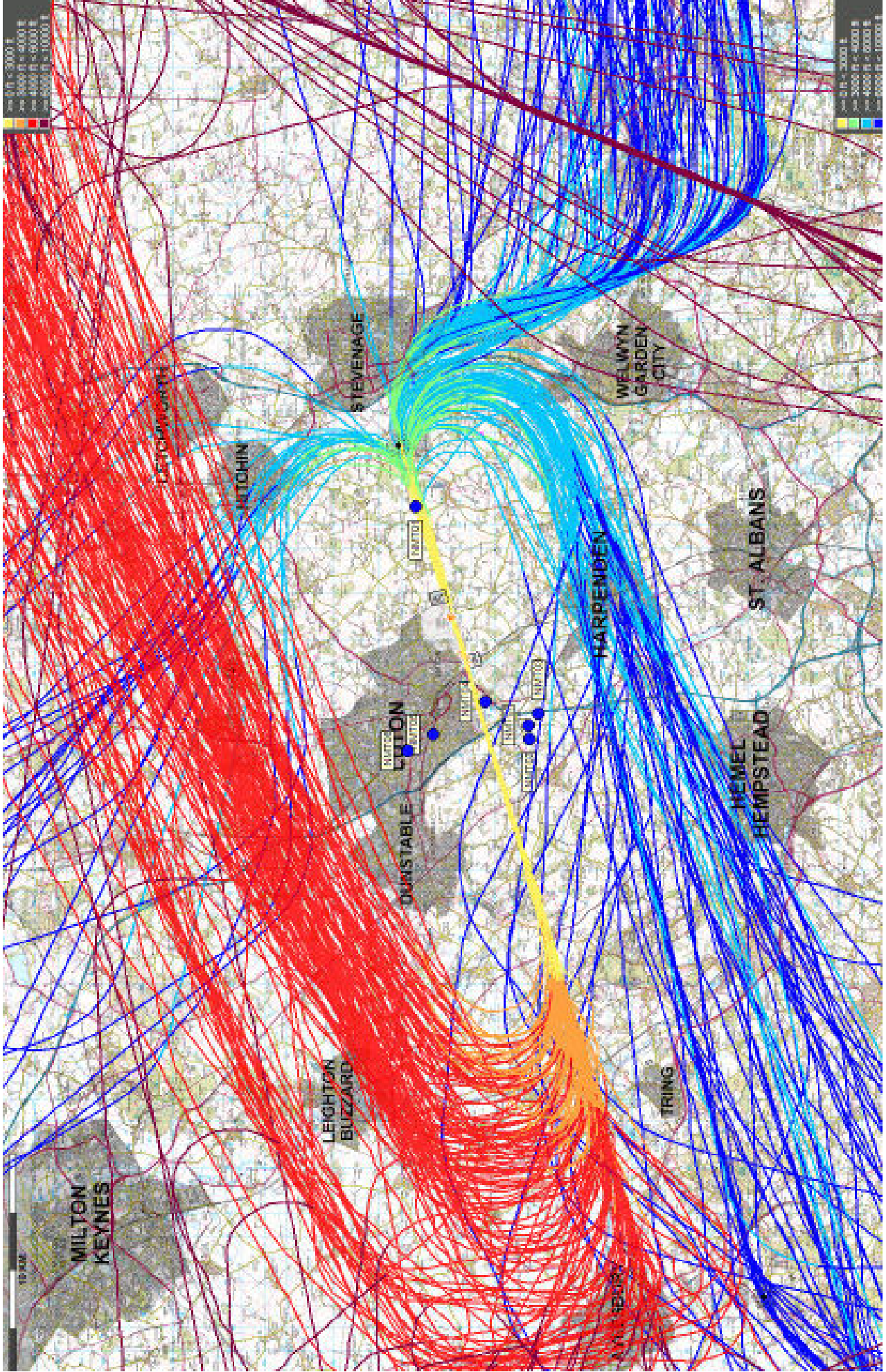
It should be noted that London Luton Airport's aircraft movements integrate with a traffic network travelling to and from other airports in the region, and the South East is one of the world's busiest sectors of airspace. However the following sample flight tracks only include operations for London Luton Airport and overflights from other airports have been omitted for clarity.



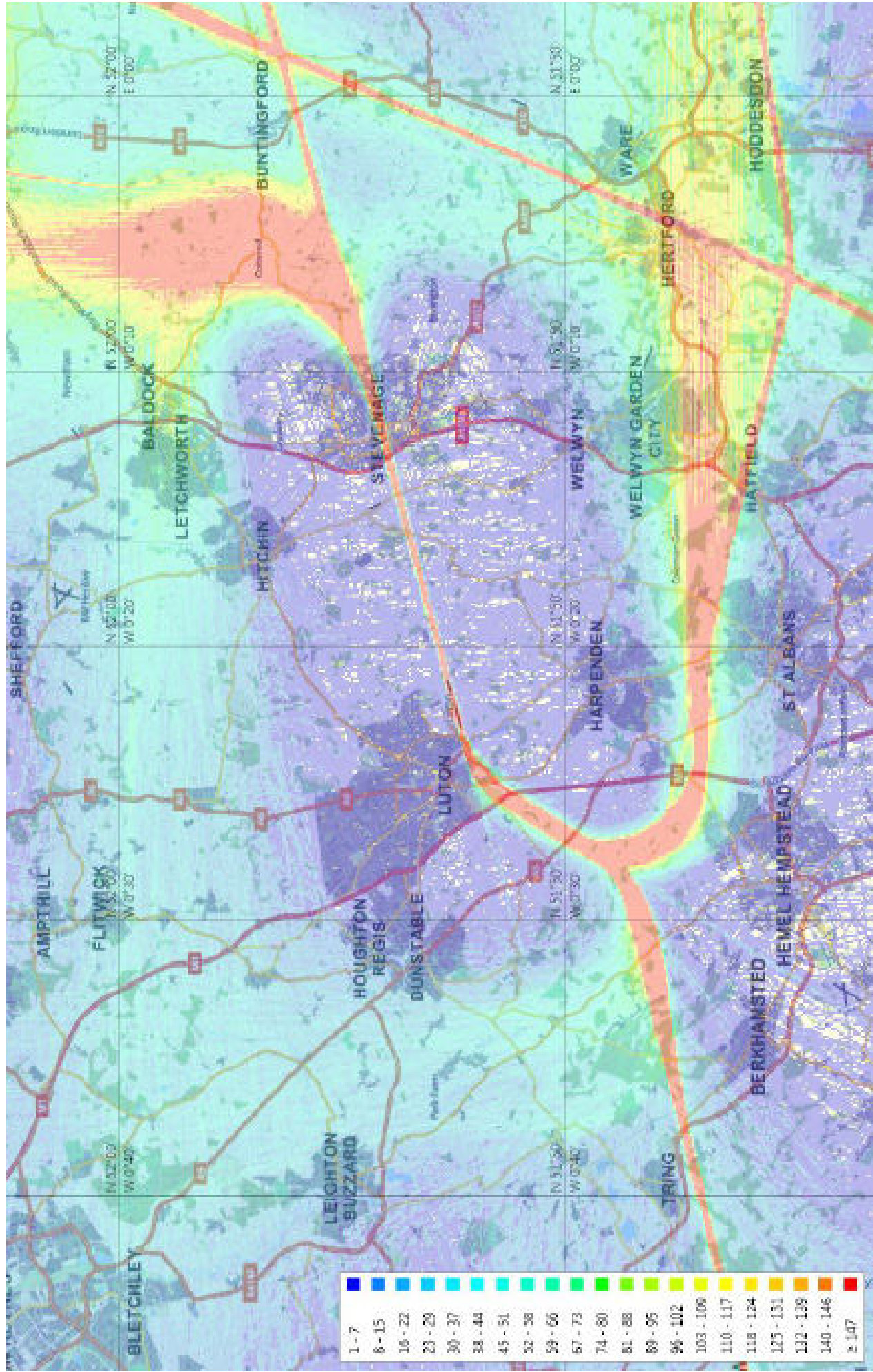
Westerly (26) Flight Routes (24 hour period)



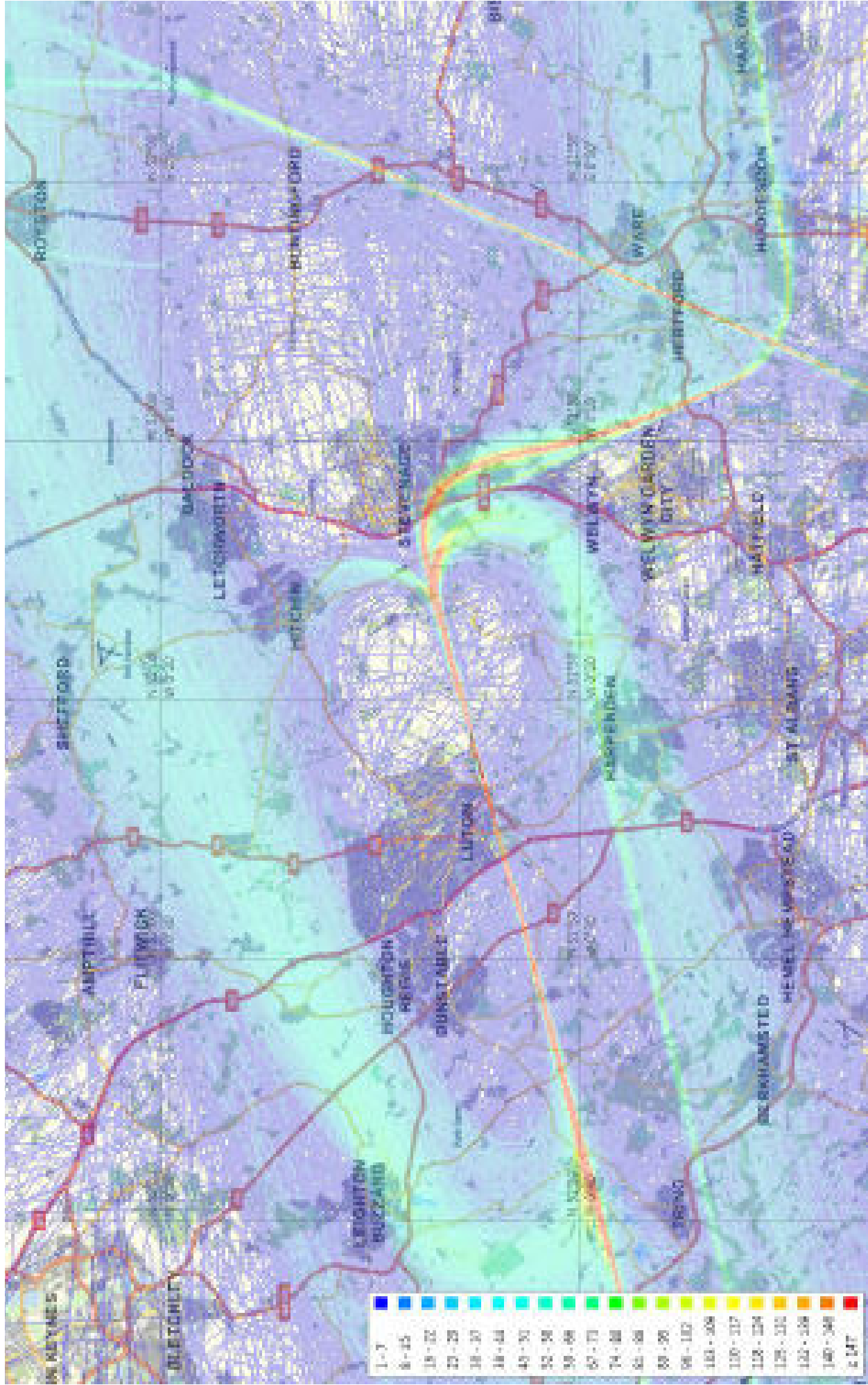
Easterly (08) Flight Routes (24 hour period)



Plot Density - 16th June - 15th September 2016 - Westerly (26)



Plot Density - 16th June - 15th September 2016 - Easterly (08)



Aircraft 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. Most airport related noise is created by aircraft approaching, taking-off and taxiing to and from the runway. The management and control of noise continues to be a major element of the airport's policy to constantly seek to minimise and mitigate our environmental impact.

How is noise monitored?

People who live close to airports or under flight paths can often feel strongly about the disturbance to their lives from noise. Effects of noise include general distraction, speech interference and sleep disturbance which can lead to annoyance and complaints.

At LLA 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 6.5km from the aircraft start of roll, at either end of the runway within the neighbouring communities. This method records the maximum noise level at a point, rather than the way it is spread over the surrounding area.

New features and system enhancements continue to improve the functionality and capabilities available to the Flight Operations Department.

TraVis, an online flight-tracking tool enables the general public to see for themselves the actual flown tracks of LLA aircraft departures and arrivals. This can be viewed online at the following link on the airport website.



Noise violation levels



The following table identifies daytime and night-time noise levels correlated to departing aircraft at the fixed noise monitoring terminals.

Any aircraft exceeding the Daytime Noise Violation Limit of 82dB(A), between 07:00 hrs and 23:00 hrs and the Night-time Noise Violation Limit of 80dB(A), between 23:00 and 07:00, is fined accordingly.

	dB (A)	Daytime	NightTime	Total
Number of Correlated Events	<70	5,526	653	5,879
	70	1,828	219	2,047
	71	3,557	372	3,929
	72	6,362	612	6,974
	73	9,088	881	9,969
	74	9,019	848	9,867
	75	6,434	636	7,070
	76	3,175	382	3,557
	77	1,652	288	1,940
	78	915	161	1,076
	79	393	83	476
	80	153	26	179
	81	43	2	45
	82	28	0	28
	83	8	0	8
	84	4	0	4
	85	7	0	7
	86	0	1	1
	87	0	0	0
	88	1	0	1
89	0	0	0	
90	0	0	0	

During the daytime 99% of correlated departing aircraft recorded maximum noise levels less than 79dB(A), with 87% registering below 76dB(A). Throughout the year 637 correlated daytime departures (1%) registered maximum noise levels at 79dB(A) or above.

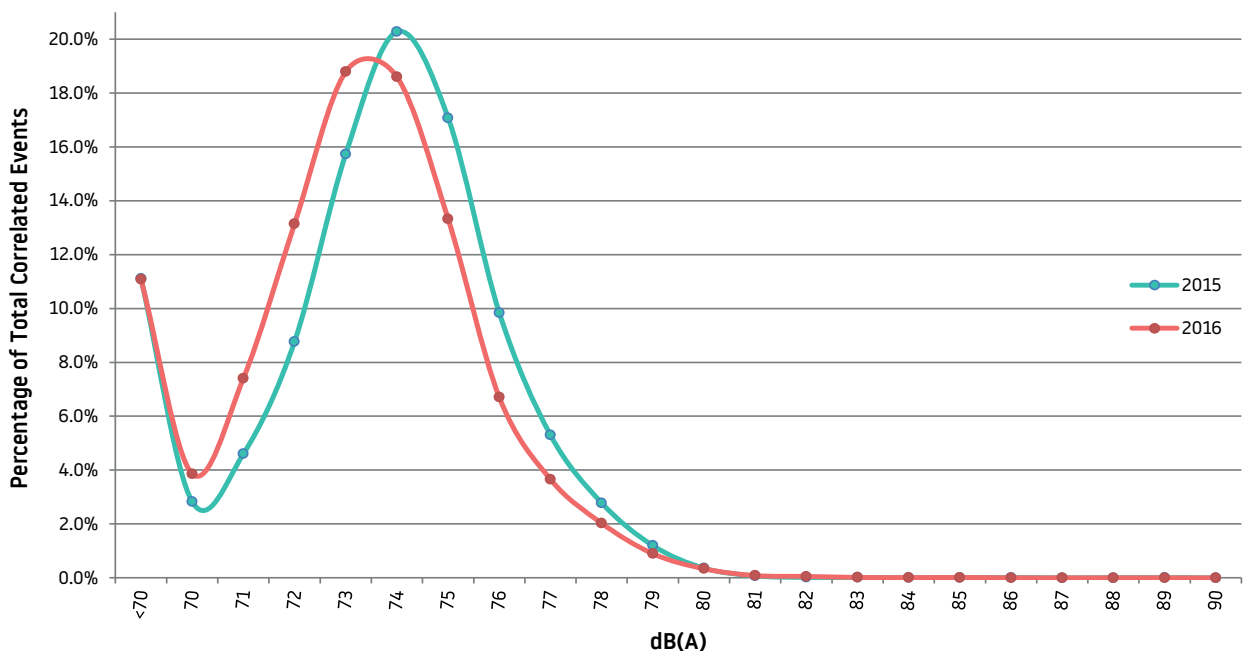
There were 21 correlated departing aircraft which recorded a maximum noise level greater than 82dB, all of these departures were fined as part of the Noise Violation Limits, these fines were added to the Community Trust Fund.

During the night 98% of correlated departures recorded maximum noise levels below 79dB(A), with 82% below 76dB(A). During the year 112 correlated night departures (2%) registered maximum noise levels at or above 79dB(A).

There were 3 correlated departing aircraft which recorded a maximum noise level greater than 80dB, all of these departures were fined as part of the Noise Violation Limits, these fines are put into the Community Trust Fund.

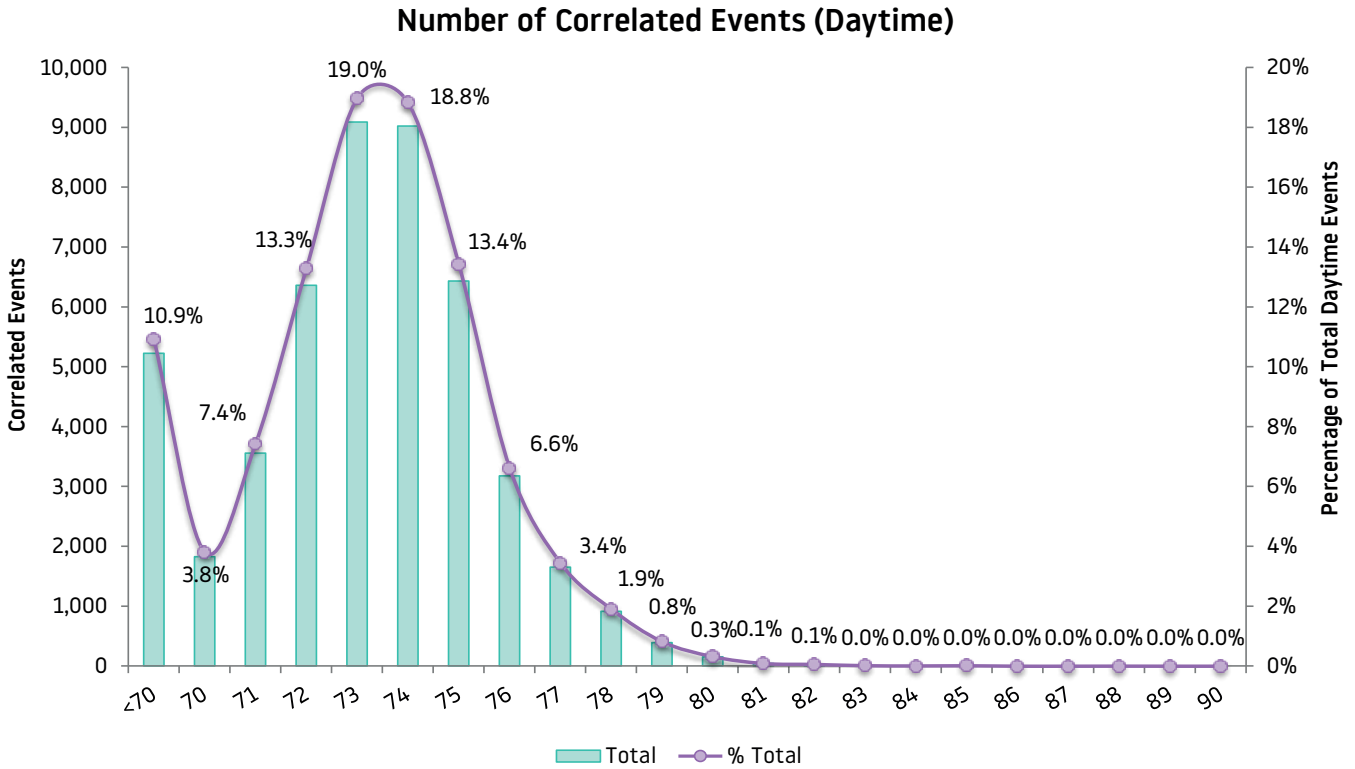
The graph below shows the year on year comparison of the correlated departure noise events.

Year on Year Comparison (Total)



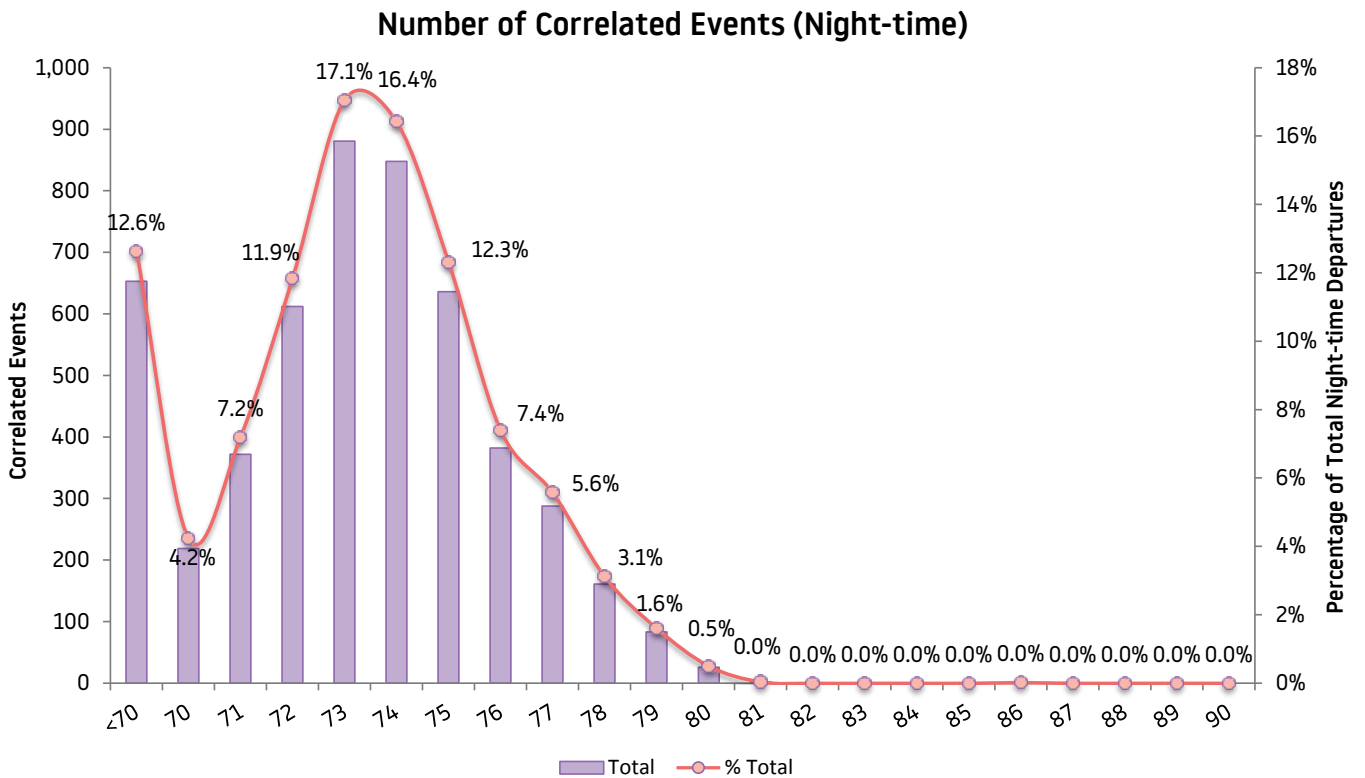
Daytime Noise

The following graph shows the number of correlated events during the daytime period (07:00hrs - 23:00hrs) compared to the total percentage of correlated events during the daytime.



Night-time Noise

The following graph shows the number of correlated events during the night-time period (23:00hrs - 07:00hrs) compared to the total percentage of correlated events during the night-time.



Noise violations during 2016

There were 21 violations of the daytime noise level in 2016, and a total of 3 violations of the 80dB(A) night noise violation level (details below), compared to 15 day-time noise violations and 9 night noise violations in 2015. Operators at London Luton Airport take these noise violation limits very seriously and in some cases these have led to changes in operating procedures in order to reduce the noise from their aircraft. Additionally, some operators have even dismissed pilots as a result of a noise violation fine.

	Date / Time (Local)	Aircraft Type	Noise Level	Penalty
Daytime	05/01/2016	Boeing 737-200	86dB (A)	£500
	17/02/2016	Boeing 737-200	84dB (A)	£100
	26/02/2016	Boeing 727-200	85dB (A)	£100
	03/03/2016	Gulfstream III	85dB (A)	£100
	07/04/2016	Antonov 12	85dB (A)	£100
	13/04/2016	Boeing 737-200	85dB (A)	£100
	13/06/2016	MD-87	83dB (A)	£100
	03/07/2016	Dassault Falcon 900	84dB (A)	£100
	14/07/2016	MD-82	83dB (A)	£100
	15/07/2016	MD-82	83dB (A)	£100
	21/07/2016	MD-82	84dB (A)	£100
	22/07/2016	MD-82	85dB (A)	£100
	25/07/2016	MD-82	83dB (A)	£100
	05/08/2016	MD-82	83dB (A)	£100
	19/08/2016	MD-82	85dB (A)	£200
	19/08/2016	Boeing 737-200	88dB (A)	£500
	16/09/2016	MD-87	83dB (A)	£100
	18/09/2016	MD-87	83dB (A)	£100
	02/10/2016	Boeing 737-200	84dB (A)	£100
	28/11/2016	Boeing 737-200	85dB (A)	£100
30/12/2016	Boeing 737-200	83dB (A)	£100	
Night-time	05/01/2016	Antonov 12	86dB (A)	£500
	27/04/2016	Airbus A300	81dB (A)	£100
	01/12/2016	Boeing 737-800	81dB (A)	£100

All fines are passed to the London Luton airport Community Trust Fund, further details of which can be found at [REDACTED]

Noise Insulation Scheme

In 2016 we started our Noise Insulation Scheme, which aims to assist in reducing the noise for properties in our local communities. The scheme covers both residential and non-residential properties. Depending on any existing insulation in the property, double glazing, secondary glazing and ventilation units can be provided. Rooms eligible for insulation include living rooms, dining rooms, kitchen-diners and bedrooms.

The Noise Insulation Sub-Committee selected 31 residential properties which would be prioritised for insulation in 2016. LLA contacted these 31 properties and 11 accepted the scheme.

Noise Contours

Since 1989 the preferred measure of aircraft noise, recognised by UK Government, has been the A-weighted equivalent noise level Leq. This indicator takes account of all the noise energy that occurs over a particular time period and thus takes account of all the 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 LAeq averaged over the 16 hour period from 0700-2300

for an average day between the 16th June and 15th September. When planning permission was given in 2014 for development at London Luton Airport a number of conditions were imposed. Condition 12 requires that daytime and night-time contours are produced on an annual basis for the previous summer period based on actual aircraft movement data and for the following summer period based on predicted aircraft movement data. The areas of these contours

are to be compared to the area limits contained in Condition 12. Year on year changes in the noise impact are dependent on changes in the number and type of aircraft that used the airport and also the departure routes flown. Changes in the size and shape of the contours can also depend on differences in the runway usage which in turn depends on the relative proportion of westerly and easterly modes of operation, determined by the prevailing wind direction.

Annual noise contours summer 2016

The table below shows the annual noise contours for summer 2016 covering the standard summer period from 16th June to 15th September inclusive, using the latest version of INM software (the Integrated Noise Model) version 7.0d which is the method used by many other airports in the UK.

L _{Aeq, 16 hour} Daytime	Contour Area (km ²)					
	1984	1999	2015	2016	Difference 2015-2016	2017 (forecast)
>72	1.63	1.5	0.9	1.0	+0.1	1.1
>69	2.80	2.5	1.5	1.7	+0.2	1.8
>66	4.86	4.4	2.5	3.2	+0.7	3.3
>63	9.10	7.3	4.9	6.2	+1.3	6.3
>60	17.18	11.8	9.0	10.6	+1.6	11.2
>57	31.52	19.6	17.2	19.2	+2.0	20.7

Considering the summer 2015 daytime noise contour there is an increase in area of approximately 12% when comparing the 2016 contour with the 2015. This is generally in line with what would be expected based on the increase in movement numbers.

The 2017 contours are forecast to grow by 6 to 8% compared to the 2016 contours at the lower values, and by a smaller amount at the higher values. This is largely due to a forecast 8% increase in movement numbers. At 57 dB LAeq, 16h the 2017 contour is a similar shape but slightly larger than the 2016 contour.

L _{Aeq, 8 hour} Night-time	Contour Area (km ²)					
	1984	1999	2015	2016	Difference 2015-2016	2017 (forecast)
>72	0.79	1.1	0.4	0.4	0.0	0.5
>69	1.39	1.8	0.6	0.6	0.0	0.8
>66	2.42	3.0	1.0	1.0	0.0	1.2
>63	4.01	5.2	1.7	1.7	0.0	2.0
>60	7.06	8.3	3.0	3.3	+0.3	3.7
>57	13.05	13.2	5.7	6.3	+0.6	6.9
>54	24.48	21.6	10.8	11.5	+0.7	12.9
>51	44.92	36.0	20.2	20.7	+0.5	23.6
>48	85.04	60.6	35.3	36.5	+1.2	40.2

Considering the 48 dB LAeq,8h night time noise contour there is an increase in area of approximately 3% when comparing the 2016 contour with the 2015 contour, while some of the higher value contours, 54 to 60 dB LAeq,8h, have increased in area by around 10%. This is largely due to the increase in movement numbers, although the departure movements, which make the most noise, have remained similar, with the increase comprising mainly arrivals. The 48 dB LAeq,8h 2017 contour is forecast to grow by 10% compared to the 2016 contour. This is largely due to a forecast 8% increase in movement numbers.

The 2016 results are significantly below the 1984 values and also below the 1999 predicted values which, if exceeded, would require a noise reduction plan to be implemented.

Contour population counts

The population counts for this year were calculated using the CACI Ltd, 2015 postcode database. Each postcode in the database is described by a single geographical point, and if this point is within a contour then all of the dwellings and population in the postcode are counted.

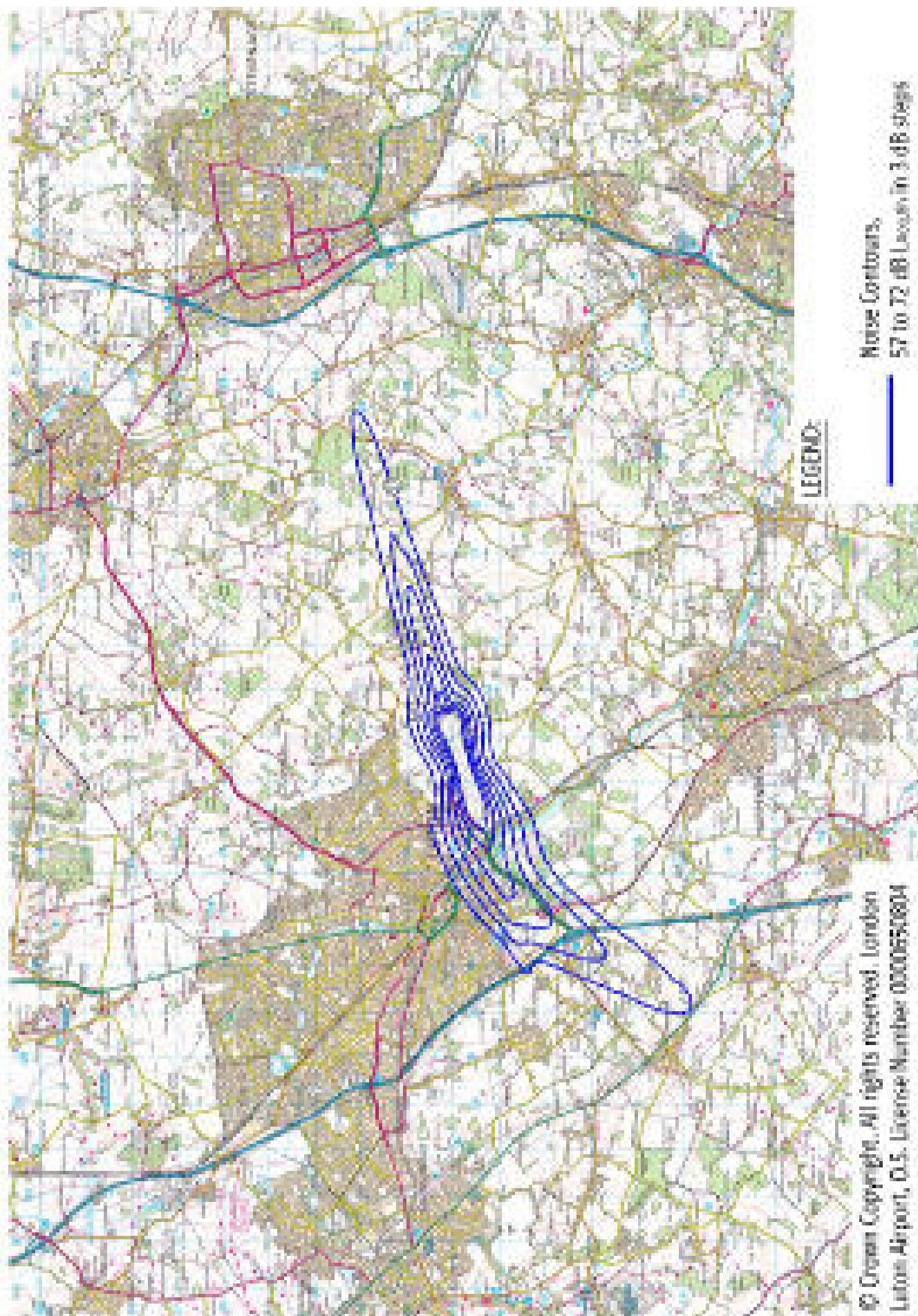
L _{Aeq, 16 hour} Daytime	2015		2016	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	0	0	0	0
>63	250	700	700	1,800
>60	750	2,200	1,700	4,500
>57	2,600	7,100	3,600	8,900

When looking at the daytime results there are increases in the numbers of dwellings and the population within the contours when comparing 2016 with 2015. For the summer 2015 daytime contour the increase is around 40% and for the higher value contours the increase is significantly greater. This is due to the greater activity in 2016 leading to an increase in the area of the contours, which is around 12% at 57 dB. A further factor is that the population is not evenly distributed across the contour area. In particular the majority of the population is located in South Luton. The 2015 contour only included the southern edge of this area, whereas the 2016 contours extend slightly further north. This means that although the aircraft noise exposure change associated with the contour area increase is relatively small, it is enough to move a significant population from just outside to inside the contour.

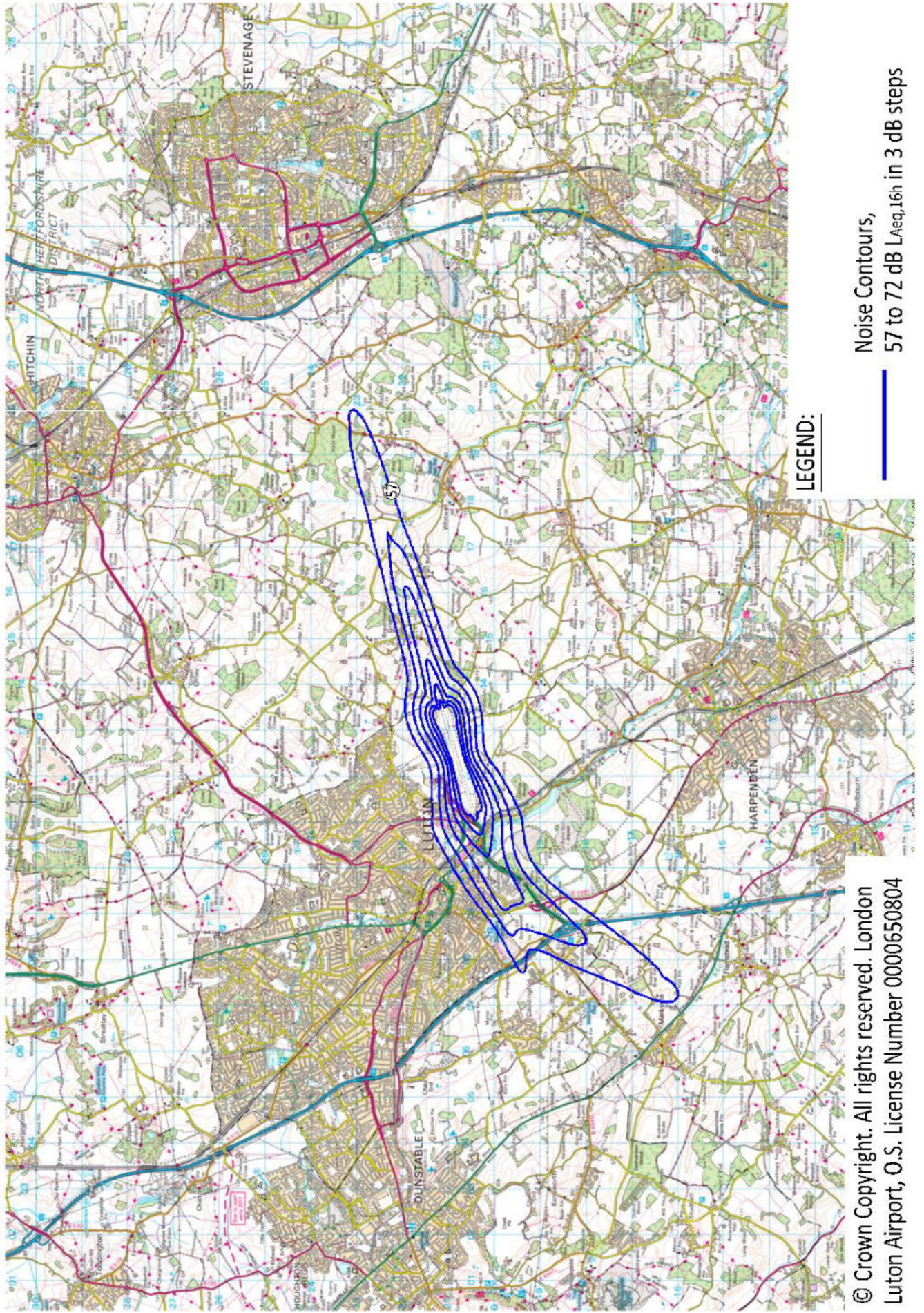
L _{Aeq, 8 hour} Night-time	2015		2016	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	0	0	0	0
>63	0	0	0	0
>60	0	0	0	0
>57	400	1,200	500	1,300
>54	1,050	3,000	1,550	4,200
>51	2,850	7,700	3,250	8,100
>48	5,550	14,700	6,750	16,100

For the night-time contours there are increases in the numbers of dwellings and the population within the contours when comparing 2016 with 2015 although these are less than during the daytime, for example for the 48 dB LAeq8h contour the increase in the population is around 10%. For the daytime contours the increases are due to the greater size of 2016 contours, which is around 3% at 48 dB LAeq. The contours extend slightly further into populated areas. For example in 2015, the eastern end of the 48 dB contour is largely restricted to industrial and commercial area of Stevenage whereas the 2016 contour extends further and so includes some residential properties.

Annual Day Noise Contours Summer 2016

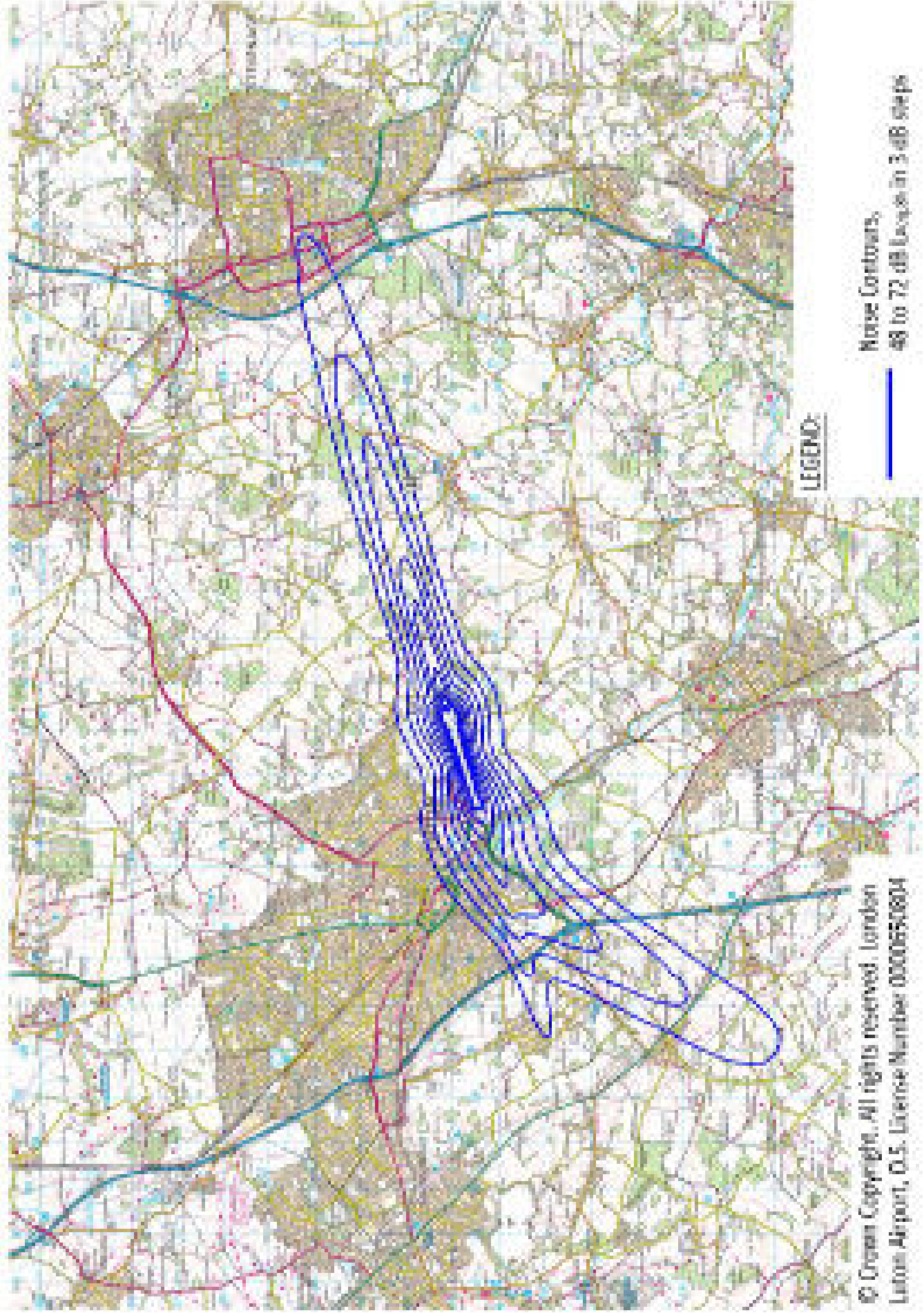


Annual Day Noise Contours Summer 2015

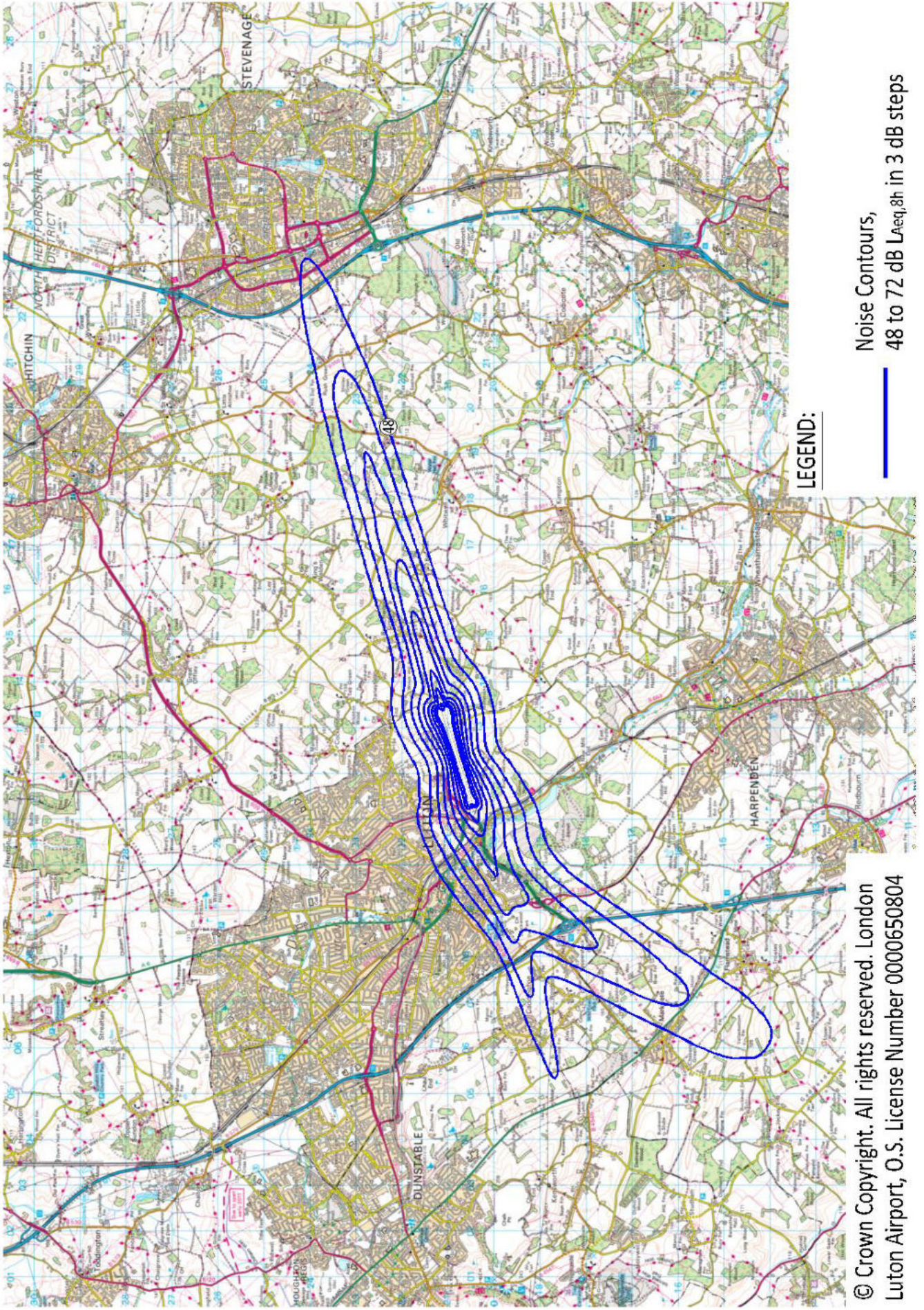


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Annual Night Noise Contours Summer 2016



Annual Night Noise Contours Summer 2015



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Annual Noise Contours 2016

The annual Lden noise contours for 2016 have been produced in accordance with London Luton Airport's Noise Action Plan. The corresponding annual Lnight noise contours have also been produced, along with population and dwelling counts for each contour.

Compared to annual summer 2016 noise contours Lden is an A-weighted, Leq noise level, measured for an average 24 hr day between 1st January and 31st December 2016, with a 10dB penalty added to the level between 23.00 and 07.00 hours and a 5 dB penalty added to the level between 19.00 and 23.00 hours to reflect people's extra sensitivity to noise during the night and the evening.

Lnight is similarly an A-weighted Leq noise level, for an average 8 hour night period between 2300 and 0700 for the period 1st January to 31st December 2016.

Annual Lden Noise Contour Results

Contour Value (dB(A) L _{den})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2015	2016	2015	2016	2015	2016
>75	0.8	0.8	0	0	0	0
>70	1.7	1.9	0	0	0	0
>65	4.7	5.5	500	1,100	200	450
>60	13.6	15.2	4,700	5,700	1,700	2,200
>55	35.7	39.3	14,800	17,100	5,550	7,000

Annual Lnight Noise Contour Results

Contour Value (dB(A) L _{den})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2015	2016	2015	2016	2015	2016
>66	0.8	0.9	0	0	0	0
>63	1.3	1.4	0	0	0	0
>60	2.2	2.4	0	0	0	0
>57	4.3	4.7	400	500	150	200
>54	7.8	8.5	2,000	2,100	700	800
>51	15.0	16.3	5,200	6,000	1,850	2,300
>48	27.1	29.3	10,900	11,600	4,100	4,800

The areas of every Lden contour have increased except the area of the 75 dB Lden contour, which has remained the same. The increases are relatively consistent across contour bands, ranging from 10-17%, and are in line with what would be expected due to the increase in aircraft movements.

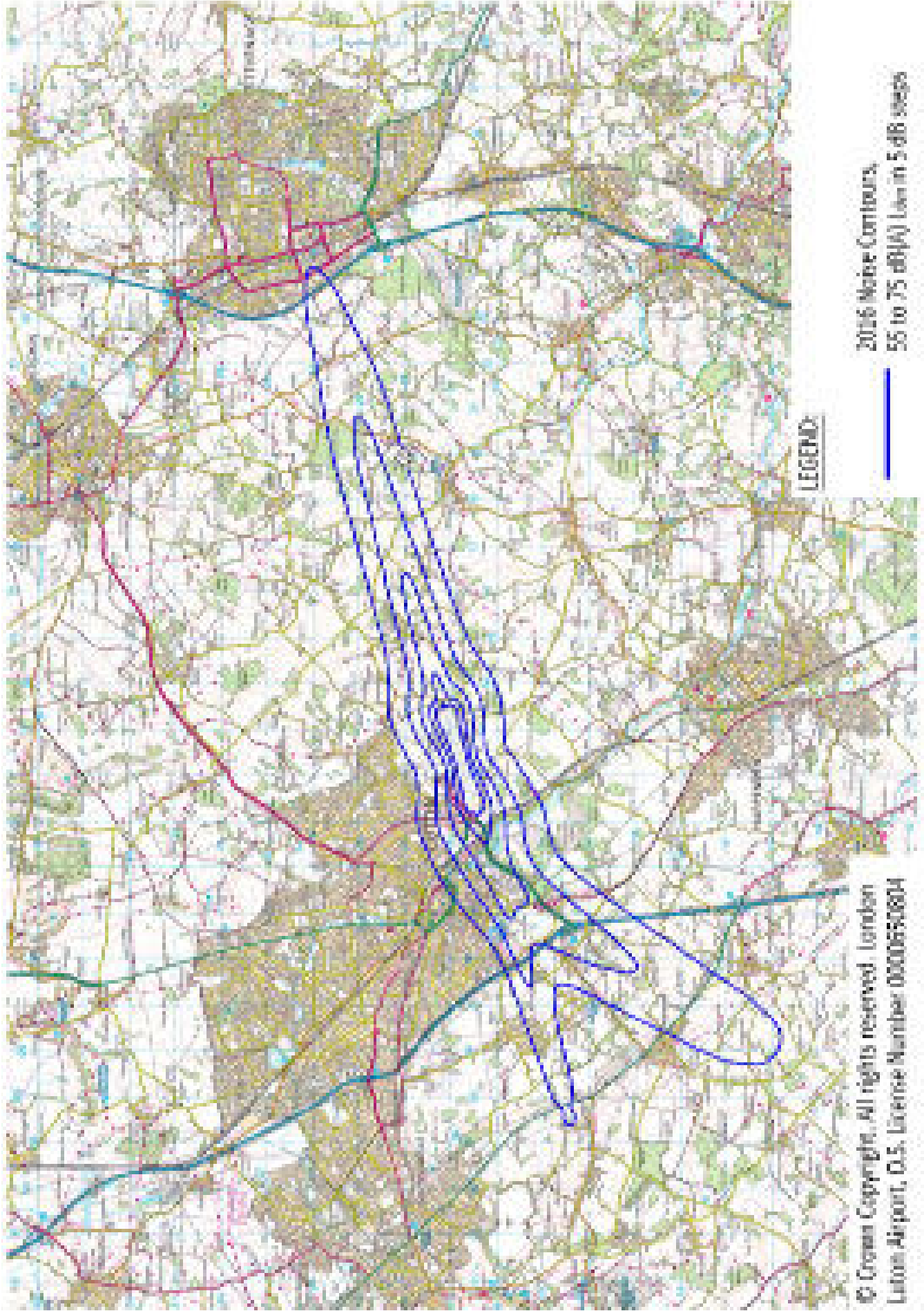
Similarly the areas of all the Lnight contours have increased by around 8-9%.

The population and dwellings within the contours has increased, due to the increasing areas. The contour shape is similar, but slightly larger in 2016.

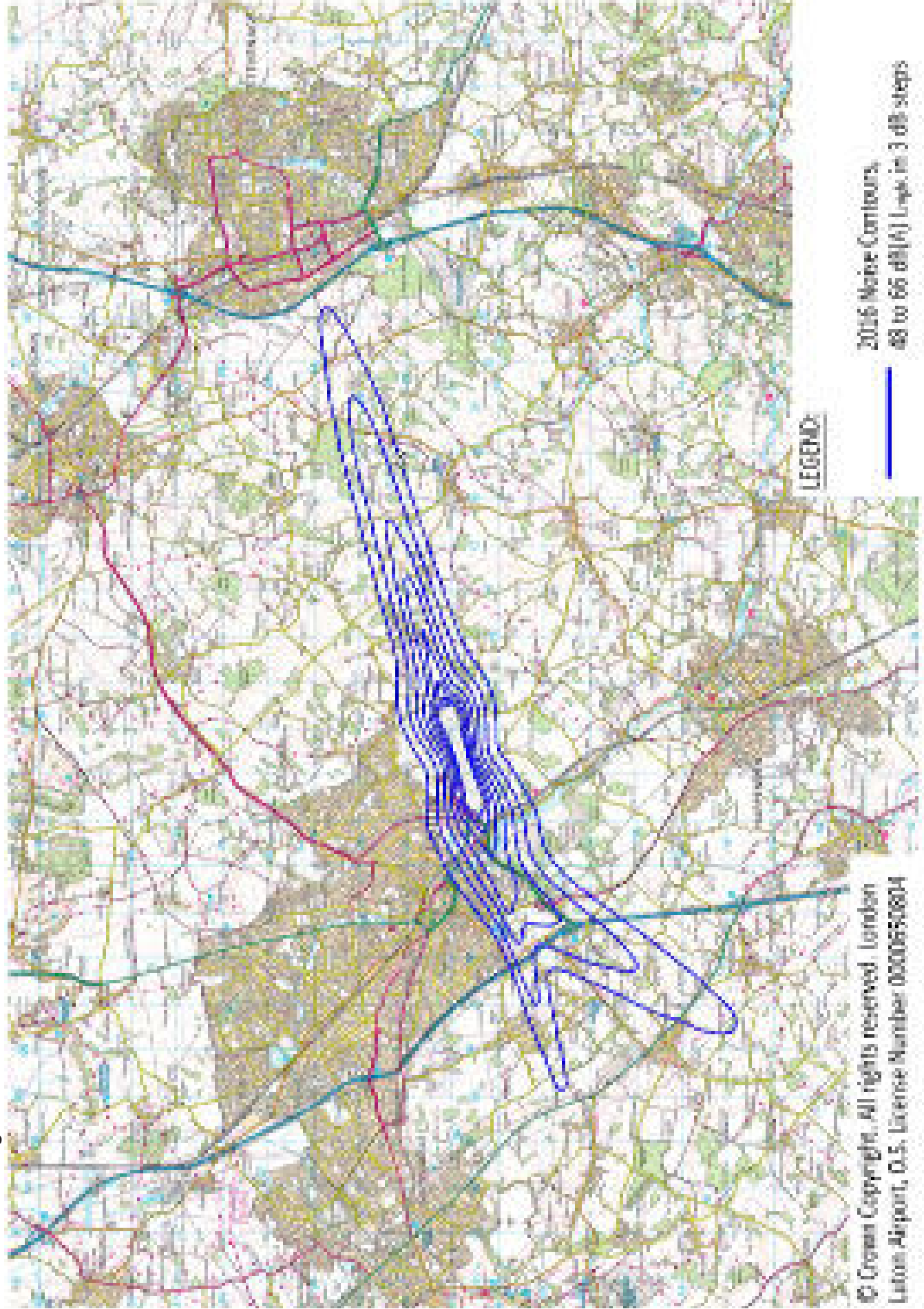
¹ - Population counts rounded to nearest 100

² - Dwelling counts rounded to nearest 50

Annual L_{den} Noise Contours 2016



Annual L_{night} Noise Contours 2016



Correspondence and Complaints

On the 1st January 2016 the airport implemented a new complaints policy. This was aimed to remove the confusion relating to the 'Events' section of the reporting. Complaints will now be reported in two forms – General disturbance and Specific disturbance. A General disturbance relates to a complaint that does not specify a time period, examples of this type of complaint includes frequency, air quality and ground noise. A specific complaint relates to a complaint which specifies the time which can be correlated to an aircraft, example complaints of this type include too low, too loud, night flight and off-track. If a single piece of correspondence contains multiple specific disturbances, this will be logged as a general complaint regarding frequency.

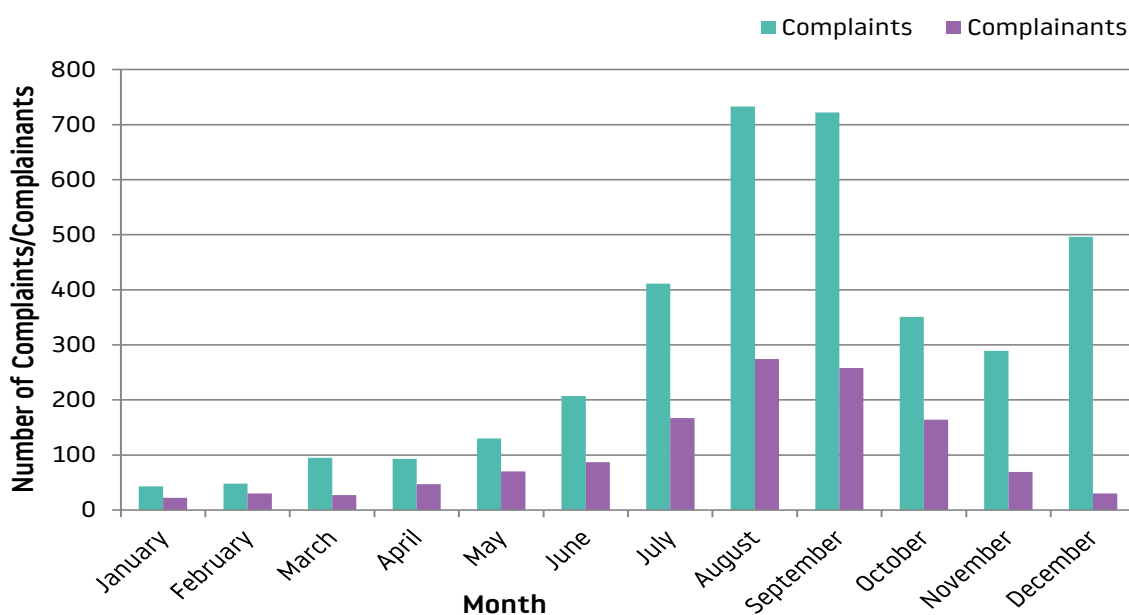
Complaint statistics can be extremely difficult to interpret as people's tolerance of noise and their perception of what causes annoyance varies widely. It is highly subjective and differs between neighbours experiencing the same levels of noise.

Total complaints relating to LLA aircraft operations

	2015*	2016**
Total No. of Complaints relating to LLA aircraft operations	-	3,612
No. of Complainants	355	814
No. of General Complaints	-	1,174
No. of Specific Complaints	-	2,438
No. of Events (eliciting a complaint)	1,098	-
Average No. of Complaints per Complainant	2.7	4.4
No. of Aircraft Movements per Complaint	121	-

During 2016 a total of 3,612 complaints (on average 10 complaints per 24 hours) relating to LLA aircraft operations were received, compared with 1,098 events in 2015. Out of the total complaints 50% were registered by the 10 most regular complainants. A further 87 complaints received were not attributable to LLA traffic.

The figure below shows the complaints statistics throughout 2016. More complaints were received in the summer months, correlating with an increase in aircraft activity.



*- Figures excluding 1,454 events reported by two individuals, one resident in Kensworth and one resident in St Albans

** Figures excluding 619 complaints received from one resident in St Albans.

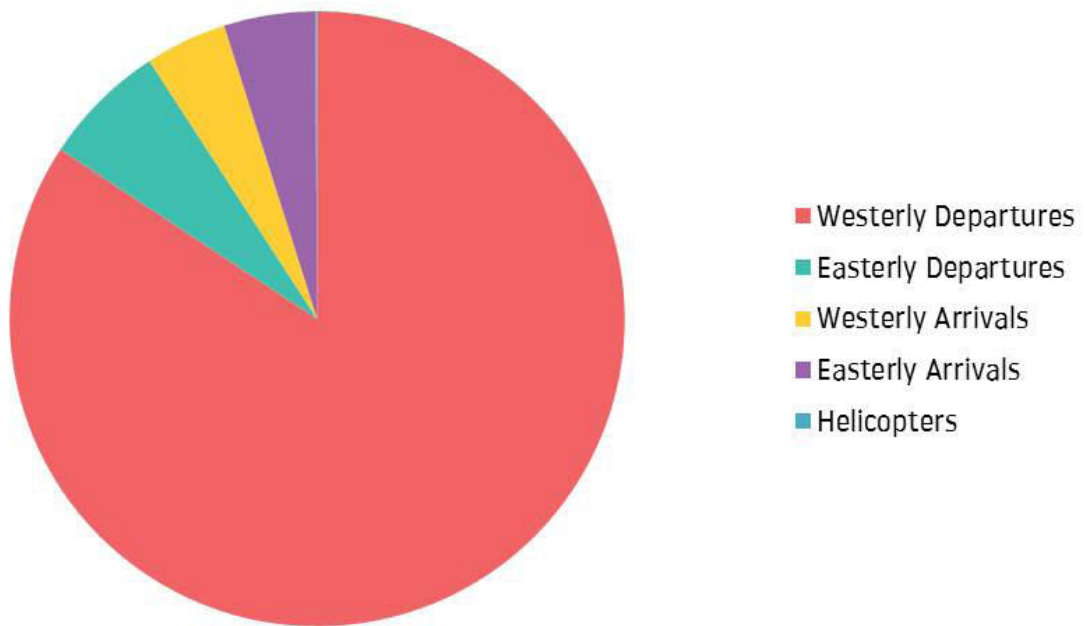


Complaints by aircraft type

Of the 3,612 complaints relating to LLA aircraft operations registered during the year 2,309 complaints (64%) were clearly correlated to a specific aircraft type, although many complaints were of a general nature. The table below shows aircraft types generating complaints.

Aircraft Type	No. of Correlated Complaints	% of Correlated Complaints	Annual No. of Movements of Aircraft Type	Movements of Aircraft Type per Correlated Complaint
A319	276	11.95%	28,131	102
A320	1058	45.82%	45,281	43
A321	212	9.18%	6,673	31
B737-800	284	12.30%	15,471	54
A306 (Cargo)	69	2.99%	1,134	16
B737-400	85	3.68%	1,446	17
GLF4/GLF5/GLF6	20	0.87%	5,053	253
ATP	11	0.48%	476	43
B757 & B767	70	3.03%	1,671	24
B737-300	20	0.87%	394	20
B737-200	5	0.22%	52	10
Helicopter	2	0.09%	573	287
CL30/CL60	24	1.04%	2,480	103
GLEX/GL5T	29	1.26%	476	43
Other Private Aircraft	81	3.51%	17,927	221
Other Cargo Aircraft	5	0.22%	28	6
Other Passenger Aircraft	58	2.51%	839	14

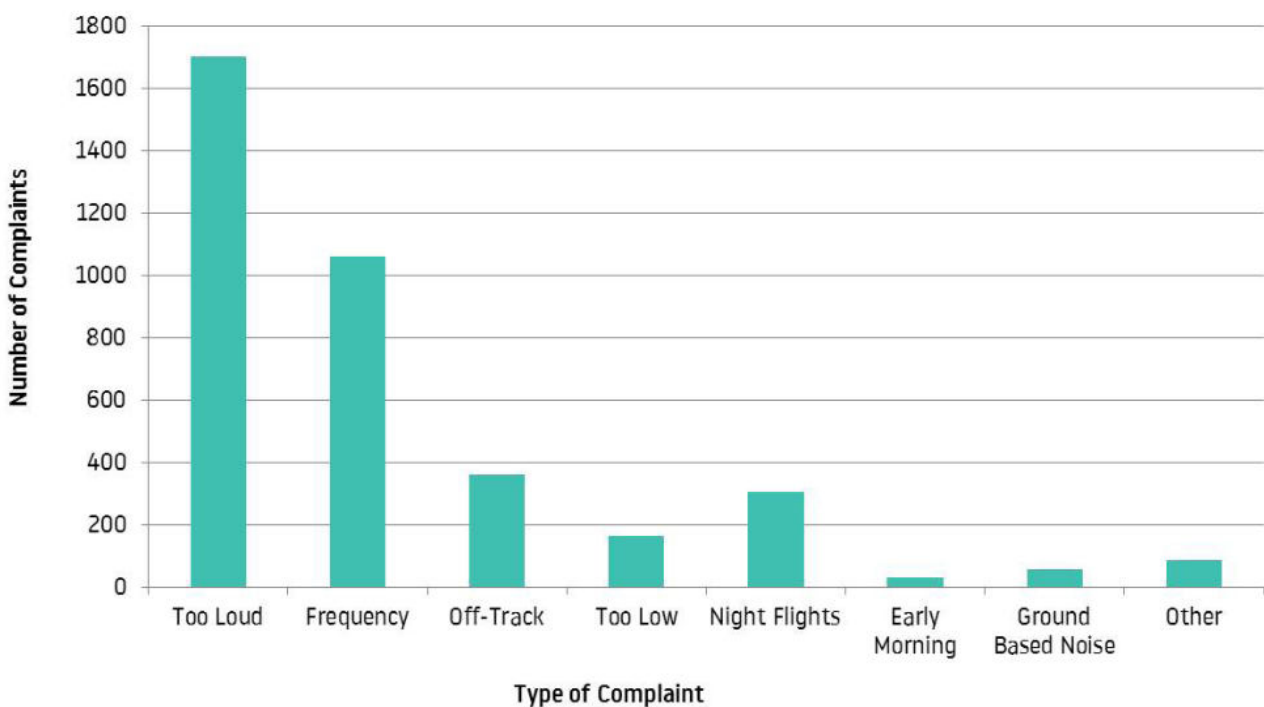
Nature of Disturbance



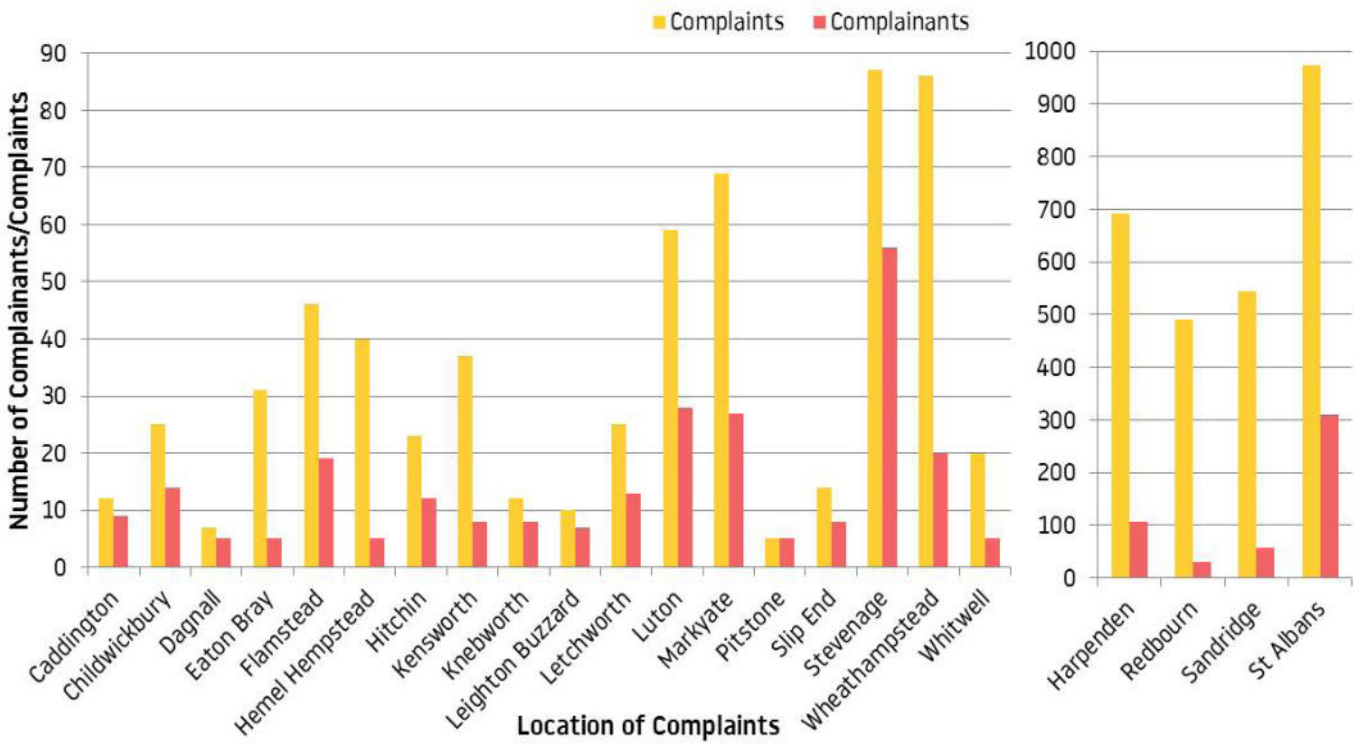
Within the 1,946 specific complaints correlated to aircraft movements concerning westerly departures, 1,898 reported specific aircraft following the Match/Detling route, 33 related to aircraft on the Compton route and 8 related to aircraft following the Olney heading.

Seven other complaints involved positioning flights following off-airways flight routes. Of the 151 complaints specifically attributed to easterly departures 112 related to aircraft following the Compton heading, 14 related to aircraft on Olney flight route and 18 to aircraft on the Match/Detling heading.

A further 7 complaints involved positioning flights following off-airways flight routes. Out of the total 2,309 complaints correlated to specific aircraft, 99 related aircraft arriving at the airport during westerly operations and 111 complaints related to easterly arrivals.



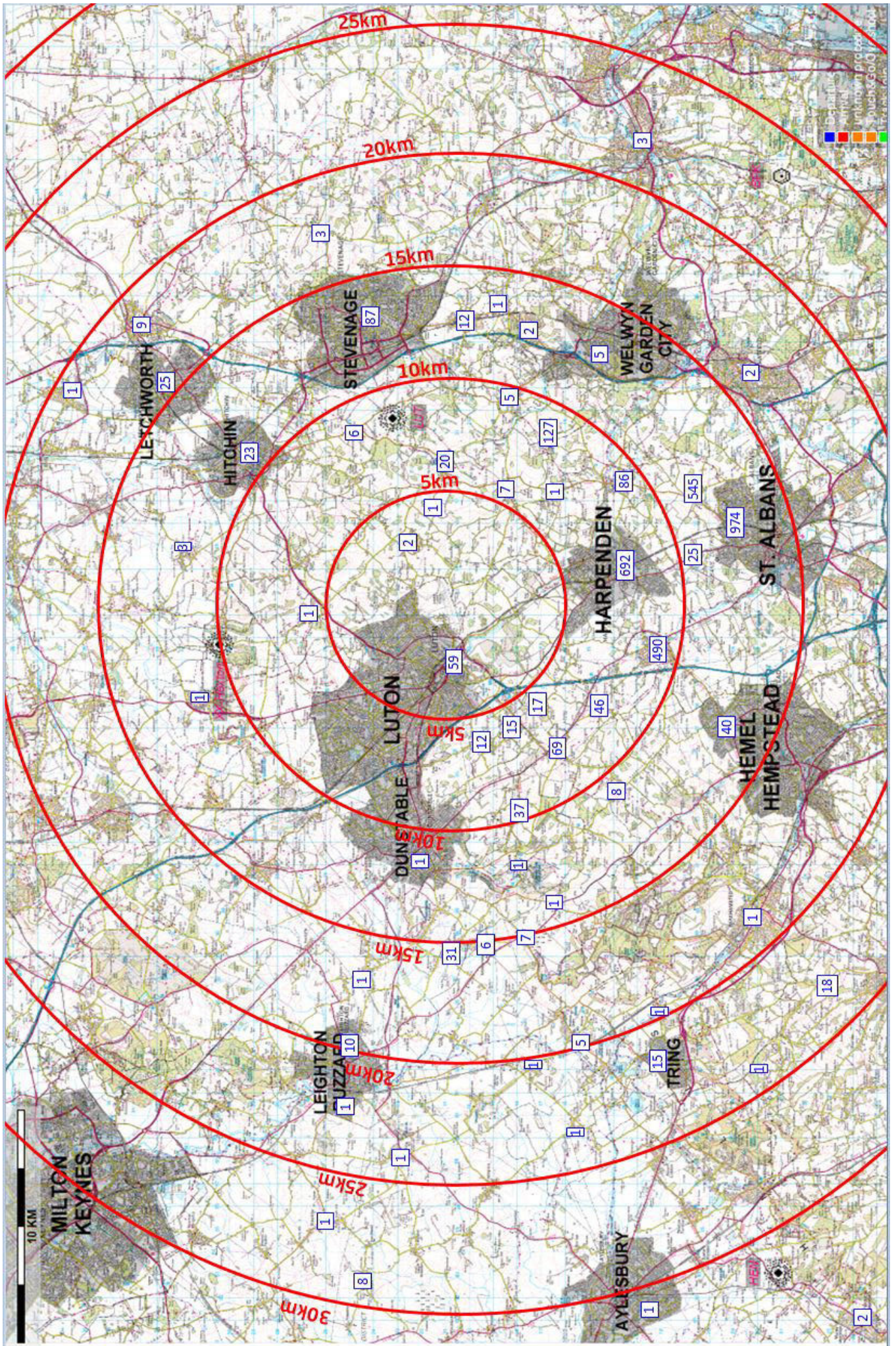
Location of Complainants (5+)



The map on the following page shows the location of complaints compared to distance from airport.



Location of Complaints 2016



Communication method

The following table shows the method of communication used to contact London Luton Airport regarding noise.

Communication Method	% of Total Complaints
TraVis	59%
Email	30%
Telephone	10%
Letter	1%

Any concerns relating to aircraft operations associated with London Luton Airport can be reported to the Flight Operations Team by the following means:

Postal Address	Flight Operations London Luton Airport Navigation House Airport Way Luton Beds LU2 9LY
Direct Telephone	(01582) 395382 (24 hours)
Direct email	noise@ltn.aero
TraVis	www.travisltn.topsonic.aero

Complaints analysis

During 2016 there was an increase in complaints compared to 2015; this is thought to be due to a number of reasons:

- The airport has grown considerably during 2016, in line with the redevelopment plans. This will have caused an increase in the number of movements on all routes.
- A large number of complaints were generated by a small number of people. The 10 most regular complainants in 2016 created 50% of total complaints.
- High numbers of complaints were recorded from specific locations, for example Harpenden, Redbourn, Sandridge and St Albans. Complaints from these areas accounted for 78% of total complaints. In these areas there is a heightened awareness of aircraft, particularly in relation to the recent growth and RNAV implementation in 2015.
- Upgrades to TraVis at the start of 2016 means it is now easier for residents to complain about more than one aircraft. This is less time consuming than the previous process.
- As winds dictated westerly operations for 70% of the time, the largest percentage of complaints related to aircraft operations during westerlies.

Noise Action Plan

The table below provides an update on the actions in the Noise Action Plan.

	Action	Timescale
1	Operate and maintain a noise and track-keeping system to monitor aircraft operations, reporting statistics quarterly to the LLACC (via NTSC)	Ongoing
2	Produce Lden noise contours annually, based on an annual average 24 hour period and present to LLACC (via NTSC).	Ongoing
3	Undertake regular analysis of aircraft activity and noise to identify where a review of procedures may help minimise disturbance	Ongoing
4	Monitor % compliance of Continuous Descent Approaches (CDA) both day and night, reporting quarterly to the LLACC (via NTSC)	Ongoing
5	Undertake community visits with a portable handheld noise monitoring device, on request.	Ongoing
6	Present quarterly night contours to the LLACC (via NTSC)	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)	Ongoing
8	Quarterly Monitoring Reports to be available to view on the London Luton Airport website as well as the LLACC website	Ongoing
9	Monitor helicopter operations to/from London Luton Airport to ensure they avoid, where possible, the most densely populated areas	Ongoing
10	Calibrate noise and track-keeping system and INM noise contour model on an annual basis	Ongoing
11	Monitor the track-keeping compliance and follow up with operators, as necessary	Ongoing
12	Monitor the number of marginally compliant Chapter 3 aircraft	Ongoing
13	Monitor and report progress against Noise Action Plan actions to LLACC (via NTSC), providing statistics annually in the Annual Monitoring Report	Ongoing
14	Review the voluntary Night Noise Policy in consultation with the LLACC (via NTSC)	2015
15	Encourage daytime operations through higher landing fees at night	Ongoing
16	Fine any departing aircraft exceeding noise limits, to encourage airlines to operate the quietest aircraft types	Ongoing
17	Discourage residential development close to the airport boundary or areas affected by aircraft noise, in liaison with Local Authorities	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.	Ongoing
19	Liaise regularly with airline operators via a 'Flight Ops' Committee to ensure adherence to existing standard procedures and encourage innovation	Ongoing
20	Review operational procedures in relation to noise with support of the 'Flight Ops' committee and NTSC	Ongoing
21	Work with operators to encourage the voluntary phase out of noisiest aircraft	Ongoing
22	Continue to review procedures for helicopter operations with the support of air traffic control	Ongoing
23	Work with operators on the voluntary phase out of marginally compliant Chapter 3 high aircraft i.e. hushkitted aircraft	2014
24	Explore with the 'Flight Ops' Committee/NTSC penalties for flying off track after the introduction of RNAV-1 departure routes	2015
25	Work with airlines, air traffic control, NATS and other stakeholders to introduce new technologies and environmental improvements	Ongoing

	Action	Timescale
26	Review the Engine Ground Running policy to minimise disturbance during the night and late in the evening	Ongoing
27	Operate within planning limits	Ongoing
28	Actively participate and support the work of the industry and Airport Operators Association with respect to its 'Sustainable Aviation' programme	Ongoing
29	Liaise with London Heathrow and other airports with respect to non-London Luton overflying traffic, where necessary	Ongoing
30	Work with the LLACC (via NTSC), the 'Flight Ops' committee and NATS to identify airspace improvements which will improve the noise environment	Ongoing
31	Agree key performance indicators and targets for noise 'actions', where appropriate, with the LLACC (via NTSC)	Ongoing
32	Assess the impact of London Luton Airport traffic on the Chilterns AONB and explore potential for operational improvements	Ongoing
33	Attend public meetings on request, where appropriate, to discuss the airport's operations	Ongoing
34	Provide an information pack to first time complainants and those wishing to relocate into the area	Ongoing
35	Formally engage with air traffic control and airline/other operators to help improve noise management/track keeping	Ongoing
36	Host visits from local residents and MPs to discuss community concerns and to demonstrate the Noise and Track-Keeping system	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.	Ongoing
38	Provide information in the Annual Monitoring Report on progress made on actions set out in the Noise Action Plan	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	Ongoing
40	Continue to offer email, telephone and website as options for complaints and enquiries	Ongoing
41	Invite members of the public to visit LLA to review noise and track information	Ongoing
42	Engage effectively and proactively with the LLACC and NTSC	Ongoing
43	Engage with local planning authorities to ensure they are informed about noise matters	Ongoing
44	Review communication material, the noise information pack and the London Luton Airport website with respect to noise/noise management	2015/2016
45	Hold community surgeries to give local people an opportunity to discuss issues in person with representatives from the Community Relations and Flight Operations Department	Ongoing
46	Improve communication with transient and non-based operators/users to ensure environmental and operational procedures are understood and adhered to	Ongoing
47	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: <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. 	Ongoing

Action	Timescale
<p>(continued)</p> <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>	Ongoing
48 Report actual and forecasted aircraft movements for the preceding and next twelve months every three months to Luton Borough Council.	Ongoing
49 Implement a progressive reduction in the daytime maximum noise violation limit (NVL) in line with the requirements of the planning conditions	2015
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.	Ongoing
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.	Ongoing
52 Develop a Noise Control Monitoring Scheme and submit to Luton Borough Council for approval, to include: <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 Review the Noise Control Monitoring Scheme no later than the first and forth year after introduction, and every subsequent five years.	Ongoing
53 Develop a Ground Noise Scheme and submit to Luton Borough Council for approval, to include: <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. Review the Ground Noise Scheme no later than the first and forth year after introduction, and every subsequent five years.	Ongoing
54 Develop a Noise Insulation Scheme for residential as well as non-residential buildings.	2016
55 Reduce the night time noise violation limit to 80 dB(A) by April 2015	2015

Community Relations

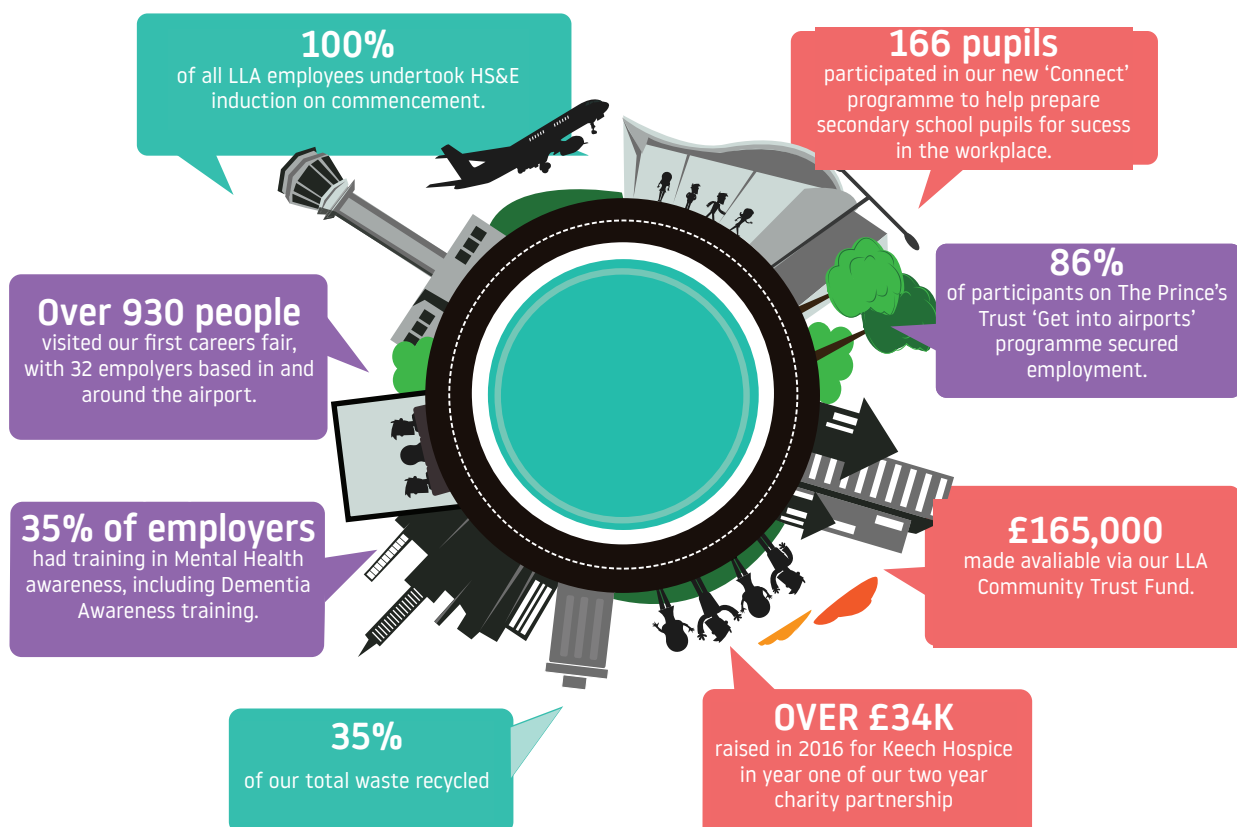
Through the London Luton Airport Consultative Committee (LLACC), which meets every quarter, London Luton Airport maintains a close working relationship with representatives of its local authorities and resident groups. Information on the Consultative Committee including meeting minutes and its representatives can be found at the following link: <http://www.llacc.com/>

In 2016, the Flight Operations Team continued the Public Surgery programme. These drop-in events allow local residents to talk to the team face to face to discuss any concerns regarding the impact of LLA's operations. Public Surgeries were held in Flamstead, Breachwood Green, Sandridge, Knebworth, Harpenden and Stevenage, along with an engagement day intended for those communities along the new RNAV Match/Detling route on the 6th October 2016. These will continue to be scheduled in 2017.

The Flight Operations team, also held regular meetings with Ann Main MP, Andrew Selous MP and Stephen McPartland MP. The team also welcomed in local councils from both St Albans and Caddington to discuss the airports noise and track monitoring system and airport tours. Furthermore, the team regularly conducted hand held monitoring in the community.

Community engagement strategy achievements

Our five year Community Relations Strategy forms part of LLA's corporate social responsibility programme and sets out how we will facilitate community development and meet the needs of key stakeholders. Initiatives are delivered by the airport in collaboration with key community partners. In 2016 we made ten commitments to ensure that we continued to play a positive role in our local community. We achieved 6 of these commitments, another 3 commitments are a work in progress and we did not meet one of the commitments, we continue to strive towards this. The graphic below summarises the progress made towards these commitments during the year or more details can be found in the Community Engagement Annual Report found on our website [here](#).



Employment

Employment at and surrounding London Luton airport contributes significant economic benefits to Luton as a whole and to the sub-region. A large number of businesses are based in Luton due to the presence of the airport. Thus, any analysis of the airport's impact upon the locality needs to contain an economic perspective, and this includes employment. An analysis of employers within and around the airport boundary has been conducted, the results of which are summarised below.

The methodology used for this year's survey was the same as for the 2015 survey. The Inter Departmental Business Register (IDBR) was used as the main administrative data source - this Office for National Statistics (ONS) dataset is a comprehensive list of UK businesses that is used by government for statistical purposes. It provides a sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analyses of business activity.

The IDBR combines administrative information on VAT traders and PAYE employers with ONS survey data in a statistical register comprising over two million enterprises, representing nearly 99% of economic activity. Analyses that are produced as part of this service are at the same level at which business statistical surveys are conducted. (Source: ONS website www.statistics.gov.uk).

An initial list was received from London Luton airport of companies within its boundary. The listing was matched against the IDBR. Companies outside the airport boundary were identified by the street names/areas as follows:

- ❖ Spittlesea Road
- ❖ Part of Frank Lester Way
- ❖ President Way
- ❖ Wigmore House
- ❖ Part of airport Way
- ❖ Barratt Industrial Park
- ❖ airport Executive Park

A handful of Companies who appeared on the list but not the IDBR had imputed estimates from analysis of the size of the enterprise and information from the airport.

Total employment in and around the airport

Employment was measured using main section headings from the Standard Industrial Classification 2007 (SIC 2007). Data has been rounded to the nearest hundred, as per ONS guidelines.

Standard Industrial Classification 2007, Section Names	Total Employees
Accommodation and Food Service Activities	500
Administrative and Support Service Activities	1,300
Financial and Insurance Activities	<100*
Manufacturing	1,100
Professional, Scientific and Technical Activities	<100*
Public Administration & Defence; Compulsory Social Security	<100*
Real Estate Activities	<100*
Transportation and Storage	5,700
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	400
Grand Total	9,300

* - Figures have been suppressed where there are less than three companies in a given Section and/or employment in that sector is less than 100 in accordance with the regulations covering the use of IDBR data.

Due to confidentiality issues Luton Borough Council is bound by Office for National Statistics protocols to round to the nearest 100 when reporting IDBR figures. This will mean that any changes in reported figures will be in multiples of 100 and therefore lie within that range.

The table illustrates that there are an estimated 9,300 employees in and around the airport. This has decreased by 200 on the previous year, a fall of 2%.

Employment by working pattern

The IDBR provides employment figures by full and part time working pattern. The total full time figures (where a breakdown by full/part time was provided) was 7,900 employees. This was a decrease of 300 on the previous year's figures. The figure for part time employees was 1,400 which was an increase of 100 from last year's figures.

The percentage split of full/part time employees found at the airport compared to that found in Luton as a whole is as follows:

	Full Time Employees	Part Time Employees
Vicinity of LLA	85%	15%
Luton UA	70%	30%

Source for Luton UA Figures: Business Register & Employment Survey 2015, latest data. Figures are percentages of those in employment.

Full and part time working patterns in the vicinity of the airport differs from that found within Luton as a whole, with the airport having a higher proportion of full time workers.

Time series

The following figures from 2011 to 2016 show the estimated employment levels in the vicinity of the airport.



Source: AMR Employment Surveys 2011- 2016

There has been small drop in employment between 2015 and 2016 around Luton Airport. There are approximately 9,300 employees working in the vicinity of the Airport which is a 2% decrease on the 2015 estimate.

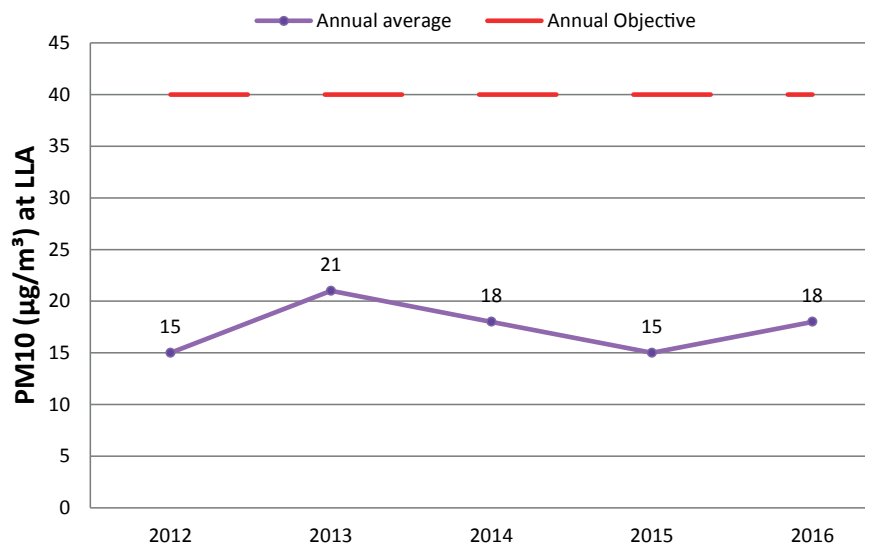
Air Quality

London Luton Airport has been monitoring air quality in and around the airport environment since 2003. Air quality data collected at LLA is integrated into a monitoring programme incorporating data collected by the surrounding Local Authorities, with a monthly report available to view online at <http://www.airqualityengland.co.uk> The parameters we measure are PM₁₀ and NO₂.

PM₁₀ (Particulates measuring 10µm or less)

PM₁₀ is one of the main contributors to reduced ambient air quality. Particulate matter is made up of fine particles including dust and soot which are suspended in the air. When you breathe in these particles they can stick to the surface of your lungs, and in areas of high pollution can cause respiratory health problems. Local sources include emissions from vehicles and aircraft engines, wear of brakes, tyres, and construction debris.

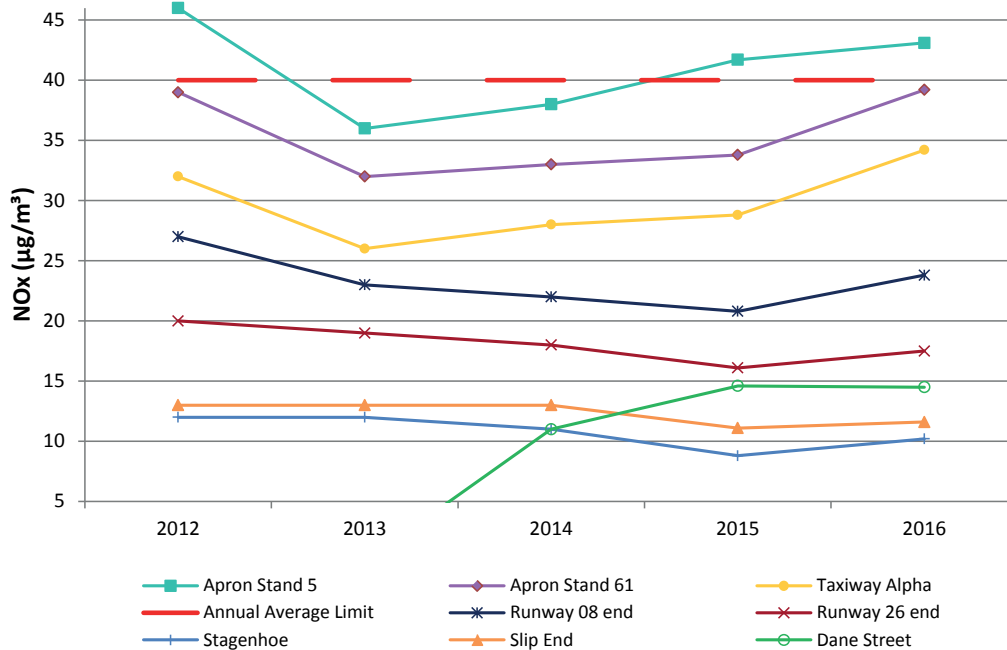
PM₁₀ is monitored from one location in the middle of the airport site. The graph shows that the readings have remained well within the annual mean local air quality objective of 40µg/m³.



Nitrogen Dioxide (NO₂)

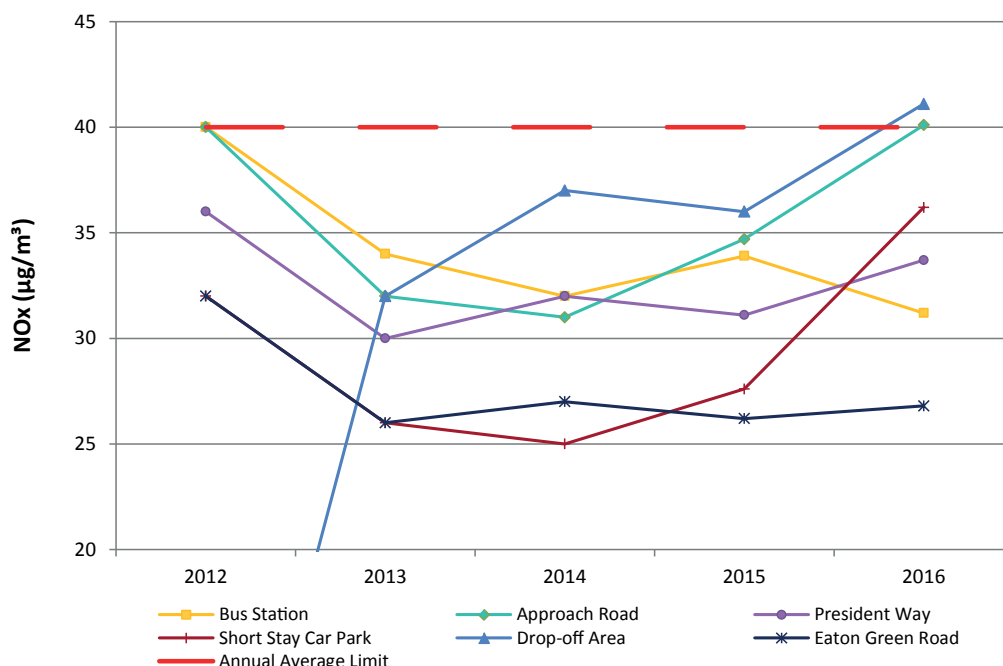
NO₂ in high concentrations can cause a wide variety of health and environmental impacts. The gas is produced from the combustion of fuels such as diesel and aviation fuel. NO₂ is currently measured from 14 locations around LLA, and the results have a bias-adjustment factor applied using national database factors. The annual mean local air quality objective of 40µg/m³ also applies to NO₂.

Airport apron, runway and under the flight paths



NO₂ levels at the closest residential receptors to the airport, and also along the aircraft flight paths are significantly below the the objective level laid out in the Air Quality (England) Regulations 2000 (as amended). Levels monitored by the roads around the airport, in the car parks and on the apron are a little higher, with a location on the main apron and the drop off zone slightly exceeding 40 µg/m³. A significant redesign of the roads and car parks on the approach to the terminal has reduced traffic congestion throughout 2016 and this work is ongoing. A project is also underway to standardise equipment on the apron which will help reduce pollution levels.

Roads, car parks and bus station



Surface Access

LLA aims to improve access to the terminal, particularly by public transport in order to reduce the contribution that journeys make to total airport-related CO2 emissions and also to air pollution. LLA's current airport Surface Access Strategy runs from 2012-2017, with short and long term targets and action plans to encourage more sustainable travel amongst airport passengers and employees. These targets are being monitored regularly, as part of the wider Local Transport Plan (LTP) monitoring framework.

Modes of Transport

Passengers transport mode share (CAA Data)

The Civil Aviation Authority (CAA) undertakes continual passenger surveys at many of the major airports in the UK, including London Luton. In common with other airports, LLA uses this survey data to assess trends in passenger

'modal shift' from private to public transport. The table shows the weighted CAA data for 2011-2015. The CAA statistics suggest that 31% of airport passengers chose to use public transport in 2015. LLA aims to achieve 40% by

2017. Improving the bus station, and lobbying the rail operators to improve services to Luton Airport Parkway have been the main mechanisms through which LLA hope to achieve this.



%	2011	2012	2013	2014	2015
Drop Off	27	27	28	25	27
Car Park	23	23	23	28	27
Rail	15	17	16	14	16
Bus/Coach	16	16	16	15	15
Taxi	18	17	17	17	16

Staff transport mode share

LLA aims to reduce the proportion of staff travelling alone by car to and from London Luton Airport to 60% or lower by 2017. Whilst employee travel does not generate as many trips as passengers,

it is an important consideration as employees making a more sustainable travel choice will give daily results due to the frequency of their need to commute to work. Staff travel surveys are undertaken once every 2 years, and the results since 2010 are presented in the

%	2010	2012	2014	2016
Drive alone	66	66	62	68
Car share	12	8	11	7
Taxi	1	1	0	1
Motorcycle	1	1	1	1
Rail	5	5	10	7
Bus/Coach	7	9	8	9
Cycle	2	2	2	2
Walk	5	6	7	5

Road Traffic and Car Parks

The information contained in this section is based on traffic counts conducted at 8 sites during the period 29th September to 5th October 2016. This period is comparable with previous summer traffic counts and avoids any periods when significant changes in traffic characteristics can occur.

The table and graph below show an increase in 12hr/5day traffic flows between 2011 and 2016 on 4 of the 8 monitored roads, but Vauxhall Way North declined marginally and there is no data for the other three roads in 2016. Looking at trend it is likely that those three roads nevertheless all sustained increases to 2016. From the available data

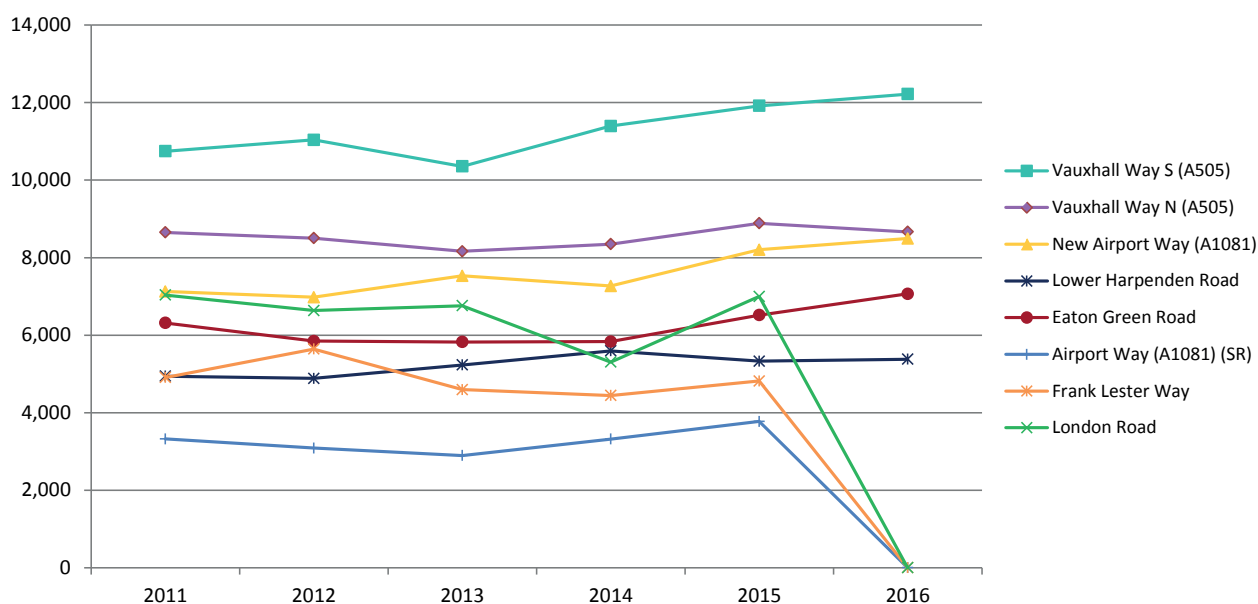
the highest increase on the 4 roads being +551 (+8.5%) on Eaton Green Road. The decrease in traffic was -223 (-2.5%) on Vauxhall Way North Road. It should be noted that the J10a improvement completed and opened in 2016, and so trends previous to its construction, may resume.

Summer 2011 - 2016 Traffic Counts (Average 12 hrs/5 day)

	Map ref	2011	2012	2013	2014	2015	2016
Airport Way (A1081) (SR)	599	3,323	3,088	2,897	3,319	3,775	no data
New Airport Way (A1081)	925	7,127	6,979	7,532	7,268	8,204	8,495
Frank Lester Way	445	4,908	5,642	4,597	4,445	4,818	no data
Sub-total		15,358	15,709	15,026	15,032	16,797	

	Map ref	2011	2012	2013	2014	2015	2016
Vauxhall Way South (A505)	520	10,746	11,039	10,355	11,395	11,917	12,219
Vauxhall Way North (A505)	603	8,652	8,505	8,164	8,348	8,889	8,666
Eaton Green Road	677	6,317	5,849	5,826	5,835	6,517	7,068
Lower Harpenden Road	106	4,942	4,885	5,232	5,594	5,331	5,379
London Road	393	7,037	6,634	6,759	*5,307	7,000	no data
Sub-total		37,694	36,912	36,336	36,479	39,654	
Total		53,052	52,621	51,362	51,511	56,451	

Summer 2011 - 2016 Traffic Counts - average 12 hrs/5 day



* - Site impacted by J10a works

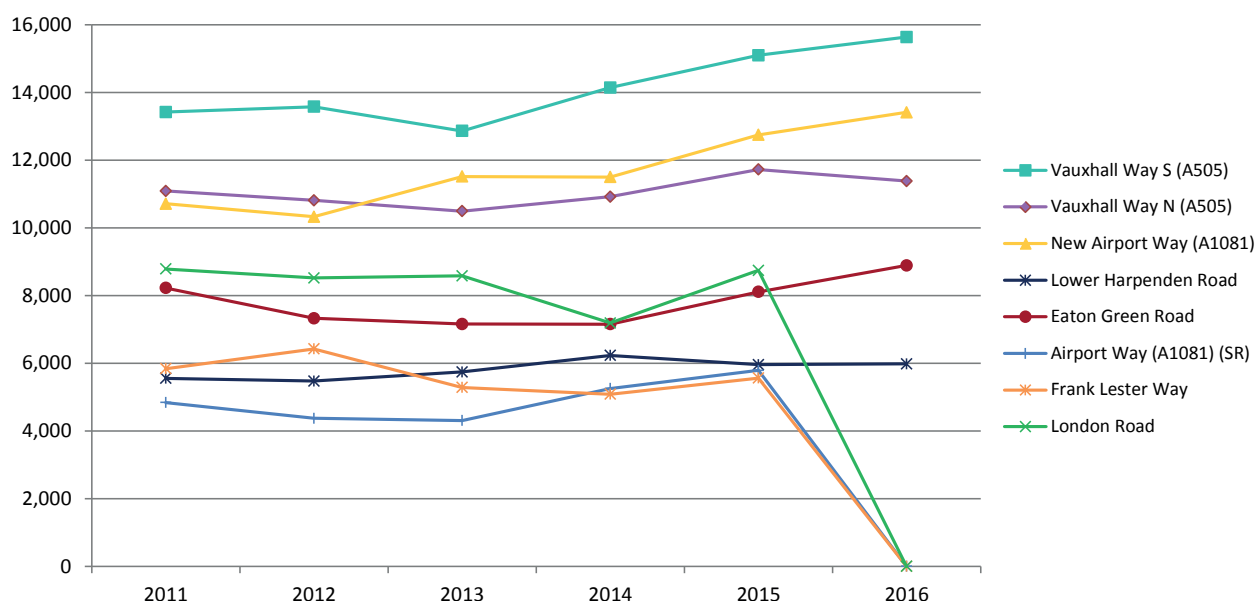
For the 24-hour week (24/7), the table and graph below reveal similar patterns to the 12hr/5day traffic counts where data is available. The highest increase in traffic is +781 (9.6%) on Eaton Green Road, while a decrease in traffic is -340 (-2.9%) on Vauxhall Way North.

Summer 2011 - 2016 Traffic Counts (Average 24 hrs/7 day)

	Map ref	2011	2012	2013	2014	2015	2016
Airport Way (A1081) (SR)	599	4,840	4,374	4,309	5,256	5,791	no data
New Airport Way (A1081))	925	10,714	10,330	11,518	11,503	12,751	13,416
Frank Lester Way	445	5,842	6,426	5,289	5,086	5,564	no data
Sub-total		21,396	21,130	21,116	21,845	24,106	

	Map ref	2011	2012	2013	2014	2015	2016
Vauxhall Way South (A505)	520	13,421	13,582	12,865	14,146	15,101	15,637
Vauxhall Way North (A505)	603	11,093	10,813	10,496	10,924	11,726	11,386
Eaton Green Road	677	8,226	7,330	7,161	7,155	8,109	8,890
Lower Harpenden Road	106	5,555	5,475	5,746	6,232	5,959	5,984
London Road	393	8,788	8,523	8,582	*7,190	8,747	no data
Sub-total		47,083	45,723	44,850	45,647	49,642	
Total		68,479	66,853	65,966	67,492	73,748	

Summer 2011 - 2016 Traffic Counts - average 24 hrs/7 day



Traffic flow along Airport Way (SR) decreased over the five years to 2013 but increased in 2015 and is likely to again in 2016, as it is now part of the Luton Dunstable Busway route to the terminal and as the M1 J10a improvement works have completed in 2016.

The available data and likely trend indicates that Vauxhall Way axis continues to accommodate the highest traffic volumes in this vicinity. This is due to its strategic location and connectivity to other district and arterial roads into and out of Luton. It is likely that the completion of East Luton Corridor engineering operations and increased activities in and around London Luton Airport have resulted in significant redistribution of traffic flow in the area.

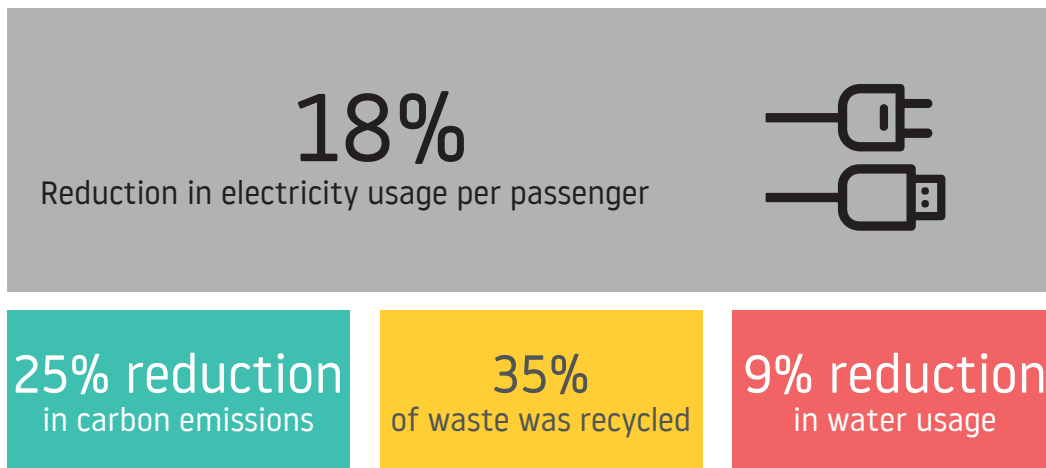
The map overleaf indicates location of these observation points.

* - Site impacted by J10a works

Sustainability

London Luton Airport is committed to operating in a way that maximises the socio-economic benefits for the local and regional area whilst minimising the environmental impacts. To ensure this vision is shared and supported, we work closely with airlines, stakeholders and business partners to promote this approach across the airport, ensuring that the full benefits that London Luton Airport can bring to the region are realised.

LLAOL aims to continuously improve on environmental performance in many different areas across the Airport. In 2016 the following was achieved:



The airport maintained the ISO14001 international accreditation for Environmental Management System and the ISO50001 international accreditation for Energy Management.

Sustainable Travel Improvements during 2016

During 2016 a new bus interchange was opened at LLA, providing 7 additional stands and improving safety and access for passengers. Construction works were also undertaken to redevelop the road network, taxi and drop-off facilities at the terminal entrance, and a new multi-storey car park opened providing additional parking near the terminal. Further information on these upgrades can be found under 'Planning and Development'.

Plans for a mass passenger transit system operating between Luton Airport Parkway station and the airport terminal were unveiled during 2016. The MPT system will be a fully-automated, two-way, 24-hour, guided light rail people mover covering a distance of 2.2km. Once complete, the rail link will provide a direct journey between London St Pancras and the airport within 30 minutes. Not only will this encourage passengers to travel by train rather than car, but it will also remove the need for the buses that currently transport passengers between the station and the terminal every 10 minutes. The scheme, being run by London Luton Airport Ltd, is anticipated to be operational by 2021.

Overnight rail services from Luton Airport Parkway began at the end of 2015, making rail a viable transport option for 2-3 million more airport passengers per year, and an uplift in passengers using the trains has been seen during 2016 as a result. LLA have also been lobbying to ensure 4 stops per hour are scheduled at Luton Airport Parkway as part of the refranchising of the East Midlands line due in 2018, providing additional fast services into London.

A staff travel survey was undertaken, along with a report looking into the feasibility of improving coach services to the airport from Northampton. Both reports have been shared with transport operators in order to facilitate transport planning.

Planning and Development

Through its local transport plan, Luton Borough Council (LBC) sets out the policies, strategies and schemes for Luton, Dunstable and the Houghton Regis area. The current Local Transport Plan (LTP3) for Luton covers the period 2011-2026 and can be accessed through LBC's website.

Planning Applications

On 3rd December 2012, LLA submitted a planning application to LBC for:

“Full planning application for dualling of Airport Way/Airport Approach Road and associated junction improvements, extensions and alterations to the terminal buildings, erection of new departures / arrivals pier and walkway, erection of a pedestrian link building from the short-stay car park to the terminal, extensions and alterations to the mid-term and long-term car parks, construction of a new parallel taxiway, extensions to the existing taxiway parallel to the runway, extensions to existing aircraft parking aprons, improvements to ancillary infrastructure including access and drainage, and demolition of existing structures and enabling works. Outline planning application for the construction of a multi-storey car park and pedestrian link building (all matters reserved)”

The application is a hybrid application, with full details submitted for all of the development except in relation to the multi-storey car park and pedestrian link building, where all matters are reserved for subsequent determination. The application was accompanied by an Environmental Statement (ES), with a scoping request having been made in August 2012 and Luton Borough Council (LBC) having provided its scoping opinion in November 2012 (ref 12/01400/FUL).

The scheme involves the following works within the existing Airport boundary:

- Dualling of the road from the Holiday Inn Roundabout to the Central Terminal Area;
- Safeguarding an extension to Airport Way so as to provide an access route to facilitate the development of Century Park;
- Improvements of the public transport hub adjacent to the terminal;
- Construction of a multi-storey car park and pedestrian link to the western side of the existing short-term car park;
- Extension to the mid-term car park and long-term car park;
- Improvements to the terminal building involving internal reorganisation and minor extensions and building works;
- Construction of a new pier (Pier B);
- Construction of a new taxiway parallel to Taxiway Delta; and
- Taxiway extensions and rationalisation of aircraft parking area with new stands replacing and improving existing stands.

This application seeks to increase the capacity of London Luton Airport to 18mppa from a current capacity of approximately 12mppa.

Airport planning and development

Following on from London Luton Airport's planning consent for a £110m development that was granted by Luton Borough Council in 2014, a number of key milestones have been reached in 2016.

New Temporary Entrance

In April 2016 a temporary entrance was installed to make way for the terminal extension which has made a good progress during the year.

Multi-Storey Car Park

In December the new 700 space multi-storey car park was opened, along with a covered pedestrian walkway.

Aelia Duty Free

The new duty free store opened for business in April. The 1,700sqm flagship walkthrough store has proved very popular with passengers.

In addition to these changes the airport introduced free wi-fi, Auto Bag Drop terminals, additional e-Passport gates and removed the charge for plastic bags in security.

During 2017 the terminal extension is expected to be completed along with a new aircraft pier, dual carriageway access road and the first of two new taxiway extensions.

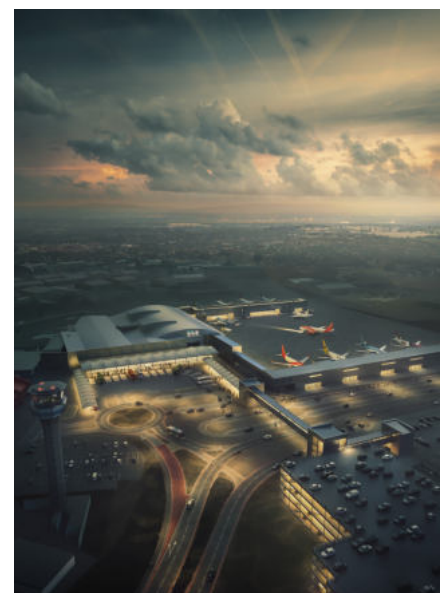
Below are two images showing an artist's impression of the airport after redevelopment.

Hotel developments

The area around the airport proves to be attractive to hotel developers and operators. The following sites have valid planning permissions for such development –

Site address	Current status of application	Number of bedrooms
Express by Holiday Inn	Implemented	147
Hotel Ibis	Implemented	162
Premier Inn (The Brache)	Implemented	131
Napier Park/Stirling Place	A revised scheme was approved subject to the completion of a S106 legal agreement	200
Hampton by Hilton, 42-50 Kimpton Road	Opened January 2013	188
Ramada Encore, Airport Way	Opened July 2012	124
Airport Way/ELC	Approved February 2011, not yet commenced.	171
Former Mondi Packaging site, Airport Way	Approved April 2013, not yet commenced	156
Former Mondi Packaging car park site, Airport Way	Approved subject to the completion of a S106 legal agreement	120
	Total rooms	1,399

It is envisaged that the demand for hotel accommodation in Luton will grow as the number of passengers travelling through the airport increases.



National Aviation Policy

The Government's White Paper "The Future of Air Transport" which was published in December 2003 was replaced by the Aviation Policy Framework (APF) in March 2013. The APF sets out the Government's objectives and principles to guide plans and decisions at the local and regional level.

In the short term, to around 2020, the APF proposes a strategy based on a suite of measures, namely:

- "making best use of existing capacity to improve performance, resilience and the passenger experience;
- encouraging new routes and services;
- supporting airports outside the South East to grow and develop new routes; and
- better integrating airports into the wider transport network."

The APF makes a number of references to the role that LLA plays in the UK. In paragraph 1.41 it states:

"The demand for aviation in the UK is concentrated in the South East, a densely populated region whose economy comprises multiple high-value sectors including finance, professional services, technology, media and fashion. This drives consistently high demand for aviation in the region, so that the five main South Eastern airports (Heathrow, Gatwick, Stansted, Luton and London City) account for nearly two-thirds of passengers at UK airports and nearly half of all air transport movements."

In terms of the role that LLA could play in global connectivity paragraph 1.79 states: "To improve connectivity at an international level and to help make better use of existing infrastructure at London's congested airports, we announced in 2011 that we would consult on extending the UK's existing regional fifth freedoms policy to Gatwick, Stansted and Luton. The granting of fifth freedoms would allow a foreign airline to carry passengers between these three London airports and another country as part of a service that begins or ends in the airline's home country. For example, a Singaporean airline would be able to operate a service from Changi Airport in Singapore to Gatwick Airport and then on to JFK Airport in the US, picking up passengers at Gatwick Airport and carrying them to New York."

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 for England, which aims to avoid significant adverse impacts on health and quality of life. To this end the Government recognises the International Civil Aviation Organisation's (ICAO) 'balanced approach' which seeks to identify the noise problem at an airport and then assess the cost-effectiveness of various measures to reduce noise. The four main elements are: reduction at source (quieter aircraft); land-use planning and management (including use of conditions and legal agreements to mitigate and reduce to a minimum adverse impacts); operational procedures (how aircraft are flown and their routes to limit noise impacts); and operating restrictions (preventing noisier aircraft from flying to airports).

Local Planning Policy

Luton is preparing its Local Plan 2011 to 2031 and in the summer 2014 consulted on a draft Local Plan (Regulation 18 of the Town and Country Planning (Local Planning) Regulations 2012). In the summer of 2015 the Plan was published for Pre-submission consultation (Regulation 19) and then in the spring 2016 the Borough Council submitted to the Secretary of State for examination with hearings scheduled over 3 separate stages examining the 'Duty to Cooperate' (July 2016), Development Strategy (September 2016) and Development Management Policies (December 2016 and January 2017). The Inspector has been invited to make modifications to the plan to remedy any soundness issues and a Main Modifications consultation is anticipated in March/April 2017. The Submitted Local Plan includes policies to regulate London Luton Airport's growth and environmental performance and to facilitate economic generation and infrastructure delivery via the combined Strategic Allocation comprising Century Park, Wigmore Valley Park and London Luton Airport.

Local Transport Plan for Luton 2011-2026 (LTP3)

The Council was required to submit the third Local Transport Plan (LTP3) to the Government by the end of March 2011 setting out how it would deal with transport matters in and around the town. Whereas the first and second LTPs covered Luton, Dunstable and Houghton Regis, the third plan only covers Luton. The LTP3 comprises two main parts.

The first sets out the long-term Transport Strategy covering the period up to 2026; consistent with the then joint Core Strategy and the Sustainable Communities Strategy. The Council consulted a wide range of partners and stakeholders, including London Luton Airport Operations Limited (LLAOL), in developing this part of the Plan.

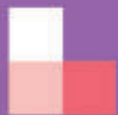
Based on recent trends in both passenger throughput and airport employees at Luton, and taking account of recent changes in government policy relating to other London airports, the LTP3 strategy sets out anticipated passenger numbers of between 15.5mppa and 18 mppa by 2026, together with an additional 3000 employees over the same period.

The second part of the LTP3 is the Implementation Plan that sets out local transport schemes and initiatives the Council propose to introduce over the period up to 2014/15. Key elements of the Implementation Plan of relevance to the airport include:

- a focus on smarter choices and travel by more sustainable modes (walking, cycling , public transport supported by employee travel plan initiatives (e.g. car share database)
- implementation of a new northern entrance to Luton Airport Parkway Station
- improvement of M1 Junction 10a, and
- extension of Airport Way to serve planned employment sites east of the airport

ANNEX H - AIRPORT ANNUAL MONITORING REPORT 2017

Annual Monitoring Report 2017



London
Luton
Airport



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Foreword

Demand for air travel across the UK is at an all-time high. Almost 16 million passengers chose to travel through London Luton Airport (LLA) in 2017. More local residents took advantage of the international airport on their doorstep - people from three Counties are by far our largest user.

To meet this soaring demand, we are investing £160 million to transform the airport and increase our annual capacity to 18 million. The revamped terminal and increased route network will create a better experience for our passengers. We also want to make sure that our local community feels the benefits of being home to a bigger and better LLA.

The redevelopment is forecast to bring a significant economical boost to the local area and the UK. We will contribute £1.4 billion a year to the local economy and £2.3 billion nationally, supporting over 37,700 jobs by 2031.

But as the airport grows, we know that some local residents may have concerns about noise levels.

Noise is an unavoidable part of running an airport but it's important to us to balance the benefits of a successful airport with our operational activity.

We already operate under the most stringent noise restrictions of any major UK airport, but we want to do more.

That's why we are working with representatives from local authorities and community groups to make improvements to existing flightpaths, and with airlines to introduce newer, quieter aircraft to LLA as quickly as possible. In 2017, LLA initiated a successful trial with more than three quarters of aircraft delaying their landing gear deployment, which cuts down drag and reduces noise, having worked with Stevenage MP Stephen McPartland and local communities.



The work which our noise team carries out is driven by the following commitments:

1. Inviting and listening to feedback

We hold regular noise surgeries and are available to listen to your concerns 365 days per year.

2. Acting on the feedback we receive

Whether it's introducing new mitigation initiatives, improving our monitoring capabilities or simplifying our complaints system. If it matters to you, it matters to us.

3. Communicate transparently

We update our community with quarterly monitoring reports, through our consultative committee and "Inform", our bi-monthly email newsletter.

4. Input into national policy-making

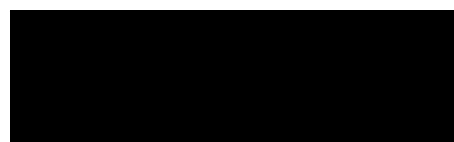
Airspace changes depend on national policies. LLA will make sure your views are heard in national consultations.

This Annual Noise Monitoring Report is one example of how we act on these commitments. We hope it answers some of the questions you may have about the impact of the airport's transformation.

If you have any other further queries please don't hesitate to contact the team by calling 01582 395382 or emailing noise@ltn.aero.

Neil Thompson

*Operations Director
London Luton airport*



Key Monitoring Indicators

Parameter		2017	2016
Total Aircraft Movements	↑	135,518	131,435
Day Movements (07:00 - 23:00)	↑	119,462	116,686
Night Movements (23.00 – 07.00)	↑	16,056	14,749
Early Morning Movements (06.00 – 07.00)	↑	5,962	5,161
Total Scheduled Passengers	↑	15,369,715	14,092,180
Total Charter Passengers	↓	429,504	459,657
Total Passengers	↑	15,799,219	14,551,837
Number of Destinations	↑	140	135
Number of New Airlines	↓	0	4
Number of New Routes	↓	19	23
Westerly/Easterly Runway Split (%)	-	79/21	70/30
Night Quota Used (3,500 Limit)	↑	3,078	2,663.75
Average Ratio of Aircraft movements % (day/night)	-	89/11	89/11
Track Violations	↓	63	91
Departure Noise Infringements (Day)	↓	7	21
Departure Noise Infringements (Night)	↑	4	3
Fines transferred into Community Trust Fund	↓	£50,250	£75,700
24hr Continuous Decent Approach (% achievement)	↑	93%	90%
No. Departures Recorded at ≥ 85 dB(A) during Day (Night)	↓	1 (0)	8 (1)
No. Departures Recorded at ≥ 76 dB(A) during Day (Night)	↑	7,785 (1,283)	6,379 (943)
No. Departures Recorded at ≥ 70 dB(A) during Day (Night)	↑	46,405 (5,339)	42,667 (4,511)
Night Noise Contour Area (48 dB L _{Aeq, 8h})	↑	38.7km ²	36.5km ²
Population within Night Noise Contour (48 dB L _{Aeq, 8h})	↑	17,800	16,105
Dwellings within Night Noise Contour (48 dB L _{Aeq, 8h})	↑	7,500	6,767
Noise Complaints	↑	15,384	4,231
Complainants	↑	1,121	815
Number of New Complainants	↑	814	525
Largest Source of Complaints	-	Deps. West	Deps. West
Number of PM ₁₀ exceedances	-	0	0

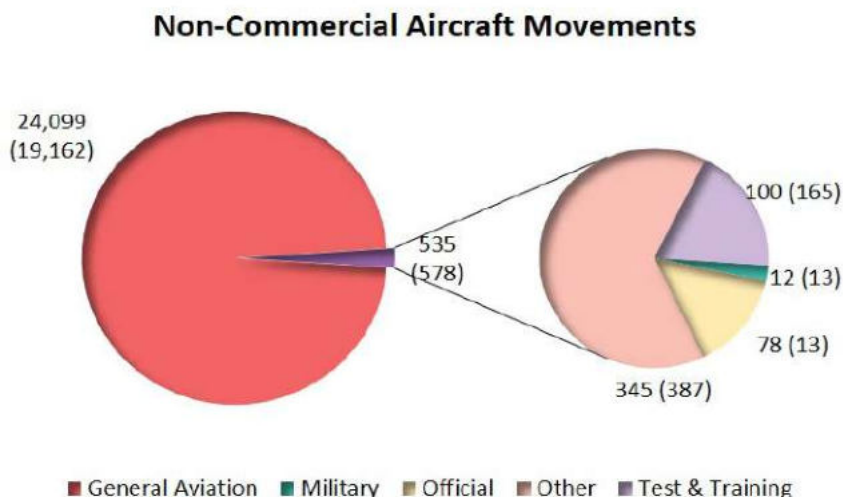
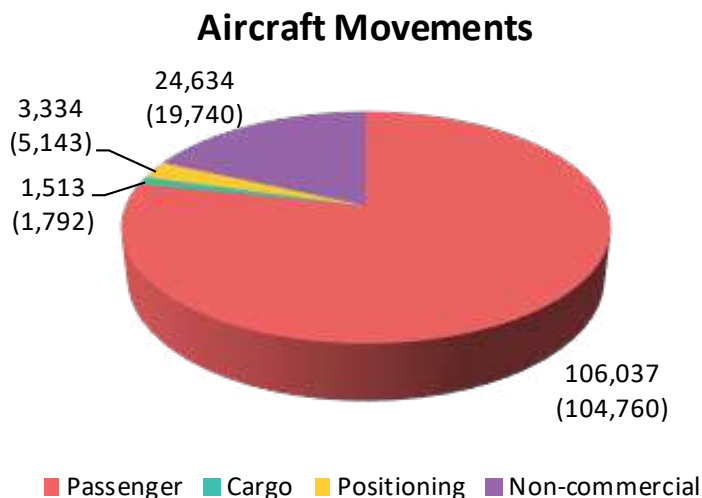
Air Traffic Data

Aircraft movements

LLA handled a total of 135,518 aircraft movements during 2017, an increase of 3.1% compared to 2016. An aircraft movement is the take-off or landing of any aircraft from the airport.

The majority of aircraft movements were passenger flights at 106,037 movements. This includes commercial flights by executive aircraft (compared with 104,760 in 2016). Other movements included cargo, positioning flights and non-commercial flights.

For comparison purposes 2016 data is shown in brackets.



Movement Classification

Commercial – operating for hire or reward and includes cargo, passenger and positioning flights

Non-Commercial – not operating for hire and reward

Cargo – aircraft movements which are solely for freight. It should be noted that freight can also be carried on aircraft in other categories

General Aviation – private aircraft, helicopters and business jets not operating for hire or reward

Passenger – commercial passenger flights, including executive aircraft

Positioning – typically empty flights to/from other airports

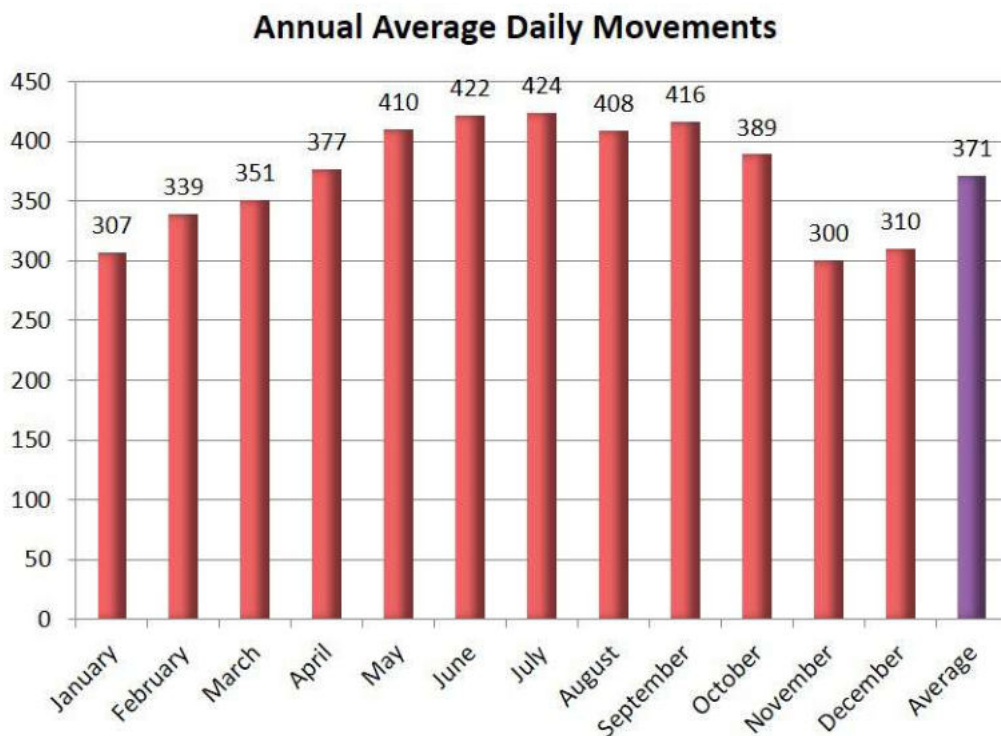
Military – flights on military business

Official – flights solely for official purposes by British or foreign civil government departments

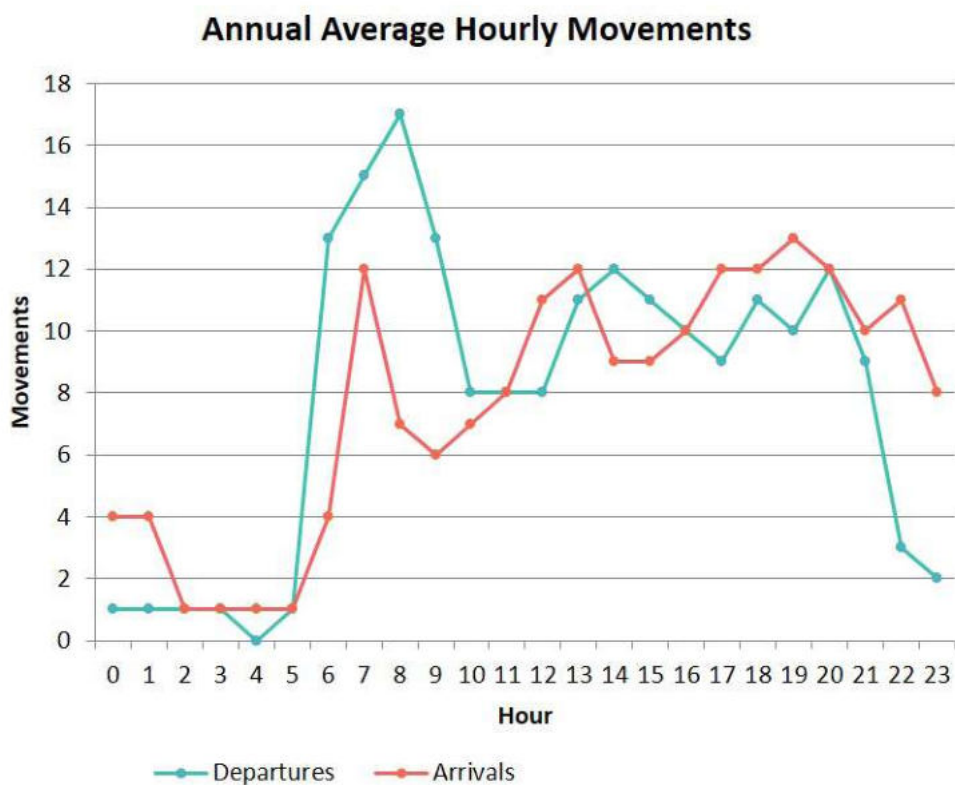
Other – flights coming for maintenance and or departing aircraft that have made an unscheduled return to base

Test & Training – training flights involving aircraft and also flights following or during aircraft maintenance

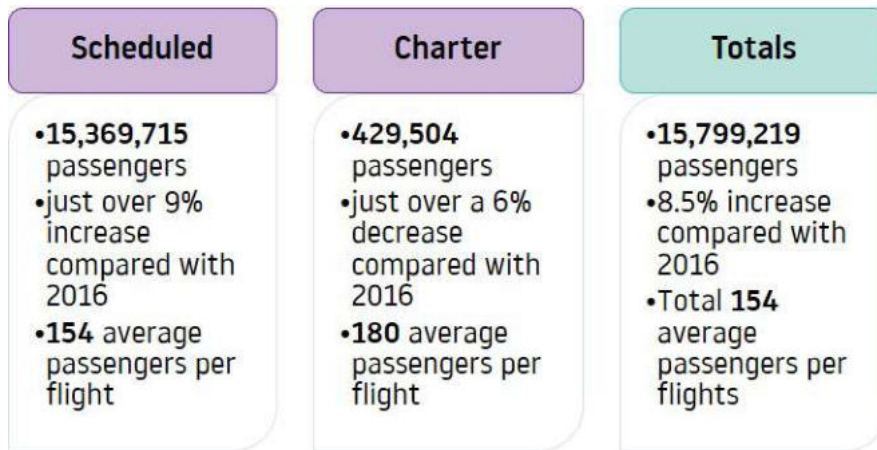
The graph below illustrates that the busiest time of year is May - October, with over 411 flights per day. **Our busiest day of the year was June 4th with 475 aircraft movements.** In comparison, winter months are the quietest, with just over 305 flights per day. On average there were 371 movements per 24 hours (compared to 359 in 2016).



The busiest time on average during 2017 for departing aircraft was 06:00-09:00 hrs, with another peak between 12:00-16:00. The average busiest time for arrivals was 17:00-19:00 hrs. The graph also highlights a low level of average movements during the hours of 00:00-05:00 hrs.

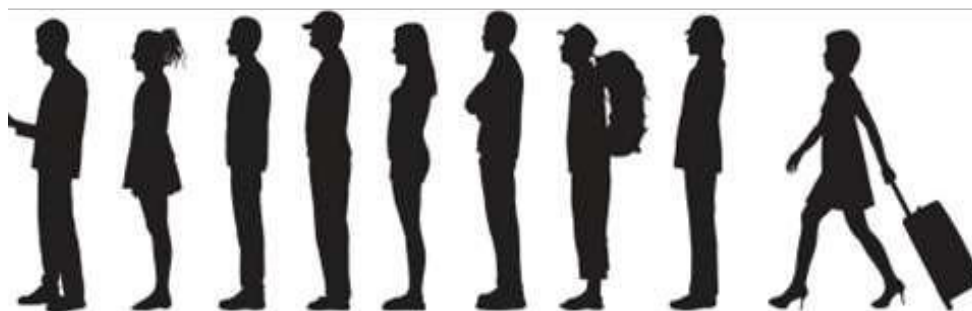
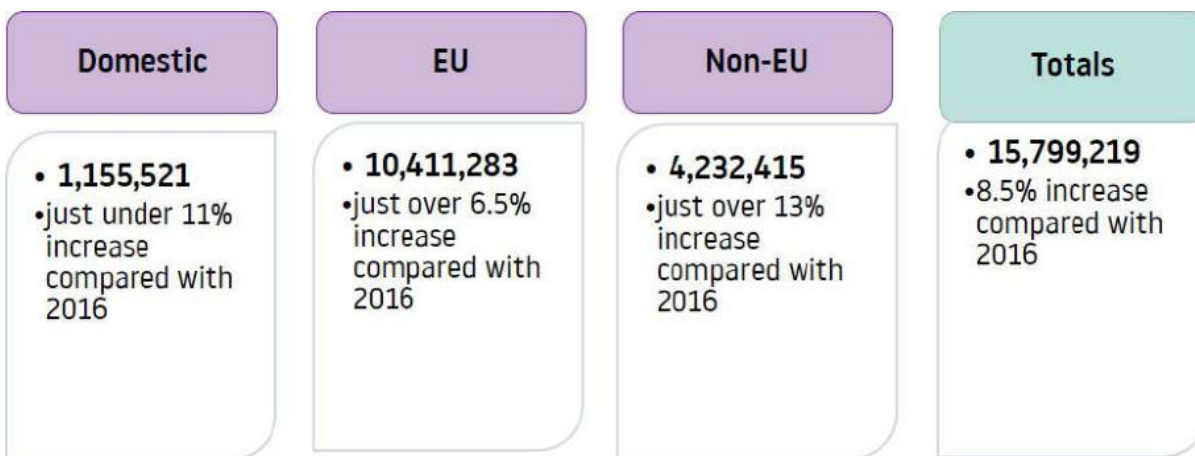


Passenger data



Charter flights are flights in which the aircraft has been chartered (or leased) by a company, typically a tour operator or an executive customer. Charter seats are typically not sold directly by the airline. Scheduled flights are regular flights organised by the company which owns the aircraft.

A total of 15,799,219 passengers used LLA during 2017; 15,369,715 on scheduled flights (97%) and 429,504 on charter flights (3%). This represents an increase in passengers of 8.5% compared with 2016.



Cargo

Cargo operations represent just over 1% of all air transport movements at London Luton Airport. Night movements accounted for 76% of total cargo movements. These were primarily postal flights or intra-European express delivery services moving time sensitive and perishable freight such as fresh food, medication and urgently needed technical equipment vital to supporting and sustaining economic growth. The flights carrying more general, less time-sensitive cargo already operate outside of the night-time period. This would include Formula 1 cars, live animals, clothing, machine parts and more.

Operator	Movements			Tonnes
	Day Movements	Night Movements	Total	Total
2017	455	1,442	1,897	22,061
2016	648	1,515	2,163	25,788
2017/2016 comparison	-29.8%	-4.8%	-12.3%	-14.4%

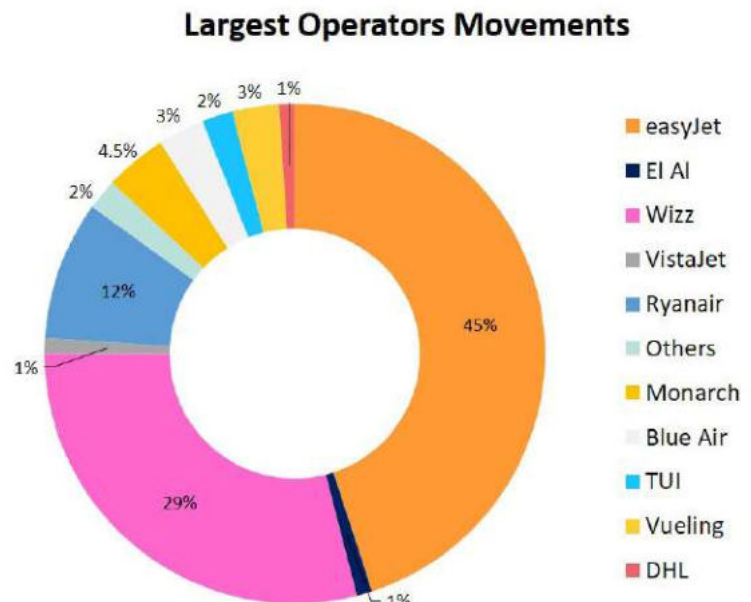
N.B. The cargo movement count is the total number of movements that carried cargo as opposed to flights that are primarily operated for the carriage of cargo. This is because just under 1% of total cargo tonnage was carried on passenger aircraft. Consequently the movement figures in this section will differ from figures in the Aircraft Movements piechart which shows dedicated cargo movements.



Airlines

London Luton Airport works very closely with its airline partners. The table below provides the movement statistics by the 10 largest operators.

Operator	Movements
easyJet	47,260
Wizz	31,094
Ryanair	9,974
Monarch	3,697
Blue Air	3,175
Thomson Airways	2,133
Vueling	3,046
DHL	1,136
El Al	833
VistaJet	758
Others	2,512
TOTAL	105,618



N.B This table includes movements for both passenger & cargo aircraft but excludes positioning flights and air-taxis.



Movements by aircraft type

Aircraft Type	Movements	% of Total movements
Airbus A319	27,828	20.5%
Airbus A320	48,261	35.6%
Airbus A320 NEO	975	0.7%
Airbus A321	9,869	7.3%
Airbus A306	896	0.7%
Airbus A330	110	0.1%
Boeing B737-300	396	0.3%
Boeing B737-400	1,202	0.9%
Boeing B737-500	159	0.1%
Boeing B737-700	114	0.1%
Boeing B737-800	14,218	10.5%
Boeing B737-900	434	0.3%
Boeing B757	1,247	0.9%
Boeing B767	130	0.1%
Boeing B777	18	0.01%
Boeing B787	42	0.03%
BAe ATP	295	0.2%
Canadair Global Express GLEX	219	0.2%
Cessna Citation Excel C56X	2,721	2.0%
Canadair Challenger CL60	1,278	0.9%
Canadair Challenger CL30	1,550	1.1%
Gulfstream 3,4 & 400 series	1,714	1.3%
Gulfstream 5 & 500 series	2,057	1.5%
Gulfstream 650	1,163	0.9%
Embraery Legacy 600	1,702	1.3%
Cessna Citation Jet C525	1,317	1.0%
Dassault Falcon FA7X	1,081	0.8%
Helicopter	531	0.4%
Other aircraft	13,991	10.3%
TOTAL	135,518	100%

The aim of this section is to provide the number of movements for a specific aircraft type. The groups are conditional, assuming that these are the typical aircraft types used for passengers, cargo and general aviation movements. As a result the number quoted here within this section will differ from those within the Aircraft Movements Section.

¹ - Winglets and sharklets are small aerodynamic surfaces mounted almost vertically at the wingtips. There is no difference between winglets and sharklets; the term sharklet is just the name used by Airbus for the winglets fitted to their aircraft.

Destinations

London Luton Airport has seen forty four months of consecutive passenger growth (correct as of January 2017) making 2017 the busiest year ever in the airport's history.

The map below shows the destinations flown/on sale to and from London Luton in 2017. Our airlines fly to 140 destinations across 38 different countries.



New Routes 2017

Destination	Launch	Airline
Chambery, France	16-Dec-17	TUI
Alghero, Italy	28-Nov-17	easyJet
Seville, Spain	29-Oct-17	easyJet
Bydgoszcz, Poland	29-Oct-17	Ryanair
Biarritz, France	27-Jun-17	easyJet
Kutaisi, Georgia	24-Jun-17	Wizz Air
Tel Aviv, Israel	24-Jun-17	Wizz Air
Prishtina, Kosovo	18-Jun-17	Wizz Air
Rhodes, Greece	27-May-17	easyJet
Zadar, Croatia	27-May-17	easyJet
Florence, Italy	01-May-17	Vueling

Destination	Launch	Airline
Faro, Portugal	01-May-17	Ryanair
Isle of Man, UK	27-Mar-17	easyJet
Cluj-Napoca, Romania	26-Mar-17	Blue Air
Dusseldorf Weeze, Germany	26-Mar-17	Ryanair
Stockholm, Sweden	26-Mar-17	easyJet
Nantes, France	15-Feb-17	easyJet
Marseille, France	13-Feb-17	easyJet
Valencia, Spain	11-Feb-17	easyJet

Routes Ending 2017

Whilst there were 19 new routes launched from LLA in 2017, 16 ended with the collapse of Monarch.

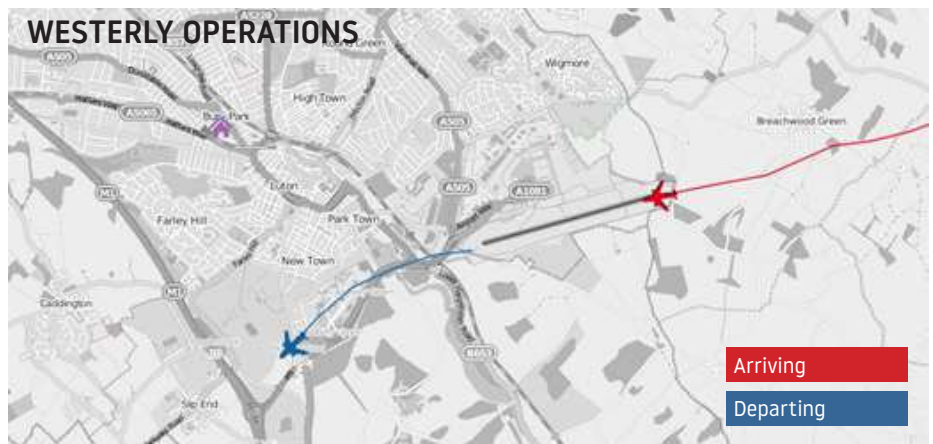
More information about our destinations can be found on the airport's website:

Runway usage

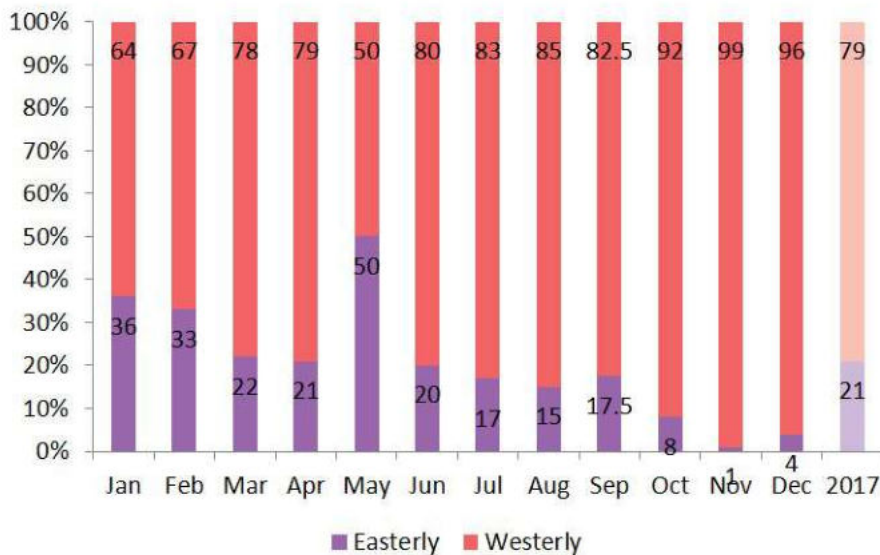
Aircraft need to land and take off into the wind and therefore the prevailing wind direction determines the direction of airfield operation. South westerly and westerly winds prevail for much of the year, typically around 70 per cent of the time.

Wind speeds and directions recorded at higher altitudes can vary considerably from those recorded at ground level. The position of the wind is under constant review by NATS which is why the operation can change direction more than once in a day. However it is also not unusual for the runway to operate in the same direction for several weeks.

A monthly breakdown is shown, highlighting unusually prolonged spells of westerly operations over the summer and increased levels of easterly operations over the winter and spring months of 2017.



Runway Usage



Year	Easterly	Westerly
2017	21%	79%
2016	30%	70%
2015	28%	72%
2014	32%	68%
2013	36%	64%
Average	29%	71%

The runway split during 2017 was 21% easterly and 79% westerly (compared to 30% / 70% in 2016). A breakdown of runway usage over the last five years is also shown in the table, giving a historical split of 29% easterly and 71% westerly.

Night Flights

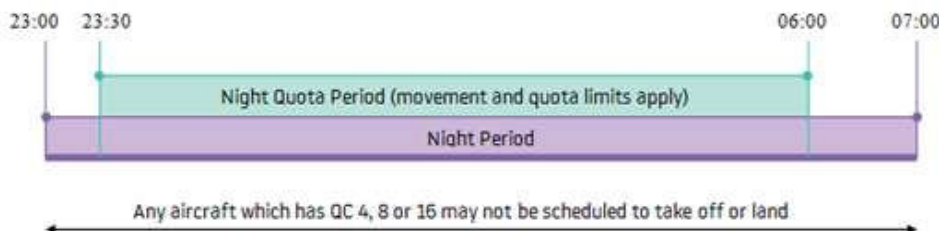


Night Flying Restrictions

As from 1st April 2015 London Luton Airport introduced new night restrictions as part of the planning conditions imposed by Luton Borough Council.

These restrictions have been put in place to limit and mitigate noise disturbance from aircraft operating at night, to prohibit aircraft of certain types from operating, as well as limiting the number of occasions on which aircraft may take off or land.

The night flying restrictions contain a 12 month period aircraft movement limit and a 12 month period quota count limit. The quota count (QC) means that points are allocated to different aircraft types according to how noisy they are. The noisier the aircraft type, the higher the points allocated. This provides an incentive for airlines to use quieter aircraft



The table overleaf records the QC bands identified by the certified noise levels, and gives some typical example aircraft, some of which operate from LLA.

The 'Night Quota Period'

The 'Night Quota Period' is from 23:30 to 06:00 hours local, during which period aircraft movements (take-off or landing) are restricted by a limit on the number of movements with noise quotas as an additional measure.

Aircraft are certificated by the International Civil Aviation Organisation (ICAO) according to the noise they produce during specific certification tests conducted by the manufacturer. They are classified separately for both take off and landing. The points are then allocated to different aircraft types according to how noisy they are.

The 'Early Morning Shoulder Period'

The 'Early Morning Shoulder Period' is 06:00 to 07:00 hours local. During this period aircraft movements (take-off or landing) are restricted by a limit on the number of movements (the same as the Night Quota Period).

Aircraft movement and quota count limits (per 12 month period)

Condition 9(iii) requires that for the Night Quota Period (2330 - 0600) the following limits shall not be exceeded:

- 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.

Certificated noise level (EPNdB)	Typical aircraft	Quota Count
Greater than 101.9	Some B741/B742, AN124/AN225	QC 16
99 to 101.9	Some B744, MD8	QC 08
96 to 98.9	B732, MD10	QC 04
93 to 95.9	B772, A306, A332	QC 02
90 to 92.9	A320/A321, some B738, B752, B788	QC 01
87 to 89.9	A319/A320, some B734, B738, B788	QC 0.5
84 to 86.9	A319/A320, GLEX, FA7X/F900/F2TH	QC 0.25
Less than 84	Challenger series (eg CL60), ATP, C525/C550 & A320 NEO	QC 0

Condition 9(iv) requires that for the Early Morning Shoulder Period (0600 - 0700) the total annual movements by aircraft in any 12 month period shall be limited to 7,000.

The table below provides total aircraft annual movements and noise quota per 12 month period and compares those against the limits set by planning conditions.

	Night Quota Period (2330 - 0600)		Early Morning Shoulder (0600 - 0700)
	Movements Limited to 9,650	Quota Count Limited to 3,500	Movements Limited to 7,000
Jan 2017	318	146	331
Feb 2017	363	161	301
Mar 2017	388	172	393
Apr 2017	638	243	563
May 2017	850	304	636
Jun 2017	958	349	610
Jul 2017	1,063	375	622
Aug 2017	989	376	637
Sep 2017	898	328	637
Oct 2017	832	311	593
Nov 2017	204	70	336
Dec 2017	481	242	303
Total for preceding 12 months	7,982	3,078	5,962

There were 156 night time aircraft movements with a QC value of greater than 2 in 2017. Of the 156 QC 2 aircraft movements in 2017, 111 were departures by Airbus A300-600 aircraft.

There was one night time aircraft movement with a QC value of greater than 2 in 2017. This was an arrival by a Sikorsky S-92 helicopter. While this type is certificated differently to fixed wing aircraft, it can be assigned a QC value using a revised procedure.

Marginally Compliant Chapter 3 aircraft

Taking the year as a whole, of the 134,032 movements where Chapter 3 categorisation is applicable, only 66 are known to be marginally compliant. These movements were by three aircraft; a Boeing 737-200, a Gulfstream III and a Tupolev 204, with 55 of the 58 movements being the Boeing 737-200. A further 14 aircraft movements were by aircraft unknown classification. These comprised 4 different aircraft; an Antonov 12, a Boeing 767-200 and two Boeing 767-300s. It should be noted that the B737-200 no longer operates from Luton.



Day/Night ratio of movements

There were 16,056 night movements during 2017 (compared to 14,749 in 2016, a increase of 9%), an average of 44 movements per night (compared to 40 last year). Arriving aircraft accounted for 56%

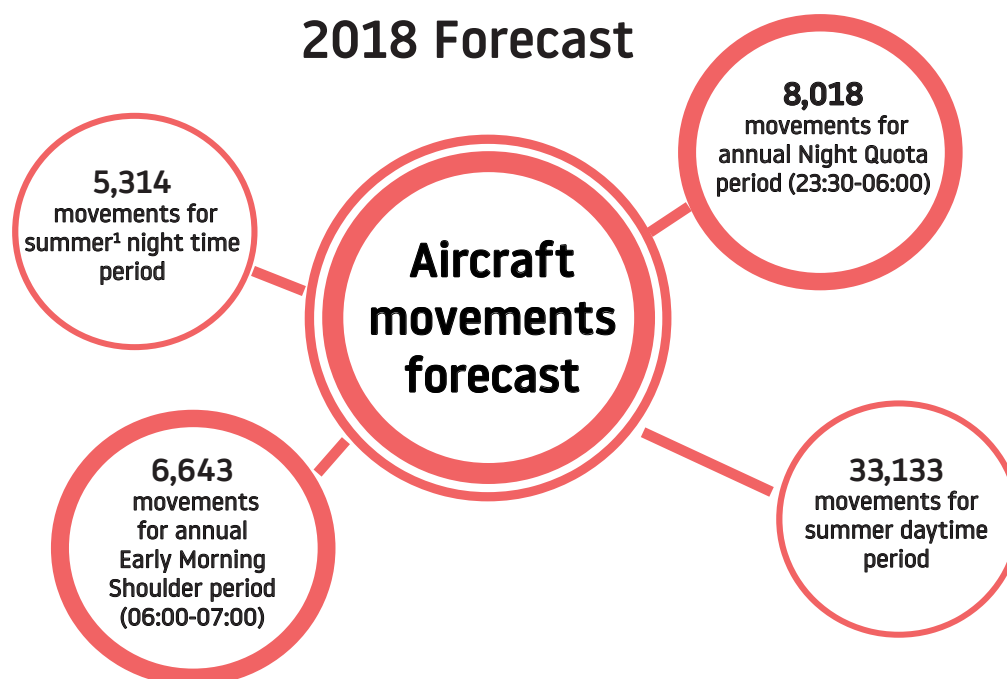
of total night movements, relating primarily to the last rotation of Luton based passenger aircraft scheduled to land back at the airport at night, between 23:00 hrs and midnight. 64% of total night

departures took off between 0600 - 0700 in the morning.

The average ratio of total aircraft movements during 2017 was 89% day / 11% night (in line with 89% day / 11% night in 2016).

2017	Day Movements (0700 - 2300)	Night Movements (2300 - 0700)		
	Day Movements	Night Quota Period (2330 - 0600)	Early Morning Shoulder (0600 - 0700)	Total Night Movements (2300 - 0700)
Departures	60,688	2,113	4,571	7,072
Arrivals	58,774	5,869	1,391	8,984
TOTAL	119,462	7,982	5,962	16,056

The figure below shows forecast aircraft movements for 2018, separated into daytime and night time periods.



¹ - Summer time covers period from 16th June until 15th September

Departing Aircraft

All propeller-driven aircraft with Maximum Take Off Mass (MTOM) over 5,700kg and all jet aircraft leaving London Luton Airport are required to follow specific departure routes known as Noise Preferential Routes (NPRs). These are established by consultation with the Safety and Airspace Regulatory Group (SARG) at the CAA and the London Luton Airport Consultative Committee, and they are designed to avoid flying over built-up areas wherever possible.

There are four Standard Instrument Departure (SID) routes for each runway – OLNEY, COMPTON, MATCH and DETLING.

Associated with each NPR is a swathe of airspace extending 1.5km (1km for RNAV) each side of the NPR centre line, within which aircraft concentrate and are considered to be flying on track. Aircraft must follow the NPR controls applicable to the runway in use at that time.

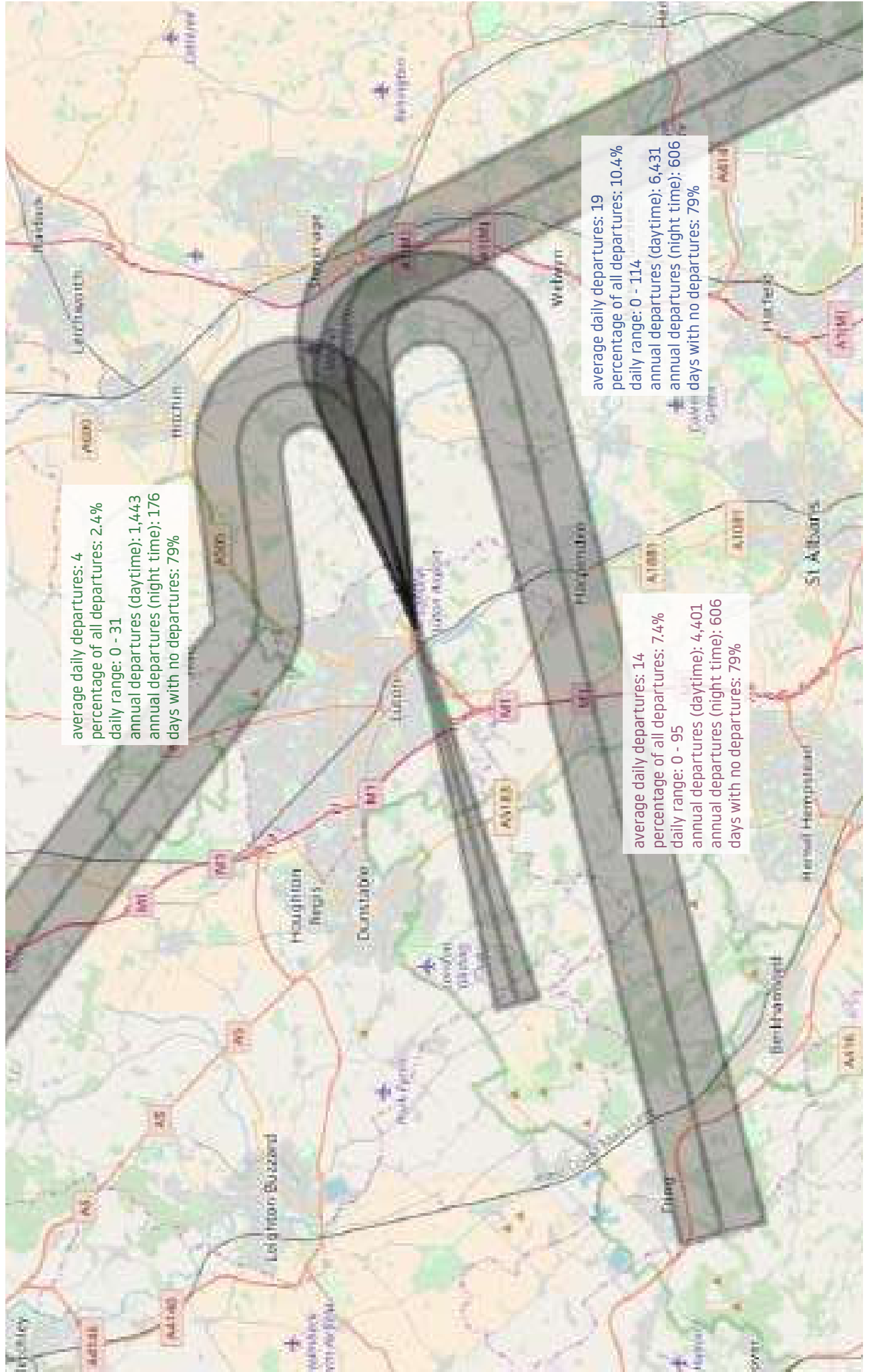
In the UK, the obligations of Noise Preferential Routings for aircraft following conventional SIDs cease when a height of 3,000ft (between 07:00hrs to 23:00hrs local time) and 4,000ft (during night time, 23:00hrs to 07:00hrs local time) has been reached. The obligations of the RNAV NPR ceases when a height of 4,000ft has been reached at all times.

Once aircraft have reached the NPR restricted altitude they will be considered no longer on the Noise Preferential Route. At that stage the aircraft may be directed by Air Traffic Controllers onto a different heading in order to integrate with the overall flow of traffic, this is known as vectoring. However on RNAV Match/Detling SID aircraft should not be vectored before the railway line between St Albans and Harpenden, unless this is required for safe separation from other aircraft or for other safety issues such as avoiding adverse weather.

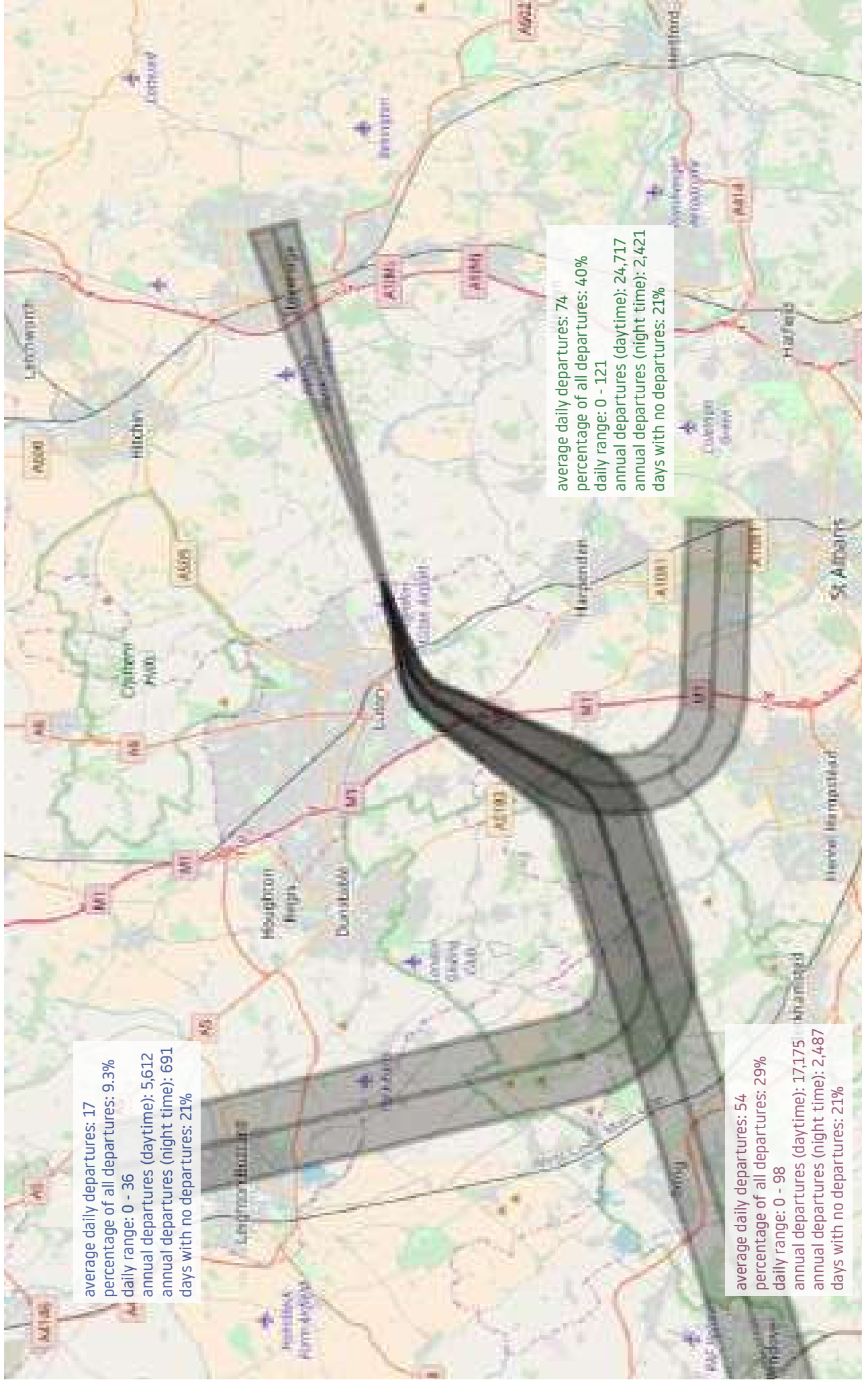
Two maps overleaf show indicative flight routes for westerly and easterly operations at London Luton Airport with detailed information about each departure route.



Plan showing Easterly (08) flight routes



Plan showing Westerly (26) flight routes



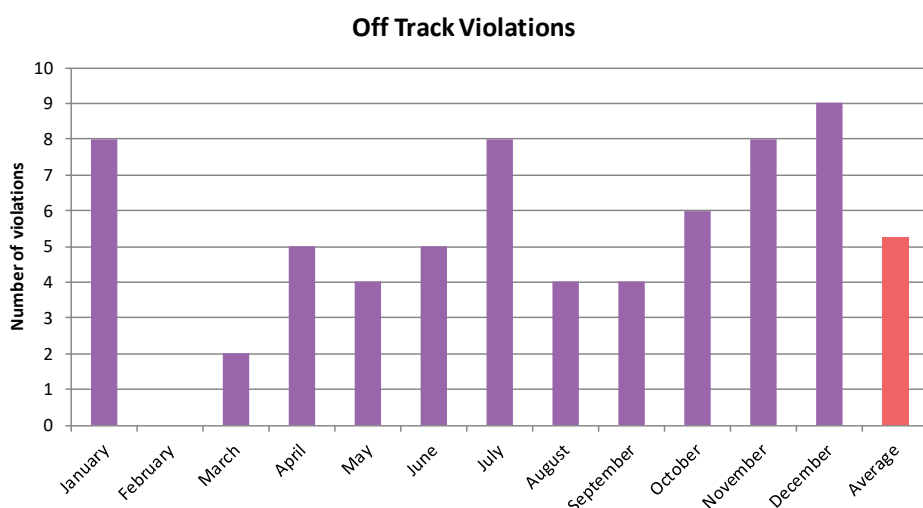
On Track performance

On the 1st April 2015 London Luton Airport implemented a Track Violation Penalty System as part of the noise related planning conditions. Using the airport's Aircraft Noise and Track Monitoring System, the Flight Operations Team evaluates the radar tracks and investigates them with required input from Air Traffic Control (ATC) and airlines. A departure is deemed to have complied with the Noise Preferential Routing if the portion of flight below the appropriate vectoring altitude is flown wholly within the Lateral Swathe (LS). Where the aircraft is clearly flying outside the LS, the aircraft is identified as causing a "possible" track violation and is subject to a nominal fine. This money is transferred to our Community Trust Fund which awards grants to community projects.

As always, safety is paramount and there may be cases which involve vectoring an aircraft sooner than at the NPR height restriction. If ATC identifies any valid justification that could explain the deviation from the track, then the operator causing it will be exempt from the fine. Valid justifications include:

- Safety or operational reasons, i.e ATC vectoring
- Weather avoidance due to thunderstorm activity (as instructed by ATC)
- Emergencies

The diagram below shows off-track violations by month in 2017. The track keeping performance was 99.6%. This calculation includes deviations for weather, traffic avoidance and those identified as violations.



£50,250 the total of all collected fines transferred to Community Trust Fund

The breakdown of the violations by aircraft type is shown in the tables below.

A/C Type	Total No Violations
GLF6	9
GL5T	8
A320, CL60	8
B738, C25A, GLF4, H25B	12
B734, C525, C650, F900, GALX	10
AT72, ATP, B462, B733, B788, C680, CL30, E145, E35L, F2TH, GLF5, H25C, LJ35, LJ60, RJ85, SW4	16
TOTAL	63

Area Navigation (RNAV) procedures

In the 2016, AMR we reported that a small number of operators were experiencing technical issues with the RNAV procedure and that we had identified a solution that was due to be implemented in February 2017.

We can confirm that this solution was implemented as planned and the technical issues that some operators were experiencing have now been resolved, resulting in 100% of operators using the RNAV procedure.

As part of the CAA's Post Implementation Review we submitted all of the requested data in October 2017 to the regulator for assessment of the airspace change, this includes flight track and complaint data. The details of the outcome of this will be published on the CAA's website in due course.

Next Steps in Airspace Change

In 2017, the CAA published new regulatory guidance that the aviation industry has to follow with regard to changing airspace arrangements (CAP 1616 - Airspace Design: Guidance on the regulatory process for changing airspace design including community engagement requirements).

In August 2017, LLA attended a meeting with the CAA to discuss the new process and how this would apply to the work that has already been completed to date relating to the 26 Match RNP airspace change. Following this meeting a decision was made to commence the ACP works from the beginning in order to fully comply with the new guidance.

LLA invited members of the airport consultative committee to form a small focus group with the objective of providing LLA with stakeholder views and potentially highlight previously overlooked consequences of a particular design option prior to formal consultation.

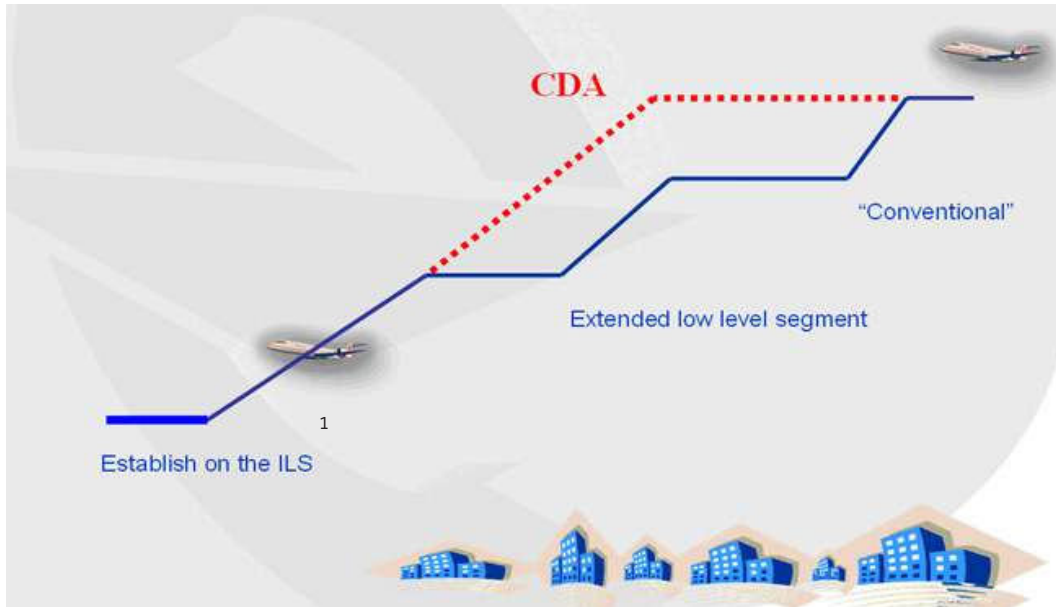
The Sky's the Limit

The London airspace is a particularly busy area and requires modernisation. The current airspace has not changed in the last 50 years despite the increase in movements from all airports. It is critical that the industry and Government now work together to deliver modernisation. In 2016, an industry campaign 'The Sky's the Limit' was set up to call on the Government to prioritise its work on airspace, noise and support industry efforts to do so. London Luton Airport strongly supports this campaign.

More information and videos regarding The Sky's the Limit campaign are available on their website which can be accessed <http://theskysthelimit.aero/>

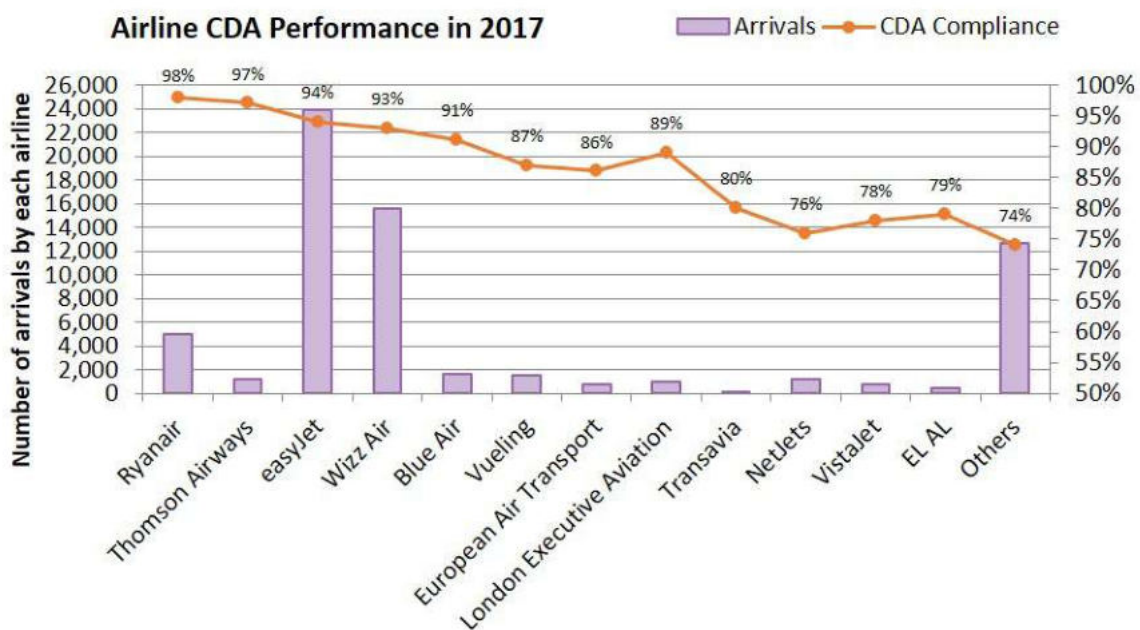
Arriving Aircraft

Although there are no set routes for arriving aircraft there are long established procedures to mitigate the disturbance that can be caused on approach to the airfield. One of the most successful measures is a noise mitigation procedure called Continuous Descent Approach (CDA).



The conventional approach involves descending in steps using engine thrust to level off. In a Continuous Descent Approach, or CDA, an aircraft stays higher for longer and descends at a continuous rate to the runway threshold therefore reducing periods of prolonged level flight at lower altitudes. With CDA less fuel is burnt, less emissions are produced but most importantly it reduces the noise by avoiding the use of engine thrust required for level flight.

The overall CDA achievement was 93% with several major LLA operators achieving higher performance; easyJet, Ryanair and Thomson Airways. The chart compares the level of CDA performance by our main airline operators.



¹ - An Instrument Landing System (ILS) is a ground-based instrument approach aid based on two radio beams which together provide lateral and vertical guidance to an aircraft approaching and landing on a runway.

Delayed Landing Gear Deployment Trial

At LLA we always aim to work constructively with our local community in order to reduce the impacts of noise. In 2017 LLA conducted an aviation leading trial to reduce noise by from arriving aircraft. The trial, conducted during the summer, consisted of aircraft delaying the deployment of landing gear.

As an aircraft makes its final approach most noise is caused by the flow of air over the fuselage as drag is created to slow the aircraft down. Noise was measured along the arrivals flightpath to understand what, if any, reduction which could be achieved. Stevenage, Dagnall and Whipsnade were among those communities who saw the greatest benefit of between 2.7db and 3.4db

Following the successful trial, some operators have already changed their operating procedures to make this standard practice. LLA is now working with all operators to encourage them to follow suit.

Departure and arrival flight tracks

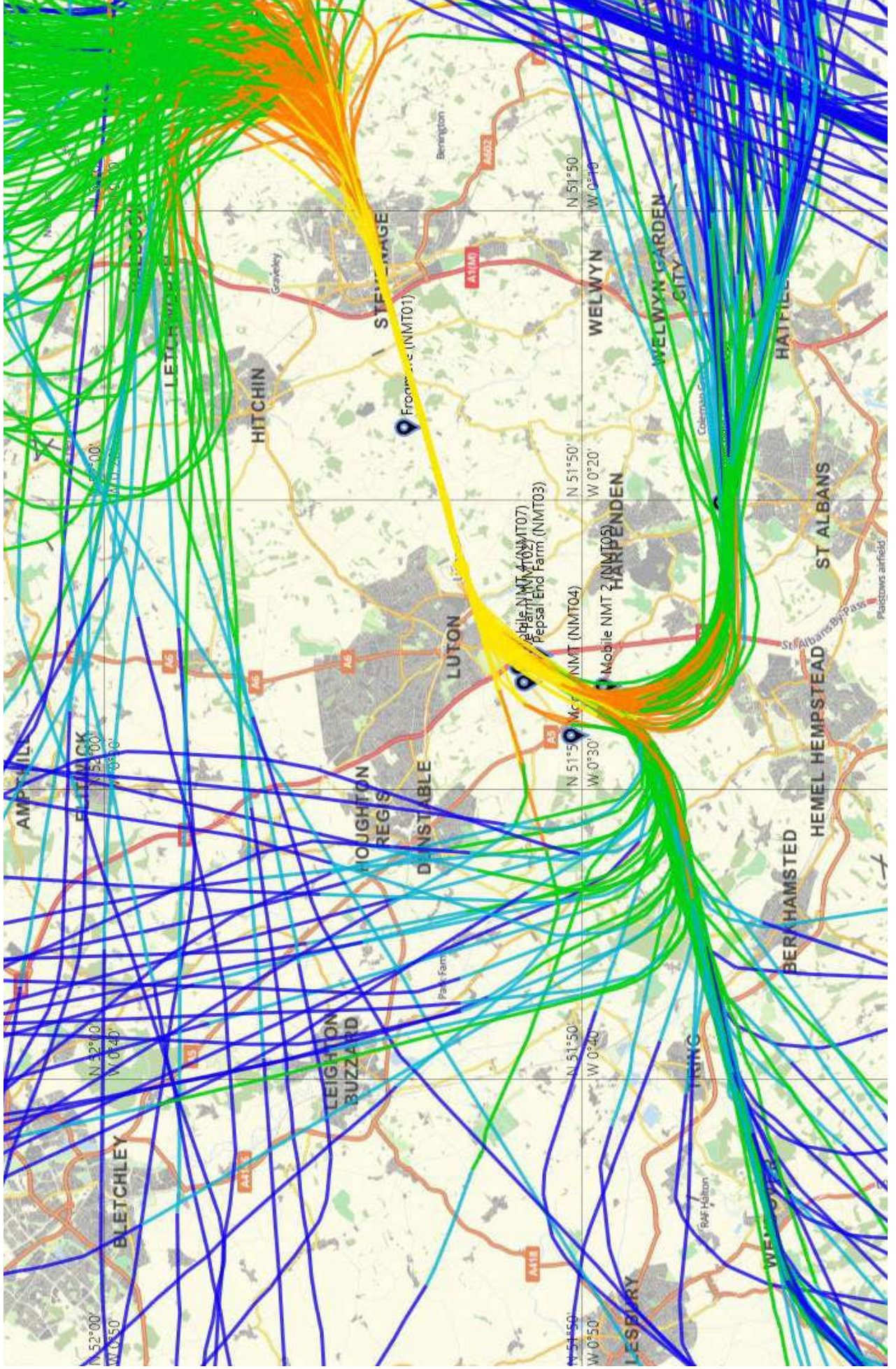
Maps overleaf display typical 24 hour periods of both westerly and easterly operations. The colour coding from yellow to blue represents different altitude bands up to 10,000ft above mean sea level.

The last two maps display aircraft track density plots for the summer period 16th June - 15th September 2017. A track density plot is a map which displays the pattern of aircraft flight track passing over the region around the airport during a specific period. The system analyses the number of flights passing over each grid element of an array. The colour coding from purple to red represents the range 1 to over 147 flight tracks over a grid element. If any grid element is not colour-coded, the number of aircraft flight tracks passing over that element was less than 1 flight. The red areas represent locations where operations are more densely concentrated.

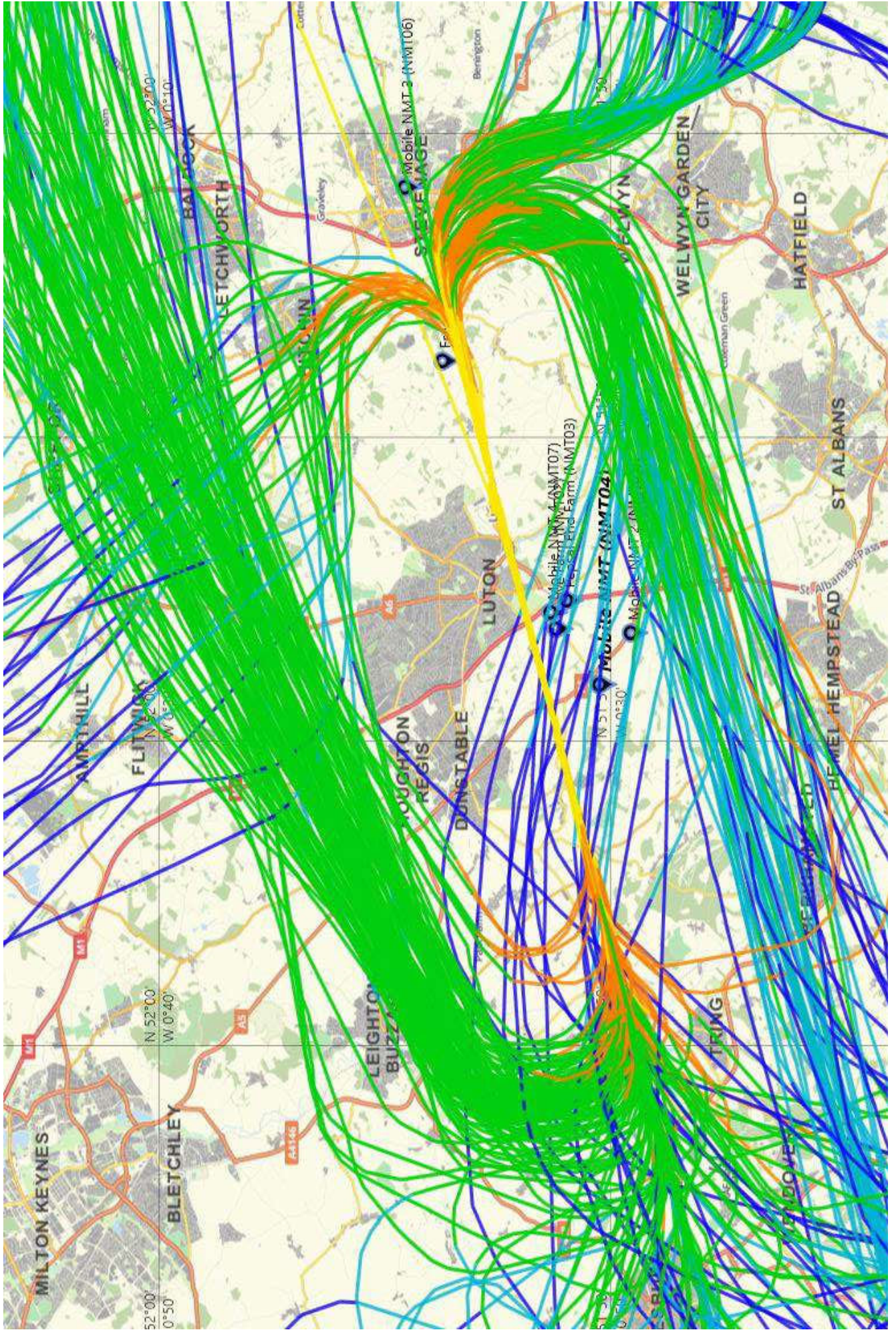
It should be noted that London Luton Airport's aircraft movements integrate with a traffic network travelling to and from other airports in the region, and the South East is one of the world's busiest sectors of airspace. However the following sample flight tracks only include operations for London Luton Airport and overflights from other airports have been omitted for clarity.



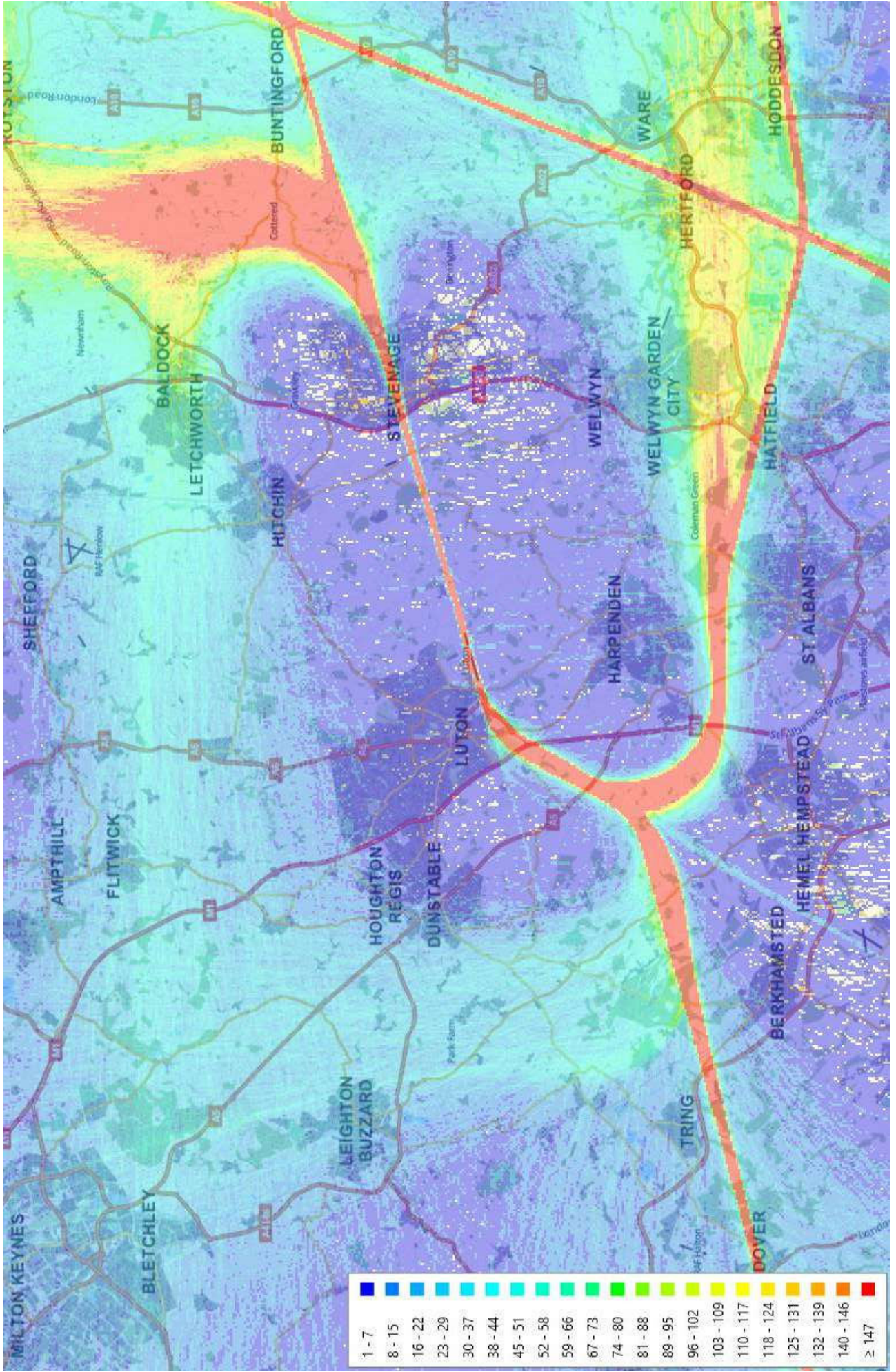
Westerly (26) Flight Routes (24 hour period)



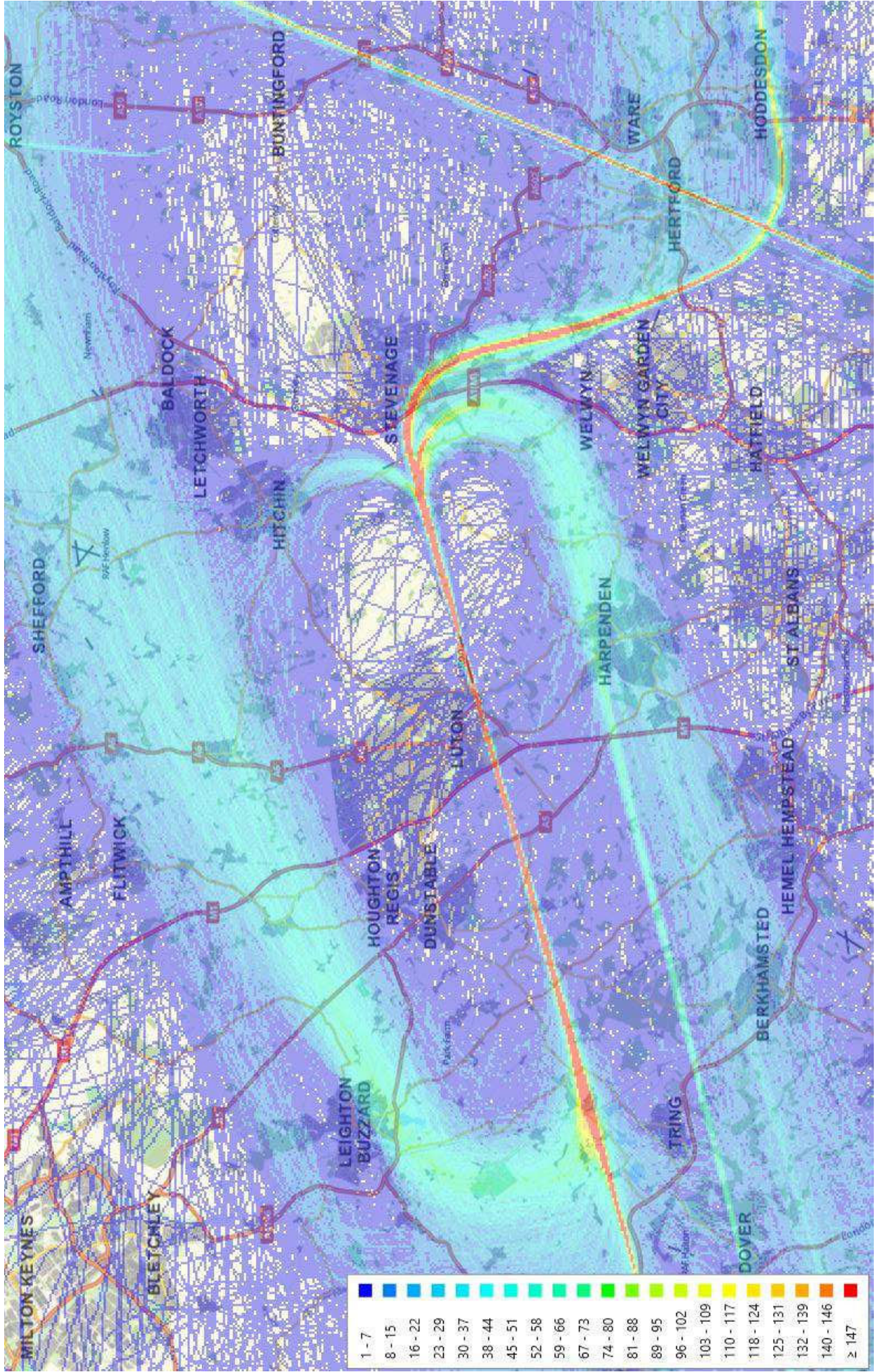
Easterly (08) Flight Routes (24 hour period)



Plot Density - 16th June - 15th September 2017 - Westerly (26)



Plot Density - 16th June - 15th September 2017 - Easterly (08)



Aircraft 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. Most airport related noise is created by aircraft approaching, taking-off and taxiing to and from the runway. The management and control of noise continues to be a major element of the airport's policy to constantly seek to minimise and mitigate our environmental impact.

How is noise monitored?

People who live close to airports or under flight paths can often feel strongly about the disturbance to their lives from noise. Effects of noise include general distraction, speech interference and sleep disturbance which can lead to annoyance and complaints.

At LLA we monitor noise and track keeping with a specialised system that 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 6.5km from the aircraft start of roll, at either end of the runway within the neighbouring communities. This method records the maximum noise level at a point, rather than the way it is spread over the surrounding area. New features and system enhancements continue to improve the functionality and capabilities available to the Flight Operations Department.



In 2017, the Flight Operations team purchased three new mobile noise monitors which has allowed the team to expand the noise monitoring programme. During 2017, noise was monitored in Flamstead, Harpenden, Hemel Hempstead, Markyate, Redbourn, Sandridge, Slip End, South Luton, St Albans and Wheathampstead. Details of the latest Community Noise Reports can be found [here](#).

Noise violation levels



The following table identifies daytime and night-time noise levels correlated to departing aircraft at the fixed noise monitoring terminals.

In order for a noise event to be correlated to an aircraft it should reach a detection threshold. The noise monitoring terminals are set at the lowest level to record the maximum number of aircraft noise events. However, a number of smaller aircraft types, such as business jets and propeller aircraft, get very close to but do not reach the detection threshold. Ambient background noise is also an important factor as specific incidents such as loud road traffic, emergency vehicle sirens, lawn mowers, drills etc. can register noise levels louder than an aircraft overhead, which results in not all aircraft movements being correlated to noise events. Generally, the louder noise events have more certainty of being correlated with aircraft movements.

Weather conditions can also effect the number of noise monitoring events recorded in the table; for example, if winds are greater than 10m/s and temperature is either higher than 25°C or below -10°C, results from noise monitors will be invalid and therefore will not be correlated.

	dB (A)	Daytime	NightTime	Total
Number of Correlated Events	<70	5,130	698	5,832
	70	1,324	163	1,489
	71	2,513	311	2,825
	72	5,510	626	6,140
	73	10,268	1,077	11,357
	74	11,504	1,121	12,640
	75	7,501	758	8,268
	76	3,584	475	4,069
	77	2,050	363	2,418
	78	1,224	273	1,504
	79	599	122	724
	80	226	46	274
	81	70	3	73
	82	25	1	26
	83	2	0	2
	84	4	0	4
	85	1	0	1
	86	0	0	0
	87	0	0	0
	88	0	0	0
89	0	0	0	
90	0	0	0	

During the daytime 98% of correlated departing aircraft recorded maximum noise levels less than 79dB(A), with 85% registering below 76dB(A). Throughout the year 927 correlated daytime departures (2%) registered maximum noise levels at 79dB(A) or above.

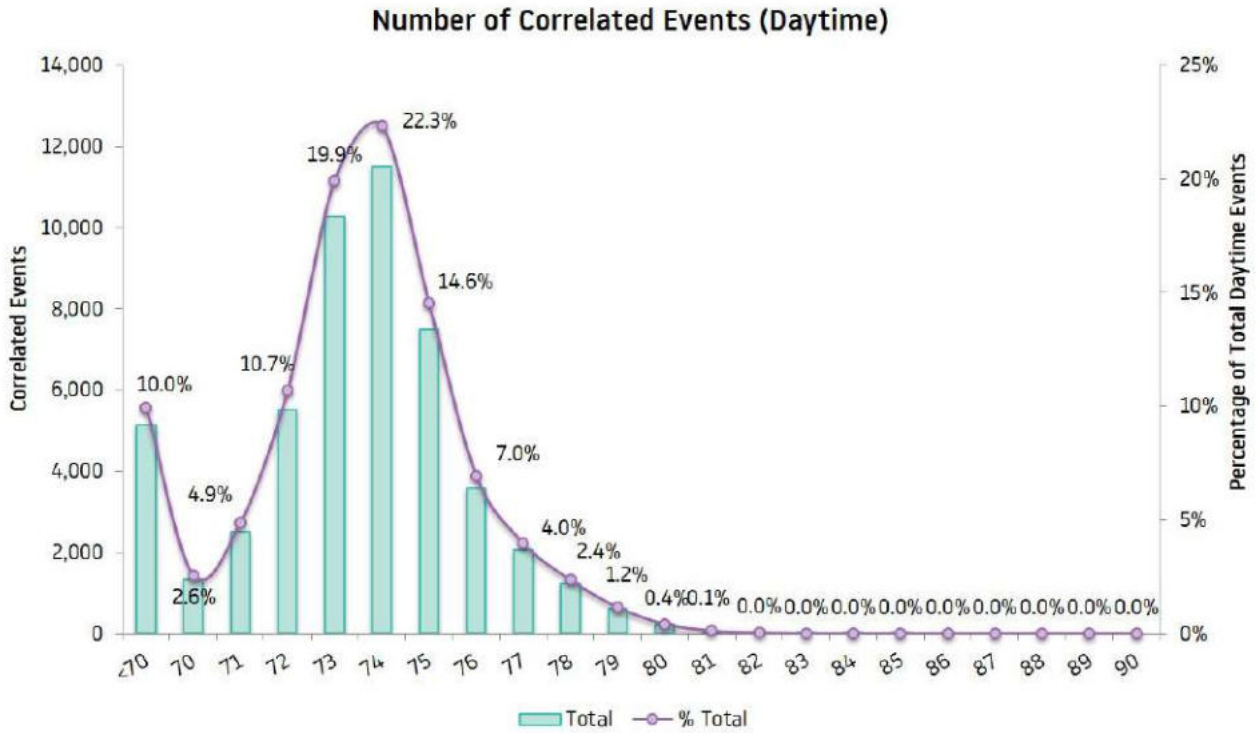
There were 7 correlated departing aircraft in the daytime which recorded a maximum noise level greater than 82dB, all of these departures were fined as part of the Noise Violation Scheme, these fines were added to the Community Trust Fund.

During the night 97% of correlated departures recorded maximum noise levels below 79dB(A), with 79% below 76dB(A). During the year 50 correlated night departures (3%) registered maximum noise levels at or above 79dB(A).

There were 4 correlated departing aircraft in the night time which recorded a maximum noise level greater than 80dB, all of these departures were fined as part of the Noise Violation Scheme, these fines are put into the Community Trust Fund.

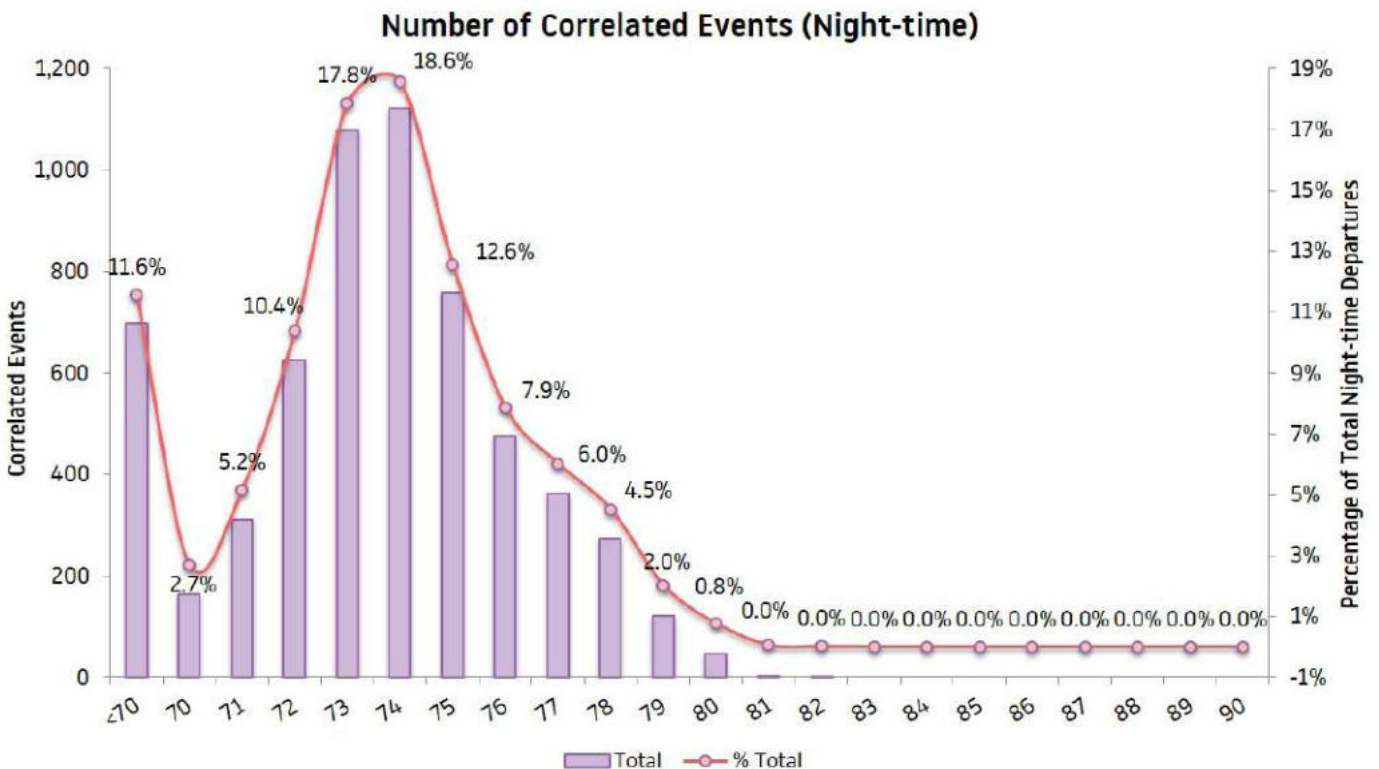
Daytime Noise

The following graph shows the number of correlated events during the daytime period (07:00hrs - 23:00hrs) compared to the total percentage of correlated events during the daytime.



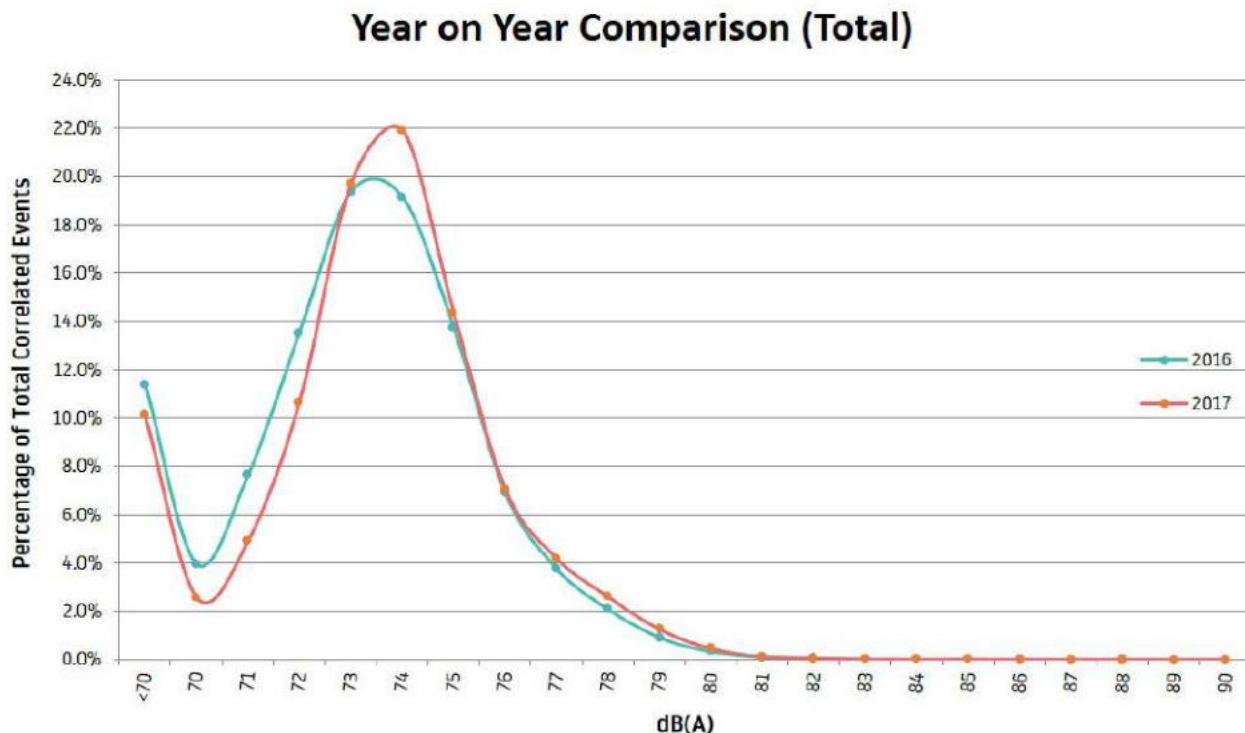
Night-time Noise

The following graph shows the number of correlated events during the night-time period (23:00hrs - 07:00hrs) compared to the total percentage of correlated events during the night-time.



Annual Comparison

The graph below shows the year on year comparison of the correlated departure noise events.



Please note, for a short period during Q3 2016, one noise monitor was out of service due to calibration and this may have an effect on the overall noise recordings for the year.

Noise violations during 2017

There were 7 violations of the daytime noise level in 2017, and a total of 4 violations of the 80dB(A) night noise violation level (details below), compared to 21 day-time noise violations and 3 night noise violations in 2016. Operators at London Luton Airport take these noise violation limits very seriously and in some cases these have led to changes in operating procedures in order to reduce the noise from their aircraft. As a result of the Boeing 732 noise violations during 2017, this aircraft no longer operates at Luton.

	Date / Time (Local)	Aircraft Type	Noise Level	Penalty
Daytime	26/01/2017 12:47:00	B732	84dB (A)	£100
	15/03/2017 07:07:00	B738	84dB (A)	£100
	31/03/2017 12:36:00	B732	84dB (A)	£100
	08/05/2017 13:14:00	B732	83dB (A)	£100
	02/07/2017 13:51:00	B732	83dB (A)	£100
	25/07/2017 14:33:00	B732	84dB (A)	£100
	05/08/2017 11:27:00	B732	85dB (A)	£100
Night-time	01/03/2017 03:13:00	A306	81dB (A)	£100
	31/03/2017 00:20:00	B739	81dB (A)	£100
	01/08/2017 00:48:00	AN12	82dB (A)	£100
	21/08/2017 06:06:00	A320	81dB (A)	£100

All fines are passed to the London Luton airport Community Trust Fund, further details of which can be found at: [REDACTED]

Noise Insulation Scheme

In 2016 we began our Noise Insulation Scheme, which is just one element of our noise management plan to reduce the impact of noise on those properties in Hertfordshire and Bedfordshire closest to the airport. Under the scheme we can install double glazing, secondary glazing and ventilation units to eligible rooms which include; living rooms, dining rooms, kitchen-diners and bedrooms.

During 2017, 78 properties were contacted and 38 properties accepted the insulation.

Noise Contours

Since 1989 the preferred measure of aircraft noise, recognised by UK Government, has been the A-weighted equivalent noise level Leq. This indicator takes account of all the noise energy that occurs over a particular time period and thus takes account of all the 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 LAeq averaged over the 16 hour period from 0700-2300

for an average day between the 16th June and 15th September.

When planning permission was given in 2014 for development at London Luton Airport a number of conditions were imposed. Condition 12 requires that daytime and night-time contours are produced on an annual basis for the previous summer period based on actual aircraft movement data and for the following summer period based on predicted aircraft movement data. The areas of these contours

are to be compared to the area limits contained in Condition 12. Year on year changes in the noise impact are dependent on changes in the number and type of aircraft that used the airport and also the departure routes flown. Changes in the size and shape of the contours can also depend on differences in the runway usage which in turn depends on the relative proportion of westerly and easterly modes of operation, determined by the prevailing wind direction.

Annual noise contours summer 2017

The table below shows the annual noise contours for summer 2017 covering the standard summer period from 16th June to 15th September inclusive, using the latest version of INM software (the Integrated Noise Model) version 7.0d which is the method used by many other airports in the UK.

L _{Aeq, 16 hour} Daytime	Contour Area (km ²)					
	1984	1999	2016	2017	Difference 2016-2017	2018 (forecast)
>72	1.63	1.5	1.0	1.0	0.0	1.0
>69	2.80	2.5	1.7	1.7	0.0	1.7
>66	4.86	4.4	3.2	3.0	-0.2	3.1
>63	9.10	7.3	6.2	5.9	-0.3	6.0
>60	17.18	11.8	10.6	10.3	-0.3	10.5
>57	31.52	19.6	19.2	19.0	-0.2	19.4

Considering the 57 dB LAeq, 16h summer daytime 2017 noise contour there is a decrease in area of approximately 1% when comparing the 2017 contour with the 2016 contour. This is largely due to the updated validation for 2017, resulting in greater accuracy of the assessment from the additional noise monitoring carried out in the community.

A comparison of 2016, 2017 and 2018 forecast daytime contours is shown. This shows that the 2016, 2017 and 2018 forecast contours are all very similar, with the slight differences in shape being primarily due to differences in modal split.

L _{Aeq, 8 hour} Night-time						
	1984	1999	2016	2017	Difference 2016-2017	2018 (forecast)
>72	0.79	1.1	0.4	0.4	0.0	0.4
>69	1.39	1.8	0.6	0.7	+0.1	0.7
>66	2.42	3.0	1.0	1.0	0.0	1.1
>63	4.01	5.2	1.7	1.8	+0.1	1.8
>60	7.06	8.3	3.3	3.4	+0.1	3.5
>57	13.05	13.2	6.3	6.3	0.0	6.4
>54	24.48	21.6	11.5	12.2	+0.7	12.4
>51	44.92	36.0	20.7	22.3	+1.5	22.7
>48	85.04	60.6	36.5	38.7	+2.2	39.6

Considering the 48 dB LAeq, 8h night time noise contour there is an increase in area of approximately 6% when comparing the 2017 contour with the 2016 contour. This is largely due to the 13% increase in movement numbers, although this is partially offset by the updated 2017 validation.

The 48 dB LAeq,8h 2018 contour is forecast to grow by 2% compared to the 2017 contour. This is largely due to the forecast 3% increase in commercial aircraft movements. A comparison of 2016, 2017 and 2018 forecast night time 48 dB LAeq,8h is show. This shows that the 2017 contour is larger than the 2016 contour, particularly at the western end near Caddington. The contour is also slightly larger at the south-western end south of Markyate. The 2017 contour is very similar to the 2016 contour at the eastern end despite the increase in night movements, this is due to the changes in operating direction and validations.

The 2018 forecast contour is slightly wider and shorter than the 2017 contour at the eastern end, larger at the western end and slightly shorter at the south-western end, these slight change in shape are due to the change in operating direction.

Contour population counts

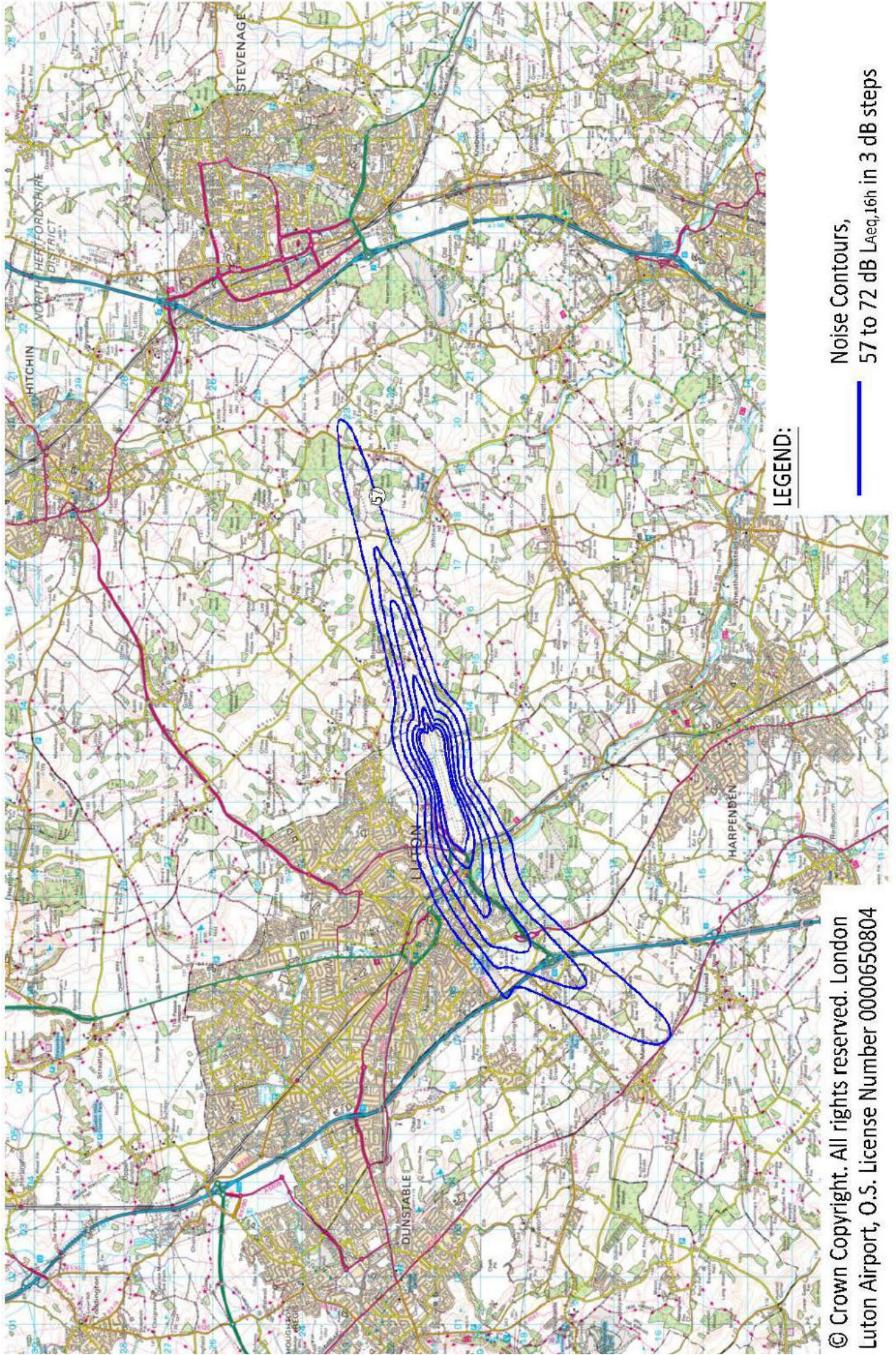
The population counts for this year were calculated using the CACI Ltd, 2015 postcode database. Each postcode in the database is described by a single geographical point, and if this point is within a contour then all of the dwellings and population in the postcode are counted. Please note, the population and dwellings data has been rounded to the nearest 50.

L _{Aeq, 16 hour} Daytime	2016		2017	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	10	24	0	0
>63	700	1,850	550	1,400
>60	1,700	4,450	1,650	4,200
>57	3,600	8,850	3,400	8,400

L _{Aeq, 8 hour} Night-time	2016		2017	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	0	0	0	0
>63	0	0	0	0
>60	14	34	0	0
>57	500	1,300	500	1,400
>54	1,550	4,150	1,600	4,200
>51	3,250	8,100	3,450	8,500
>48	6,750	16,100	7,500	17,800

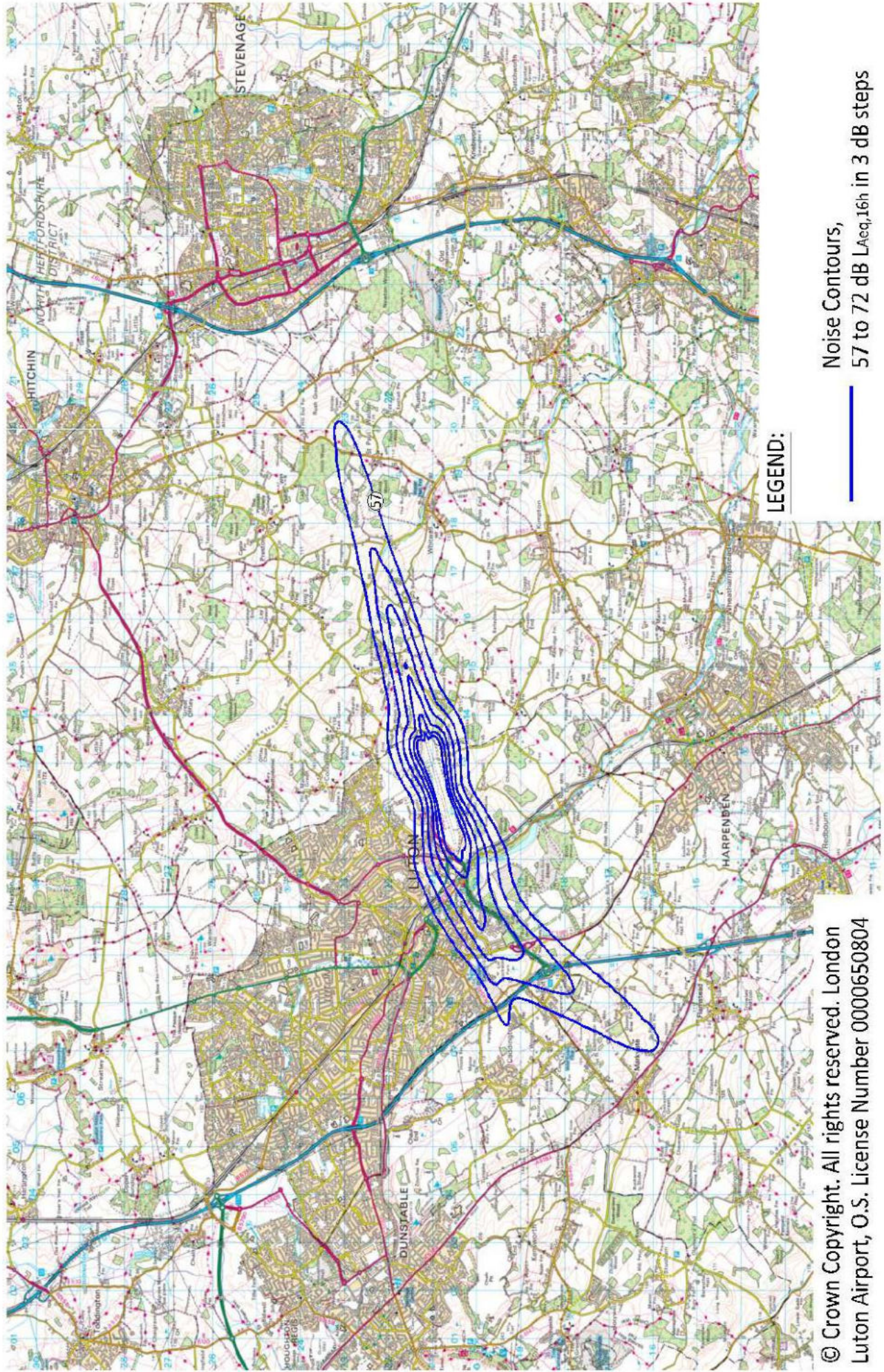
The population and number of dwellings within the contours has increased, in lined with the contour area. It can be seen that the contour shape is similar, although there have been slight changes due to the change in modal split. This mean that despite an increase in total movements, there were fewer runway 08 operations in 2017 compared to 2016. This has the effect of shortening the contour to the west and narrowing it to the east, with the associated increase in runway 26 operations leading to an increase in length to the east and both length and width to the south-west.

Annual Day Noise Contours Summer 2017



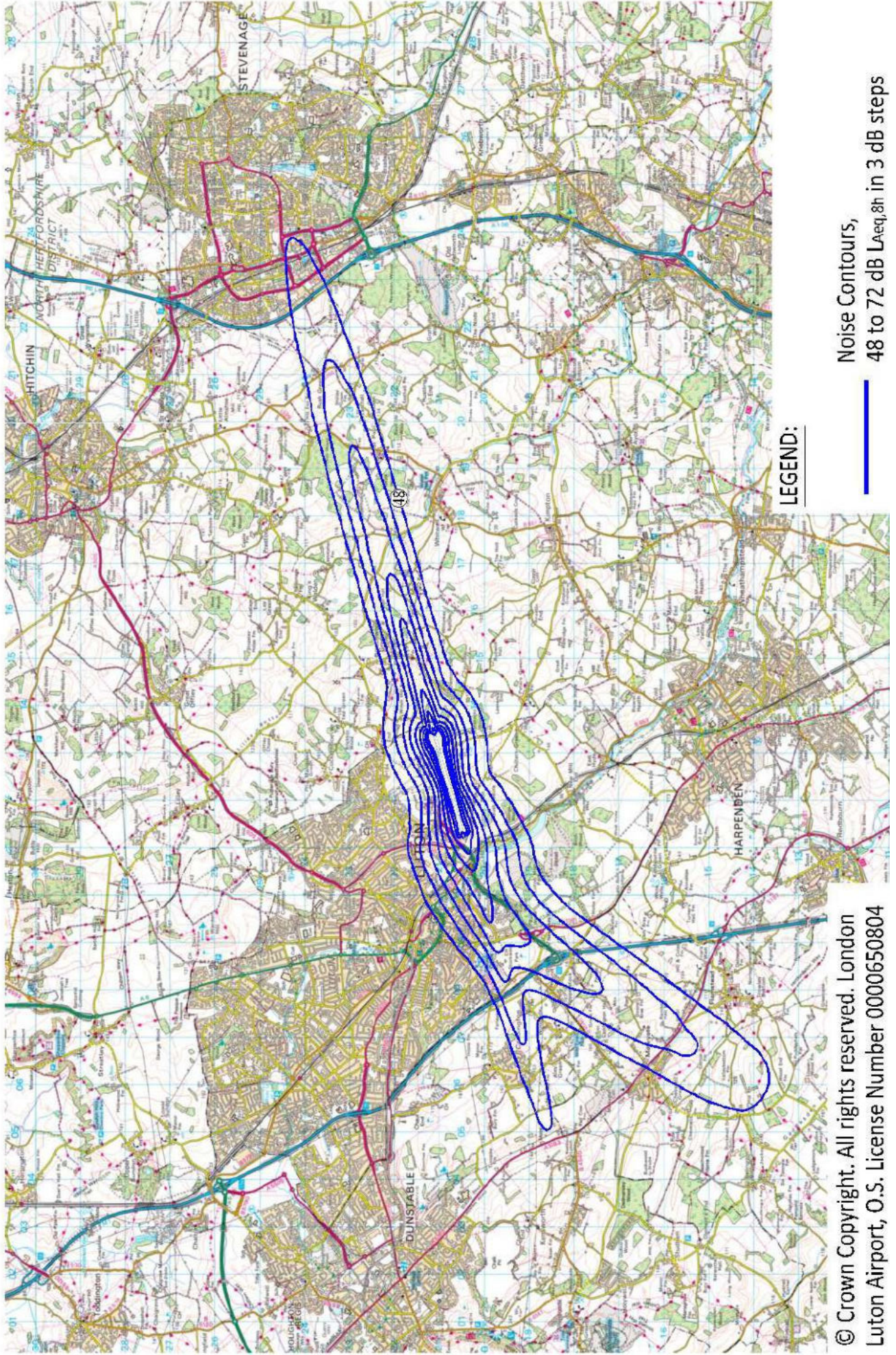
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Annual Day Noise Contours Summer 2018



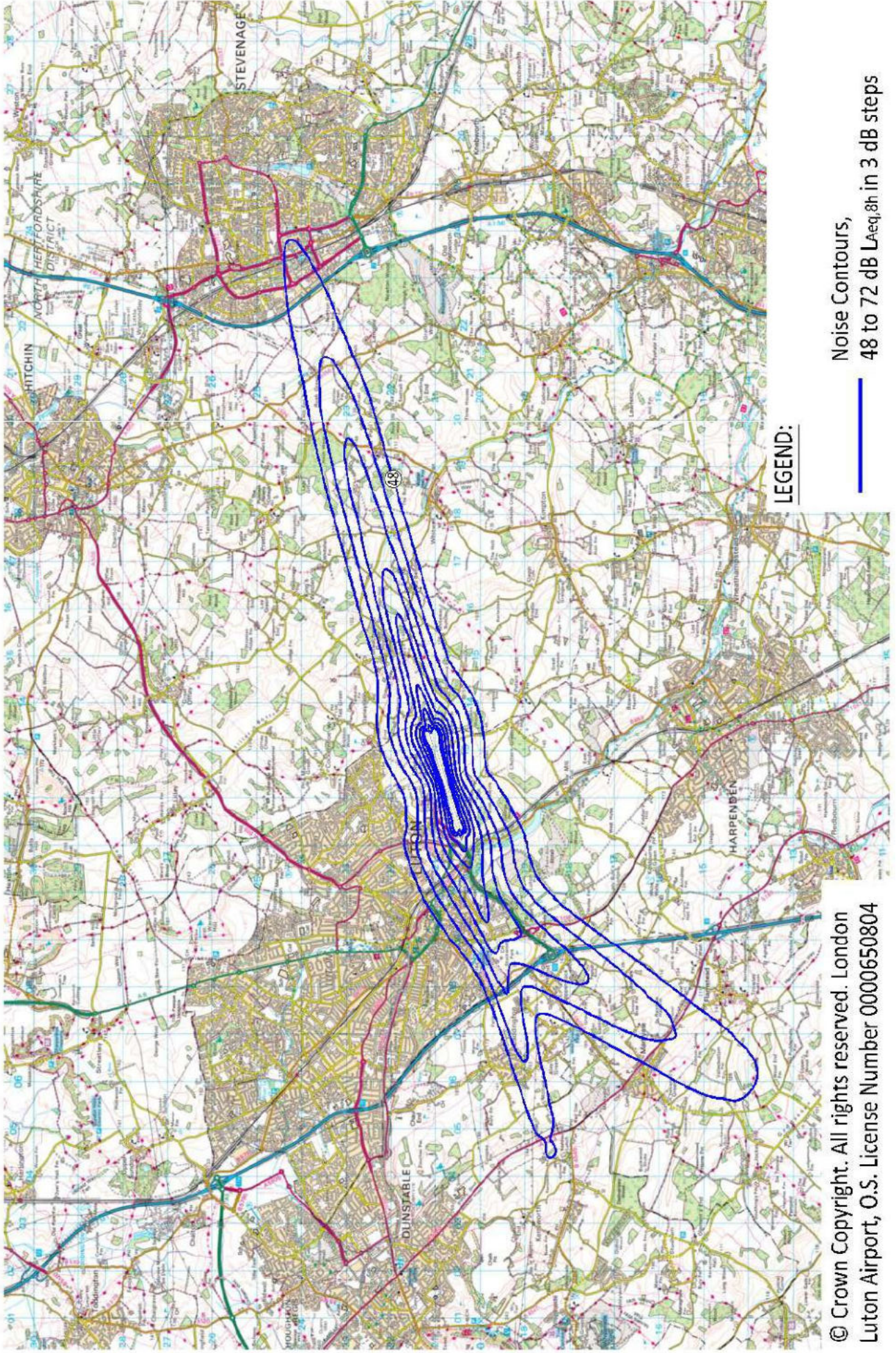
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Annual Night Noise Contours Summer 2017



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Annual Night Noise Contours Summer 2018



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Annual Noise Contours 2017

The annual Lden noise contours for 2017 have been produced in accordance with London Luton Airport's Noise Action Plan. The corresponding annual Lnight noise contours have also been produced, along with population and dwelling counts for each contour.

Compared to annual summer 2017 noise contours Lden is an A-weighted, Leq noise level, measured for an average 24 hr day between 1st January and 31st December 2017, with a 10dB penalty added to the level between 23.00 and 07.00 hours and a 5 dB penalty added to the level between 19.00 and 23.00 hours to reflect people's extra sensitivity to noise during the night and the evening.

Lnight is similarly an A-weighted Leq noise level, for an average 8 hour night period between 2300 and 0700 for the period 1st January to 31st December 2017.

Annual Lden Noise Contour Results

Contour Value (dB(A) L _{den})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2016	2017	2016	2017	2016	2017
>75	0.8	0.9	0	0	0	0
>70	1.9	1.9	0	0	0	0
>65	5.5	5.8	1,100	1,200	450	450
>60	15.2	15.8	5,700	6,600	2,200	2,600
>55	39.3	39.9	17,100	18,800	7,000	7,850

Annual Lnight Noise Contour Results

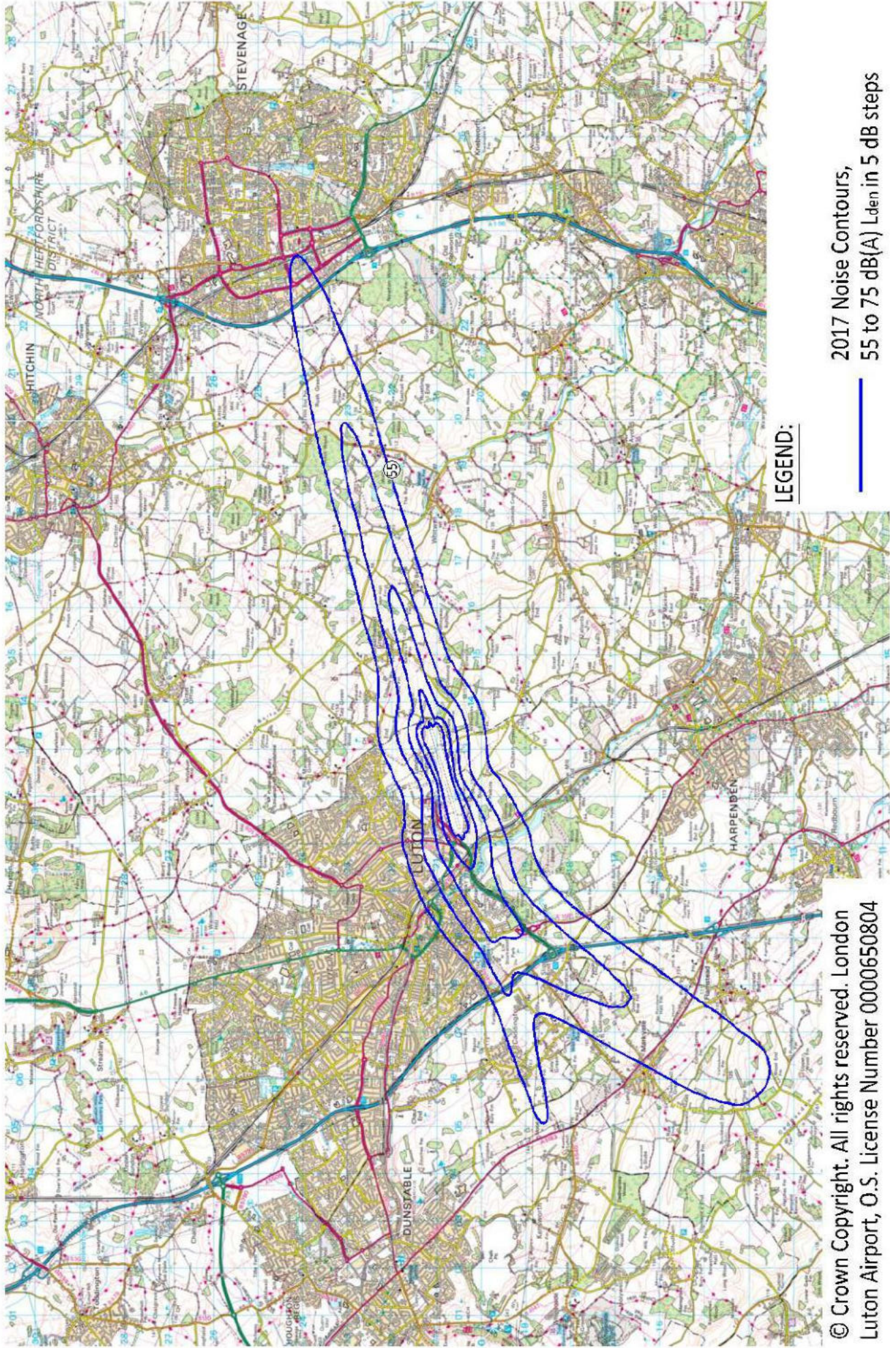
Contour Value (dB(A) L _{night})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2016	2017	2016	2017	2016	2017
>66	0.9	0.9	0	0	0	0
>63	1.4	1.5	0	0	0	0
>60	2.4	2.5	0	0	0	0
>57	4.7	4.9	500	800	200	300
>54	8.5	8.9	2,100	2,200	800	800
>51	16.3	17.1	6,000	6,800	2,300	2,700
>48	29.3	30.5	11,600	12,900	4,800	5,350

The areas of every Lden contour have increased except the area of the 70 dB Lden contour, which has remained the same. The increases are relatively consistent across contour bands, ranging from 2-7%, and are in line with what would be expected due to the increase in aircraft movements and the slight reduction in departure noise levels. Similarly it can be seen that the areas of all the Lnight contours have increased by around 4-7%.

¹ - Population counts rounded to nearest 100

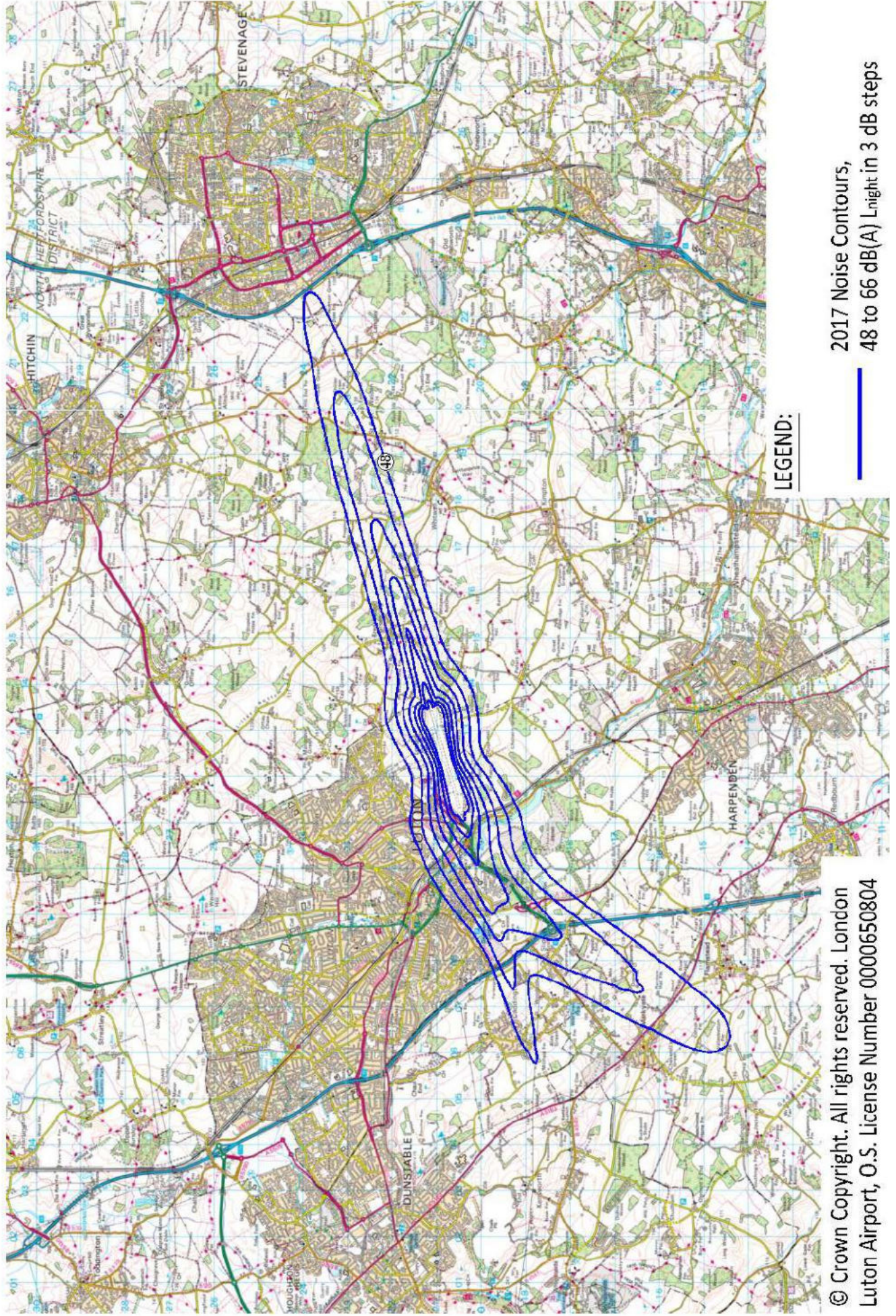
² - Dwelling counts rounded to nearest 50

Annual L_{den} Noise Contours 2017



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Annual L_{night} Noise Contours 2017



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Correspondence and Complaints

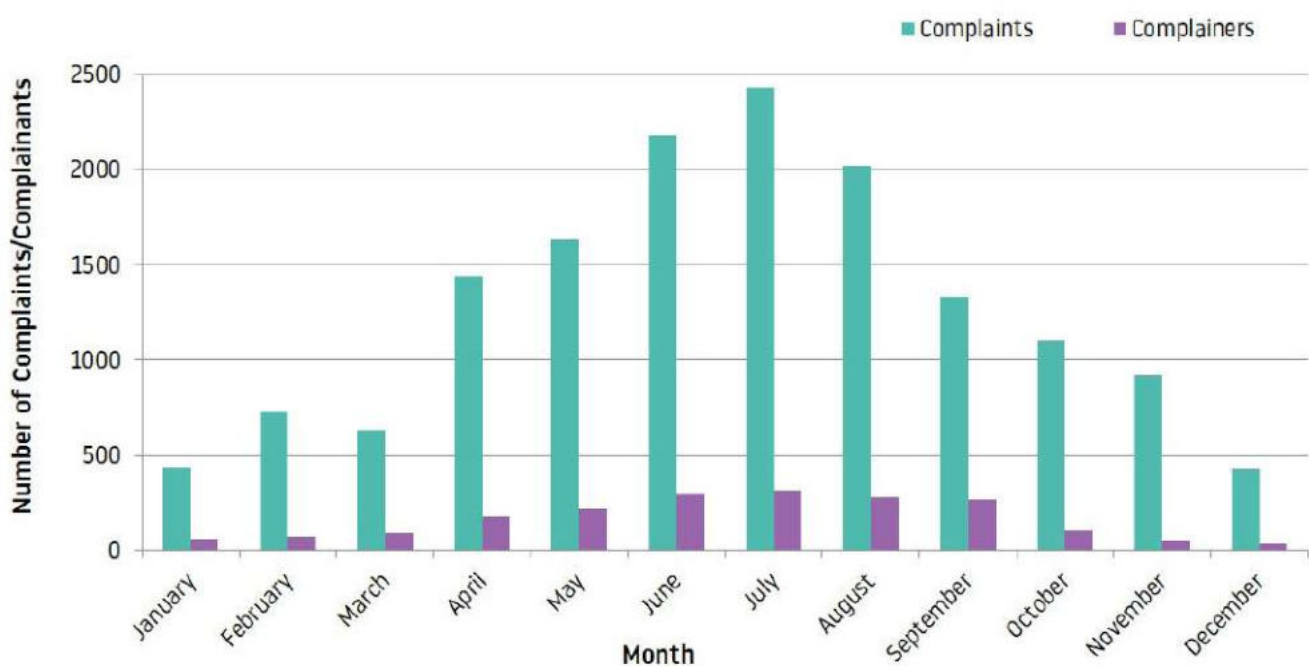
Complaint statistics can be extremely difficult to interpret as people’s tolerance of noise and their perception of what causes annoyance varies widely. It is highly subjective and differs between neighbours experiencing the same levels of noise.

Complaints are reported in two forms – general disturbance and specific disturbance. A general disturbance relates to a complaint that does not specify a time period, examples of this type of complaint includes frequency, air quality and ground noise. A specific complaint relates to a complaint which specifies the time which can be correlated to an aircraft, example complaints of this type include too low, too loud, night flight and off-track. If a single piece of correspondence contains multiple specific disturbances, this will be logged as a general complaint regarding frequency.

Total complaints relating to LLA aircraft operations

	2016	2017
Total No. of Complaints relating to LLA aircraft operations	4,231	15,384
No. of Complainants	815	1,121
No. of General Complaints	1,174	3,333
No. of Specific Complaints	3,057	12,051
Average No. of Complaints per Complainant	5.2	13.7
No. of Aircraft Movements per Complaint	31.0	8.8

During 2017 a total of 15,384 complaints (on average 42 complaints per 24 hours) relating to LLA aircraft operations were received, compared with 4,231 complaints in 2016. Out of the total complaints 72% were registered by the 20 most regular complainants and 45% from just five individuals. A further 614 complaints received were not attributable to LLA traffic. The figure below shows the complaints statistics throughout 2017. More complaints were received in the summer months, correlating with an increase in aircraft activity.



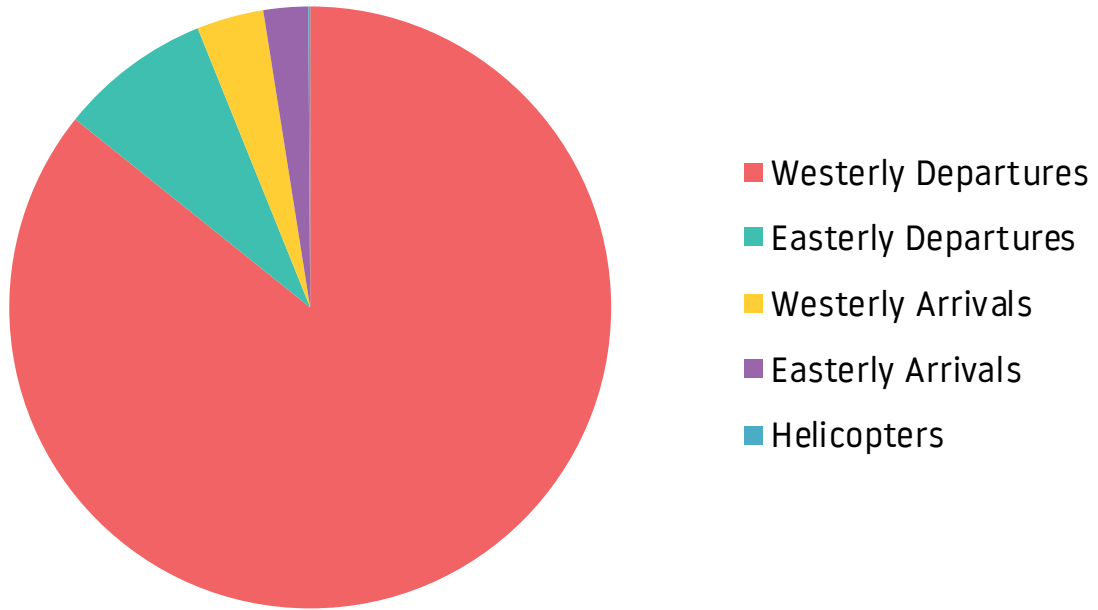


Complaints by aircraft type

Of the 15,384 complaints relating to LLA aircraft operations registered during the year, 11,726 complaints (76%) were clearly correlated to a specific aircraft type, although many complaints were of a general nature. The table below shows aircraft types generating complaints.

Aircraft Type	No. of Correlated Complaints	% of Correlated Complaints	Annual No. of Movements of Aircraft Type	Movements of Aircraft Type per Correlated Complaint
A319	1,274	10.86%	27,930	22
A320	6,147	52.42%	48,261	8
A321	1,645	14.03%	9,869	6
B737-800	975	8.31%	14,218	15
A306 (Cargo)	207	1.77%	896	4
B737-400	186	1.59%	1,202	6
GLF4/GLF5/GLF6	157	1.34%	4,930	31
ATP	15	0.13%	295	20
B757 & B767	120	1.02%	1,377	11
B737-300	74	0.63%	396	5
B737-200	13	0.11%	58	4
Helicopter	8	0.07%	531	66
CL30/CL60	145	1.24%	2,828	20
GLEX/GL5T	179	1.53%	4,095	23
Other Private Aircraft	409	3.49%	17,641	43
Other Cargo Aircraft	41	0.35%	110	3
Other Passenger Aircraft	132	1.13%	881	7

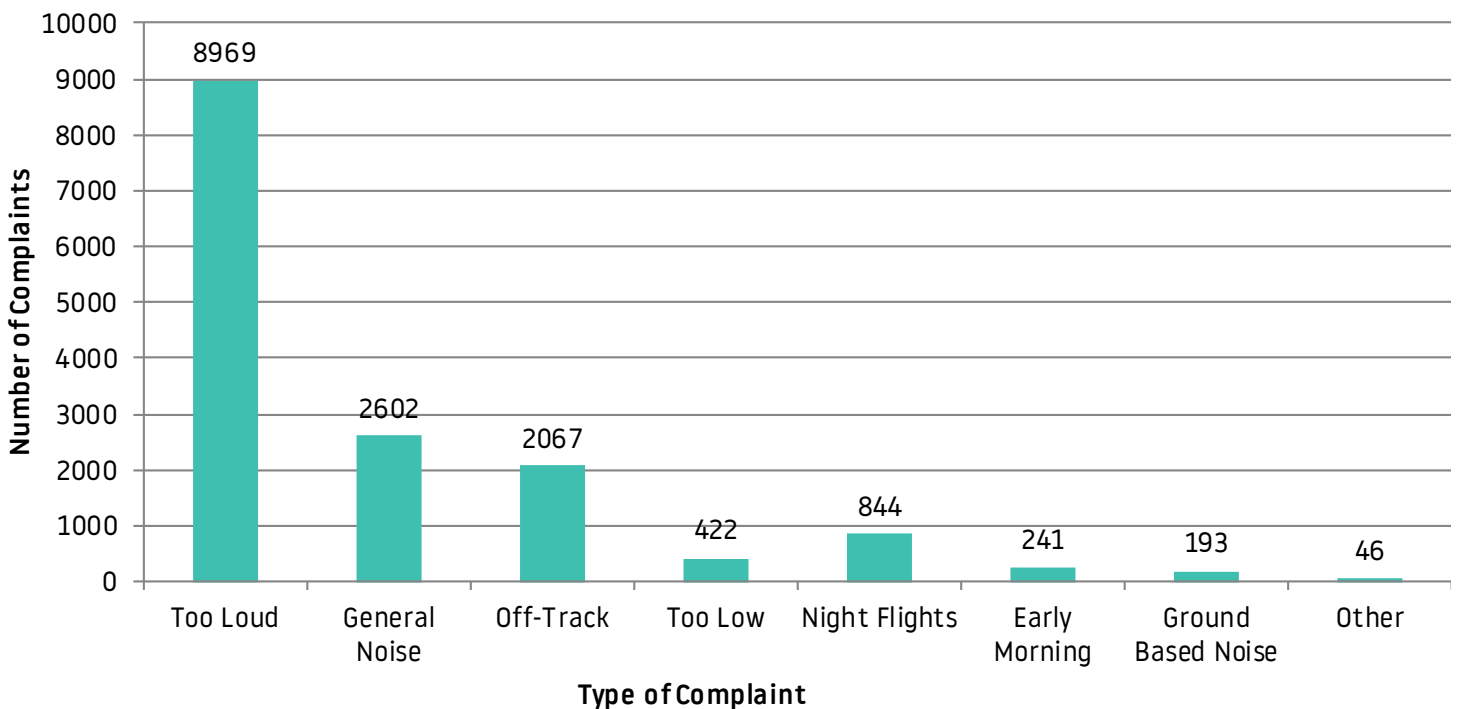
Nature of Disturbance



Within the 10,055 specific complaints correlated to aircraft movements concerning westerly departures, 9,924 reported specific aircraft following the Match/Detling route, 68 related to aircraft on the Compton route and 25 related to aircraft following the Olney heading.

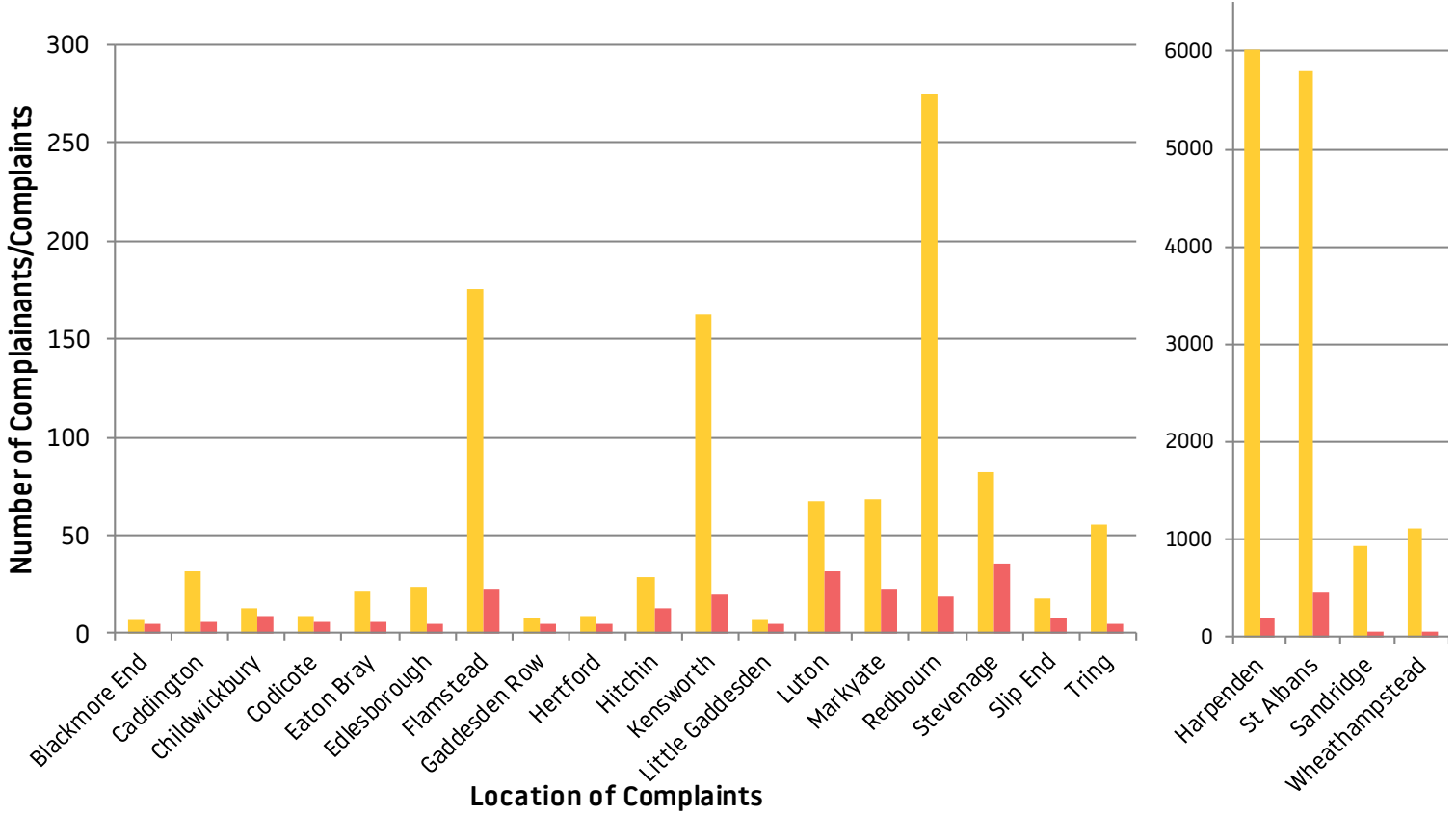
38 other complaints involved positioning flights following off-airways flight routes. Of the 956 complaints specifically attributed to easterly departures 887 related to aircraft following the Compton heading, 12 related to aircraft on Olney flight route and 34 to aircraft on the Match/Detling heading.

A further 23 complaints involved positioning flights following off-airways flight routes. Out of the total 703 complaints correlated to specific arriving aircraft, 422 related aircraft arriving at the airport during westerly operations and 281 complaints related to easterly arrivals.



Location of Complainants (5+)

Complaints Complainants



The map on the following page shows the location of complaints compared to distance from airport.



Communication method

The following table shows the method of communication used to contact London Luton Airport regarding noise.

Communication Method	% of Total Complaints
TraVis	76%
Email	22%
Telephone	2%
Letter	0%

Any concerns relating to aircraft operations associated with London Luton Airport can be reported to the Flight Operations Team by the following means:

Postal Address	Flight Operations London Luton Airport Navigation House Airport Way Luton Beds LU2 9LY
Direct Telephone	(01582) 395382 (24 hours)
Direct email	noise@ltn.aero
TraVis	www.travisltn.topsonic.aero

Complaints analysis

During 2017 there was an increase in complaints compared to 2016; this is thought to be due to a number of reasons:

- The airport has grown considerably during 2017, in line with the redevelopment plans. This will have caused an increase in the number of movements on all routes.
- A large number of complaints were generated by a small number of people. The 20 most regular complainants in 2017 created 72% of total complaints and almost half of the total complaints came from 5 residents in Harpenden.
- High numbers of complaints were recorded from specific locations, for example Harpenden, Sandridge, St Albans and Wheathampstead. Complaints from these areas accounted for 90% of total complaints. In these areas there is a heightened awareness of aircraft, particularly in relation to the recent growth and RNAV implementation in 2015.
- Complaints received last year were submitted to the CAA as part of the Post Implementation Review, and during this time a number of leaflet campaigns were organised encouraging people to complain.
- As winds dictated westerly operations for 79% of the time, the largest percentage of complaints related to aircraft operations during westerlies.

Noise Action Plan

The table below provides an update on the actions in the Noise Action Plan.

	Action	Timescale
1	Operate and maintain a noise and track-keeping system to monitor aircraft operations, reporting statistics quarterly to the LLACC (via NTSC)	Ongoing
2	Produce Lden noise contours annually, based on an annual average 24 hour period and present to LLACC (via NTSC).	Ongoing
3	Undertake regular analysis of aircraft activity and noise to identify where a review of procedures may help minimise disturbance	Ongoing
4	Monitor % compliance of Continuous Descent Approaches (CDA) both day and night, reporting quarterly to the LLACC (via NTSC)	Ongoing
5	Undertake community visits with a portable handheld noise monitoring device, on request.	Ongoing
6	Present quarterly night contours to the LLACC (via NTSC)	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)	Ongoing
8	Quarterly Monitoring Reports to be available to view on the London Luton Airport website as well as the LLACC website	Ongoing
9	Monitor helicopter operations to/from London Luton Airport to ensure they avoid, where possible, the most densely populated areas	Ongoing
10	Calibrate noise and track-keeping system and INM noise contour model on an annual basis	Ongoing
11	Monitor the track-keeping compliance and follow up with operators, as necessary	Ongoing
12	Monitor the number of marginally compliant Chapter 3 aircraft	Ongoing
13	Monitor and report progress against Noise Action Plan actions to LLACC (via NTSC), providing statistics annually in the Annual Monitoring Report	Ongoing
14	Review the voluntary Night Noise Policy in consultation with the LLACC (via NTSC)	2015
15	Encourage daytime operations through higher landing fees at night	Ongoing
16	Fine any departing aircraft exceeding noise limits, to encourage airlines to operate the quietest aircraft types	Ongoing
17	Discourage residential development close to the airport boundary or areas affected by aircraft noise, in liaison with Local Authorities	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.	Ongoing
19	Liaise regularly with airline operators via a 'Flight Ops' Committee to ensure adherence to existing standard procedures and encourage innovation	Ongoing
20	Review operational procedures in relation to noise with support of the 'Flight Ops' committee and NTSC	Ongoing
21	Work with operators to encourage the voluntary phase out of noisiest aircraft	Ongoing
22	Continue to review procedures for helicopter operations with the support of air traffic control	Ongoing
23	Work with operators on the voluntary phase out of marginally compliant Chapter 3 high aircraft i.e. hushkitted aircraft	2014
24	Explore with the 'Flight Ops' Committee/NTSC penalties for flying off track after the introduction of RNAV-1 departure routes	2015
25	Work with airlines, air traffic control, NATS and other stakeholders to introduce new technologies and environmental improvements	Ongoing

	Action	Timescale
26	Review the Engine Ground Running policy to minimise disturbance during the night and late in the evening	Ongoing
27	Operate within planning limits	Ongoing
28	Actively participate and support the work of the industry and Airport Operators Association with respect to its 'Sustainable Aviation' programme	Ongoing
29	Liaise with London Heathrow and other airports with respect to non-London Luton overflying traffic, where necessary	Ongoing
30	Work with the LLACC (via NTSC), the 'Flight Ops' committee and NATS to identify airspace improvements which will improve the noise environment	Ongoing
31	Agree key performance indicators and targets for noise 'actions', where appropriate, with the LLACC (via NTSC)	Ongoing
32	Assess the impact of London Luton Airport traffic on the Chilterns AONB and explore potential for operational improvements	Ongoing
33	Attend public meetings on request, where appropriate, to discuss the airport's operations	Ongoing
34	Provide an information pack to first time complainants and those wishing to relocate into the area	Ongoing
35	Formally engage with air traffic control and airline/other operators to help improve noise management/track keeping	Ongoing
36	Host visits from local residents and MPs to discuss community concerns and to demonstrate the Noise and Track-Keeping system	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.	Ongoing
38	Provide information in the Annual Monitoring Report on progress made on actions set out in the Noise Action Plan	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	Ongoing
40	Continue to offer email, telephone and website as options for complaints and enquiries	Ongoing
41	Invite members of the public to visit LLA to review noise and track information	Ongoing
42	Engage effectively and proactively with the LLACC and NTSC	Ongoing
43	Engage with local planning authorities to ensure they are informed about noise matters	Ongoing
44	Review communication material, the noise information pack and the London Luton Airport website with respect to noise/noise management	2015/2016
45	Hold community surgeries to give local people an opportunity to discuss issues in person with representatives from the Community Relations and Flight Operations Department	Ongoing
46	Improve communication with transient and non-based operators/users to ensure environmental and operational procedures are understood and adhered to	Ongoing
47	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: <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. 	Ongoing

Action	Timescale
<p>(continued)</p> <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>	Ongoing
48 Report actual and forecasted aircraft movements for the preceding and next twelve months every three months to Luton Borough Council.	Ongoing
49 Implement a progressive reduction in the daytime maximum noise violation limit (NVL) in line with the requirements of the planning conditions	2015
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.	Ongoing
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.	Ongoing
52 Develop a Noise Control Monitoring Scheme and submit to Luton Borough Council for approval, to include: <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 Review the Noise Control Monitoring Scheme no later than the first and fourth year after introduction, and every subsequent five years.	Ongoing
53 Develop a Ground Noise Scheme and submit to Luton Borough Council for approval, to include: <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. Review the Ground Noise Scheme no later than the first and fourth year after introduction, and every subsequent five years.	Ongoing
54 Develop a Noise Insulation Scheme for residential as well as non-residential buildings.	2016
55 Reduce the night time noise violation limit to 80 dB(A) by April 2015	2015

Community Relations

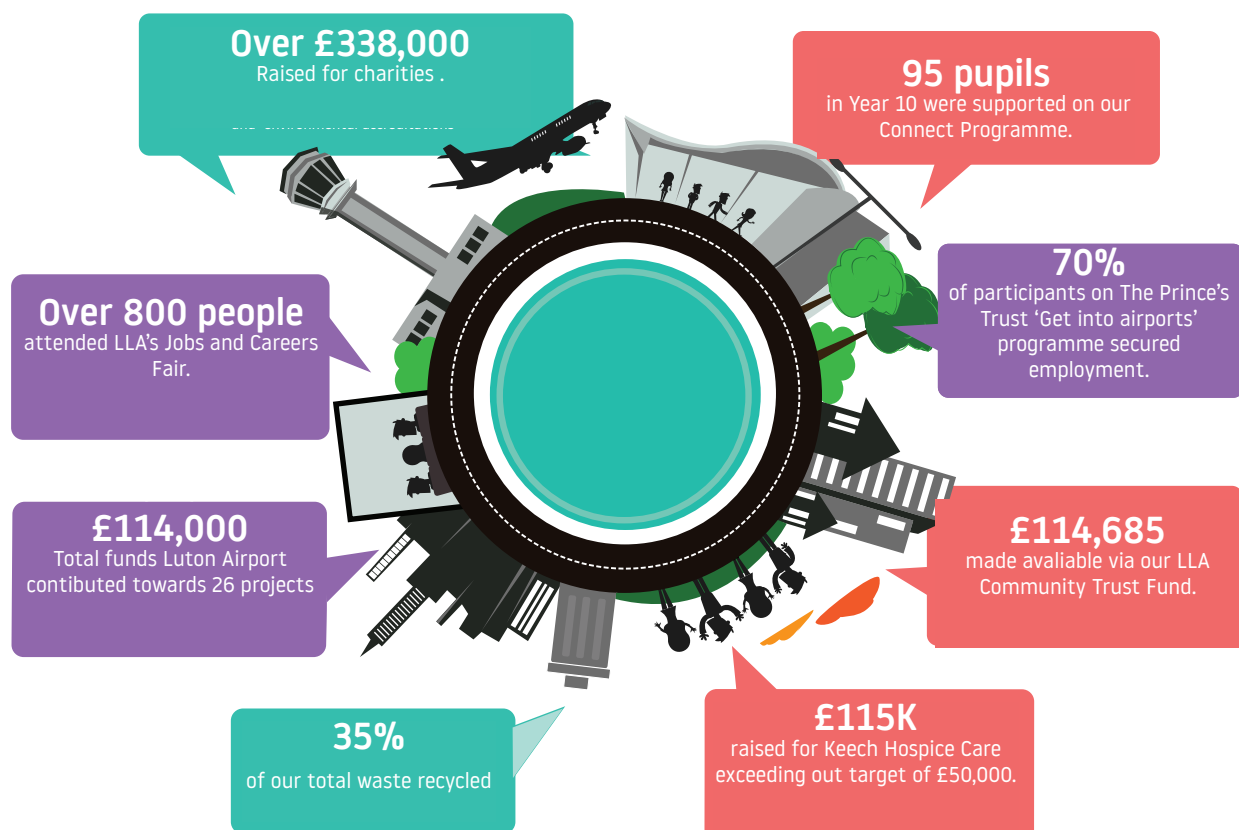
Through the London Luton Airport Consultative Committee (LLACC), which meets every quarter, London Luton Airport maintains a close working relationship with representatives of its local authorities and resident groups. Information on the Consultative Committee including meeting minutes and its representatives can be found at the following link: <http://www.llacc.com/>

In 2017, the Flight Operations Team continued the Public Surgery programme. These drop-in events allow local residents to talk to the team face to face to discuss any concerns regarding the impact of LLA's operations. Public Surgeries were held in Eaton Bray, Luton, Leighton Buzzard, Stevenage, Whitwell, Caddington and Baldock, along with an engagement day intended for those communities along the new RNAV Match/Detling route on the 29th June 2017. These will continue to be scheduled in 2018.

The Flight Operations team, also held regular meetings with Ann Main MP, Bim A MP and Stephen McPartland MP. The team also welcomed a visit from Ivinghoe Parish Council to discuss the airports noise and track monitoring system and airport tours. Furthermore, the team regularly conducted visual and hand held monitoring in the community.

Community engagement strategy achievements

Our five year Community Relations Strategy forms part of LLA's corporate social responsibility programme and sets out how we will facilitate community development and meet the needs of key stakeholders. Initiatives are delivered by the airport in collaboration with key community partners. In 2016 we made ten commitments to ensure that we continued to play a positive role in our local community. We achieved 6 of these commitments, another 2 commitments we exceeded and 2 are still a working progress. The graphic below summarises the progress made towards these commitments during the year or more details can be found in the Community Engagement Annual Report found on our website [here](#).



Employment

Employment at and surrounding London Luton airport contributes significant economic benefits to Luton as a whole and to the sub-region. A large number of businesses are based in Luton due to the presence of the airport. Thus, any analysis of the airport's impact upon the locality needs to contain an economic perspective, and this includes employment. An analysis of employers within and around the airport boundary has been conducted, the results of which are summarised below.

The methodology used for this year's survey was the same as for the 2016 survey. The Inter Departmental Business Register (IDBR) was used as the main administrative data source - this Office for National Statistics (ONS) dataset is a comprehensive list of UK businesses that is used by government for statistical purposes. It provides a sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analyses of business activity.

The IDBR combines administrative information on VAT traders and PAYE employers with ONS survey data in a statistical register comprising over two million enterprises, representing nearly 99% of economic activity. Analyses that are produced as part of this service are at the same level at which business statistical surveys are conducted. (Source: ONS website www.statistics.gov.uk).

An initial list was received from London Luton airport of companies within its boundary. The listing was matched against the IDBR. Companies outside the airport boundary were identified by the street names/areas as follows:

- ❖ Spittlesea Road
- ❖ Part of Frank Lester Way
- ❖ President Way
- ❖ Wigmore House
- ❖ Part of airport Way
- ❖ Barratt Industrial Park
- ❖ Airport Executive Park

A handful of Companies who appeared on the list but not the IDBR had imputed estimates from analysis of the size of the enterprise and information from the airport.

Total employment in and around the airport

Employment was measured using main section headings from the Standard Industrial Classification 2007 (SIC 2007). Data has been rounded to the nearest hundred, as per ONS guidelines.

Standard Industrial Classification 2007, Section Names	Total Employees
Accommodation and Food Service Activities	1000
Administrative and Support Service Activities	2,100
Financial and Insurance Activities	<100*
Manufacturing	1,200
Professional, Scientific and Technical Activities	<100*
Public Administration & Defence; Compulsory Social Security	<100*
Real Estate Activities	<100*
Transportation and Storage	5,300
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	400
Grand Total	10,200

* - Figures have been suppressed where there are less than three companies in a given Section and/or employment in that sector is less than 100 in accordance with the regulations covering the use of IDBR data.

Due to confidentiality issues Luton Borough Council is bound by Office for National Statistics protocols to round to the nearest 100 when reporting IDBR figures. This will mean that any changes in reported figures will be in multiples of 100 and therefore lie within that range.

The table illustrates that there are an estimated 10,200 employees in and around the airport. This has increased by 900 since 2016, a rise of 10%.

Employment by working pattern

The IDBR provides employment figures by full and part time working pattern. The total full time figures (where a breakdown by full/part time was provided) was 8,700 employees. This was an increase of 800 on the previous year's figures. The figure for part time employees was 1,500 which was an increase of 100 from last year's figures.

The percentage split of full/part time employees found at the airport compared to that found in Luton as a whole is as follows:

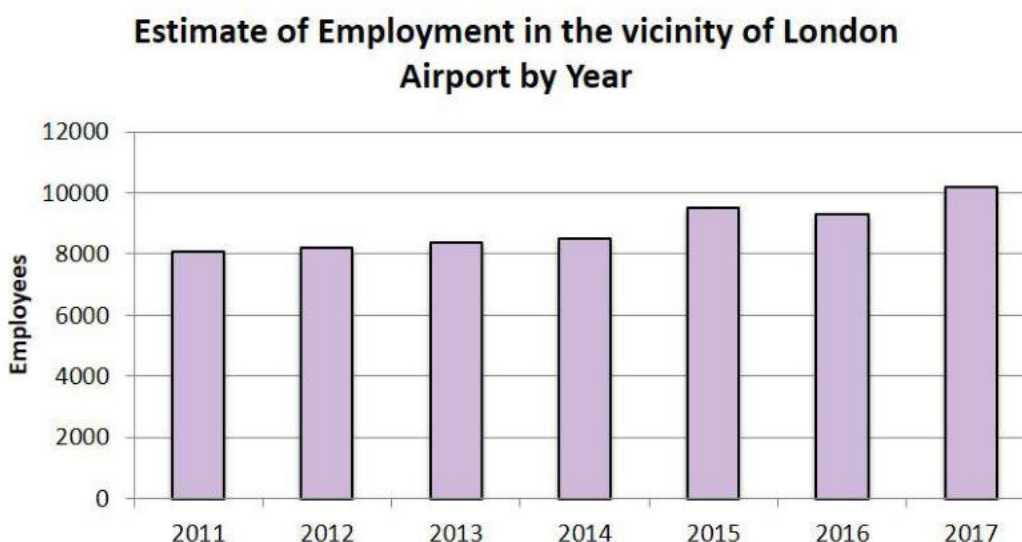
	Full Time Employees	Part Time Employees
Vicinity of LLA	85%	15%
Luton UA	66%	34%

Source for Luton UA Figures: Business Register & Employment Survey 2015, latest data. Figures are percentages of those in employment.

Full and part time working patterns in the vicinity of the airport differs from that found within Luton as a whole, with the airport having a higher proportion of full time workers.

Time series

The following figures from 2011 to 2017 show the estimated employment levels in the vicinity of the airport.



Source: AMR Employment Surveys 2011- 2017

There has been an increase in employment between 2016 and 2017 around Luton Airport. There are approximately 10,200 employees working in the vicinity of the Airport which is higher than 2016.

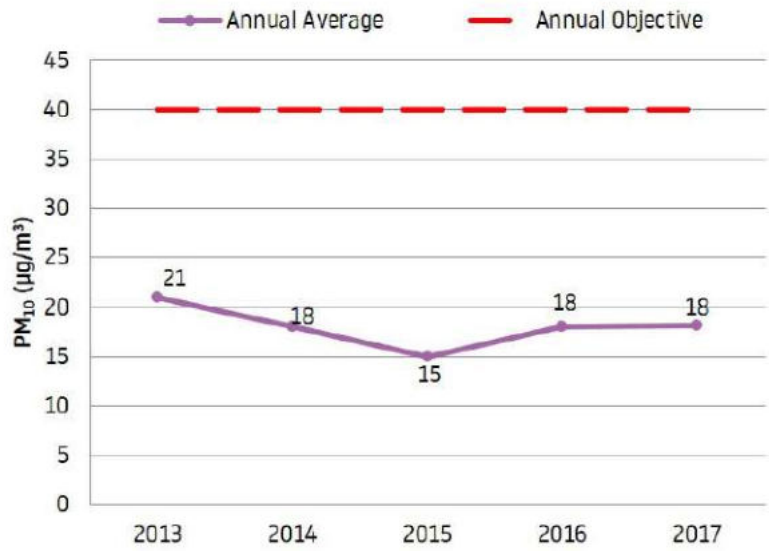
Air Quality

London Luton Airport has been monitoring air quality in and around the airport environment since 2003. Air quality data collected at LLA is integrated into a monitoring programme incorporating data collected by the surrounding Local Authorities, with a monthly report available to view online at <http://www.airqualityengland.co.uk> The parameters we measure are PM₁₀ and NO₂.

PM₁₀ (Particulates measuring 10µm or less)

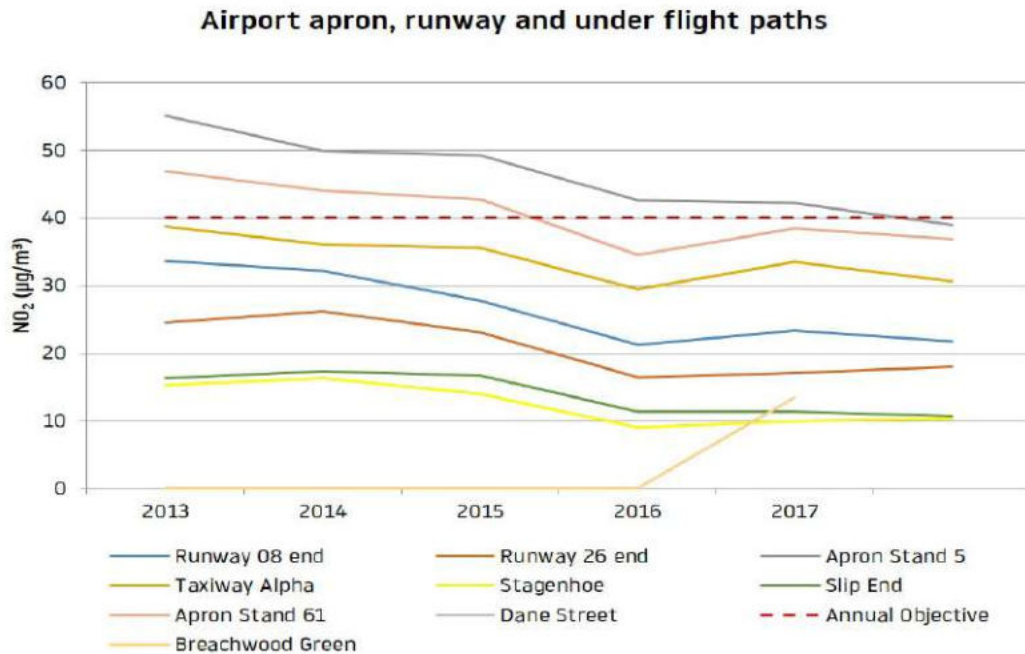
PM₁₀ is one of the main contributors to reduced ambient air quality. Particulate matter is made up of fine particles including dust and soot which are suspended in the air. When you breathe in these particles they can stick to the surface of your lungs, and in areas of high pollution can cause respiratory health problems. Local sources include emissions from vehicles and aircraft engines, wear of brakes, tyres, and construction debris.

PM₁₀ is monitored from one location in the middle of the airport site. The graph shows that the readings have remained well within the annual mean local air quality objective of 40µg/m³.

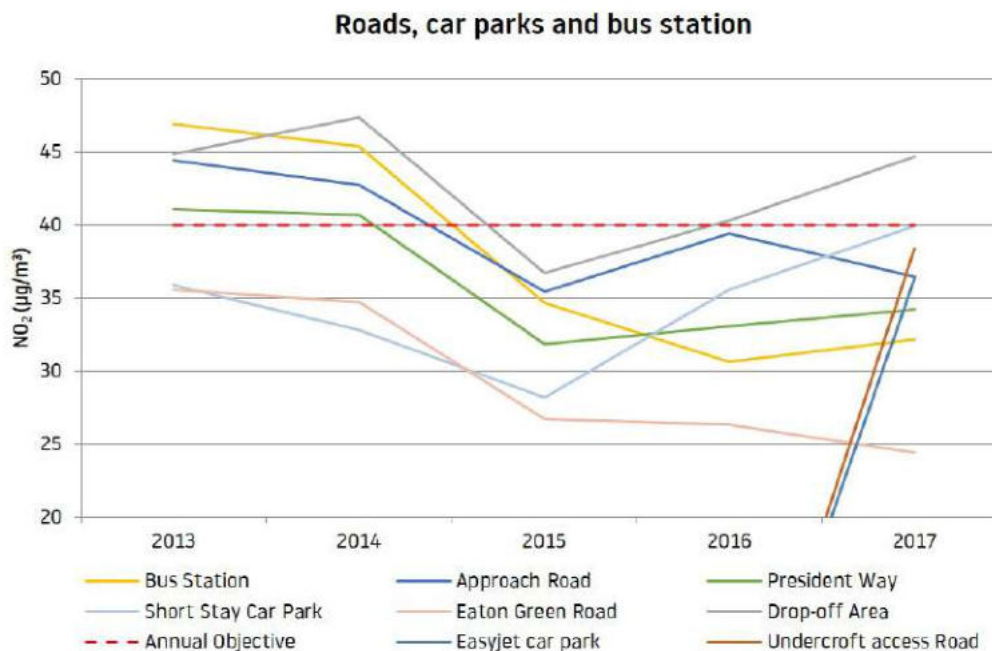


Nitrogen Dioxide (NO₂)

NO₂ in high concentrations can cause a wide variety of health and environmental impacts. The gas is produced from the combustion of fuels such as diesel and aviation fuel. NO₂ is currently measured from 14 locations around LLA, and the results have a bias-adjustment factor applied using national database factors. The annual mean local air quality objective of 40µg/m³ also applies to NO₂.



NO₂ levels at the closest residential receptors to the airport, and also along the aircraft flight paths are significantly below the the objective level laid out in the Air Quality (England) Regulations 2000 (as amended). Levels monitored by the roads around the airport, in the car parks and on the apron are a little higher, with a location on the main apron and the drop off zone slightly exceeding 40 µg/m³. A significant redesign of the roads and car parks on the approach to the terminal has reduced traffic congestion throughout 2017 and this work is ongoing, and a project to install a direct air to rail transit (DART) has commenced which is anticipated to improve connectivity to the airport using public transport. easyJet have also begun modernising their fleet at London Luton Airport, introducing the new A320 neo's which are 13-15% more fuel efficient.



Surface Access

LLA aims to improve access to the terminal, particularly by public transport in order to reduce the contribution that journeys make to total airport-related CO2 emissions and also to air pollution. LLA's current airport Surface Access Strategy runs from 2012-2017, with short and long term targets and action plans to encourage more sustainable travel amongst airport passengers and employees. These targets are being monitored regularly, as part of the wider Local Transport Plan (LTP) monitoring framework.

During August 2017 LLAOL undertook a consultation with key stakeholders for the airport surface access strategy covering period up to 2022. The responses all supported the proposed targets and actions with the construction of the DART (Direct Airport to Rail Transit) being noted as particularly welcome addition

Modes of Transport

Passengers transport mode share (CAA Data)

The Civil Aviation Authority (CAA) undertakes continual passenger surveys at many of the major airports in the UK, including London Luton. In common with other airports, LLA uses this survey data to assess trends in passenger 'modal shift' from private to public transport. The table below shows the weighted CAA data for 2011-2016. The CAA statistics suggest that 32% of airport passengers chose to use public transport in 2016.

Whilst the figures have remained fairly static for the last 5 years, LLA have been working to promote the use of sustainable transport. In the Last year, LLA, have been lobbying for 4 fast trains per hour to stop at Luton Airport Parkway as part of the new franchise agreement for the East Midlands line.

LLA have also invested in an upgraded bus station, including installing a traffic light system to improve safety. Electric charging points have also been installed in the multi-storey car park. Finally a new Mass Passenger Transit System is being developed by LLAL to replace the bus service between Luton Airport Parkway and the airport terminal. Construction is due to start in 2018, with the intention for it to be in operation by 2021.



%	2012	2013	2014	2015	2016
Drop Off	27	28	25	27	28
Car Park	23	23	28	27	23
Rail	17	16	14	16	16
Bus/Coach	16	16	15	15	16

Staff transport mode share

LLA aims to reduce the proportion of staff travelling alone by car to and from Lond Luton Airport. Whilst employee travel does not generate as many trips as passengers, it is an important consideration as employees making a more sustainable travel choice will give daily results due to the frequency of their need to commute to work. Staff travel surveys are undertaken once every 2 years and the results since 2010 are presented in the table below.

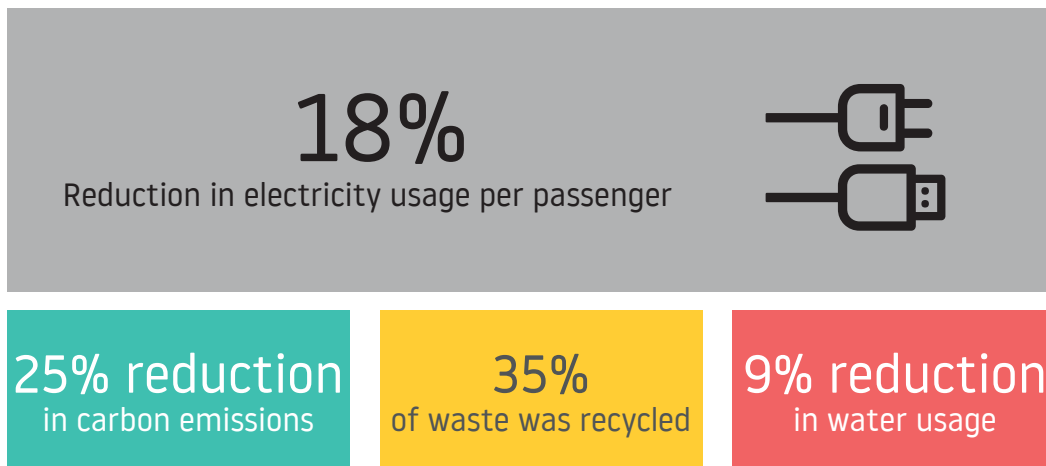
%	2010	2012	2014	2016
Drive alone	66	66	62	68
Car share	12	8	11	7
Taxi	1	1	0	1
Motorcycle	1	1	1	1
Rail	5	5	10	7
Bus/Coach	7	9	8	9
Cycle	2	2	2	2
Walk	5	6	7	5



Sustainability

London Luton Airport is committed to operating in a way that maximises the socio-economic benefits for the local and regional area whilst minimising the environmental impacts. To ensure this vision is shared and supported, we work closely with airlines, stakeholders and business partners to promote this approach across the airport, ensuring that the full benefits that London Luton Airport can bring to the region are realised.

LLAOL aims to continuously improve on environmental performance in many different areas across the Airport. In 2016 the following was achieved:



The airport maintained the ISO14001 international accreditation for Environmental Management System and the ISO50001 international accreditation for Energy Management.

Sustainable Travel Improvements during 2016

During 2016 a new bus interchange was opened at LLA, providing 7 additional stands and improving safety and access for passengers. Construction works were also undertaken to redevelop the road network, taxi and drop-off facilities at the terminal entrance, and a new multi-storey car park opened providing additional parking near the terminal. Further information on these upgrades can be found under 'Planning and Development'.

Plans for a mass passenger transit system operating between Luton Airport Parkway station and the airport terminal were unveiled during 2016. The MPT system will be a fully-automated, two-way, 24-hour, guided light rail people mover covering a distance of 2.2km. Once complete, the rail link will provide a direct journey between London St Pancras and the airport within 30 minutes. Not only will this encourage passengers to travel by train rather than car, but it will also remove the need for the buses that currently transport passengers between the station and the terminal every 10 minutes. The scheme, being run by London Luton Airport Ltd, is anticipated to be operational by 2021.

Overnight rail services from Luton Airport Parkway began at the end of 2015, making rail a viable transport option for 2-3 million more airport passengers per year, and an uplift in passengers using the trains has been seen during 2016 as a result. LLA have also been lobbying to ensure 4 stops per hour are scheduled at Luton Airport Parkway as part of the refranchising of the East Midlands line due in 2018, providing additional fast services into London.

A staff travel survey was undertaken, along with a report looking into the feasibility of improving coach services to the airport from Northampton. Both reports have been shared with transport operators in order to facilitate transport planning.

Planning and Development

Through its Local Plan, Luton Borough Council (the Council) sets out local planning policies and identifies how land is used, determining what will be built where. The Council also is responsible for the Local Transport Plan (LTP) providing policies, strategies and schemes primarily for Luton, though the LTP does refer to strategic transport and infrastructure and other cross boundary matters for the whole conurbation (Dunstable and the Houghton Regis area).

Local Plan

On 7 November 2017 the Council adopted the Luton Local Plan (2011-2031). The adopted Local Plan is a strategic document setting out the vision, objectives and spatial planning strategy for the whole of Luton Borough Council's area for the period up to 2031.

It comprises the following document and accompanying plans as set out below:

- Luton Local Plan (2011-31), November 2017
- policies map
- town centre inset

These documents can be seen at the following page on the Council's website: <https://www.luton.gov.uk/Environment/Planning/Regional%20and%20local%20planning/Pages/Local%20Plan%202011%20-%202031.aspx>

The Local Plan includes Policy LLP6 that covers the London Luton Airport strategic allocation (an area of 325 hectares, identified on the policies map, which includes land within the airport boundary, Century Park and Wigmore Valley Park).

Planning Applications

Since the grant of planning permission for the development at the airport in 2014 (Council reference 12/01400/FUL) which enables an increase in passenger numbers up to 18 million passengers per annum (18mppa), much of the development has been completed.

In June 2017 planning permission was granted for a Direct Air Rail Transit (Luton DART) system which will provide a seamless link between Luton Airport Parkway station and the terminal at London Luton Airport. The Luton DART is a £225m investment, which will provide fast, easy access from the mainline trains (serving London and the East Midlands/South Yorkshire), encouraging more people to use public transport and help reduce congestion on the surrounding roads.

The route of the Luton DART crosses New Airport Way into the airport, passing through the mid-term car park and ending in a new station where the current drop-off zone is located. Consequently, there will be a number of changes to those areas, which the airport will undertake, including the provision of a new and improved drop-off zone and a further multi-storey car park.



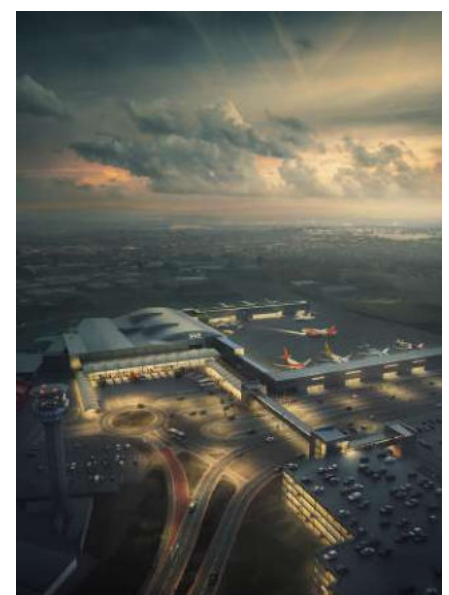
Hotel developments

The Luton hotel market is very much dominated by airport related demand, from passenger and crew, with the Luton Hotel Study (July 2015) indicating that demand was likely to continue to grow.

The following hotel developments have been granted planning permission, or are consideration, since the table in the 2016 AMR was produced -

Site address	Current status of application	Number of bedrooms
Premier Inn (The Brache)	Extension to provide additional 39 bedrooms approved in March 2016	171
Napier Park/Bartlett Square	Outline planning permission was granted in April 2015 for a mixed use development including two hotels (reserved matters still to be submitted).	250
Napier Gateway (part of the Napier Park site)	Mixed development including 209 bedroom hotel (still to be implemented)	209
Former Mondi Packaging car park site, Airport Way	Six storey hotel granted permission in 2013 and nearing completion	120
Former Mondi Packaging site, Airport Way	Nine storey hotel granted permission in July 2016 under construction	250
Power Court (Town Centre)	Outline application for football stadium and associated infrastructure submitted in 2016 including a hotel (still to be determined)	150
Land adjoining junction 10 to junction 10A of M1	Outline application for mixed use development submitted in 2016 including a hotel (still to be determined)	350
Former Honda Garage, Cumberland Stret (Town Centre)	Five to seven storey hotel granted planning permission in September 2017 (still to be implemented)	202
Phoenix House (Town Centre)	Change of use to hotel granted planning permission March 2017 subject to the completion of a s106 agreement (still to be implemented)	78

It is envisaged that the demand for hotel accommodation in Luton will grow as the number of passengers travelling through the airport increases.



National Aviation Policy

The Aviation Policy Framework (APF) published by the Coalition Government in March 2013 set out the Government's policy on aviation. The APF focuses on the benefits of aviation to the UK economy as well as its environmental impacts.

The Coalition Government also established the independent Airports Commission to consider issues relating to capacity in the UK over the short, medium and long term periods. The Final Report of the Airports Commission was published in July 2015 concluding that an additional runway at Heathrow was the preferred option, but also considering how to make best use of existing airport infrastructure in the meantime. The Government accepted the Airports Commission's recommendations in December 2015.

In February 2017 the Government began a public consultation on the draft Airports National Policy Statement (Airports NPS), this focused on the preferred option of a third runway at Heathrow. Following revised passenger demand forecasts and the impact of the publication of the final Air Quality Plan for the UK (July 2017) a revised draft Airports NPS was published in October 2017. The Airports NPS will provide the primary basis for decision making in relation to the Development Consent Order (DCO) for a new runway at Heathrow, whilst also being an important and relevant consideration in respect of applications for new runway capacity in London and the south east of England.

The revised draft Airports NPS sets out:

- The Government's policy on the need for new airport capacity in the South East of England;
- The Government's preferred location and scheme to deliver new capacity; and
- Particular considerations relevant to a development consent application to which the Airports NPS relates.

The revised draft Airports NPS includes policies that will be important and relevant for any nationally significant infrastructure project (NSIP) related to airports in the south east of England. In this regard it is important to note that in December 2017 London Luton Airport Limited (LLAL), the owner of the airport, published its 'Vision for Sustainable Growth 2020-2050' which considers the potential for making better use of the existing runway which could include an increase in passenger numbers of up to 36-38mppa. Such an increase would constitute a NSIP and result in the submission of an application for a DCO to be determined by the Secretary of State.

Local Transport Plan (LTP)

The current LTP is the third local transport plan produced by the Council in April 2011, which sets out how the Council will deal with transport matters in and around Luton. It comprises two parts, namely:

- A long term Transport Strategy up to 2026. With regard to the transport affecting the, airport this sets out anticipated passenger numbers of between 15.5mppa and 18mppa by 2026, together with an additional 3,000 employees; and
- The Implementation Plan. This includes a number of key elements that are relevant to the airport, such as: a focus on smarter choices and travel by more sustainable modes; implementation of a new entrance from the north to Luton Airport Parkway Station; and an extension of Airport Way to serve planned employment sites to the east of the airport.

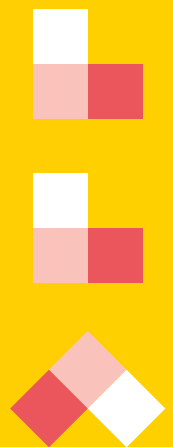
The Luton DART was not specifically mentioned in the LTP, but it will serve to improve access from Luton Airport Parkway Station to the airport as well as encouraging a modal shift away from the use of private cars to public transport.

The LTP strategy also refers to the role of the Airport Surface Access Strategy (ASAS) in promoting sustainable travel to the airport for both passengers and employees, and the Council will work with the airport operator to achieve this.



ANNEX I - AIRPORT ANNUAL MONITORING REPORT 2018

Annual Monitoring Report 2018





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Foreword

Last year was a record-breaking year for London Luton Airport (LLA), with over 16 million passengers passing through the airport, of which residents of the Three Counties continued to be among our most regular users.



To meet this rising demand, our £160 million transformation reached its culmination last year, with our newly-expanded terminal officially opened by the Secretary of State for Transport. This expansion will not only deliver improvements to our passengers but also major benefits for the economy – providing £1.4 billion to the local economy, and £2.3 billion nationally. The development, the biggest in our 81-year history, will also support nearly 38,000 jobs by 2031.

However, we also want to be a good neighbour. We recognise that more passengers means more flights, and therefore more noise. This is a clear area of importance for local residents, and one which we constantly look to tackle head-on, as this report shows.

We've made some great progress, and we continue to have some of the most stringent noise control measures of any UK airport. Recent measures include increasing the number of local noise monitors and improving the way that we communicate with local communities via our dedicated noise website and regular noise surgeries. We have also committed £100,000 per year to insulate local properties, including installing high performance glazing.

The work which our noise team carries out is focussed around 5 different approaches:

1. Operational Procedures

We regularly review our operating procedures to ensure the most environmentally friendly and noise minimising procedures are in place, including airspace changes.

2. Quieter Aircraft

As traffic grows, we are encouraging operators to use the quietest aircraft practicable, particularly during the early morning and night time periods.

3. Operational Restrictions

We have a range of operating restrictions including movement limits and noise quota limits, and we are focussed on ensuring they are adhered to. We're also in the process of requesting temporary changes to our noise contour to ensure we remain fully compliant with existing regulations.

4. Land-use Planning and Mitigation

Through communication with local planning authorities we continue to discourage developments near the airport and spend the full budget for our Noise Insulation Scheme each year.

5. Working with the local community and industry partners

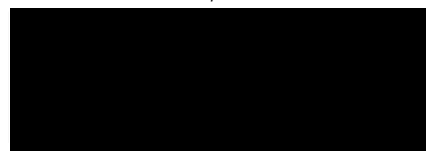
We recognise the importance of working with our stakeholders to understand any concerns and take action where possible, keeping communities up to date.

This Annual Noise Monitoring Report is an example of our ongoing monitoring and communication. We also hope it answers some of the questions you may have about the impact of the airport's transformation.

If you have any other further queries, please don't hesitate to contact the team by calling 01582 395382 or emailing noise.enquiries@ltn.aero.

Neil Thompson

*Operations Director
London Luton airport*



Key Monitoring Indicators

Parameter		2018	2017
Total Aircraft Movements	↑	136,270	135,518
Day Movements (07:00 - 23:00)	↑	119,937	119,462
Night Movements (23.00 – 07.00)	↑	16,333	16,056
Early Morning Movements (06.00 – 07.00)	↓	5,794	5,962
Total Scheduled Passengers	↑	16,223,039	15,369,715
Total Charter Passengers	↓	358,811	429,504
Total Passengers	↑	16,581,850	15,799,219
Number of Destinations	↑	147	140
Number of New Airlines	-	0	0
Number of New Routes	↑	33	19
Westerly/Easterly Runway Split (%)	-	63/37	79/21
Night Quota Used (3,500 Limit)	↑	3105.75	3,078
Average Ratio of Aircraft movements % (day/night)	-	88/12	89/11
Track Violations	↓	33	63
Departure Noise Infringements (Day)	↓	0	71
Departure Noise Infringements (Night)	↓	0	4
Fines transferred into Community Trust Fund	↓	£29,500	£50,250
24hr Continuous Decent Approach (% achievement)	↓	92%	93%
No. Departures Recorded at ≥ 85 dB(A) during Day (Night)	↓	0 (0)	1 (0)
No. Departures Recorded at ≥ 76 dB(A) during Day (Night)	-	6,604 (1,025)	7,785 (1,283)
No. Departures Recorded at ≥ 70 dB(A) during Day (Night)	-	46,344 (5,663)	46,405 (5,339)
Night Noise Contour Area (48 dB L _{Aeq, 8h})	↑	40.2km ²	38.7km ²
Population within Night Noise Contour (48 dB L _{Aeq, 8h})	↑	18,450	17,800
Dwellings within Night Noise Contour (48 dB L _{Aeq, 8h})	↑	7,800	7,500
Noise Complaints	↓	8,275	15,384
Complainants	↓	691	1,121
Number of New Complainants	↓	394	814
Largest Source of Complaints	-	Dep. West	Dep. West
Number of PM ₁₀ exceedances	-	0	0

Air Traffic Data

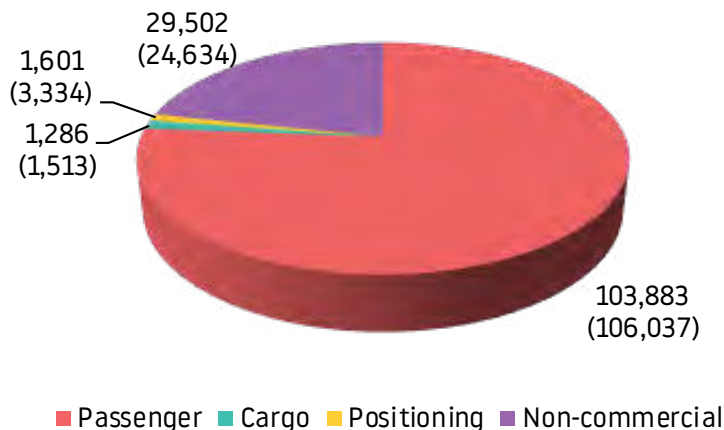
Aircraft movements

LLA handled a total of 136,270 aircraft movements during 2018, an increase of 0.6% compared to 2017. An aircraft movement is the take-off or landing of any aircraft from the airport.

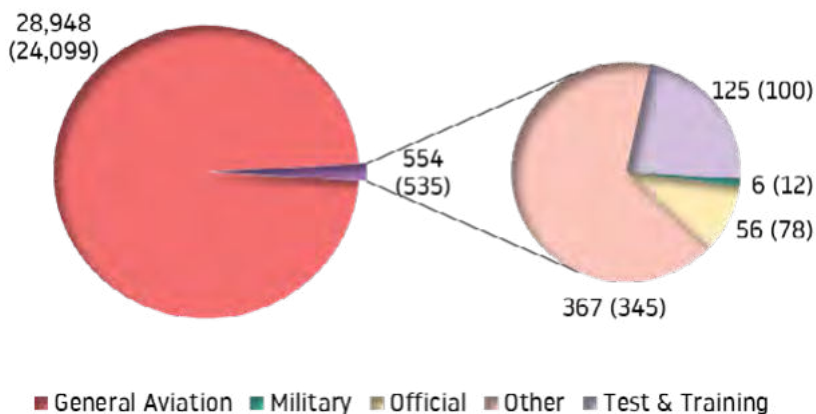
The majority of aircraft movements were passenger flights at 103,881 movements. This includes commercial flights by executive aircraft (compared with 106,037 in 2017). Other movements included cargo, positioning flights and non-commercial flights.

For comparison purposes 2017 data is shown in brackets.

Aircraft Movements



Non-Commercial Aircraft Movements



Movement Classification

Commercial – operating for hire or reward and includes cargo, passenger and positioning flights

Non-Commercial – not operating for hire and reward

Cargo – aircraft movements which are solely for freight. It should be noted that freight can also be carried on aircraft in other categories

General Aviation – private aircraft, helicopters and business jets not operating for hire or reward

Passenger – commercial passenger flights, including executive aircraft

Positioning – typically empty flights to/from other airports

Military – flights on military business

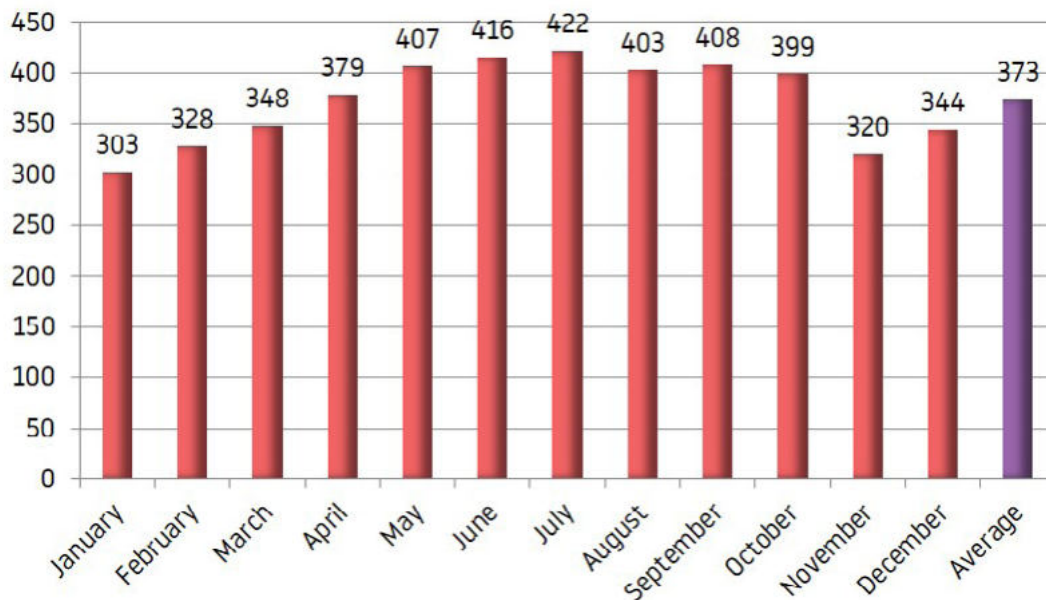
Official – flights solely for official purposes by British or foreign civil government departments

Other – flights coming for maintenance and or departing aircraft that have made an unscheduled return to base

Test & Training – training flights involving aircraft and also flights following or during aircraft maintenance

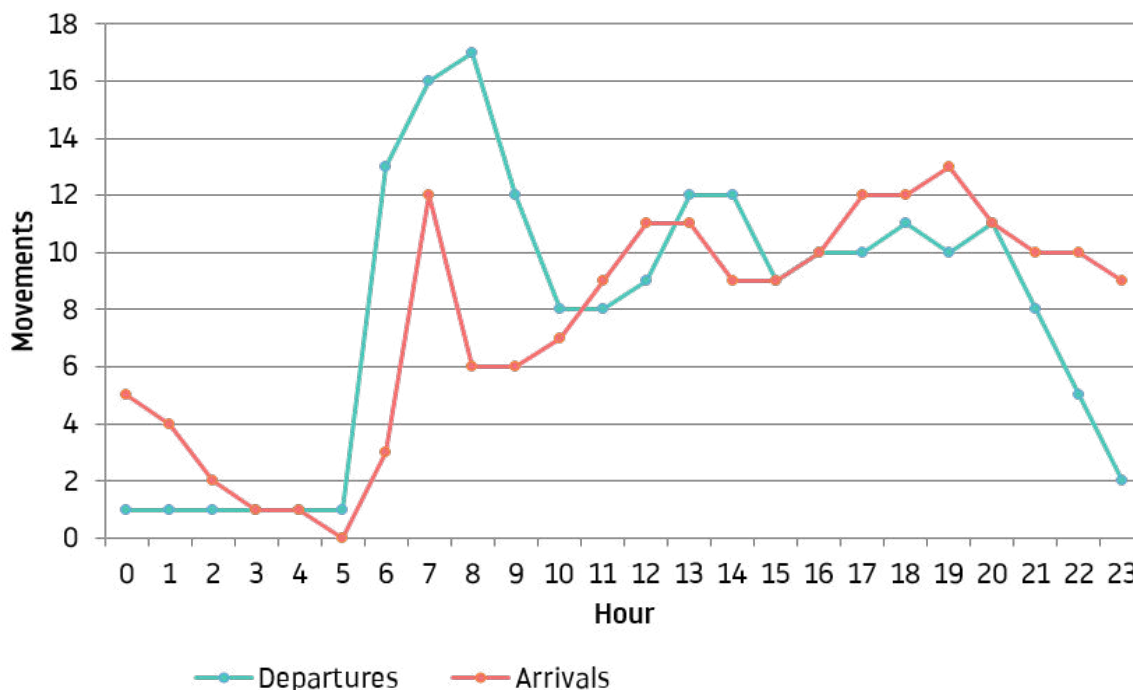
The graph below illustrates that the busiest time of year is May - October. **Our busiest day of the year was 25th May with 475 aircraft movements.** In comparison, winter months are the quietest. On average there were 373 movements per 24 hours (compared to 371 in 2017).

Annual Average Daily Movements

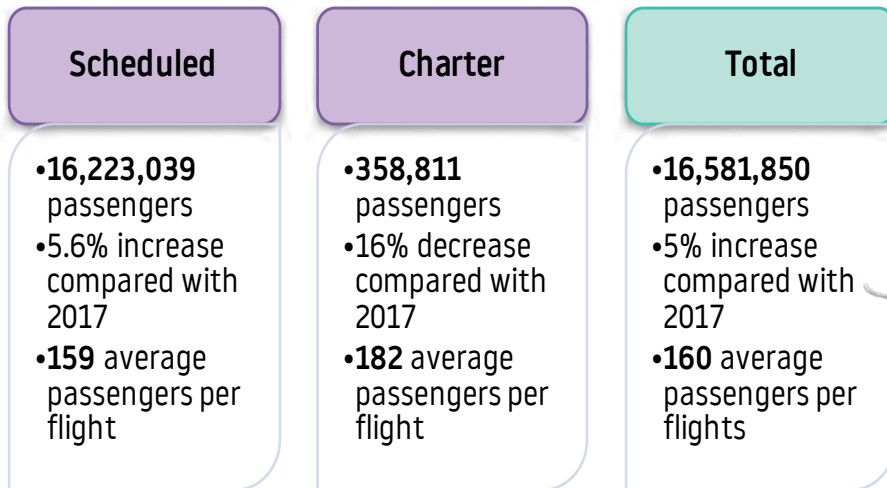


The busiest time on average during 2018 for departing aircraft was 08:00-09:00 hrs, with another peak between 13:00-15:00. The average busiest time for arrivals was 19:00-20:00 hrs. The graph also highlights a low level of average movements during the hours of 00:00-05:00 hrs.

Annual Average Hourly Movements

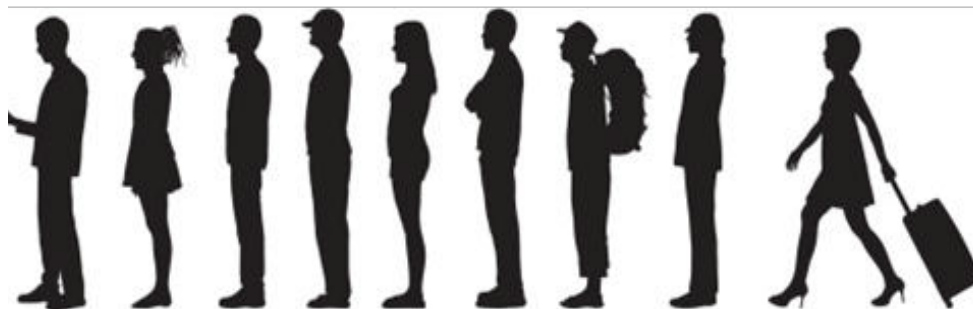
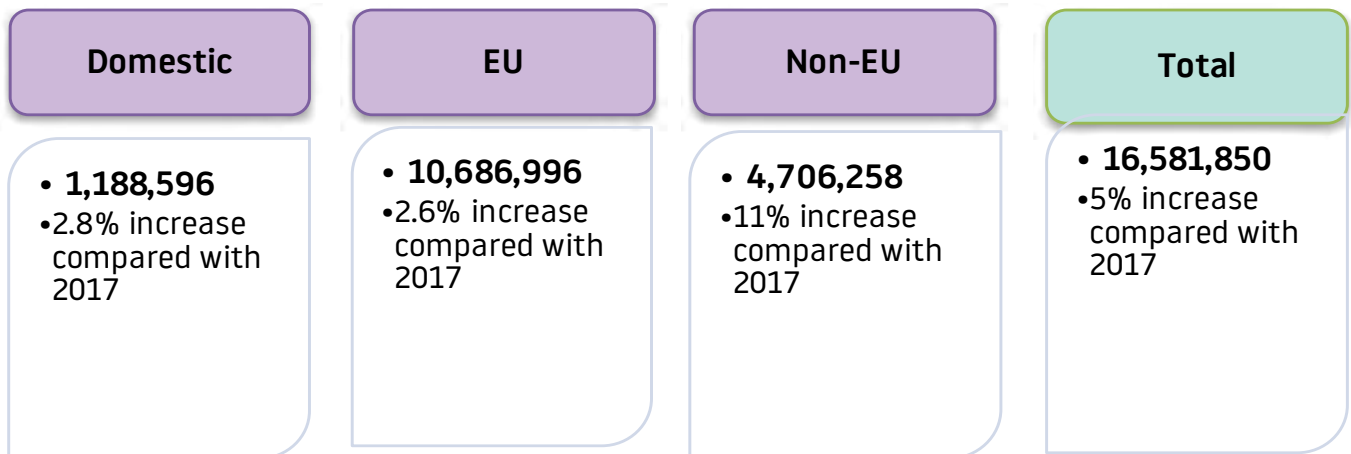


Passenger data



Charter flights are flights in which the aircraft has been chartered (or leased) by a company, typically a tour operator or an executive customer. Charter seats are typically not sold directly by the airline. Scheduled flights are regular flights organised by the company which owns the aircraft.

A total of 16,581,850 passengers used LLA during 2018; 16,223,039 on scheduled flights (98%) and 358,811 on charter flights (2%). This represents an increase in passengers of 5% compared with 2017.



Cargo

Cargo operations represent just over 1% of all air transport movements at London Luton Airport. Night movements accounted for 69% of total cargo movements. These were primarily postal flights or intra-European express delivery services moving time sensitive and perishable freight such as fresh food, medication and urgently needed technical equipment vital to supporting and sustaining economic growth. The flights carrying more general, less time-sensitive cargo already operate outside of the night-time period. This would include Formula 1 cars, live animals, clothing, machine parts and more.

Operator	Movements			Tonnes
	Day Movements	Night Movements	Total	Total
2018	706	1,582	2,288	27,096
2017	455	1,442	1,897	22,061
2018/2017 comparison	+55%	+9.7%	+20.6%	+22.8%

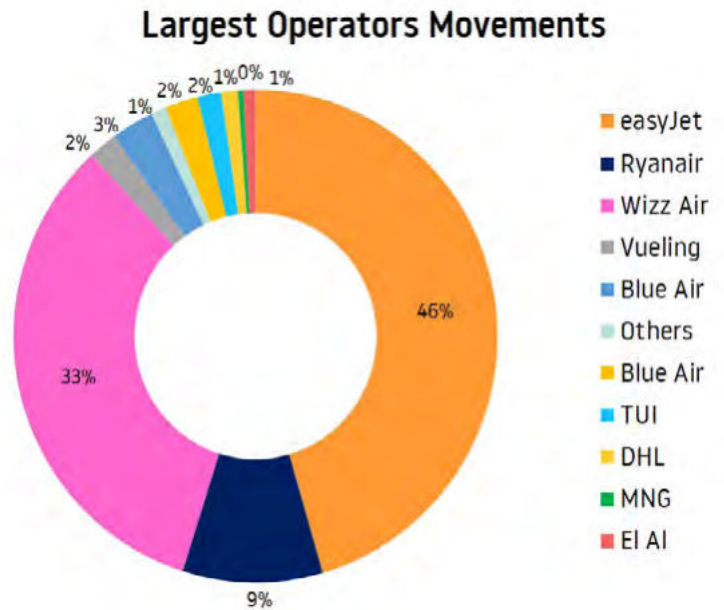
N.B. The cargo movement count is the total number of movements that carried cargo as opposed to flights that are primarily operated for the carriage of cargo. This is because just over 1% of total cargo tonnage was carried on passenger aircraft. Consequently the movement figures in this section will differ from figures in the Aircraft Movements piechart which shows dedicated cargo movements.



Airlines

London Luton Airport works very closely with its airline partners. The table below provides the movement statistics by the largest operators.

Operator	Movements
easyJet	49,088
Wizz	35,886
Ryanair	10,100
Blue Air	3,089
Vueling	2,060
TUI	1,705
DHL	1,205
El Al	867
MNG Airlines	392
Others	1,092
TOTAL	105,484



N.B This table includes movements for both passenger & cargo aircraft but excludes positioning flights and air-taxis.



Movements by aircraft type

Aircraft Type	Movements	% of Total movements
Airbus A319	25,704	18.9%
Airbus A320	47,416	34.8%
Airbus A320 NEO	1,345	1.0%
Airbus A321	13,354	9.9%
Airbus A321 NEO	10	0.0%
Airbus A306	1,096	0.8%
Airbus A330	146	0.1%
Boeing B737-300	424	0.3%
Boeing B737-400	858	0.6%
Boeing B737-500	324	0.2%
Boeing B737-700	114	0.1%
Boeing B737-800	14,042	10.3%
Boeing B737-900	554	0.4%
Boeing B757	1,665	1.2%
Boeing B767	88	0.1%
Boeing B787	48	0.0%
Canadair Global Express GLEX	3,317	2.4%
Cessna Citation Excel C56X	2,252	1.7%
Canadair Challenger CL30	398	0.3%
Canadair Challenger CL60	638	0.5%
Gulfstream 3,4 & 400 series GLF3/GLF4	1,077	0.8%
Gulfstream 5 and 500 series GLF5	1,635	1.2%
Gulfstream 650 GLF6	1,125	0.8%
Embraer Legacy 600	1,067	0.8%
Embraer Phenom 300	794	0.6%
Cessna Citation Jet C525	526	0.4%
Dassault Falcon FA7X	1,090	0.8%
Helicopter	578	0.4%
Other aircraft	14,405	10.6%
TOTAL	136.270	100%

The aim of this section is to provide the number of movements for a specific aircraft type. The groups are conditional, assuming that these are the typical aircraft types used for passengers, cargo and general aviation movements. As a result the number quoted here within this section will differ from those within the Aircraft Movements Section.

¹ - Winglets and sharklets are small aerodynamic surfaces mounted almost vertically at the wingtips. There is no difference between winglets and sharklets; the term sharklet is just the name used by Airbus for the winglets fitted to their aircraft.

Destinations

London Luton Airport has seen continuous passenger growth during 2018, making 2018 the busiest year ever in the airport's history.

The map below shows the destinations flown/on sale to and from London Luton in 2018. Our airlines fly to 147 destinations across 42 different countries.



New Routes 2018

Destination	Launch	Airline	Destination	Launch	Airline
Bari, Italy	25-Mar-17	Wizz Air	Tallinn, Estonia	17-Sep-18	Wizz Air
Bratislava, Slovakia	25-Mar-18	Wizz Air	Lviv, Ukraine	18-Sep-18	Wizz Air
Palermo, Italy	27-Mar-18	easyJet	Ovda, Israel	28-Oct-18	Wizz Air
Genoa, Italy	27-Mar-18	easyJet	Malaga, Spain	28-Oct-18	Ryanair
Reus, Spain	27-Mar-18	easyJet	Cork, Ireland	28-Oct-18	Ryanair
Dalaman, Turkey	28-Mar-18	easyJet	Bologna, Italy	28-Oct-18	Ryanair
Tirana, Albania	19-Apr-18	Wizz Air	Lisbon, Portugal	28-Oct-18	Ryanair
Keflavik, Iceland	29-Apr-18	Wizz Air	Krakow, Poland	29-Oct-18	easyJet
Athens, Greece	29-Apr-18	Wizz Air	Alicante, Spain	30-Oct-18	Ryanair
Dalaman, Turkey	02-May-18	Thomas Cook	Athens, Greece	02-Nov-18	Ryanair
Antalya, Turkey	02-May-18	Thomas Cook	Kharkiv, Ukraine	13-Nov-18	Wizz Air
Larnaca, Cyprus	21-May-18	Wizz Air	Barcelona, Spain	01-Dec-18	Ryanair
Antalya, Turkey	15-Jun-18	Sun Express	Gibraltar, Gibraltar	04-Dec-18	easyJet
Ankara, Turkey	17-Jun-18	Sun Express	Tromso, Norway	14-Dec-18	Wizz Air
Bodrum, Turkey	18-Jun-18	Sun Express	Verona, Italy	15-Dec-18	Wizz Air
Gaziantep, Turkey	20-Jun-18	Sun Express	Grenoble, France	15-Dec-18	Wizz Air
Thessaloniki, Greece	26-Jun-18	easyJet			

Routes Ending 2018

Whilst there were 33 new routes launched from LLA in 2018, 13 routes ended.

More information about our destinations can be found on the airport's website:

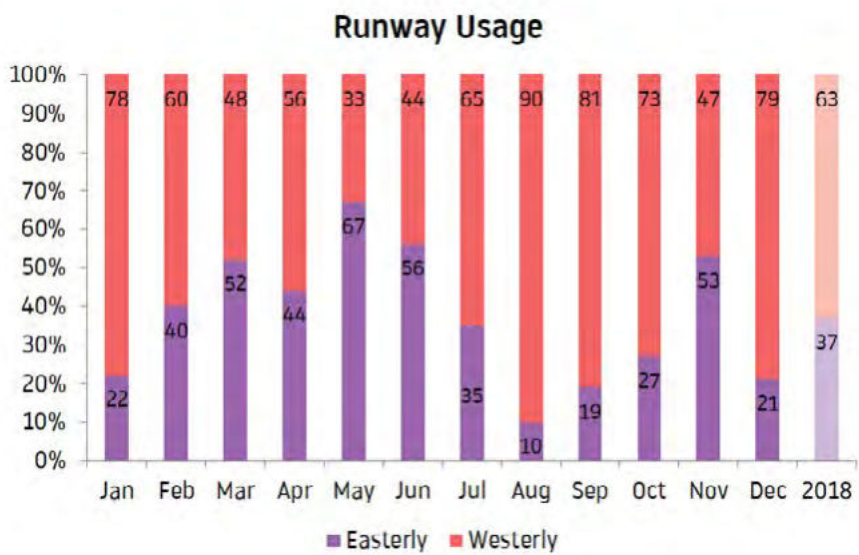


Runway usage

Aircraft need to land and take off into the wind and therefore the prevailing wind direction determines the direction of airfield operation. South westerly and westerly winds prevail for much of the year, typically around 70 per cent of the time.

Wind speeds and directions recorded at higher altitudes can vary considerably from those recorded at ground level. The position of the wind is under constant review by NATS which is why the operation can change direction more than once in a day. However it is also not unusual for the runway to operate in the same direction for several weeks.

A monthly breakdown is shown, highlighting unusually prolonged spells of westerly operations over the summer and increased levels of easterly operations over the winter and spring months of 2018.



Year	Easterly	Westerly
2018	37%	63%
2017	21%	79%
2016	30%	70%
2015	28%	72%
2014	32%	68%
Average	30%	70%

The runway split during 2018 was 37% easterly and 63% westerly (compared to 21% / 79% in 2017). A breakdown of runway usage over the last five years is also shown in the table, giving a historical split of 30% easterly and 70% westerly.

Night Flights

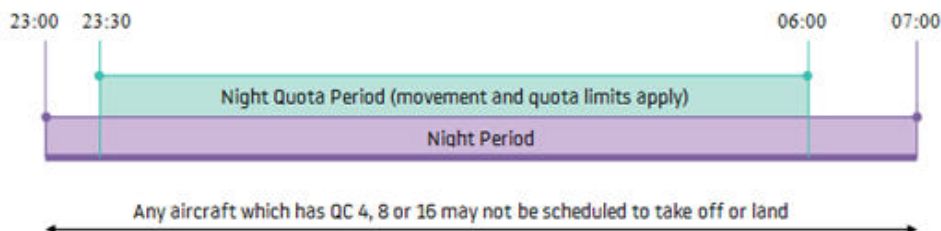


Night Flying Restrictions

As from 1st April 2015 London Luton Airport introduced new night restrictions as part of the planning conditions imposed by Luton Borough Council.

These restrictions have been put in place to limit and mitigate noise disturbance from aircraft operating at night, to prohibit aircraft of certain types from operating, as well as limiting the number of occasions on which aircraft may take off or land.

The night flying restrictions contain a 12 month period aircraft movement limit and a 12 month period quota count limit. The quota count (QC) means that points are allocated to different aircraft types according to how noisy they are. The noisier the aircraft type, the higher the points allocated. This provides an incentive for airlines to use quieter aircraft



The table overleaf records the QC bands identified by the certified noise levels, and gives some typical example aircraft, some of which operate from LLA.

The 'Night Quota Period'

The 'Night Quota Period' is from 23:30 to 06:00 hours local, during which period aircraft movements (take-off or landing) are restricted by a limit on the number of movements with noise quotas as an additional measure.

Aircraft are certificated by the International Civil Aviation Organisation (ICAO) according to the noise they produce during specific certification tests conducted by the manufacturer. They are classified separately for both take off and landing. The points are then allocated to different aircraft types according to how noisy they are.

The 'Early Morning Shoulder Period'

The 'Early Morning Shoulder Period' is 06:00 to 07:00 hours local. During this period aircraft movements (take-off or landing) are restricted by a limit on the number of movements (the same as the Night Quota Period).

Aircraft movement and quota count limits (per 12 month period)

Condition 9(iii) requires that for the Night Quota Period (2330 - 0600) the following limits shall not be exceeded:

- 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.

Certificated noise level (EPNdB)	Typical aircraft	Quota Count
96 to 98.9	B732, MD10	QC 4
93 to 95.9	B772, A306, A332	QC 2
90 to 92.9	A320/A321, some B738, B752, B788	QC 1
87 to 89.9	A319/A320, some B734, B738, B788	QC 0.5
84 to 86.9	A319/A320, GLEX, FA7X/F900/F2TH	QC 0.25
Less than 84	Challenger series (eg CL60), ATP, C525/C550 & A320 NEO	QC 0

Condition 9(iv) requires that for the Early Morning Shoulder Period (0600 - 0700) the total annual movements by aircraft in any 12 month period shall be limited to 7,000.

The table below provides total aircraft annual movements and noise quota per 12 month period and compares those against the limits set by planning conditions.

	Night Quota Period (2330 - 0600)		Early Morning Shoulder (0600 - 0700)
	Movements Limited to 9,650	Quota Count Limited to 3,500	Movements Limited to 7,000
Jan 2018	413	172.50	294
Feb 2018	404	149.50	284
Mar 2018	581	218.50	378
Apr 2018	778	262.25	558
May 2018	976	324.25	638
Jun 2018	849	318.00	530
Jul 2018	969	356.50	500
Aug 2018	912	358.00	583
Sep 2018	742	288.50	595
Oct 2018	871	282.50	642
Nov 2018	459	180.25	397
Dec 2018	533	195.00	395
Total for preceding 12 months	8,487	3,105.75	5,794

There were 168 night time aircraft movements with a QC value of greater than 2 in 2018. Of the 168 QC 2 aircraft movements in 2018, 105 were departures by Airbus A300-600 aircraft and 59 departures by an Airbus A330-200 aircraft. There were no night time aircraft movements with a QC value greater than 2 in 2018.

Marginally Compliant Chapter 3 aircraft

Taking the year as a whole, of the 134,702 movements where Chapter 3 categorisation is applicable, none are known to be marginally compliant (i.e. aircraft with a margin of less than 5 decibels compared to Chapter 3 limits). 4 aircraft movements were by aircraft with unknown classification. These movements were by a Tupolev 204-3004.



Day/Night ratio of movements

There were 16,333 night movements during 2018 (compared to 16,056 in 2017, a increase of 2%), an average of 45 movements per night (compared to 44 last year). Arriving aircraft accounted for 57%

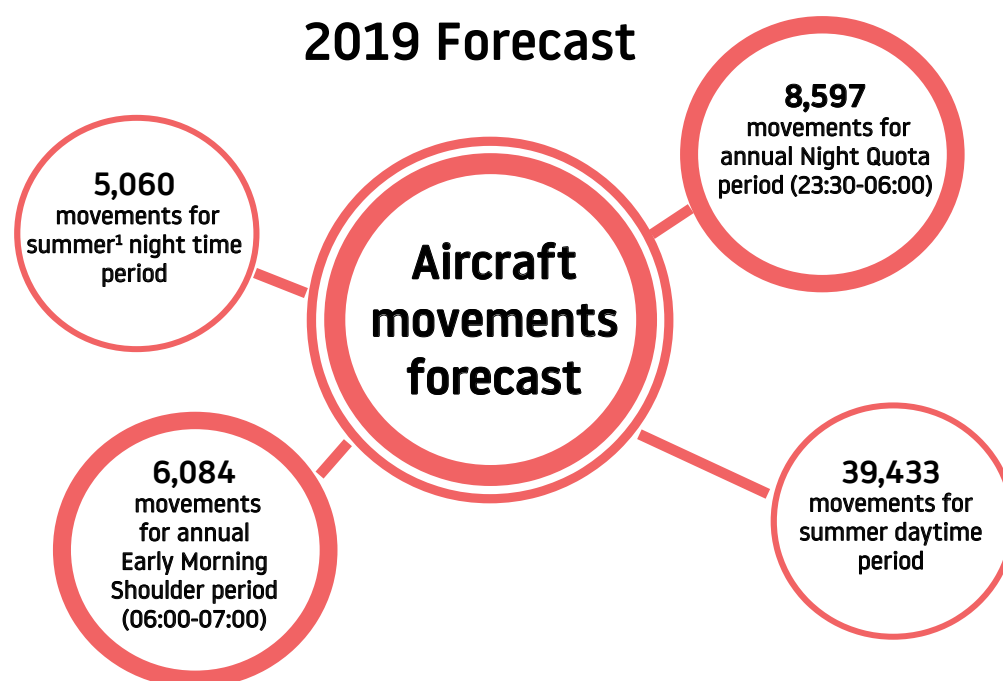
of total night movements, relating primarily to the last rotation of Luton based passenger aircraft scheduled to land back at the airport at night, between 23:00 hrs and midnight. 67% of total night

departures took off between 0600 - 0700 in the morning.

The average ratio of total aircraft movements during 2018 was 88% day / 12% night (compared to 89% day / 11% night in 2017).

2018	Day Movements (0700 - 2259)	Night Movements (2300 - 0659)		
	Day Movements	Night Quota Period (2330 - 0559)	Early Morning Shoulder (0600 - 0659)	Total Night Movements (2300 - 0659)
Departures	61,168	1,967	4,679	6,646
Arrivals	58,769	6,520	1,115	7,635
TOTAL	119,937	8,487	5,794	14,281

The figure below shows forecast aircraft movements for 2019, separated into daytime and night time periods.



¹ - Summer time covers period from 16th June until 15th September

Departing Aircraft

All propeller-driven aircraft with Maximum Take Off Mass (MTOM) over 5,700kg and all jet aircraft leaving London Luton Airport are required to follow specific departure routes known as Noise Preferential Routes (NPRs). These are established by consultation with the Safety and Airspace Regulatory Group (SARG) at the CAA and the London Luton Airport Consultative Committee, and they are designed to avoid flying over built-up areas wherever possible.

There are four Standard Instrument Departure (SID) routes for each runway – OLNEY, COMPTON, MATCH and DETLING.

Associated with each NPR is a swathe of airspace extending 1.5km (1km for RNAV) each side of the NPR centre line, within which aircraft concentrate and are considered to be flying on track. Aircraft must follow the NPR controls applicable to the runway in use at that time.

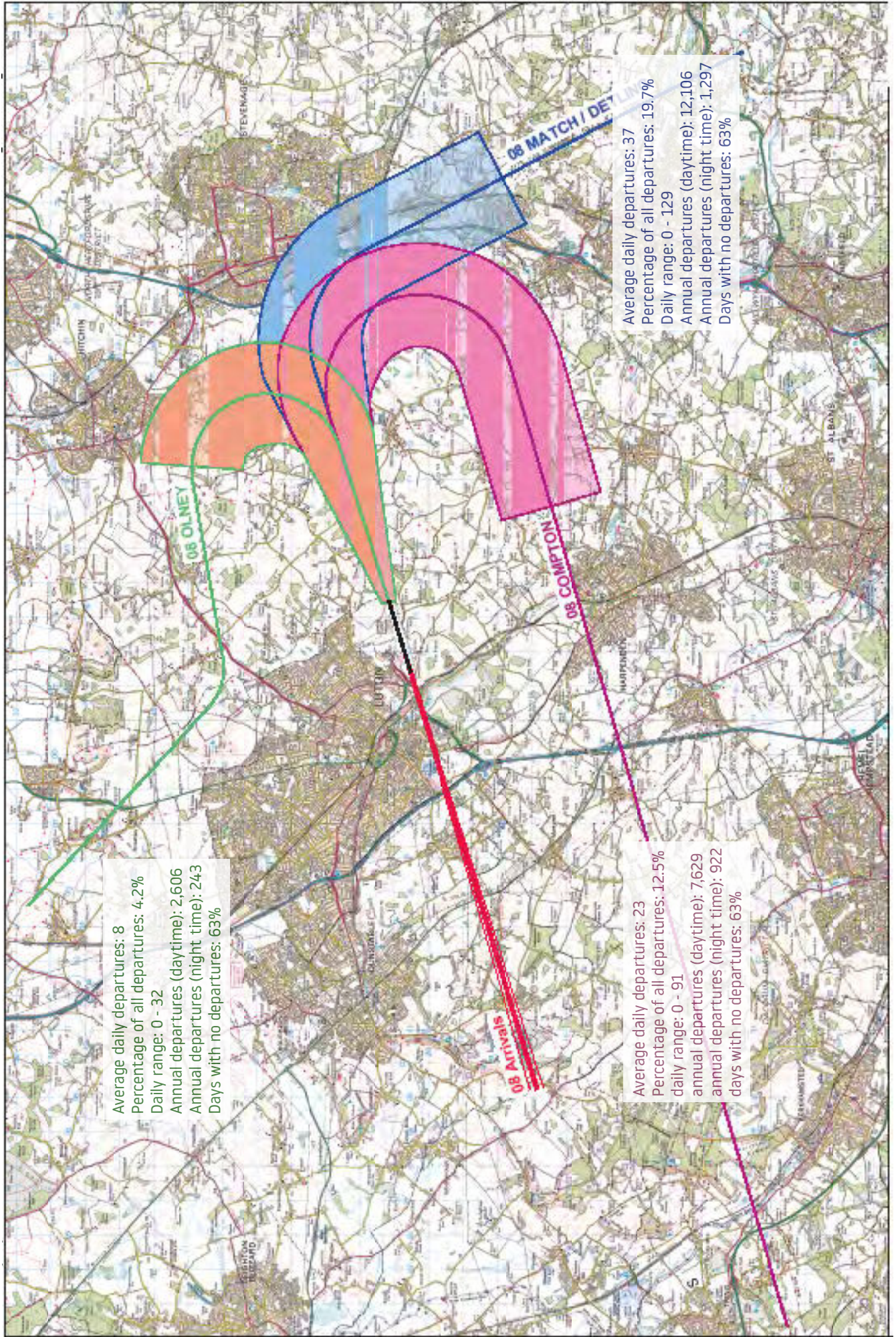
In the UK, the obligations of Noise Preferential Routings for aircraft following conventional SIDs cease when a height of 3,000ft (between 07:00hrs to 23:00hrs local time) and 4,000ft (during night time, 23:00hrs to 07:00hrs local time) has been reached. The obligations of the RNAV NPR ceases when a height of 4,000ft has been reached at all times.

Once aircraft have reached the NPR restricted altitude they will be considered no longer on the Noise Preferential Route. At that stage the aircraft may be directed by Air Traffic Controllers onto a different heading in order to integrate with the overall flow of traffic, this is known as vectoring. However on RNAV Match/Detling SID aircraft should not be vectored before the railway line between St Albans and Harpenden, unless this is required for safe separation from other aircraft or for other safety issues such as avoiding adverse weather.

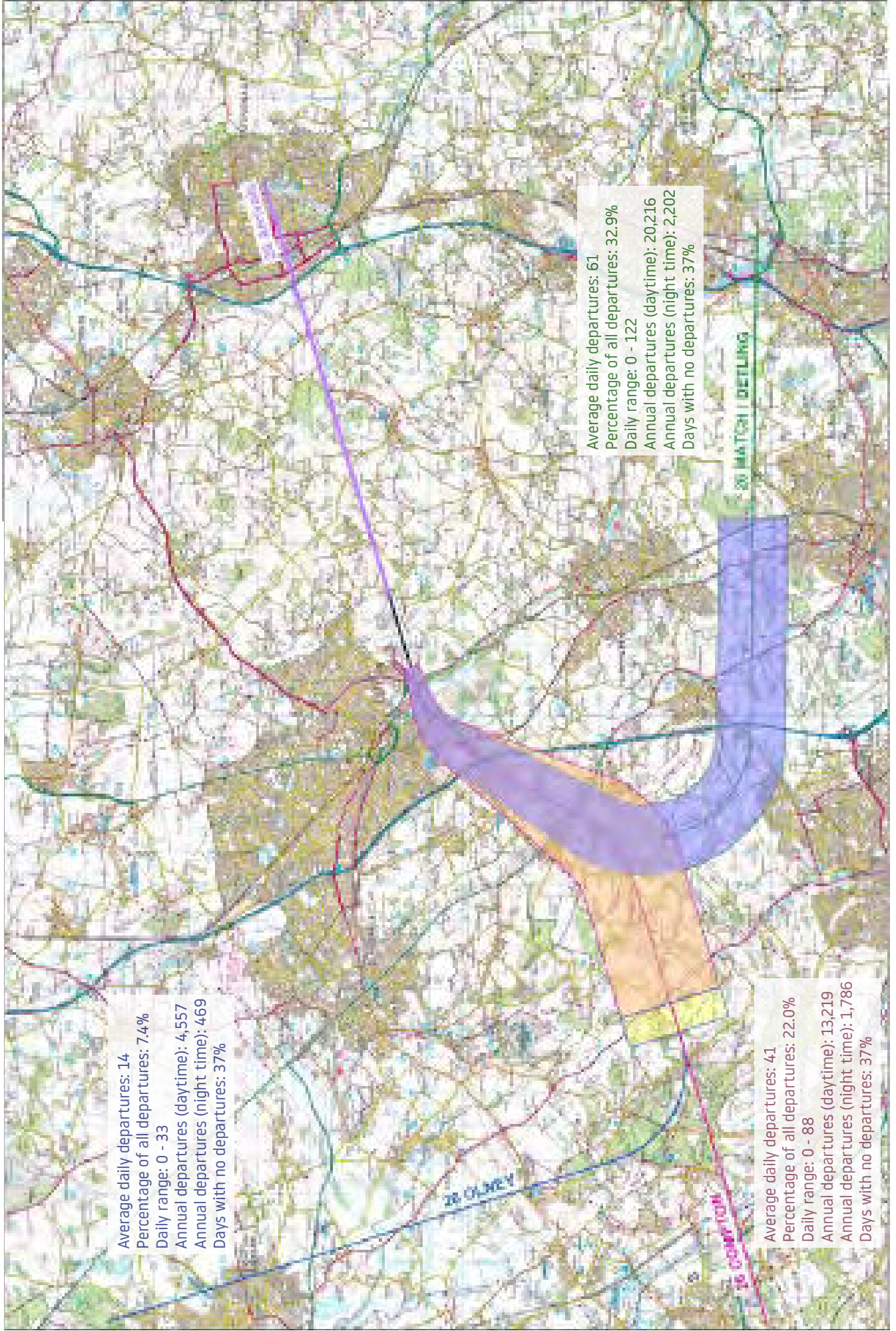
Two maps overleaf show indicative flight routes for westerly and easterly operations at London Luton Airport with detailed information about each departure route.



Plan showing Easterly (08) flight routes



Plan showing Westerly (26) flight routes



On Track performance

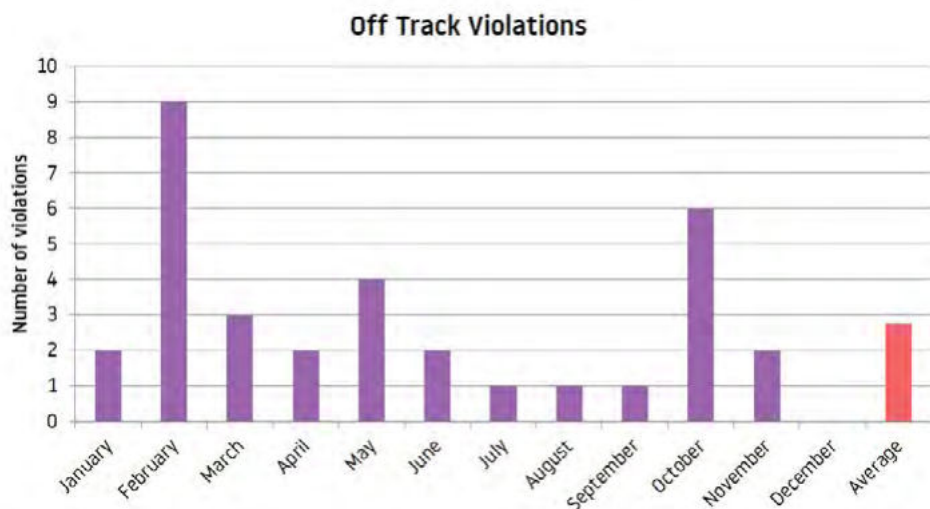
On the 1st April 2015 London Luton Airport implemented a Track Violation Penalty System as part of the noise related planning conditions. Using the airport's Aircraft Noise and Track Monitoring System, the Flight Operations Team evaluates the radar tracks and investigates them with required input from Air Traffic Control (ATC) and airlines. A departure is deemed to have complied with the Noise Preferential Routing if the portion of flight below the appropriate vectoring altitude is flown wholly within the Lateral Swathe (LS). Where the aircraft is clearly flying outside the LS, the aircraft is identified as causing a "possible" track violation and is subject to a nominal fine. This money is transferred to our Community Trust Fund which awards grants to community projects.

From 1st April 2018, the penalty was increased to £1,000 for a daytime violation (07:00-22:59hrs) and £2,000 for a night time violation (23:00-06:59hrs).

As always, safety is paramount and there may be cases which involve vectoring an aircraft sooner than at the NPR height restriction. If ATC identifies any valid justification that could explain the deviation from the track, then the operator causing it will be exempt from the fine. Valid justifications include:

- Safety or operational reasons, i.e ATC vectoring
- Weather avoidance due to thunderstorm activity (as instructed by ATC)
- Emergencies

The diagram below shows off-track violations by month in 2018. The track keeping performance was 99.8%. This calculation includes deviations for weather, traffic avoidance and those identified as violations.



£29,500 the total of all collected fines transferred to Community Trust Fund

The breakdown of the violations by aircraft type is shown in the tables below.

A/C Type	Total No Violations
B738	8
CL60	4
B734, C500, GL5T	9
GLEX, GLF4, H25B	6
A306, B752, CL35, H25+, LJ35, F2TH	6
TOTAL	33

Airspace Change Proposal's

At LLA we are currently working on our next phase of airspace change which involves Performance Based Navigational procedures.

In order to change any piece of airspace, the Civil Aviation Authority (CAA) require all airports to follow a regulatory process which is detailed in the CAA's publication CAP 1616. This document can be downloaded from [here](#).

Furthermore, in line with the CAP 1616 process all documentation surrounding an Airspace Change Proposal will be uploaded to the CAA's dedicated portal which can be accessed at <https://airspacechange.caa.co.uk/>

Westerly Match departures

In 2018, work continued on the Westerly Match departure route. In January 2018, design principles were submitted to the CAA as part of the Stage 1 gateway in the CAP 1616 process. These design principles had been discussed with the focus group and feedback obtained from stakeholders. LLA passed this gateway to move onto stage 2 of the process.

Stage 2 of the CAP1616 process involves creating potential design options and reviewing these in line with the Statement of Need and design principles. LLA is currently still in this stage and this work will continue into 2019.

Future Airspace Strategy Implementation - South (FASI-S)

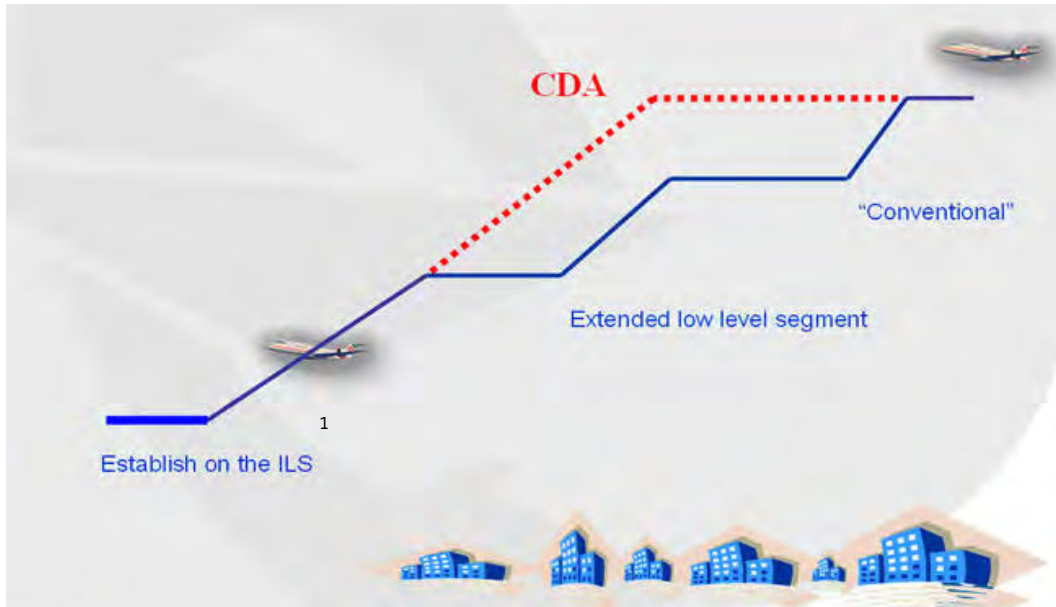
The London airspace is a particularly busy area and requires modernisation. The Department for Transport have notified aviation stakeholders via the Upgrading UK airspace: strategic rationale, published in February 2017, that the controlled airspace in southern England used to support commercial air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

The Future Airspace Strategy Implementation South (FASI South) programme has been established by NATS and a number of key airports operating in southern England, including London Luton Airport Operations Ltd. to coordinate a series of linked Airspace Change Proposals that will modernise the overall airspace structure and route network. In late-2018, work started on the Future Airspace Strategy Implementation South (FASI-S).

We are using this opportunity to look at options of aircraft reaching higher altitudes sooner on departure and remaining higher for longer on arrival enabling significant environmental benefits.

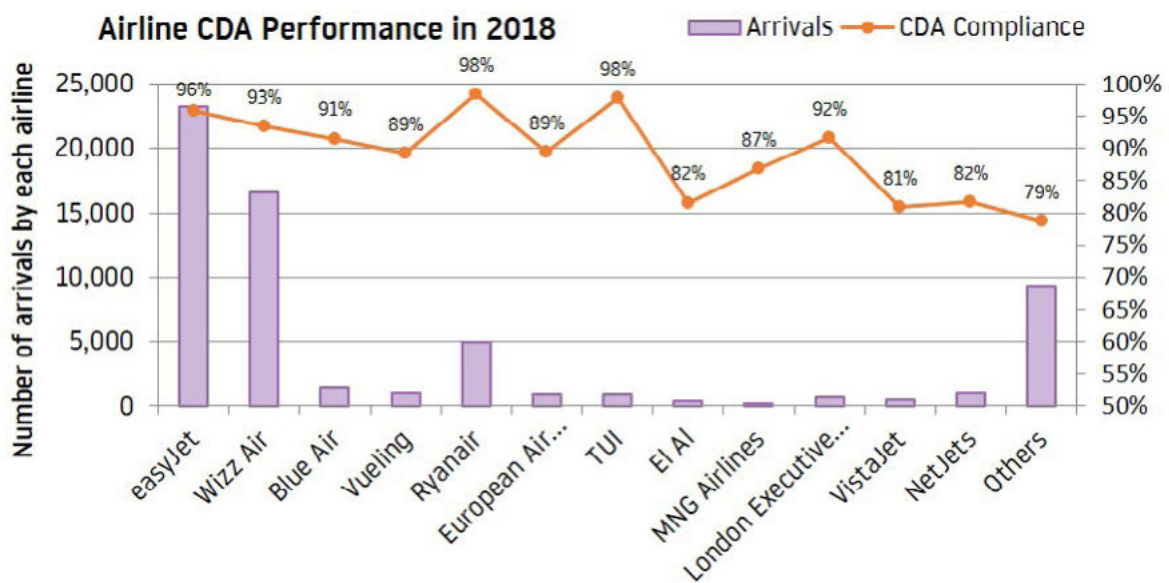
Arriving Aircraft

Although there are no set routes for arriving aircraft there are long established procedures to mitigate the disturbance that can be caused on approach to the airfield. One of the most successful measures is a noise mitigation procedure called Continuous Descent Approach (CDA).



The conventional approach involves descending in steps using engine thrust to level off. In a Continuous Descent Approach, or CDA, an aircraft stays higher for longer and descends at a continuous rate to the runway threshold therefore reducing periods of prolonged level flight at lower altitudes. With CDA less fuel is burnt, less emissions are produced but most importantly it reduces the noise by avoiding the use of engine thrust required for level flight.

The overall CDA achievement was 92% with several major LLA operators achieving higher performance; easyJet, Wizz Air, Ryanair and TUI. The chart compares the level of CDA performance by our main airline operators.



¹ - An Instrument Landing System (ILS) is a ground-based instrument approach aid based on two radio beams which together provide lateral and vertical guidance to an aircraft approaching and landing on a runway.

Delayed Landing Gear Deployment

At LLA we always aim to work constructively with our local community in order to reduce the impacts of noise. LLA recently conducted an aviation leading trial to reduce noise by from arriving aircraft. The trial, conducted during the summer, consisted of aircraft delaying the deployment of landing gear.

As an aircraft makes its final approach most noise is caused by the flow of air over the fuselage as drag is created to slow the aircraft down. Noise was measured along the arrivals flightpath to understand what, if any, reduction which could be achieved. Stevenage, Dagnall and Whipsnade were among those communities who saw the greatest benefit of between 2.7db and 3.4db

Following the successful trial, some operators have already changed their operating procedures to make this standard practice. During 2018, LLA continued to work with operators to encourage delayed landing gear deployment.

Departure and arrival flight tracks

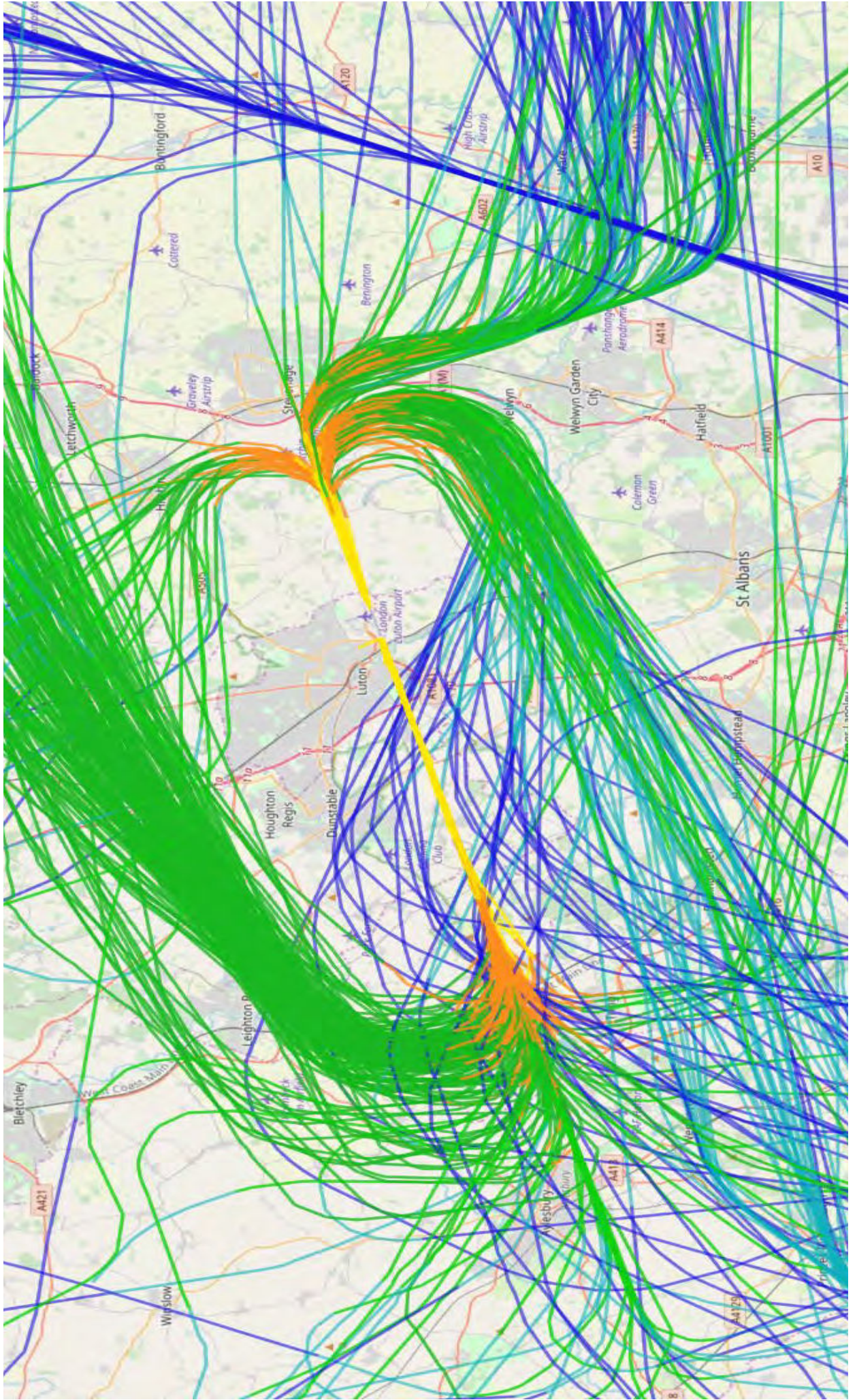
Maps overleaf display typical 24 hour periods of both westerly and easterly operations. The colour coding from yellow to blue represents different altitude bands up to 10,000ft above mean sea level.

The last two maps display aircraft track density plots for the summer period 16th June - 15th September 2017. A track density plot is a map which displays the pattern of aircraft flight track passing over the region around the airport during a specific period. The system analyses the number of flights passing over each grid element of an array. The colour coding from purple to red represents the range 1 to over 147 flight tracks over a grid element. If any grid element is not colour-coded, the number of aircraft flight tracks passing over that element was less than 1 flight. The red areas represent locations where operations are more densely concentrated.

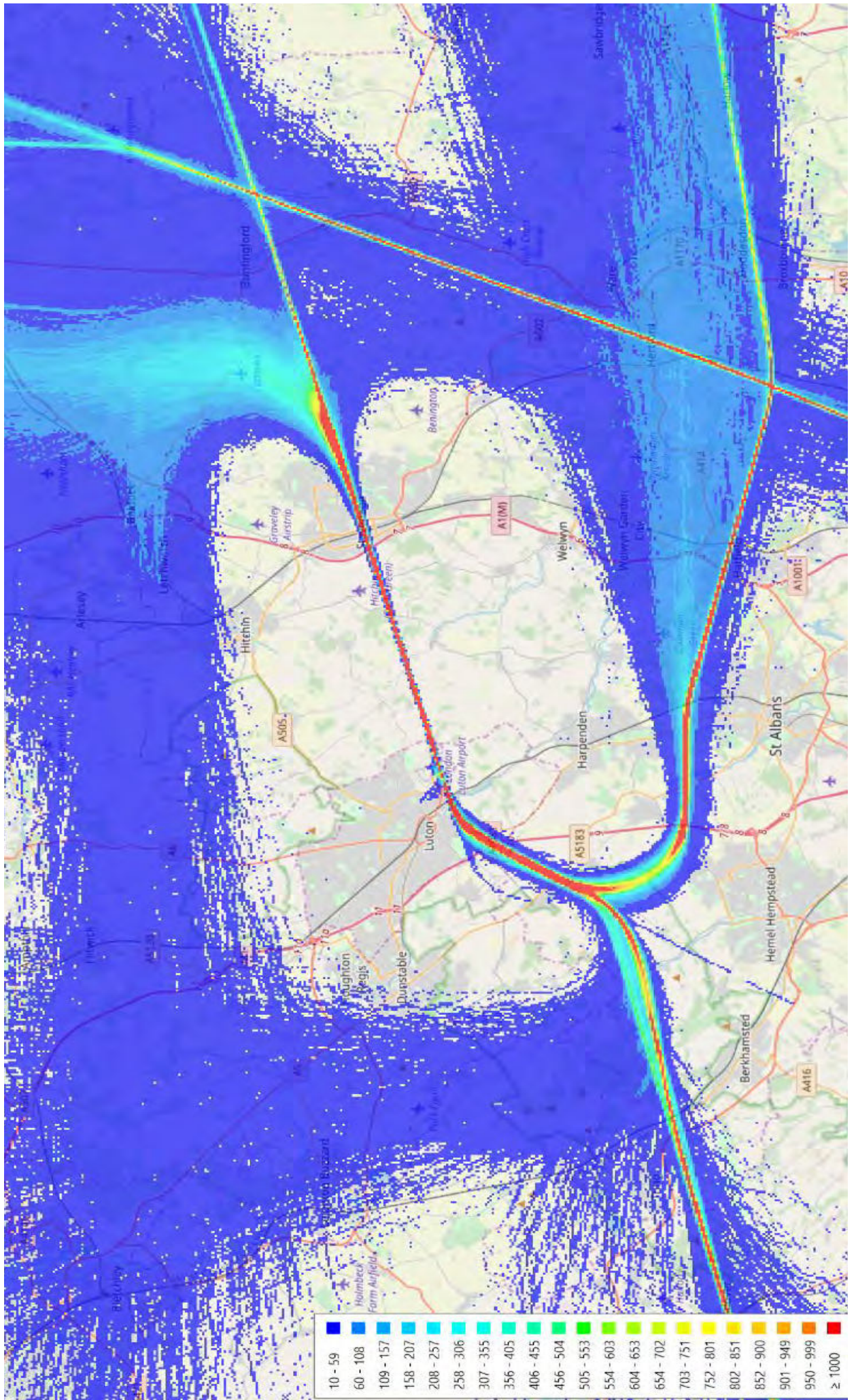
It should be noted that London Luton Airport's aircraft movements integrate with a traffic network travelling to and from other airports in the region, and the South East is one of the world's busiest sectors of airspace. However the following sample flight tracks only include operations for London Luton Airport and overflights from other airports have been omitted for clarity.



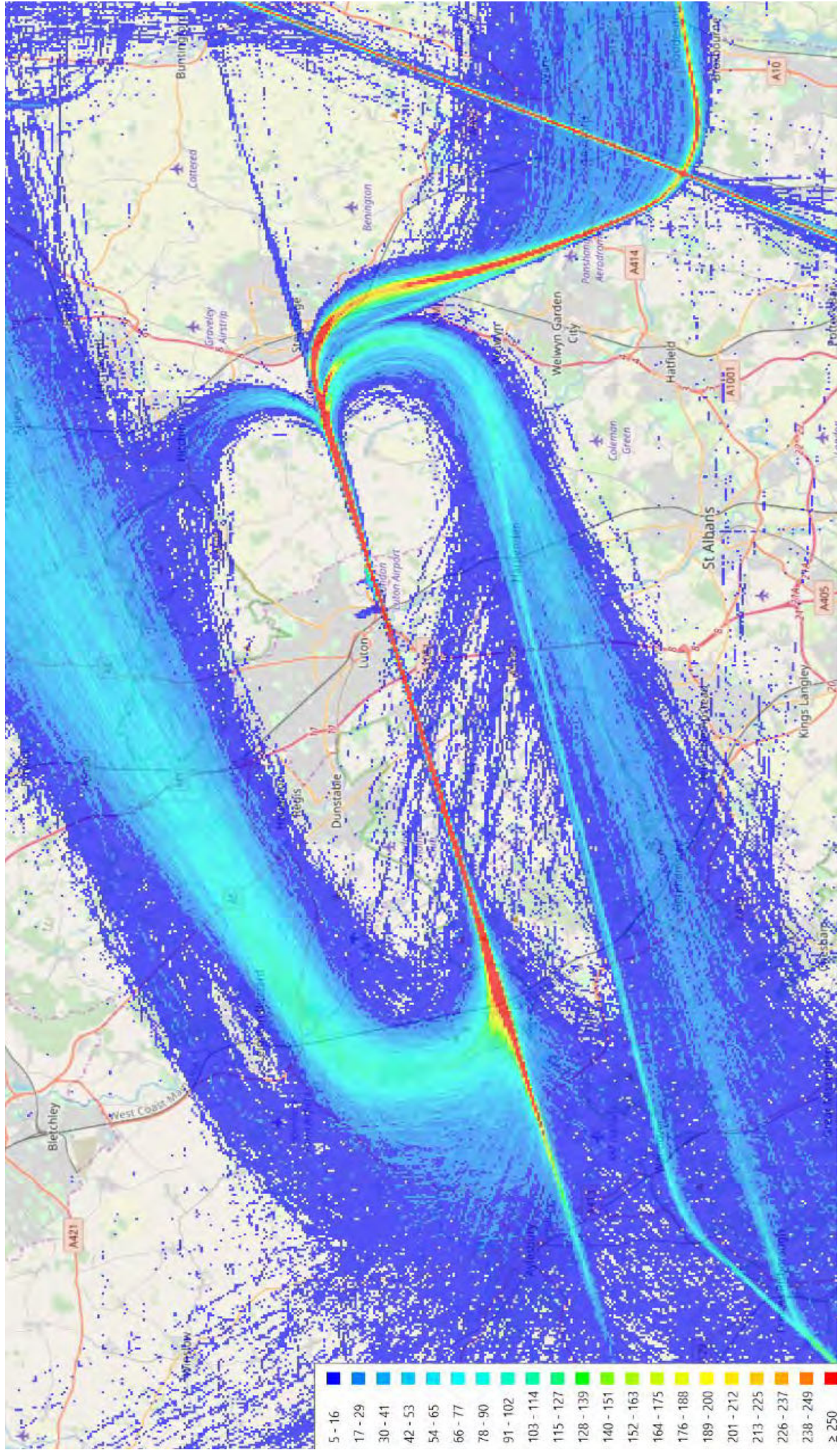
Easterly (08) Flight Routes (24 hour period)



Plot Density - 16th June - 15th September 2018 - Westerly (26)



Plot Density - 16th June - 15th September 2018 - Easterly (08)



Aircraft 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. Most airport related noise is created by aircraft approaching, taking-off and taxiing to and from the runway. The management and control of noise continues to be a major element of the airport's policy to constantly seek to minimise and mitigate our environmental impact.

How is noise monitored?

People who live close to airports or under flight paths can often feel strongly about the disturbance to their lives from noise. Effects of noise include general distraction, speech interference and sleep disturbance which can lead to annoyance and complaints.

At LLA we monitor noise and track keeping with a specialised system that 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 6.5km from the aircraft start of roll, at either end of the runway within the neighbouring communities. This method records the maximum noise level at a point, rather than the way it is spread over the surrounding area. New features and system enhancements continue to improve the functionality and capabilities available to the Flight Operations Department.



In 2018, the Flight Operations team purchased an additional three new mobile noise monitors, meaning LLA now has 7 portable noise monitors and 3 fixed noise monitors. This has allowed the team to expand the noise monitoring programme even further. During 2018, noise was monitored in Breachwood Green, Caddington, Childwickbury, Dagnall, Edlesborough, Flamstead, Knebworth, Markyate, Pepperstock, Redbournbury, Sandridge and Stevenage. Details of the latest Community Noise Reports can be found [here](#).

Noise violation levels



The following table identifies daytime and night-time noise levels correlated to departing aircraft at the fixed noise monitoring terminals.

In order for a noise event to be correlated to an aircraft it should reach a detection threshold. The noise monitoring terminals are set at the lowest level to record the maximum number of aircraft noise events. However, a number of smaller aircraft types, such as business jets and propeller aircraft, get very close to but do not reach the detection threshold. Ambient background noise is also an important factor as specific incidents such as loud road traffic, emergency vehicle sirens, lawn mowers, drills etc. can register noise levels louder than an aircraft overhead, which results in not all aircraft movements being correlated to noise events. Generally, the louder noise events have more certainty of being correlated with aircraft movements.

Weather conditions can also effect the number of noise monitoring events recorded in the table; for example, if winds are greater than 10m/s and temperature is either higher than 25°C or below -10°C, results from noise monitors will be invalid and therefore will not be correlated.

	dB (A)	Daytime	NightTime	Total
Number of Correlated Events	<70	5,735	621	6,356
	70	1,838	225	2,063
	71	3,301	356	3,657
	72	6,083	719	6,802
	73	9,866	1,202	11,071
	74	11,027	1,238	12,265
	75	7,625	895	8,520
	76	3,661	475	4,136
	77	1,600	297	1,897
	78	768	157	925
	79	352	72	424
	80	147	24	171
	81	49	0	49
	82	27	0	27
	83	0	0	0
	84	0	0	0
	85	0	0	0
	86	0	0	0
	87	0	0	0
	88	0	0	0
89	0	0	0	
90	0	0	0	

During the daytime 99% of correlated departing aircraft recorded maximum noise levels less than 79dB(A), with 87% registering below 76dB(A). Throughout the year 575 correlated daytime departures (1.1%) registered maximum noise levels at 79dB(A) or above.

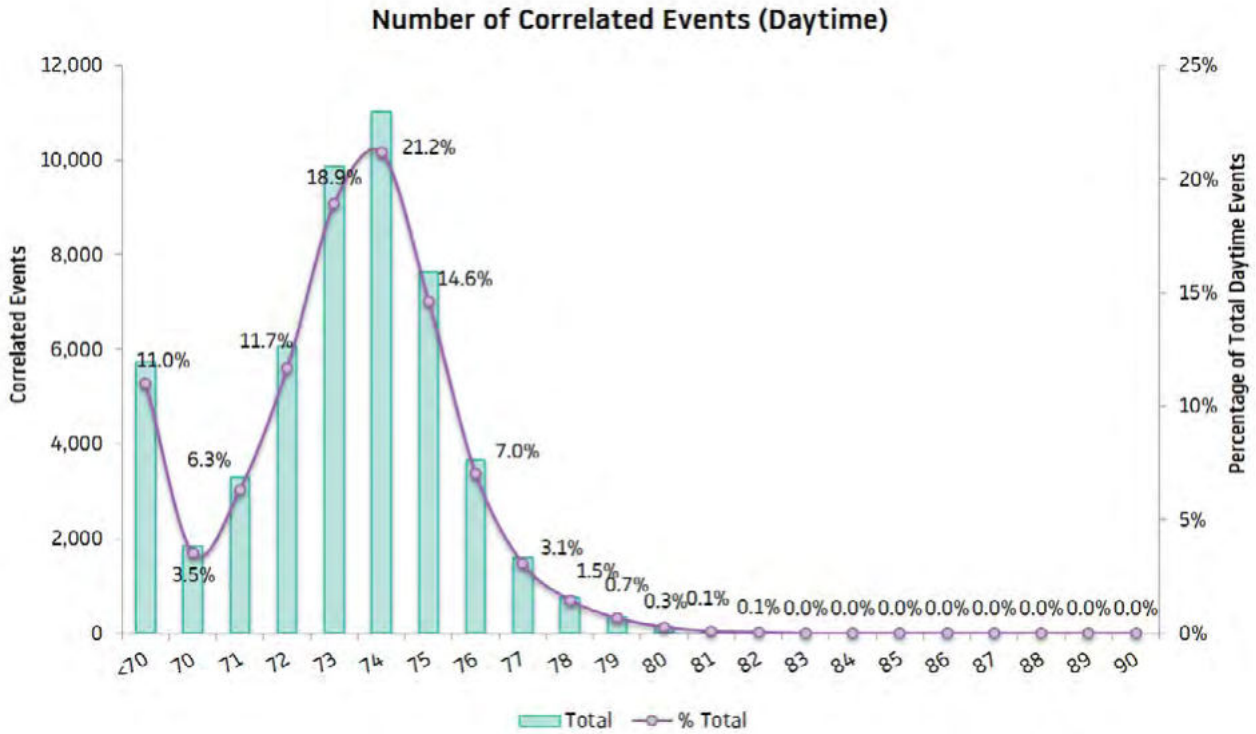
There were no correlated departing aircraft in the daytime which recorded a maximum noise level greater than 82dB.

During the night 98% of correlated departures recorded maximum noise levels below 79dB(A), with 84% below 76dB(A). During the year 96 correlated night departures (1.5%) registered maximum noise levels at or above 79dB(A).

There were no correlated departing aircraft in the night time which recorded a maximum noise level greater than 80dB.

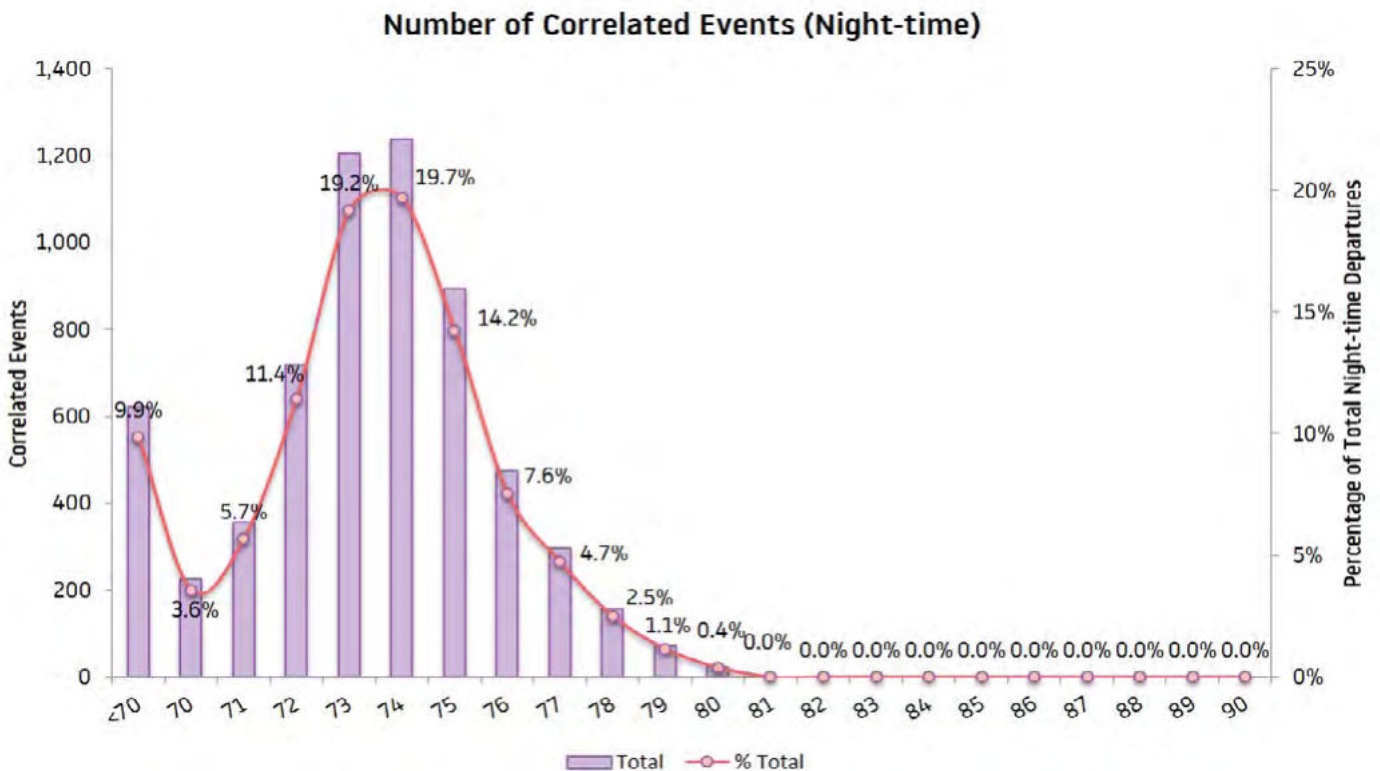
Daytime Noise

The following graph shows the number of correlated events during the daytime period (07:00hrs - 22:59hrs) compared to the total percentage of correlated events during the daytime.



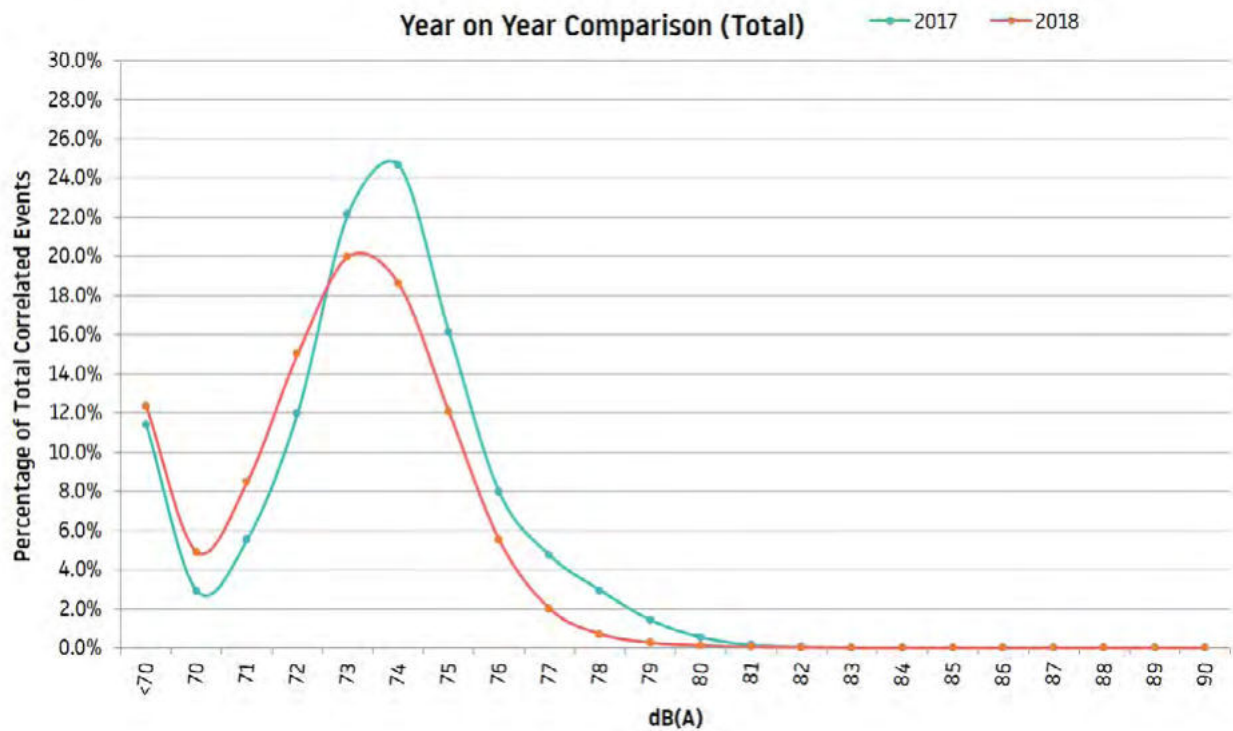
Night-time Noise

The following graph shows the number of correlated events during the night-time period (23:00hrs - 06:59hrs) compared to the total percentage of correlated events during the night-time.



Annual Comparison

The graph below shows the year on year comparison of the correlated departure noise events.



Noise violations during 2018

There were no daytime or night time noise violations during 2018. Although, from 1st April 2018 the fine was increased to £1,000 for a daytime noise violation and £2,000 for a night time noise violation. Noise Violation fines are passed to the London Luton airport Community Trust Fund, further details of which can be found at: <https://www.london-luton.co.uk/corporate/community/noise/supporting-lla's-community-trust-fund>

Noise Insulation Scheme

Our Noise Insulation Scheme is just one element of our noise management plan to reduce the impact of noise on those properties in Hertfordshire and Bedfordshire closest to the airport. The scheme covers both residential and non-residential properties. Depending on any existing insulation in the property, double glazing, secondary glazing and ventilation units can be provided. Rooms eligible for insulation include living rooms, dining rooms, kitchen-diners and bedrooms.

During 2018, works were carried out in properties located in Bedfordshire and Hertfordshire, 117 properties were contacted and 31 properties accepted the insulation.

Noise Contours

Since 1989 the preferred measure of aircraft noise, recognised by UK Government, has been the A-weighted equivalent noise level Leq. This indicator takes account of all the noise energy that occurs over a particular time period and thus takes account of all the 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 LAeq averaged over the 16 hour period from 0700-2300

for an average day between the 16th June and 15th September.

When planning permission was given in 2014 for development at London Luton Airport a number of conditions were imposed. Condition 12 requires that daytime and night-time contours are produced on an annual basis for the previous summer period based on actual aircraft movement data and for the following summer period based on predicted aircraft movement data. The areas of these contours

are to be compared to the area limits contained in Condition 12. Year on year changes in the noise impact are dependent on changes in the number and type of aircraft that used the airport and also the departure routes flown. Changes in the size and shape of the contours can also depend on differences in the runway usage which in turn depends on the relative proportion of westerly and easterly modes of operation, determined by the prevailing wind direction.

Annual noise contours summer 2018

The table below shows the annual noise contours for summer 2018 covering the standard summer period from 16th June to 15th September inclusive, using the latest version of INM software (the Integrated Noise Model) version 7.0d which is the method used by many other airports in the UK.

L _{Aeq, 16 hour} Daytime	Contour Area (km ²)					
	1984	1999	2017	2018	Difference 2017-2018	2019 (forecast)
>72	1.63	1.5	1.0	1.0	0.0	1.0
>69	2.80	2.5	1.7	1.7	0.0	1.7
>66	4.86	4.4	3.0	3.1	+0.1	3.0
>63	9.10	7.3	5.9	6.1	+0.2	5.9
>60	17.18	11.8	10.3	10.6	+0.3	10.2
>57	31.52	19.6	19.0	19.4	+0.4	18.8

Considering the 57 dB LAeq, 16h summer daytime 2017 noise contour there is a slight increase in area of approximately 2% when comparing the 2018 contour with the 2017 contour. This is attributed to the slight overall increase in daytime movements.

A comparison of 2017, 2018 and 2019 forecast daytime contours is shown. This shows that the 2016, 2017 and 2018 forecast contours are all very similar, with the slight differences in shape being primarily due to differences in modal split.

L _{Aeq, 8 hour} Night-time						
	1984	1999	2017	2018	Difference 2017-2018	2019 (forecast)
>72	0.79	1.1	0.4	0.5	+0.1	0.4
>69	1.39	1.8	0.7	0.7	0.0	0.7
>66	2.42	3.0	1.0	1.1	+0.1	1.2
>63	4.01	5.2	1.8	1.9	+0.1	2.1
>60	7.06	8.3	3.4	3.7	+0.3	4.2
>57	13.05	13.2	6.3	6.8	+0.5	7.6
>54	24.48	21.6	12.2	12.6	+0.4	14.1
>51	44.92	36.0	22.3	23.0	+0.7	25.4
>48	85.04	60.6	38.7	40.2	+1.5	42.7

Considering the 48 dB LAeq, 8h night time noise contour there is an increase in area of approximately 4% when comparing the 2018 contour with the 2017 contour. This is due to the increase in movements by passenger turbofan aircraft.

The 48 dB LAeq,8h 2019 contour is forecast to grow by 6% compared to the 2018 contour. This is largely due to the forecast 7% increase in night-time movements by unmodernised passenger turbofan aircraft.

A comparison of 2017, 2018 and 2019 forecast night-time 48 dB LAeq,8h contours is shown. This shows that the 2018 contour is larger than the 2017 contour at the western end near Caddington, but is smaller at the eastern end over Stevenage and to the south of Markyate. This is due to the changes in modal split.

The 2019 forecast contour is longer than the 2018 contour at the eastern end, but shorter at the western end and slightly wider at the south-western end. These slight changes in shape are due to the relatively higher proportion of easterly operations that occurred in 2018 compared to the long term average.

Contour population counts

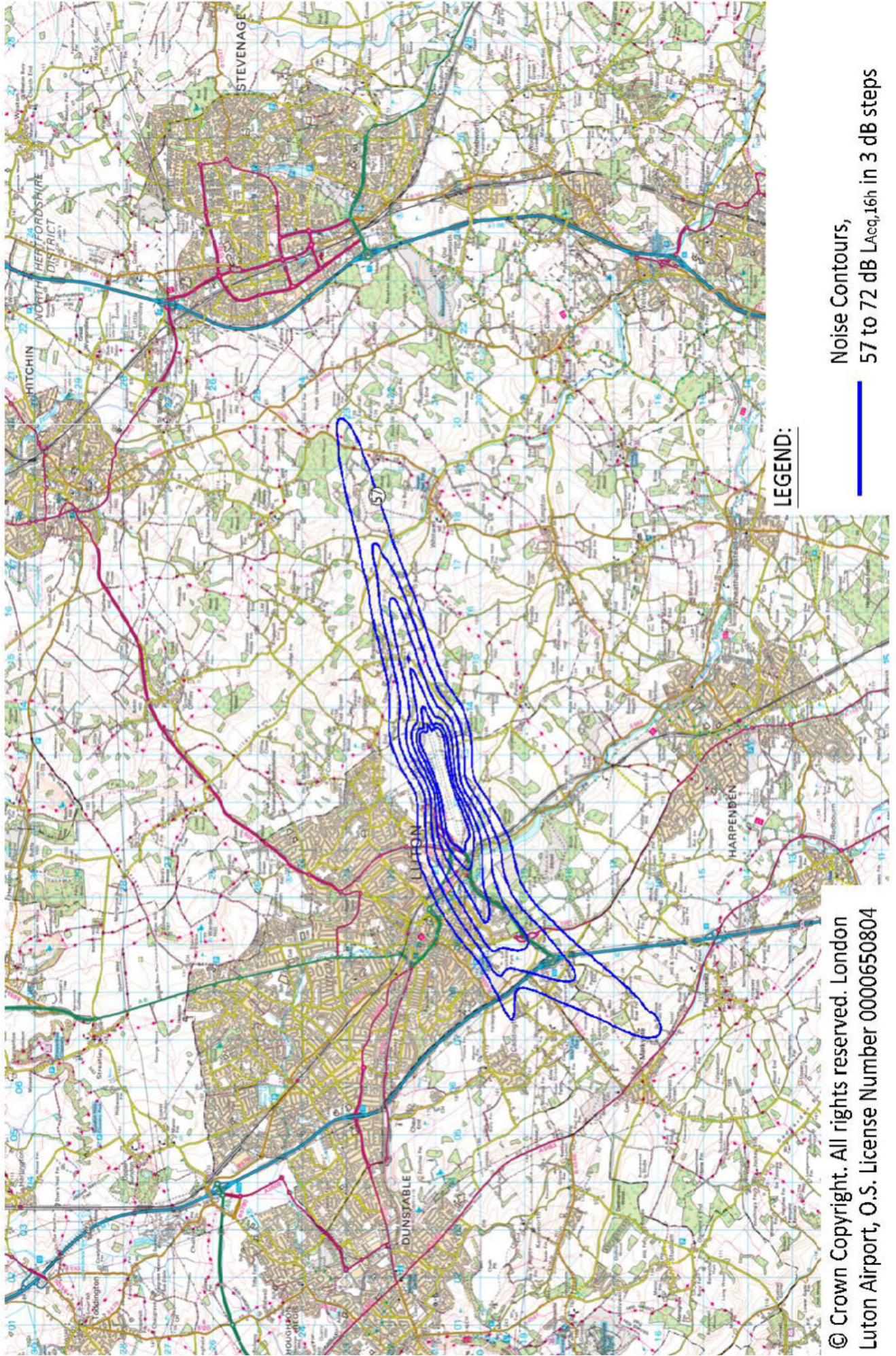
The population counts shown in the tables below were calculated using the CACI Ltd, 2018 postcode database. Each postcode in the database is described by a single geographical point, and if this point is within a contour then all of the dwellings and population in the postcode are counted. Please note, the population and dwellings data has been rounded to the nearest 50.

L _{Aeq, 16 hour} Daytime	2017		2018	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	9	22	9	22
>63	550	1,450	550	1,400
>60	1,700	4,400	1,650	4,350
>57	4,000	9,150	3,950	9,100

L _{Aeq, 8 hour} Night-time	2017		2018	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	0	0	0	0
>63	0	0	0	0
>60	12	30	150	400
>57	550	1,400	750	2,050
>54	1,650	4,250	1,950	5,000
>51	4,000	9,200	4,500	10,300
>48	7,800	18,450	8,050	19,150

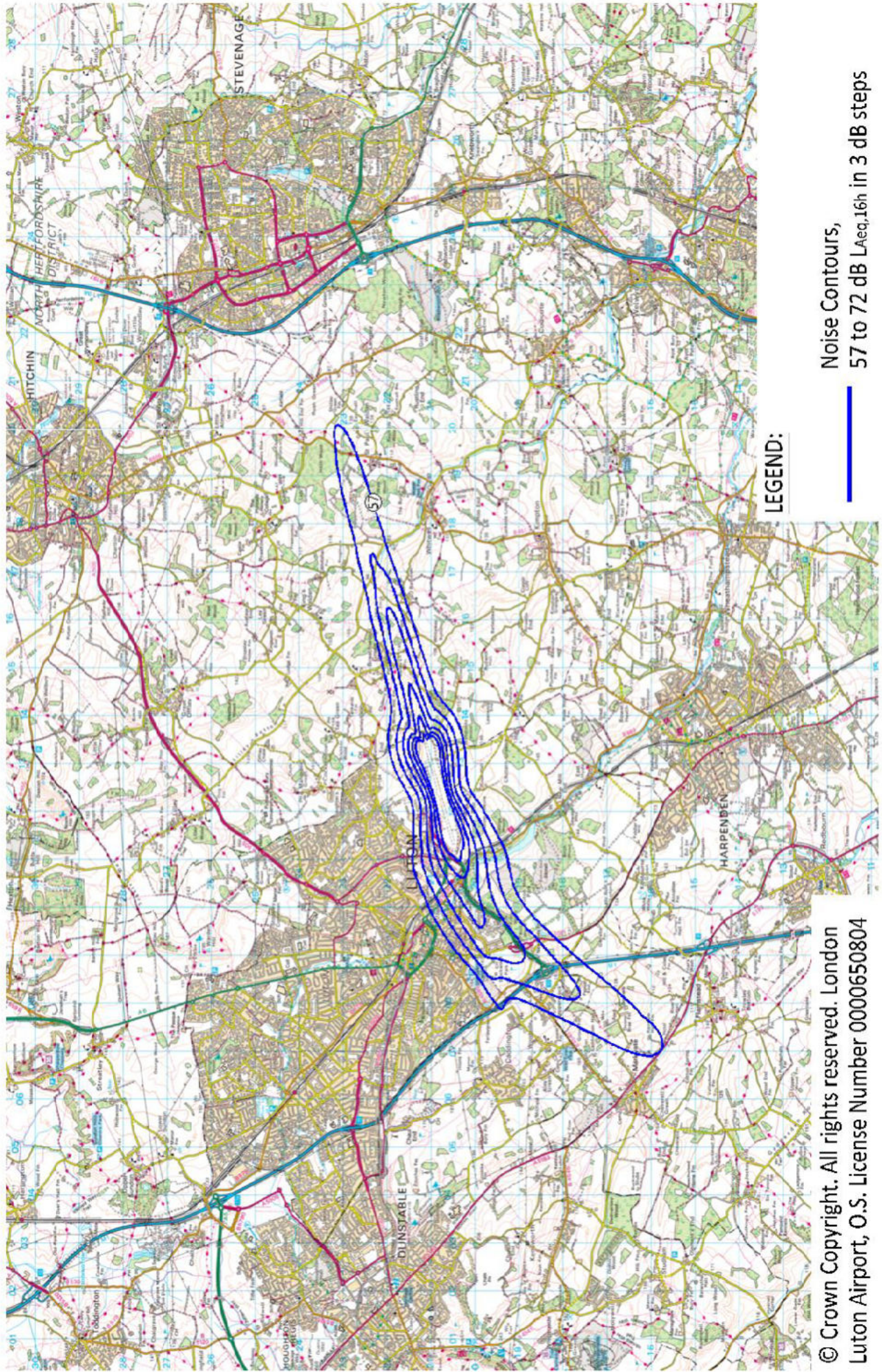
The population and number of dwellings within the contours has increased, in lined with the contour area.

Annual Day Noise Contours Summer 2018



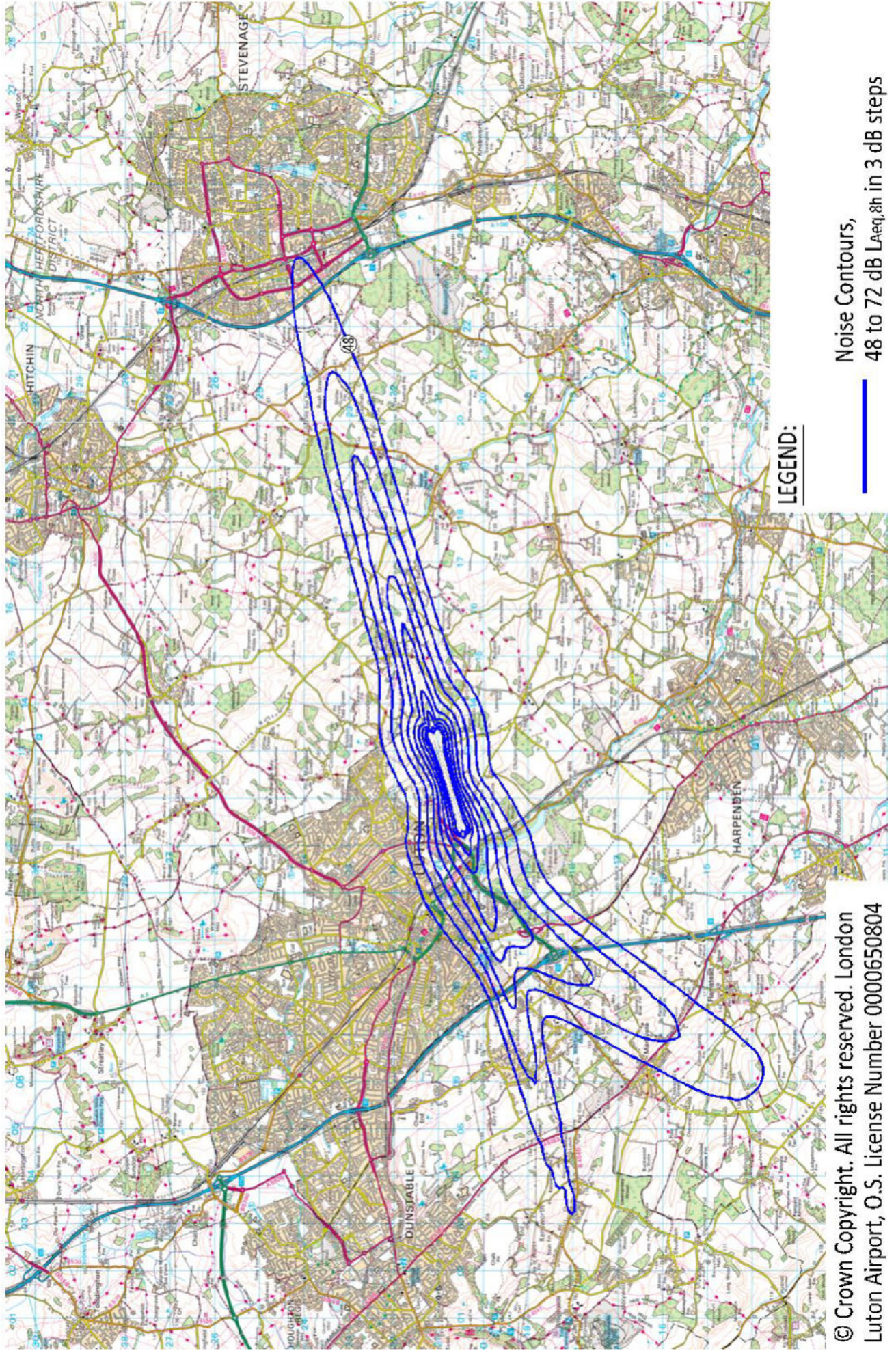
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Annual Day Noise Contours Summer 2017



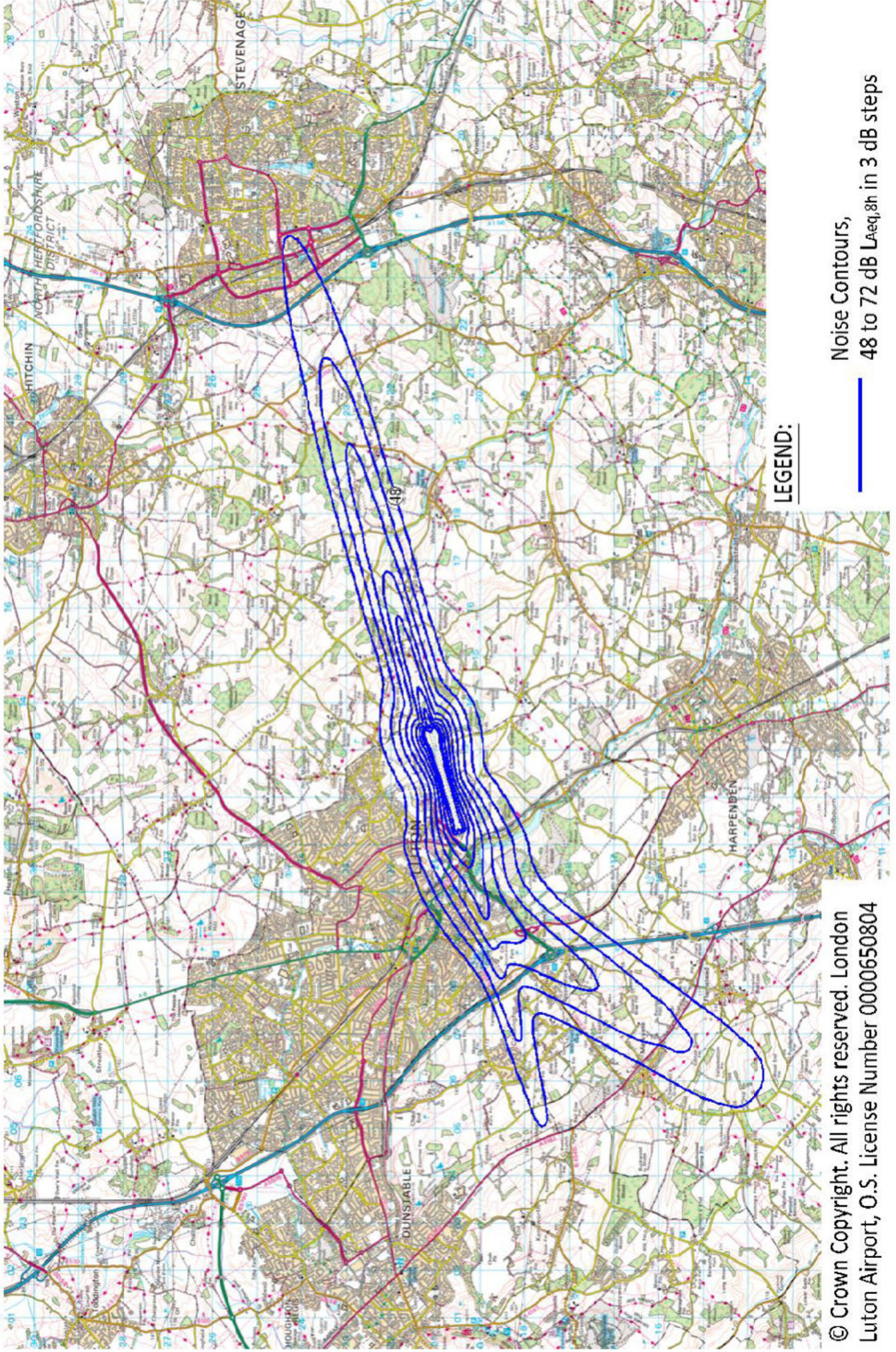
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Annual Night Noise Contours Summer 2018



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Annual Night Noise Contours Summer 2017



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Annual Noise Contours 2018

The annual Lden noise contours for 2018 have been produced in accordance with London Luton Airport's Noise Action Plan. The corresponding annual Lnight noise contours have also been produced, along with population and dwelling counts for each contour.

Compared to annual summer 2018 noise contours Lden is an A-weighted, Leq noise level, measured for an average 24 hr day between 1st January and 31st December 2018, with a 10dB penalty added to the level between 23.00 and 07.00 hours and a 5 dB penalty added to the level between 19.00 and 23.00 hours to reflect people's extra sensitivity to noise during the night and the evening.

Lnight is similarly an A-weighted Leq noise level, for an average 8 hour night period between 2300 and 0700 for the period 1st January to 31st December 2018.

Annual Lden Noise Contour Results

Contour Value (dB(A) L _{den})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2017	2018	2017	2018	2017	2018
>75	0.9	0.9	0	0	0	0
>70	1.9	2.1	0	0	0	0
>65	5.8	6.3	1,200	1,500	450	550
>60	15.8	17.0	6,600	7,100	2,600	2,950
>55	39.9	43.0	18,800	20,400	7,850	8,550

Annual Lnight Noise Contour Results

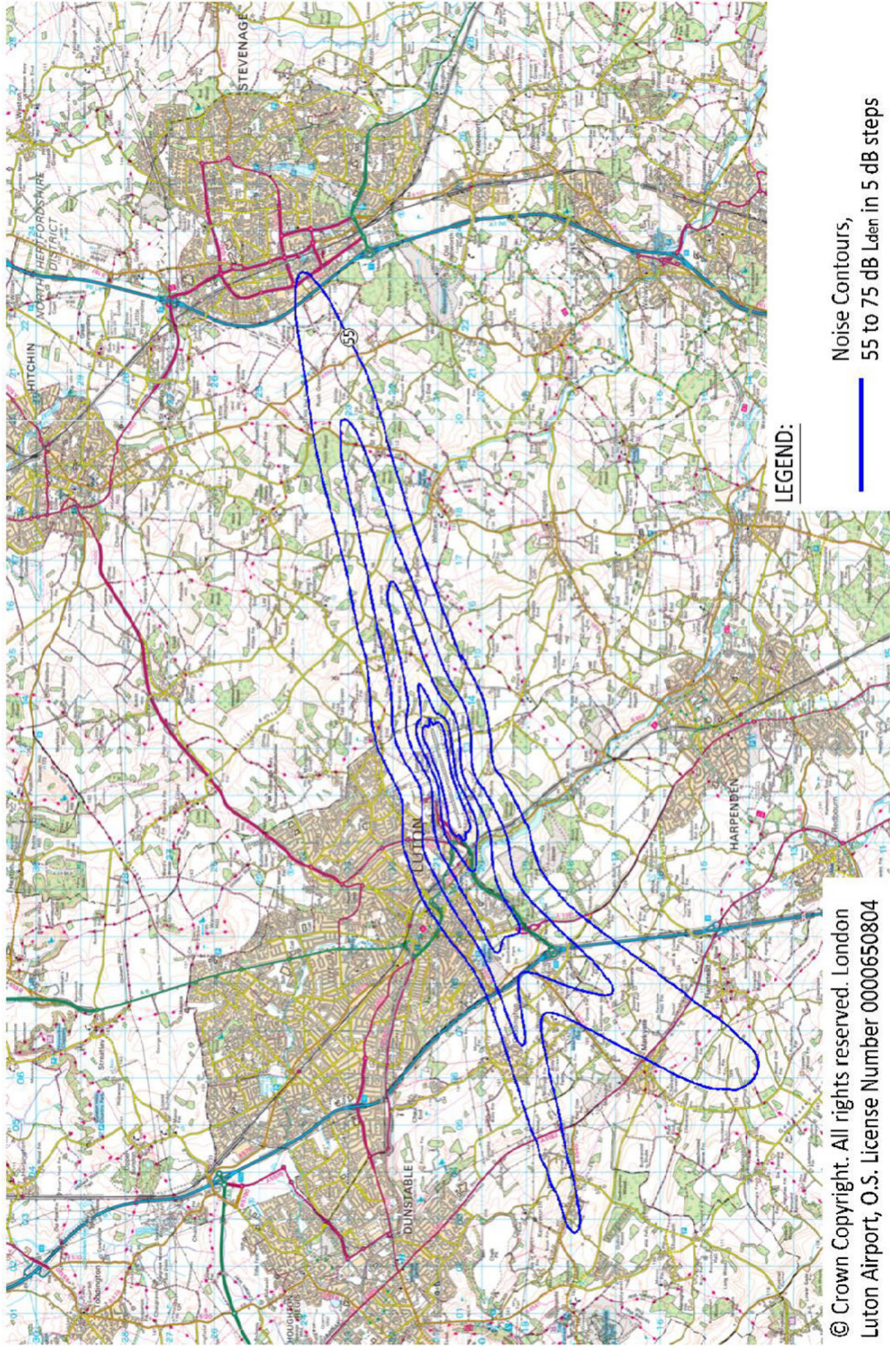
Contour Value (dB(A) L _{night})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2017	2018	2017	2018	2017	2018
>66	0.9	1.0	0	0	0	0
>63	1.5	1.6	0	0	0	0
>60	2.5	3.0	<100	<100	<50	<50
>57	4.9	5.6	800	1,300	300	500
>54	8.9	10.1	2,200	3,100	800	1,150
>51	17.1	18.9	6,800	8,100	2,700	3,450
>48	30.5	33.7	12,900	15,000	5,350	6,350

As can be seen from the tables above, the areas of the Lden and Lnight contours have increased. The increases are relatively consistent across contour values, with the night-time contours increasing the most in line with what would be expected due to the increase in nighttime passenger jet movements. The population and number of dwellings within the contours have also increased, due to the greater contour areas.

¹ - Population counts rounded to nearest 100

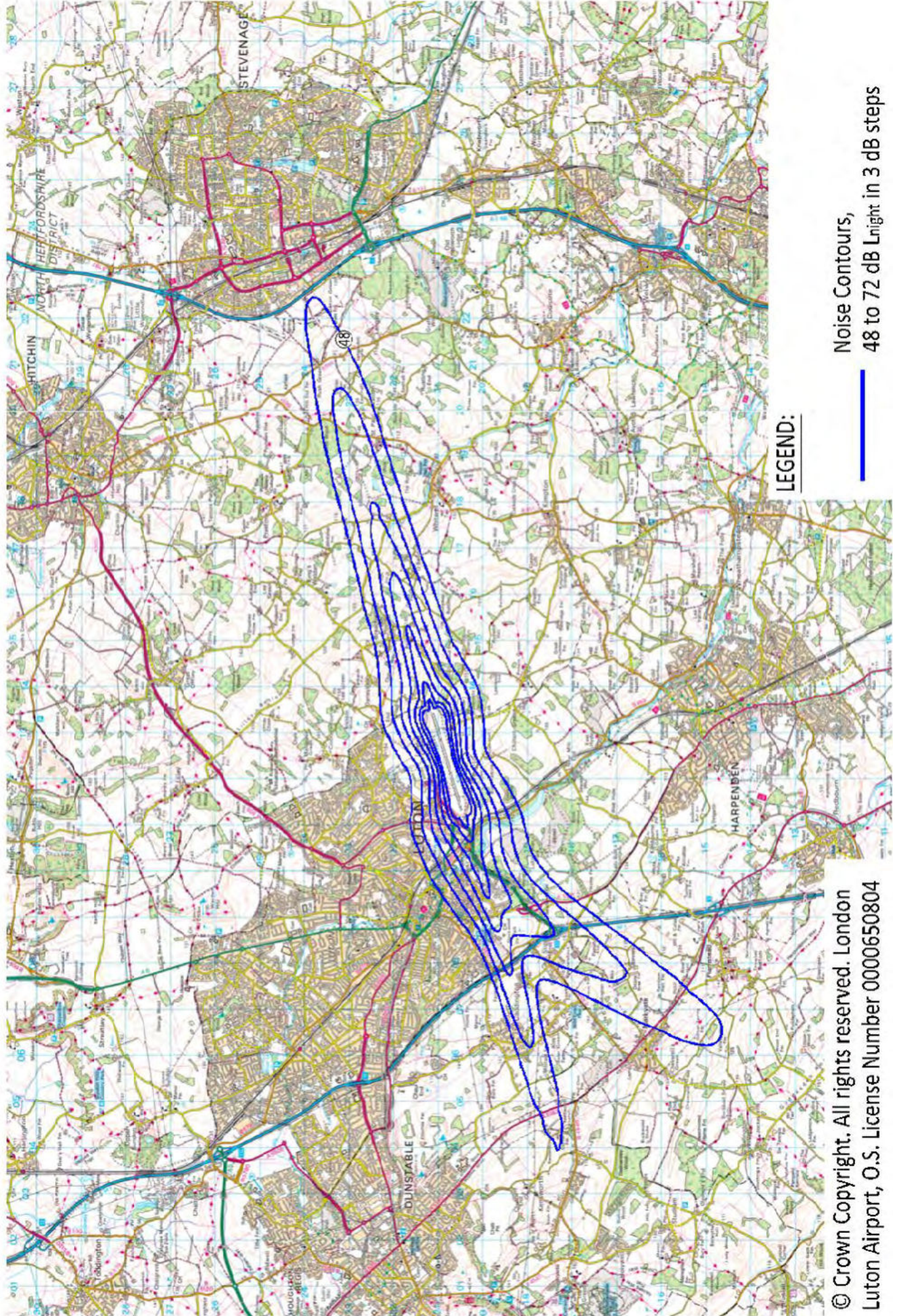
² - Dwelling counts rounded to nearest 50

Annual L_{den} Noise Contours 2018



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Annual L_{night} Noise Contours 2018



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Correspondence and Complaints

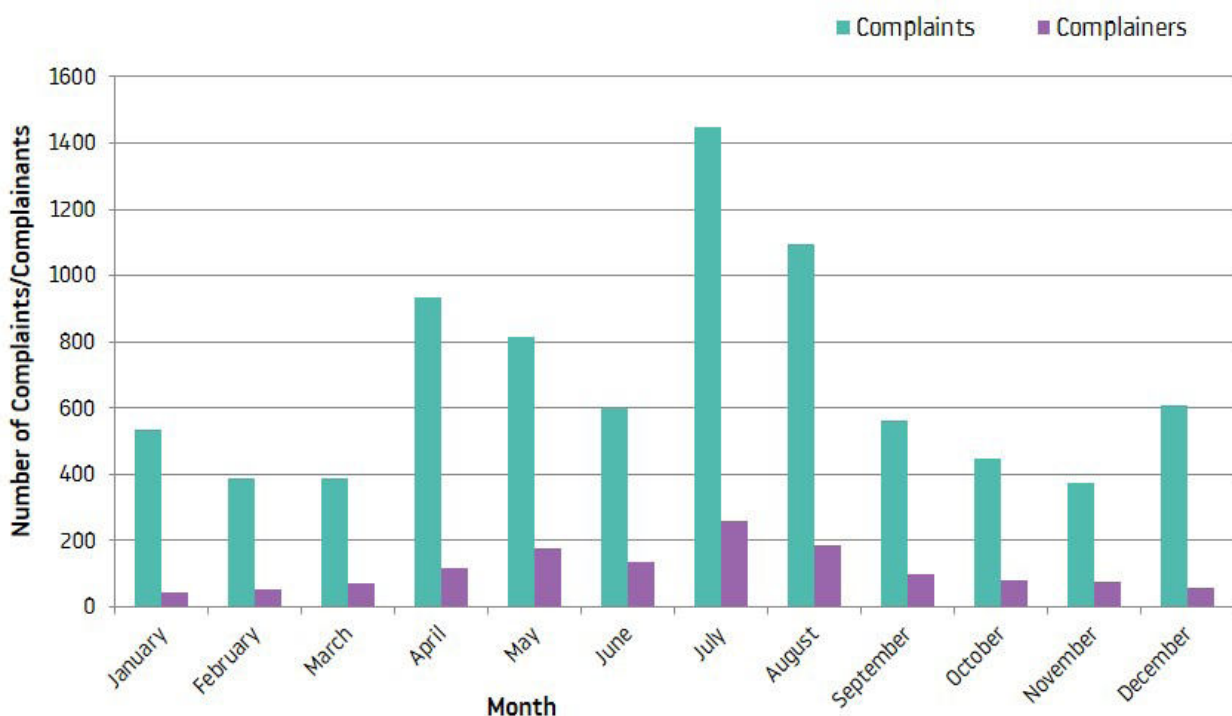
Complaint statistics can be extremely difficult to interpret as people’s tolerance of noise and their perception of what causes annoyance varies widely. It is highly subjective and differs between neighbours experiencing the same levels of noise.

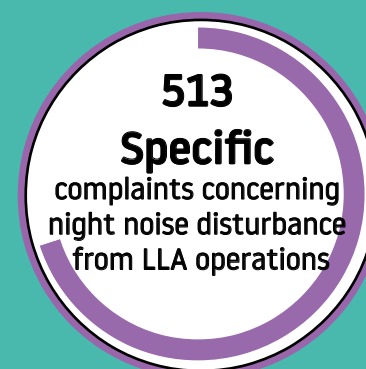
Complaints are reported in two forms – general disturbance and specific disturbance. A general disturbance relates to a complaint that does not specify a time period, examples of this type of complaint includes frequency, air quality and ground noise. A specific complaint relates to a complaint which specifies the time which can be correlated to an aircraft, example complaints of this type include too low, too loud, night flight and off-track. If a single piece of correspondence contains multiple specific disturbances, this will be logged as a general complaint regarding frequency.

Total complaints relating to LLA aircraft operations

	2017	2018	
Total No. of Complaints relating to LLA aircraft operations	15,384	8,275	-46%
No. of Complainants	1,121	691	-38%
No. of General Complaints	3,333	1,866	-44%
No. of Specific Complaints	12,051	6,409	-47%
Average No. of Complaints per Complainant	13.7	12.0	-12%
No. of Aircraft Movements per Complaint	8.8	16.5	+88%

During 2018 a total of 8,275 complaints (on average 23 complaints per 24 hours) relating to LLA aircraft operations were received, compared with 15,384 complaints in 2017. Out of the total complaints 68% were registered by the 20 most regular complainants and 38% from just five individuals. A further 186 complaints received were not attributable to LLA traffic. The figure below shows the complaints statistics throughout 2018. More complaints were received in the July and August, correlating with an increase in aircraft activity.



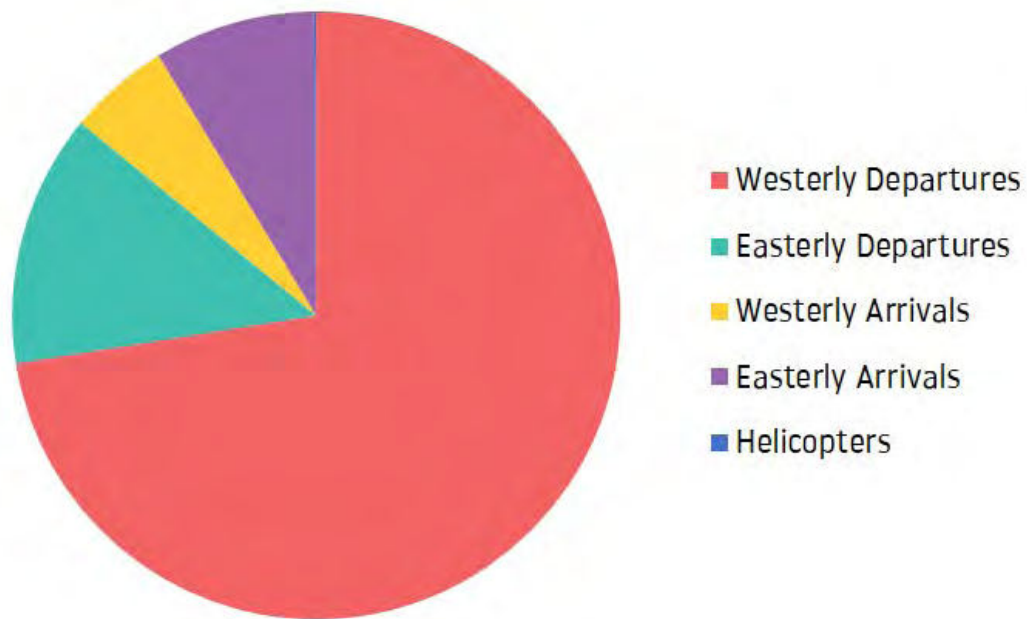


Complaints by aircraft type

Of the 8,275 complaints relating to LLA aircraft operations registered during the year, 5,832 complaints (70%) were clearly correlated to a specific aircraft type, although many complaints were of a general nature. The table below shows aircraft types generating complaints.

Aircraft Type	No. of Correlated Complaints	% of Correlated Complaints	Annual No. of Movements of Aircraft Type	Movements of Aircraft Type per Correlated Complaint
A319	713	12.23%	25,704	36
A320	2,675	45.87%	48,761	18
A321	948	16.26%	13,544	14
B737-800	531	9.10%	14,042	26
A306 (Cargo)	201	3.45%	1,096	5
B737-400	80	1.37%	858	11
GLF4/GLF5/GLF6	84	1.44%	3,837	46
B757 & B767	125	2.14%	1,753	14
B737-300	38	0.65%	424	11
B737-900	64	1.10%	554	9
Helicopter	7	0.12%	578	83
CL30/CL60	66	1.13%	2,941	45
GLEX/GL5T	80	1.37%	4,952	62
Other Private Aircraft	175	3.00%	16,510	94
Other Cargo Aircraft	33	0.57%	160	5
Other Passenger Aircraft	12	0.21%	556	46

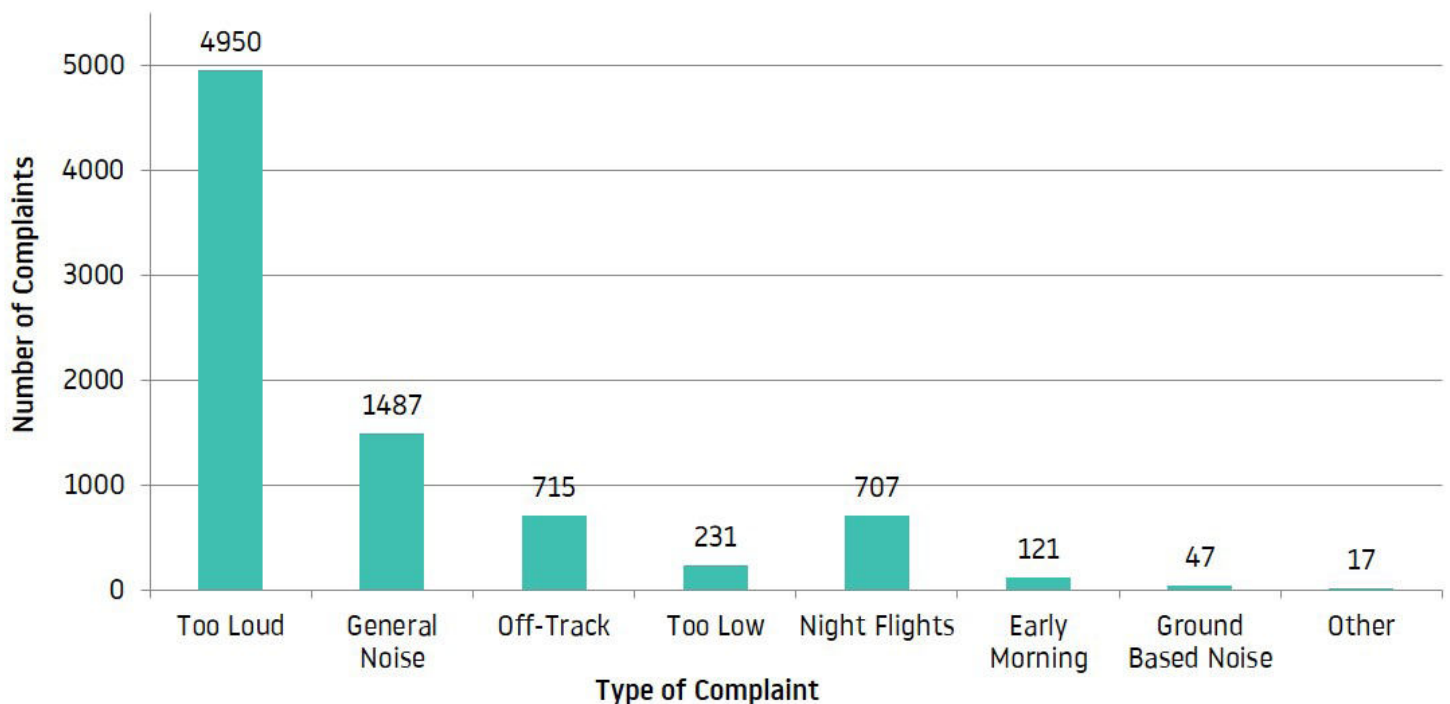
Nature of Disturbance



Within the 4,224 specific complaints correlated to aircraft movements concerning westerly departures, 4,113 reported specific aircraft following the Match/Detling route, 73 related to aircraft on the Compton route and 27 related to aircraft following the Olney heading.

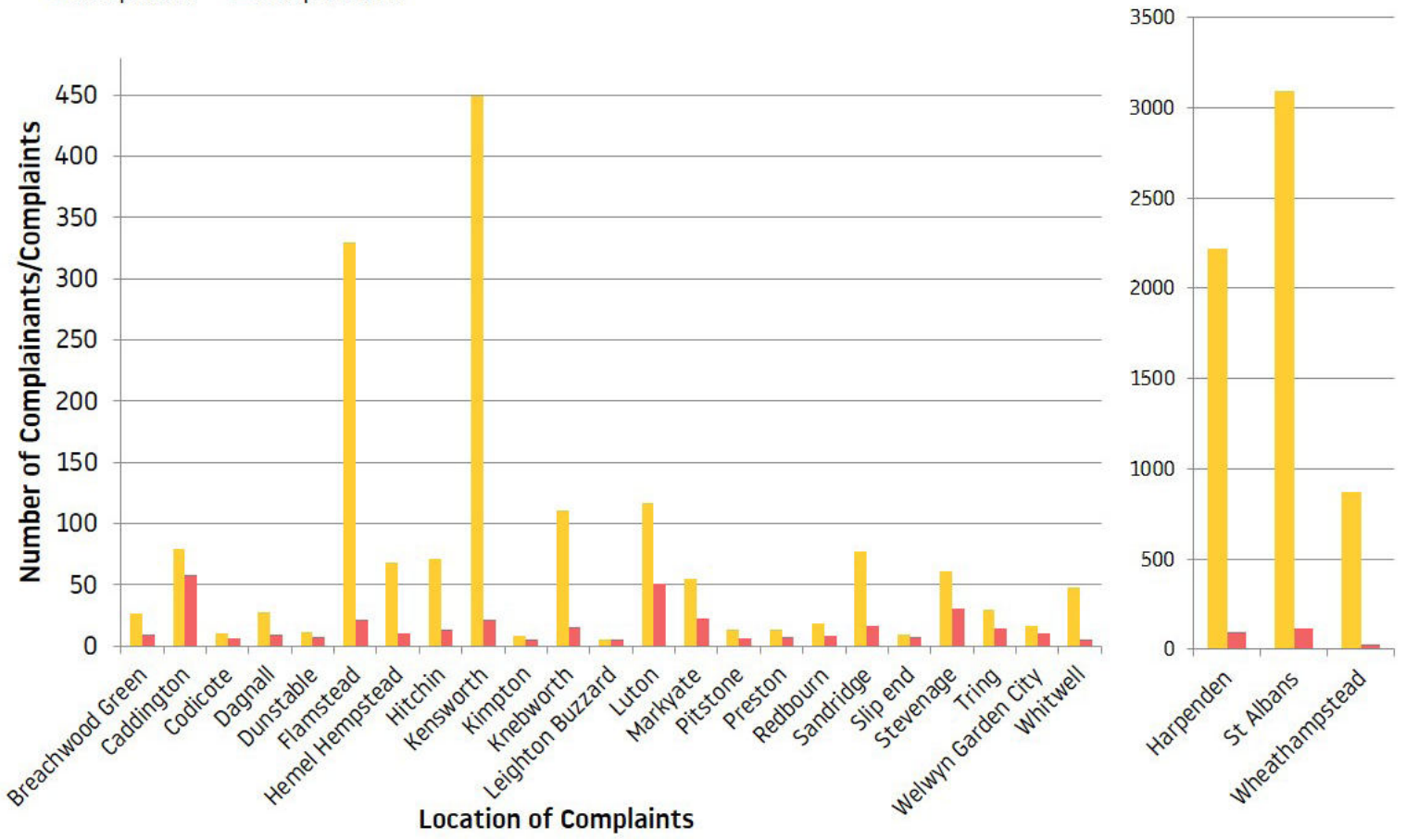
11 other complaints involved positioning flights following off-airways flight routes. Of the 784 complaints specifically attributed to easterly departures 615 related to aircraft following the Compton heading, 31 related to aircraft on Olney flight route and 116 to aircraft on the Match/Detling heading.

A further 22 complaints involved positioning flights following off-airways flight routes. Out of the total 815 complaints correlated to specific arriving aircraft, 315 related aircraft arriving at the airport during westerly operations and 500 complaints related to easterly arrivals.



Location of Complainants (5+)

Complaints Complainants



Communication method

The following table shows the method of communication used to contact London Luton Airport regarding noise.

Communication Method	% of Total Complaints
TraVis	77%
Email	18%
Telephone	5%
Letter	0%

Any concerns relating to aircraft operations associated with London Luton Airport can be reported to the Flight Operations Team by the following means:

Postal Address	Flight Operations London Luton Airport Navigation House Airport Way Luton Beds LU2 9LY
Direct Telephone	(01582) 395382 (24 hours)
Direct email	noise.enquiries@ltn.aero
TraVis	www.travisltn.topsonic.aero

Complaints analysis

During 2018 there was a decrease in complaints and complainants compared to 2017; this is thought to be due to a number of reasons:

- A large number of complaints were generated by a small number of people. The 20 most regular complainants in 2018 created 68% of total complaints.
- High numbers of complaints were recorded from specific locations, for example Harpenden, Sandridge, St Albans and Wheathampstead. Complaints from these areas accounted for 76% of total complaints. In these areas there is a heightened awareness of aircraft, particularly in relation to the growth on this route and recent airspace changes.
- As complaints received in 2017 were submitted to the CAA as part of the Post Implementation Review, a number of campaigns were organised encouraging people to complain. This is likely to have increased complaints in 2017 and therefore a decrease is shown in 2018.
- As winds dictated westerly operations for 63% of the time, the largest percentage of complaints related to aircraft operations during westerlies, this is in line with previous years.

Community Relations

Through the London Luton Airport Consultative Committee (LLACC), which meets every quarter, London Luton Airport maintains a close working relationship with representatives of its local authorities and resident groups. Information on the Consultative Committee including meeting minutes and its representatives can be found at the following link: <http://www.llacc.com/>

In 2018, the Flight Operations Team continued the Public Surgery programme. These drop-in events allow local residents to talk to the team face to face to discuss any concerns regarding the impact of LLA's operations. Over 300 residents attended to the Public Surgeries which were held in Flamstead, Ivinghoe, Kensworth, Markyate, Redbourn, Sandridge and Wheathampstead. These will continue to be scheduled in 2019, details of upcoming surgery events can be viewed [here](#).

The Flight Operations team, held meetings with Heidi Allen MP, Mike Penning MP and a residents group 'Stop low flights from Luton'. Additionally, members of the team attended meetings in the community with local residents, as well as attending St Albans Quieter Skies AGM. Furthermore, invitations are often extended to local residents and LLACC members to visit the Flight Operations Team for a demonstration of the Aircraft Noise & Track Monitoring System, to discuss specific concerns and to view the specific tracks of LLA aircraft operations in their area.

Responsible Business Strategy

In 2018 we started working on the development of a broader strategy to incorporate environmental, social and governance topics, capturing current activities and ensuring that we act responsibly in all areas of work. We engaged in an extensive consultation with partners and departments across the business, collating input from a broad mix of stakeholders. A Responsible Business Committee was formed to oversee the delivery of improvements in six key areas, supporting it through a governance and sustainability management structure. Following further consultation with our shareholders we will be launching our new Responsible Business Strategy in 2019.

Community Engagement

Our operations are intrinsically linked to the community. The proximity to residential areas means that impacts such as noise, produced by aircraft and airport operations, has the potential to adversely impact the life of people living nearby and under its flight paths. Whilst schemes exist to mitigate noise, it cannot be completely eliminated. Our Community Engagement programme therefore aims to ensure those living close by also see the benefits of a successful airport.

In 2018 the funding for the airport's Community Trust Fund was increased to £100,000, supporting 13,287 beneficiaries across Hertfordshire, Bedfordshire and Buckinghamshire. We commenced a new two-year charity partnership with Macmillan Cancer Support and raised over £45,000, exceeding our year one target. Our school engagement programme ran until July 2018, reaching 164 students in 11 schools. We also continued working in partnership with the Prince's Trust and the Launch Group delivering two 'Get into Airports' programmes for unemployed people aged 18-30. In 2018 over 80% of participants secured paid employment after the programme completion. We also supported a number of award ceremonies in the local area celebrating the achievements of neighbouring businesses, organisations and individuals.



Noise Action Plan

The table below provides an update on the actions in the Noise Action Plan. LLA have recently updated this plan, valid from 2019., this can be downloaded from [here](#).

	Action	Timescale
1	Operate and maintain a noise and track-keeping system to monitor aircraft operations, reporting statistics quarterly to the LLACC (via NTSC).	Ongoing
2	Produce Lden noise contours annually, based on an annual average 24 hour period and present to LLACC (via NTSC).	Ongoing
3	Undertake regular analysis of aircraft activity and noise to identify where a review of procedures may help minimise disturbance.	Ongoing
4	Monitor % compliance of Continuous Descent Approaches (CDA) both day and night, reporting quarterly to the LLACC (via NTSC)	Ongoing
5	Undertake community visits with a portable handheld noise monitoring device, on request.	Ongoing
6	Present quarterly night contours to the LLACC (via NTSC).	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)	Ongoing
8	Quarterly Monitoring Reports to be available to view on the London Luton Airport website as well as the LLACC website.	Ongoing
9	Monitor helicopter operations to/from London Luton Airport to ensure they avoid, where possible, the most densely populated areas.	Ongoing
10	Calibrate noise and track-keeping system and INM noise contour model on an annual basis.	Ongoing
11	Monitor the track-keeping compliance and follow up with operators, as necessary.	Ongoing
12	Monitor the number of marginally compliant Chapter 3 aircraft.	Ongoing
13	Monitor and report progress against Noise Action Plan actions to LLACC (via NTSC), providing statistics annually in the Annual Monitoring Report	Ongoing
14	Review the voluntary Night Noise Policy in consultation with the LLACC (via NTSC).	2015
15	Encourage daytime operations through higher landing fees at night.	Ongoing
16	Fine any departing aircraft exceeding noise limits, to encourage airlines to operate the quietest aircraft types.	Ongoing
17	Discourage residential development close to the airport boundary or areas affected by aircraft noise, in liaison with Local Authorities.	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.	Ongoing
19	Liaise regularly with airline operators via a 'Flight Ops' Committee to ensure adherence to existing standard procedures and encourage innovation.	Ongoing
20	Review operational procedures in relation to noise with support of the 'Flight Ops' committee and NTSC.	Ongoing
21	Work with operators to encourage the voluntary phase out of noisiest aircraft.	Ongoing
22	Continue to review procedures for helicopter operations with the support of air traffic control.	Ongoing
23	Work with operators on the voluntary phase out of marginally compliant Chapter 3 high aircraft i.e. hushkitted aircraft.	2014
24	Explore with the 'Flight Ops' Committee/NTSC penalties for flying off track after the introduction of RNAV-1 departure routes.	2015
25	Work with airlines, air traffic control, NATS and other stakeholders to introduce new technologies and environmental improvements.	Ongoing

	Action	Timescale
26	Review the Engine Ground Running policy to minimise disturbance during the night and late in the evening.	Ongoing
27	Operate within planning limits.	Incomplete
28	Actively participate and support the work of the industry and Airport Operators Association with respect to its 'Sustainable Aviation' programme.	Ongoing
29	Liaise with London Heathrow and other airports with respect to non-London Luton overflying traffic, where necessary.	Ongoing
30	Work with the LLACC (via NTSC), the 'Flight Ops' committee and NATS to identify airspace improvements which will improve the noise environment.	Ongoing
31	Agree key performance indicators and targets for noise 'actions', where appropriate, with the LLACC (via NTSC).	Ongoing
32	Assess the impact of London Luton Airport traffic on the Chilterns AONB and explore potential for operational improvements	Ongoing
33	Attend public meetings on request, where appropriate, to discuss the airport's operations.	Ongoing
34	Provide an information pack to first time complainants and those wishing to relocate into the area.	Ongoing
35	Formally engage with air traffic control and airline/other operators to help improve noise management/track keeping.	Ongoing
36	Host visits from local residents and MPs to discuss community concerns and to demonstrate the Noise and Track-Keeping system.	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.	Ongoing
38	Provide information in the Annual Monitoring Report on progress made on actions set out in the Noise Action Plan.	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	Ongoing
40	Continue to offer email, telephone and website as options for complaints and enquiries	Ongoing
41	Invite members of the public to visit LLA to review noise and track information.	Ongoing
42	Engage effectively and proactively with the LLACC and NTSC.	Ongoing
43	Engage with local planning authorities to ensure they are informed about noise matters.	Ongoing
44	Review communication material, the noise information pack and the London Luton Airport website with respect to noise/noise management.	2015/2016
45	Hold community surgeries to give local people an opportunity to discuss issues in person with representatives from the Community Relations and Flight Operations Department.	Ongoing
46	Improve communication with transient and non-based operators/users to ensure environmental and operational procedures are understood and adhered to.	Ongoing
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. 	Ongoing

	Action	Timescale
47	<p>(continued) 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>	Ongoing
48	Report actual and forecasted aircraft movements for the preceding and next twelve months every three months to Luton Borough Council.	Ongoing
49	Implement a progressive reduction in the daytime maximum noise violation limit (NVL) in line with the requirements of the planning conditions.	2015
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.	Incomplete, will be submitted by 2020.
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.	Ongoing
52	Develop a Noise Control Monitoring Scheme and submit to Luton Borough Council for approval, to include: <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 Review the Noise Control Monitoring Scheme no later than the first and fourth year after introduction, and every subsequent five years.	Ongoing
53	Develop a Ground Noise Scheme and submit to Luton Borough Council for approval, to include: <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. Review the Ground Noise Scheme no later than the first and fourth year after introduction, and every subsequent five years.	Ongoing
54	Develop a Noise Insulation Scheme for residential as well as non-residential buildings.	2016
55	Reduce the night time noise violation limit to 80 dB(A) by April 2015	2015

Employment

Employment at and surrounding London Luton Airport (LLA) contributes significant economic benefits to Luton as a whole and to the sub-region. A large number of businesses are based in Luton due to the presence of the Airport. Thus, any analysis of the Airport's impact upon the locality needs to contain an economic perspective, and this includes employment. An analysis of employers within and around the Airport boundary has been conducted, the results of which are summarised below.

A list of businesses at London Luton Airport was matched with the Inter Departmental Business Register (IDBR). The IDBR dataset produced by the Office for National Statistics (ONS) is a comprehensive list of UK businesses that is used by the government for statistical purposes. It provides a sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analysis of business activity.

The IDBR combines administrative information on VAT traders and PAYE employers with ONS survey data in a statistical register comprising over two million enterprises, representing nearly 99% of economic activity. Analyses that are produced as part of this service are at the same level at which business statistical surveys are conducted. (Source: ONS website www.statistics.gov.uk).

An initial list was received from London Luton Airport of companies within their boundary. The listing was matched against the IDBR. Companies outside the airport boundary were identified by the street names/areas

- ❖ Spittlesea Road
- ❖ Part of Frank Lester Way
- ❖ President Way
- ❖ Wigmore House
- ❖ Part of airport Way
- ❖ Barratt Industrial Park
- ❖ Airport Executive Park

A handful of companies which appeared on the list, but not the IDBR, had imputed estimates from analysis of the size of the enterprise and information from the airport.

Total employment in and around the airport

Employment was measured using main section headings from the Standard Industrial Classification 2007 (SIC 2007). Data has been rounded to the nearest hundred, as per ONS guidelines.

Standard Industrial Classification 2007, Section Names	Total Employees
Accommodation and Food Service Activities	500
Administrative and Support Service Activities	2,800
Financial and Insurance Activities	<100*
Manufacturing	1,100
Professional, Scientific and Technical Activities	<100*
Public Administration & Defence; Compulsory Social Security	<100*
Real Estate Activities	<100*
Transportation and Storage	5,000
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	600
Grand Total	10,400

* - Figures have been suppressed where there are less than three companies in a given Section and/or employment in that sector is less than 100 in accordance with the regulations covering the use of IDBR data.

Due to confidentiality issues we are bound by Office for National Statistics protocols to round to the nearest 100 when reporting IDBR figures. This will mean that any changes in reported figures will be in multiples of 100 and therefore lie within that range.

The table illustrates that there are an estimated 10,400 employees in and around the Airport. This has increased by 200 since 2017, a rise of 2 per cent.

Employment by working pattern

The IDBR provides employment figures by full and part time working pattern. The total number of full time employees was 8,700 which was unchanged between 2017 and 2018. The figure for part time employees was 1,700 which was an increase of 200 from last year’s figures.

The percentage split of full/part time employees found at the airport compared to that found in Luton as a whole is as follows:

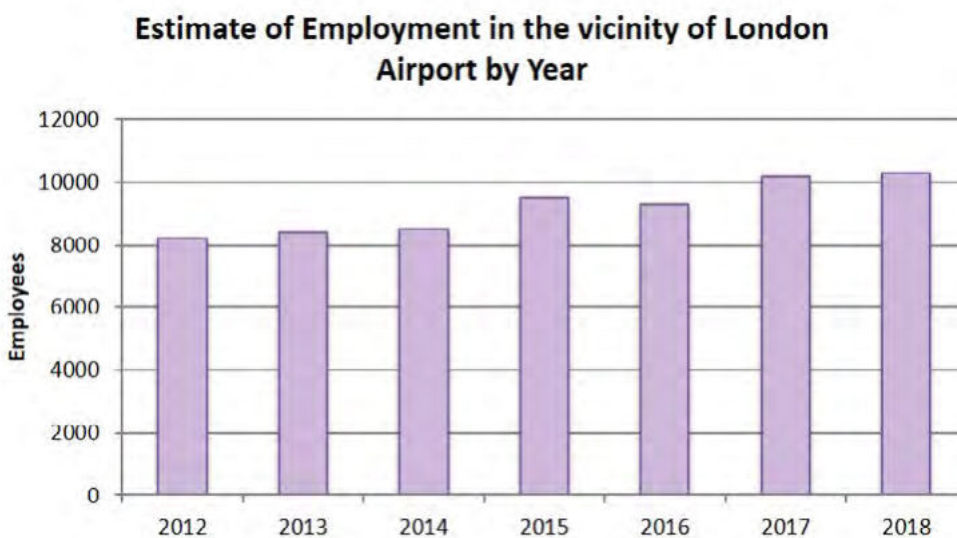
	Full Time Employees	Part Time Employees
Vicinity of LLA	83%	17%
Luton UA	68%	32%

Source for Luton UA Figures: Business Register & Employment Survey 2015, latest data. Figures are percentages of those in employment.

Full- and part-time working patterns in the vicinity of the Airport differs from that found within Luton as a whole, with the Airport having a higher proportion of full time workers.

Time series

The following figures from 2012 to 2018 show the estimated employment levels in the vicinity of the Airport.



Source: AMR Employment Surveys 2012- 2018

There was a small increase in employment between 2017 and 2018 around Luton Airport. There are approximately 10,400 employees working in the vicinity of the Airport.

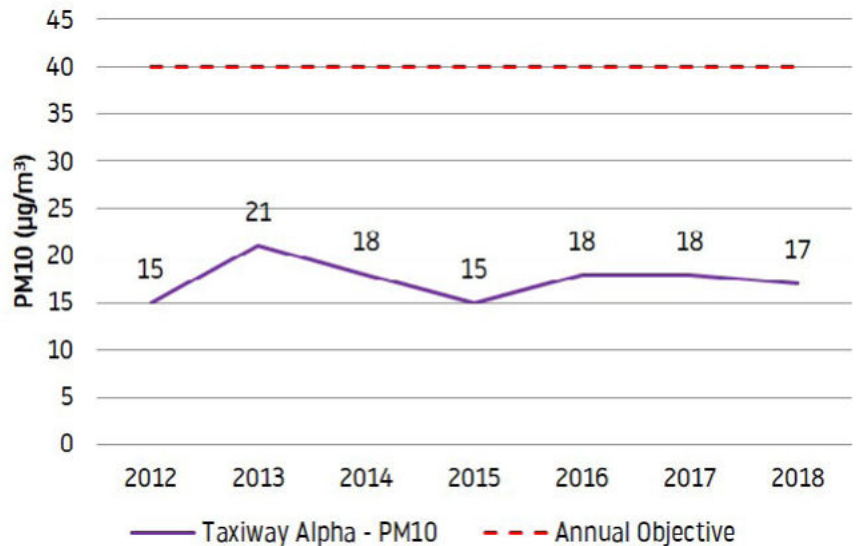
Air Quality

London Luton Airport has been monitoring air quality in and around the airport environment since 2003. Air quality data collected at LLA is integrated into a monitoring programme incorporating data collected by the surrounding Local Authorities, with a monthly report available to view online at <http://www.airqualityengland.co.uk> The parameters we measure are PM₁₀ and NO₂.

PM₁₀ (Particulates measuring 10µm or less)

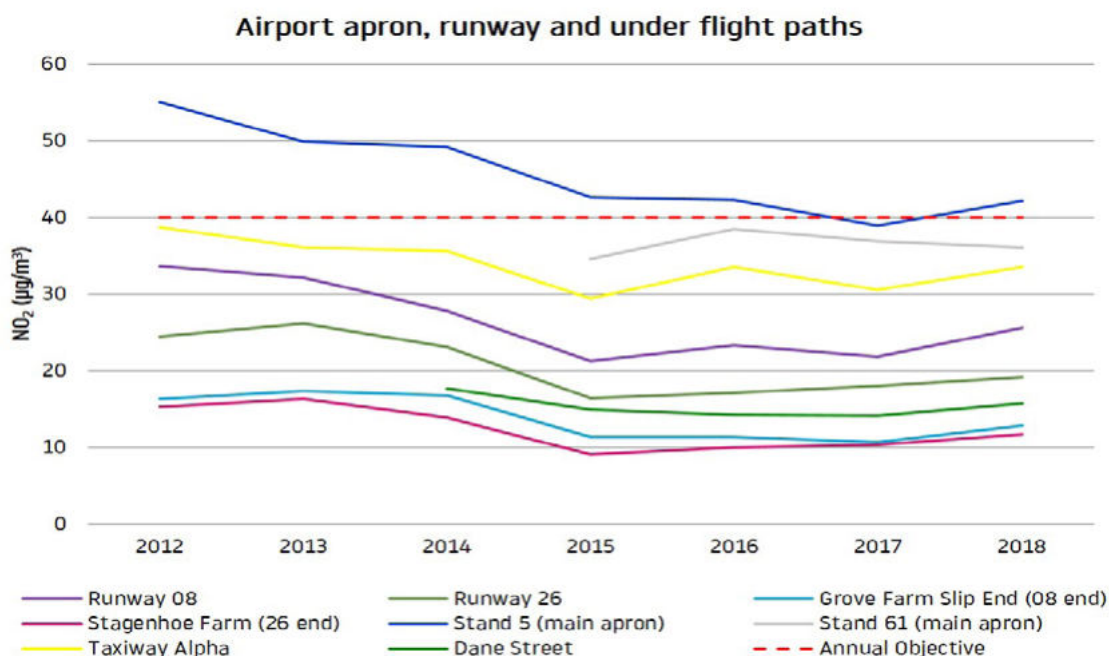
PM₁₀ is one of the main contributors to reduced ambient air quality. Particulate matter is made up of fine particles including dust and soot which are suspended in the air. When you breathe in these particles they can stick to the surface of your lungs, and in areas of high pollution can cause respiratory health problems. Local sources include emissions from vehicles and aircraft engines, wear of brakes, tyres, and construction debris.

PM₁₀ is monitored from one location in the middle of the airport site. The graph shows that the readings have remained well within the annual mean local air quality objective of 40µg/m³.

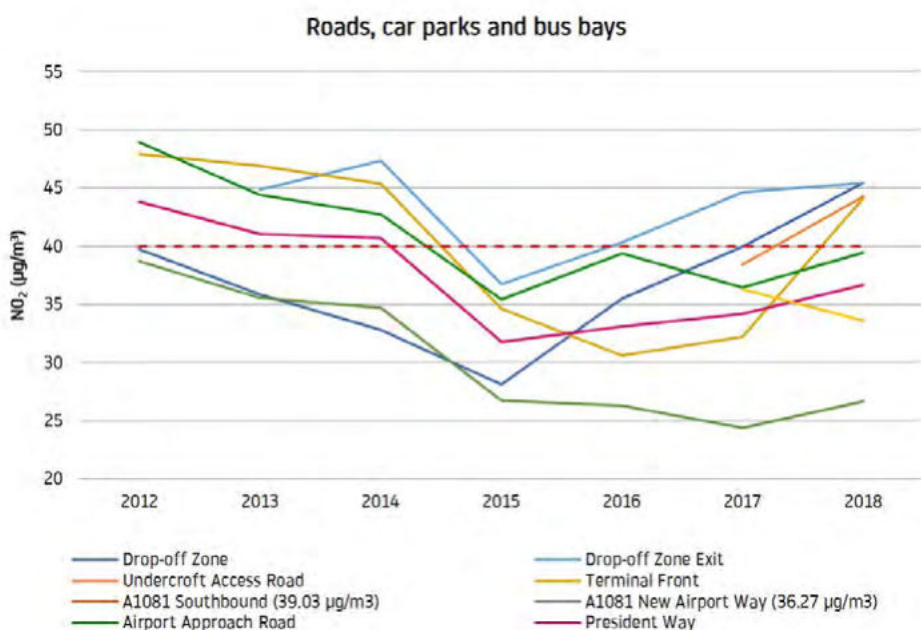


Nitrogen Dioxide (NO₂)

NO₂ in high concentrations can cause a wide variety of health and environmental impacts. The gas is produced from the combustion of fuels such as diesel and aviation fuel. NO₂ is currently measured from 18 locations around LLA, and the results have a bias-adjustment factor applied using national database factors. The annual mean local air quality objective of 40µg/m³ also applies to NO₂.



NO₂ levels at the closest residential receptors to the airport, and also along the aircraft flight paths are significantly below the objective level laid out in the Air Quality (England) Regulations 2000 (as amended). Levels monitored by the roads around the airport, in the car parks and on the apron are a little higher, with the locations at the drop-off zone, undercroft access road and the terminal front slightly exceeding the annual mean objective of 40 µg/m³. To reduce the congestion around the front of the terminal, the number of bus bays have been increased from 13 to 19. The drop-off zone exit points have also been increased to 7 to aid the flow of the traffic. To encourage sustainable modes of transport aid passengers in identifying onward travel information, London Luton Airport has opened the Onward Travel Centre was opened, which has been operational for over a year.



Surface Access

LLA aims to improve access to the terminal, particularly by public transport in order to reduce the contribution that journeys make to total airport-related CO2 emissions and also to air pollution. LLA's current airport Surface Access Strategy runs from 2012-2017, with short and long term targets and action plans to encourage more sustainable travel amongst airport passengers and employees. These targets are being monitored regularly, as part of the wider Local Transport Plan (LTP) monitoring framework.

During August 2017 LLAOL undertook a consultation with key stakeholders for the airport surface access strategy covering period up to 2022. The responses all supported the proposed targets and actions with the construction of the DART (Direct Airport to Rail Transit) being noted as particularly welcome addition

Modes of Transport

Passengers transport mode share (CAA Data)

The Civil Aviation Authority (CAA) undertakes continual passenger surveys at many of the major airports in the UK, including London Luton. In common with other airports, LLA uses this survey data to assess trends in passenger 'modal shift' from private to public transport. The table below shows the weighted CAA data for 2012-2018. The CAA statistics suggest that 33% of airport passengers chose to use public transport in 2018.

Whilst the figures have remained fairly static for the last few years, LLA have been working to promote the use of sustainable transport. LLA have also invested in an upgraded bus station, including installing a traffic light system to improve safety. Electric charging points have also been installed in the multi-storey car park.

Furthermore, in 2018 LLAL started work on the DART Mass Passenger Transit System. The Luton DART is a £225m investment, which will provide fast, easy access from the mainline trains (serving London and the East Midlands/South Yorkshire), encouraging more people to use public transport and help reduce congestion on the surrounding roads. The DART is intended to be in operation by 2021.

Passenger transport mode share data over last 7 years

%	2012	2013	2014	2015	2016	2017	2018
Drop Off	27	28	25	27	28	43	45
Car Park	23	23	28	27	23	20	17
Rail	17	16	14	16	16	17	17
Bus/Coach	16	16	15	15	16	16	16

Staff transport mode share

LLA aims to reduce the proportion of staff travelling alone by car to and from Lond Luton Airport. Whilst employee travel does not generate as many trips as passengers, it is an important consideration as employees making a more sustainable travel choice will give daily results due to the frequency of their need to commute to work. Staff travel surveys are undertaken once every 2 years and the results since 2010 are presented in the table below.

Staff transport mode share data over last 8 years

%	2010	2012	2014	2016	2018
Drive alone	66	66	62	68	59
Car share	12	8	11	7	8
Taxi	1	1	0	1	1
Motorcycle	1	1	1	1	1
Rail	5	5	10	7	8
Bus/Coach	7	9	8	9	16
Cycle	2	2	2	2	2
Walk	5	6	7	5	6



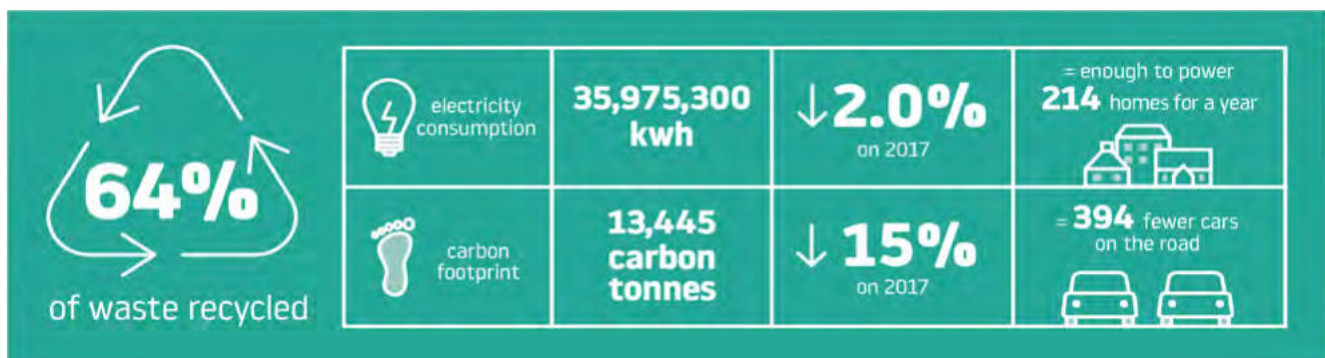
Sustainability

London Luton Airport is committed to operating in a way that maximises the socio-economic benefits for the local and regional area whilst minimising the environmental impacts. To ensure this vision is shared and supported, we work closely with airlines, stakeholders and business partners to promote this approach across the airport, ensuring that the full benefits that London Luton Airport can bring to the region are realised.

LLAOL aims to continuously improve on environmental performance in many different areas across the Airport.

In 2018 the following was achieved:

- 6% Reduction in electricity usage per passenger, roughly saving 214 Luton homes worth of annual usage.
- 2% increase in gas usage per passenger
- 6% reduction in carbon emissions per passenger
- 64% of waste was recycled
- 3% reduction in water usage per passenger



During 2018, LLA has made great improvements in the way waste is managed at the airport and have almost doubled our recycling rate – in 2018, London Luton Airport recycled 64% of its waste from 35% in 2017. To achieve this, we worked closely with our concessionaires to reduce waste at source and segregate recyclable waste such as glass, food, cardboard and mixed recycling. LLA also introduced a “pay by weight” system whereby the concessionaires are being directly charged for the amount of waste generated with general waste being charged the highest rate to encourage recycling. In addition, LLA introduced additional waste sorting operatives to increase the amount of waste that’s recycled before it leaves the airport.

The airport maintained the ISO14001 international certification for Environmental Management System and the ISO50001 international certification for Energy Management.

Waste

Over the last few years, we’ve made great improvements in the way waste is managed at the airport and have almost doubled our recycling rate – in 2018, London Luton Airport recycled 64% of its waste. To achieve this, we’ve worked closely with our concessionaires to reduce waste at source and segregate recyclable waste such as glass, food, cardboard and mixed recycling. We’ve also introduced a “pay by weight” system whereby the concessionaires are being directly charged for the amount of waste generated with general waste being charged the highest rate to encourage recycling. We’ve also introduced additional waste sorting operatives to increase the amount of waste that’s recycled before it leaves the airport.

Carbon / Energy

During 2018, we undertook a large-scale project to upgrade our air handling units on half of the airport estate leading to over a gigawatt of electricity reduction per annum. The project has been critical in mitigating against the increase in consumption due expansion of the building infrastructure as part of the terminal upgrades as well as the number associated growth in the number of terminal concessionaires. Phase II of the project is expected to be finished during 2019 further reducing LLA's electricity demand.

Due to colder temperatures experienced in 2018 compared to 2017 as well as significant construction works ongoing at the terminal throughout the year, we saw an increase of overall gas consumption of 2% per passenger. To reduce our gas consumption, we've started an airport wide boiler upgrades to more efficient boilers; the upgrades have been completed in Cargo Centre and Fire Station with the Terminal building boiler upgrades due to be completed in early 2019.

Water

As part of the terminal expansion, we've ensured that all new washroom facilities have been installed with water efficient fixtures.



Planning and Development

Through its Local Plan, Luton Borough Council (the Council) sets out local planning policies and identifies how land is used, determining what will be built where. The Council also is responsible for the Local Transport Plan (LTP) providing policies, strategies and schemes primarily for Luton, though the LTP does refer to strategic transport and infrastructure and other cross boundary matters for the whole conurbation (Dunstable and the Houghton Regis area).

Local Plan

The Luton Local Plan (2011-2031) was adopted in November 2017. The adopted Local Plan is a strategic document setting out the vision, objectives and spatial planning strategy for the whole of Luton Borough Council's area for the period up to 2031.

It comprises the following document and accompanying plans:

- Luton Local Plan (2011-31), November 2017
- policies map
- town centre inset

These can be viewed by visiting the following page on the Council's website:

<https://www.luton.gov.uk/Environment/Planning/Regional%20and%20local%20planning/Pages/Local%20Plan%202011%20-%202031.aspx>

The Local Plan includes Policy LLP6 that covers the London Luton Airport strategic allocation, an area of 325 hectares, identified on the policies map, which includes land within the airport boundary, Century Park and Wigmore Valley Park.

Planning Applications

The permission to expand the airport to allow an increase to up to 18 million passengers per annum (mppa), granted in 2014 (Council reference 12/01400/FUL), has been fully implemented.

Work commenced on the construction of the Direct Air Rail Transit (Luton DART) system in April 2018 following the grant of planning permission in July 2017 (ref: 17/00283/FUL). It is anticipated that the DART linking Luton Airport Parkway station and the airport terminal will be open in 2021.

In order to facilitate the construction of the DART, planning permission was granted in December 2018 for the development of land for a temporary period for the construction and prefabrication of the Gateway Bridge (the bridge that will take the DART over the A1081)(ref: 18/01049/FUL).

Rather than the spoil generated by the developments at the airport being taken off site to landfill, permission was granted in February 2018 for the reuse of over 330,000 cubic metres of spoil on six sites on the airport, changing the gradients of land and levelling off areas within the airport perimeter (ref: 17/02219/FUL).

The airport operator can carry out some development without requiring planning permission by virtue of permitted development rights granted to them by the Government under Schedule 2, Part 8, Class F of the Town and Country Planning (General Permitted Development) Order 2015. In 2018 it was confirmed that a number of developments could be carried out as permitted development, these included:

- Proposed works to modify the alignment of Taxiway Foxtrot and enable a specific de-icing area adjacent to that taxiway (ref: 18/00001/GPDOPD).
- The construction of a multi-storey car park (MSCP2) and new permanent drop off zone in the central terminal area of the airport (ref: 17/00004/GPDO).

Whilst not being development on the airport there have been a number of proposals that are airport related, namely:

- Planning permission was granted in July 2018 for the demolition of the existing buildings at Prudence Place and the erection of a 92 bedroom hotel with undercroft and surface parking (ref: 18/00062/FUL).
- A hybrid planning application, at Bartlett Square, for the erection of a hotel, two office buildings, ancillary retail and a multi-storey car park, together with associated courtyard and public realm works was recommended for approval in November 2018 and a decision is due to be issued upon completion of a legal agreement (ref: 18/00271/EIA).

Hotel developments

The Luton hotel market is very much dominated by airport related demand, from passengers and crew, with the Luton Hotel Study (July 2015) indicating that demand was likely to continue to grow.

The following hotel developments have been granted planning permission, are being implemented, or are still under consideration, since the table in the 2016 AMR was produced –

Site address	Current status of application	Number of bedrooms
Bartlett Square	Planning permission for 172 bedroom hotel recommended for approval subject to the signing of a legal agreement in November 2018	172
Napier Gateway (part of the Napier Park site)	Mixed development including 209 bedroom hotel (still to be implemented)	209
Power Court (Town Centre)	Outline application for football stadium and associated infrastructure submitted in 2016 including a hotel (resolution to grant)	150
Land adjoining junction 10 to junction 10A of M1	Outline application for mixed use development submitted in 2016 including a hotel (resolution to grant)	350
Former Honda Garage, Cumberland Street (Town Centre)	Five to seven storey hotel granted planning permission in September 2017 (still to be implemented)	202
Phoenix House (Town Centre)	Change of use to hotel granted planning permission March 2017 subject to the completion of a s106 agreement (still to be completed)	78
Prudence Place, Proctor Way	Demolition of existing buildings and erection of four storey hotel with undercroft parking granted permission in July 2018 (still to be implemented)	92

National Aviation Policy

The Aviation Policy Framework (APF) published by the Coalition Government in March 2013 set out the Government's policy on aviation. The APF focuses on the benefits of aviation to the UK economy as well as its environmental impacts.

The 'Airports National Policy Statement: new runway capacity and infrastructure at airports in the south-east of England' (the Airports NPS) was designated on 26 June 2018. The Airports NPS provides the primary basis for decision making in relation to the Development Consent Order (DCO) for a new runway at Heathrow, whilst also being an important and relevant consideration in respect of applications for new runway capacity in London and the south east of England.

The Airports NPS sets out:

- The Government's policy on the need for new airport capacity in the South East of England;
- The Government's preferred location and scheme to deliver new capacity (the Heathrow Northwest Runway); and
- Particular considerations relevant to a development consent application to which the Airports NPS relates.

The Airports NPS includes policies that will be important and relevant for any nationally significant infrastructure project (NSIP) related to airports in the south east of England. In this regard it is important to note that between 25 June and 31 August 2018 London Luton Airport Limited (LLAL), the owner of the airport, consulted on its plans to expand the airport by making better use of the existing runway which could include an increase in passenger numbers of up to 36-38mppa. Such an increase would constitute a NSIP and result in the submission of an application for a DCO to be determined by the Secretary of State. The consultation outlined four options that LLAL were considering and included a response questionnaire.

Local Transport Plan (LTP)

The current LTP is the third local transport plan produced by the Council in April 2011, which sets out how the Council will deal with transport matters in and around Luton. It comprises two parts, namely:

- A long term Transport Strategy up to 2026. With regard to the transport affecting the, airport this sets out anticipated passenger numbers of between 15.5mppa and 18mppa by 2026, together with an additional 3,000 employees; and
- The Implementation Plan. This includes a number of key elements that are relevant to the airport, such as: a focus on smarter choices and travel by more sustainable modes; implementation of a new entrance from the north to Luton Airport Parkway Station; and an extension of Airport Way to serve planned employment sites to the east of the airport.

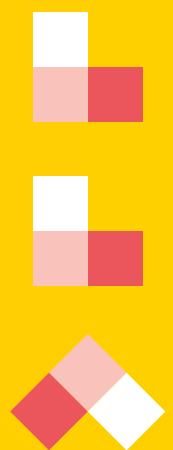
The Luton DART was not specifically mentioned in the LTP, but it will serve to improve access from Luton Airport Parkway Station to the airport as well as encouraging a modal shift away from the use of private cars to public transport.

The LTP strategy also refers to the role of the Airport Surface Access Strategy (ASAS) in promoting sustainable travel to the airport for both passengers and employees, and the Council will work with the airport operator to achieve this.



ANNEX J - AIRPORT ANNUAL MONITORING REPORT 2019

Annual Monitoring Report 2019





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Foreword

Last year was another record-breaking year for London Luton Airport, as we approached 18 million passengers passing through the airport.



With the increasing number of people using the airport, we have really seen the benefit of our £160m transformation for passengers, who have welcomed the greater selection of shops and a more spacious interior, alongside many operational improvements.

It's not just our passengers who have benefitted from the upgraded airport terminal. We are proud of our contribution to the local economy and the thousands of jobs we support in Beds, Herts and Bucks.

I'm also acutely aware that we have a responsibility not only to support the local community, but to also mitigate any impact of our operation on the community and the environment. This is of course continually evolving, but it's why we have the most stringent noise controls of any major UK airport and continue work constructively with our communities and stakeholders.

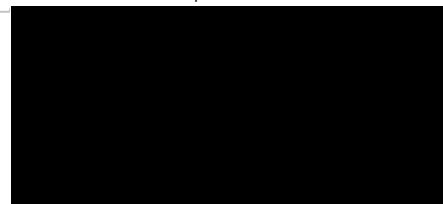
Throughout 2019, we welcomed more than 150 local residents to our drop-in noise surgeries, as well as attending local community meetings including the Bedfordshire Association of Town and Parish Councils AGM and Hertfordshire Parish Council Conference. We also held separate meetings with individual parish councils, local campaign groups and other local residents to discuss noise. While we saw the total number of complaints increase by more than 50% in 2019, the total number of people who complained fell by 4% and there was a 9% drop in the number of new complainants.

As I write this, coronavirus is taking its toll on the aviation sector globally, and LLA is not immune to this. The impact of the pandemic has been severe, and it will take the airport time to recover and for us and our passengers to adjust to a new way of operating. Despite this, I have no doubt that the airport will not only rise to this challenge, but that we will return stronger than ever.

London Luton Airport is key driver for the economy in Beds, Herts and Bucks and like all airports, it will play a pivotal role in getting the region and the country back up and running once the outbreak is finally contained.

Neil Thompson

*Operations Director
London Luton airport*



Key Monitoring Indicators

Parameter		2019	2018
Total Aircraft Movements	↑	141,481	136,270
Day Movements (07:00 - 23:00)	↑	124,306	119,937
Night Movements (23.00 – 07.00)	↑	17,175	16,333
Early Morning Movements (06.00 – 07.00)	↑	5,968	5,794
Total Scheduled Passengers	↑	17,751,946	16,223,039
Total Charter Passengers	↓	248,023	358,811
Total Passengers	↑	17,999,969	16,581,850
Number of Destinations	↓	141	147
Number of New Airlines	↑	1	0
Number of New Routes	↓	19	33
Westerly/Easterly Runway Split (%)	-	70/30	63/37
Night Quota Used (3,500 Limit)	↑	3159.00	3105.75
Average Ratio of Aircraft movements % (day/night)	-	88/12	88/12
Track Violations	↑	53	33
Departure Noise Infringements (Day)	-	0	0
Departure Noise Infringements (Night)	-	0	0
Fines transferred into Community Trust Fund	↑	£58,000	£29,500
24hr Continuous Decent Approach (% achievement)	↓	91%	92%
No. Departures Recorded at ≥ 85 dB(A) during Day (Night)	-	0 (0)	0 (0)
No. Departures Recorded at ≥ 76 dB(A) during Day (Night)	↑	7,749 (1,056)	6,604 (1,025)
No. Departures Recorded at ≥ 70 dB(A) during Day (Night)	↑	48,567 (6,333)	46,344 (5,663)
Night Noise Contour Area (48 dB $L_{Aeq, 8h}$)	↑	44.2km ²	40.2km ²
Population within Night Noise Contour (48 dB $L_{Aeq, 8h}$)	↑	21,250	18,450
Dwellings within Night Noise Contour (48 dB $L_{Aeq, 8h}$)	↑	8,950	7,800
Noise Complaints	↑	12,735	8,275
Complainants	↓	664	691
Number of New Complainants	↓	357	394
Largest Source of Complaints	-	Deps. West	Deps. West
Number of PM ₁₀ exceedances	-	0	0

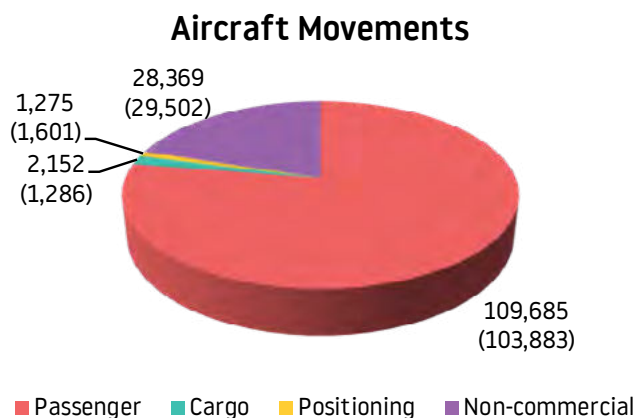
Air Traffic Data

Aircraft movements

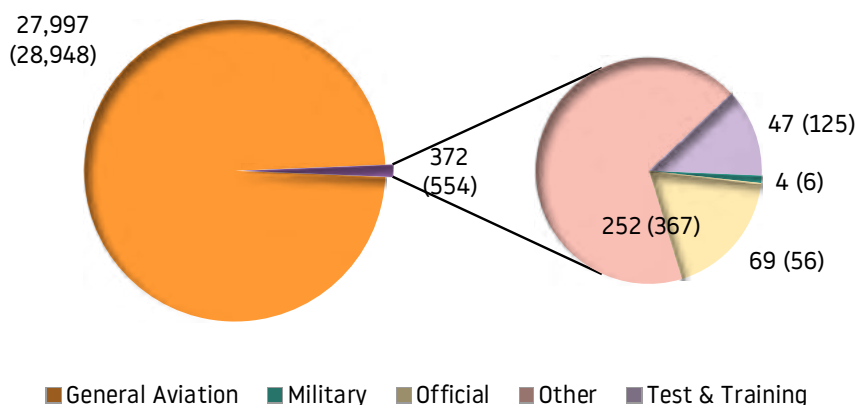
LLA handled a total of 141,481 aircraft movements during 2019, an increase of 3.8% compared to 2018. An aircraft movement is the take-off or landing of any aircraft from the airport.

The majority of aircraft movements were passenger flights at 109,685 movements. This includes commercial flights by executive aircraft (compared with 103,883 in 2018). Other movements included cargo, positioning flights and non-commercial flights.

For comparison purposes 2018 data is shown in brackets.



Non-Commercial Aircraft Movements



Movement Classification

Commercial – operating for hire or reward and includes cargo, passenger and positioning flights

Non-Commercial – not operating for hire and reward

Cargo – aircraft movements which are solely for freight. It should be noted that freight can also be carried on aircraft in other categories

General Aviation – private aircraft, helicopters and business jets not operating for hire or reward

Passenger – commercial passenger flights, including executive aircraft

Positioning – typically empty flights to/from other airports

Military – flights on military business

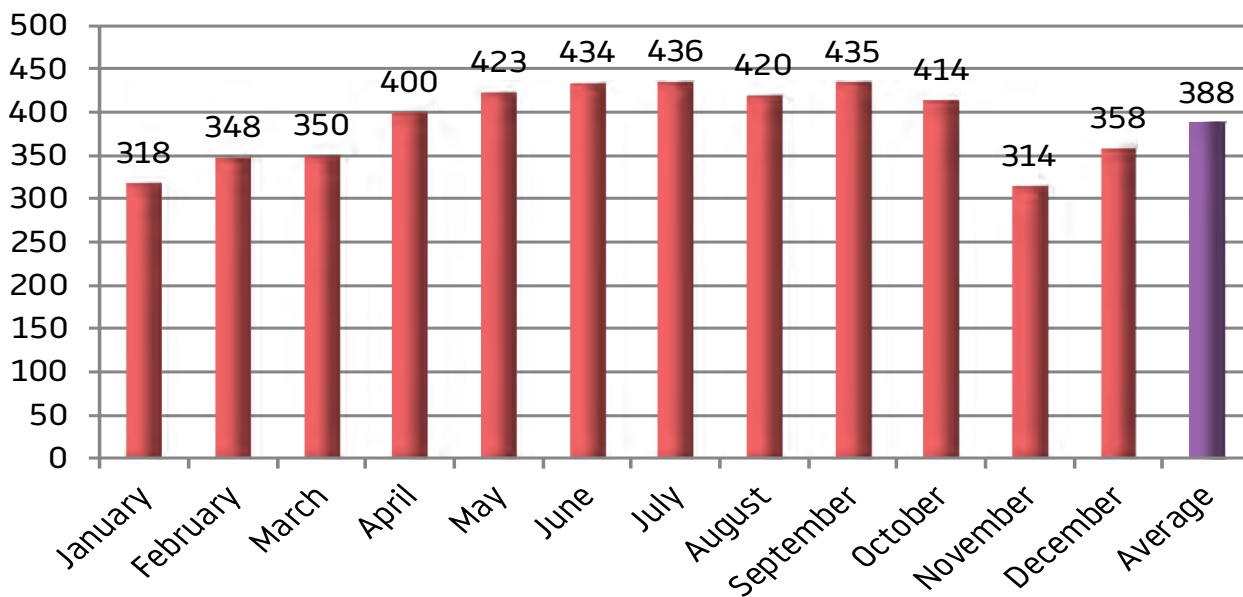
Official – flights solely for official purposes by British or foreign civil government departments

Other – flights coming for maintenance and or departing aircraft that have made an unscheduled return to base

Test & Training – training flights involving aircraft and also flights following or during aircraft maintenance

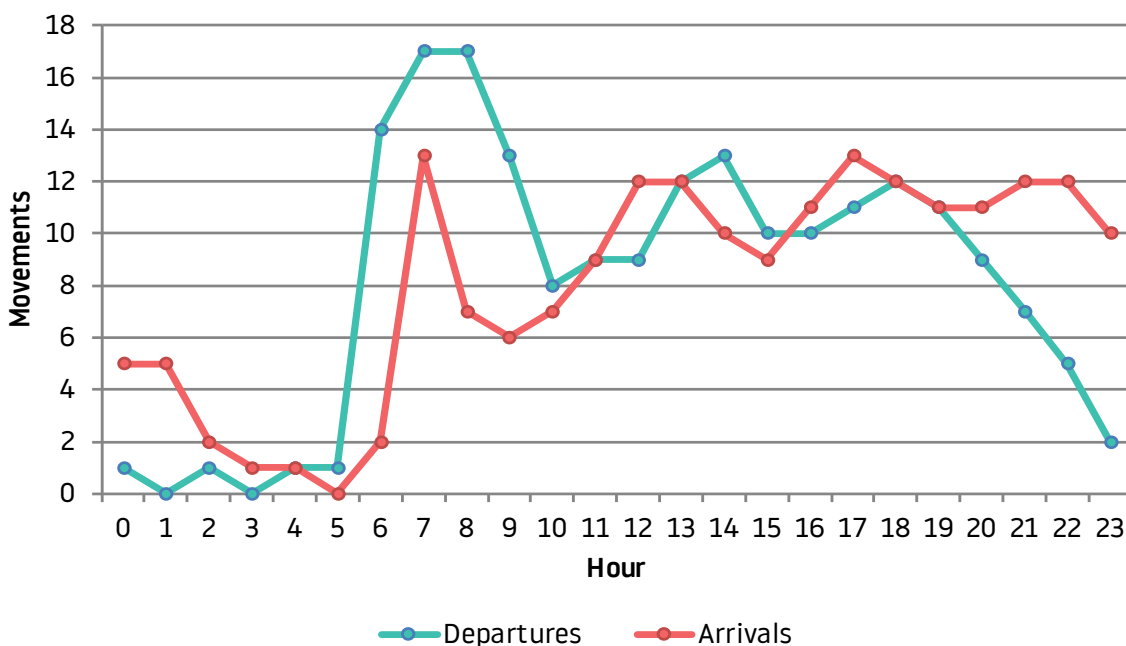
The graph below illustrates that the busiest time of year is May - October. **Our busiest day of the year was 24th May with 487 aircraft movements.** In comparison, winter months are the quietest. On average there were 388 movements per 24 hours (compared to 373 in 2018).

Annual Average Daily Movements

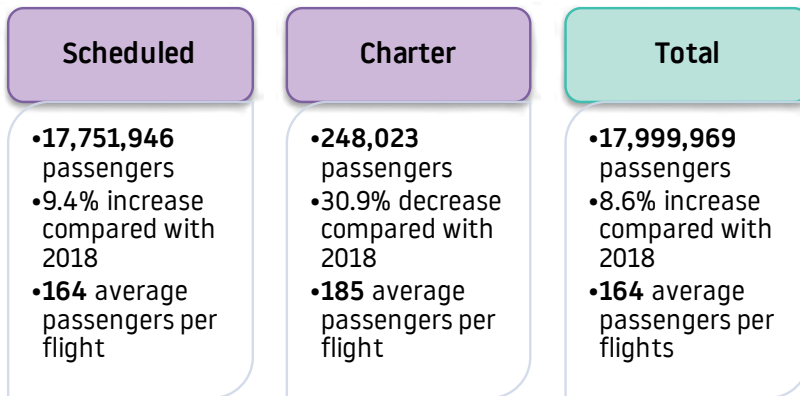


The busiest time on average during 2019 for departing aircraft was 07:00-08:00 hrs, with another peak between 13:00-14:00. The average busiest time for arrivals was 07:00-08:00 hrs and 17:00-18:00 hrs. The graph also highlights a low level of average movements during the hours of 00:00-06:00 hrs.

Annual Average Hourly Movements

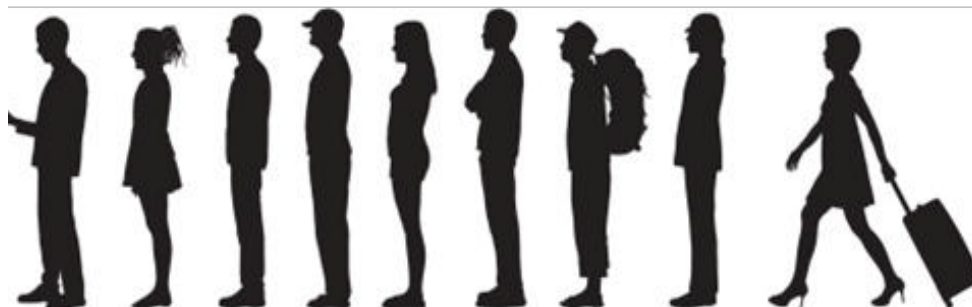
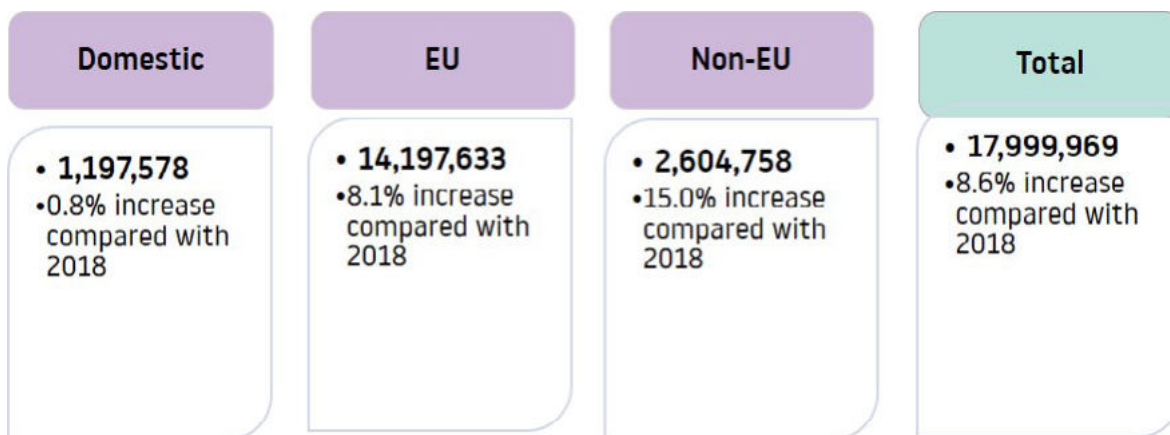


Passenger data



Charter flights are flights in which the aircraft has been chartered (or leased) by a company, typically a tour operator or an executive customer. Charter seats are typically not sold directly by the airline. Scheduled flights are regular flights organised by the company which owns the aircraft.

A total of 17,999,969 passengers used LLA during 2019; 17,751,946 on scheduled flights (98.6%) and 248,023 on charter flights (1.4%). This represents an increase in passengers of 8.6% compared with 2018.



Cargo

Cargo operations represented just under 2% of all air transport movements at London Luton Airport in 2019. Night movements accounted for 57% of total cargo movements, which is a reduction compared to 2018. These were primarily postal flights or intra-European express delivery services moving time sensitive and perishable freight such as fresh food, medication and urgently needed technical equipment vital to supporting and sustaining economic growth. The flights carrying more general, less time-sensitive cargo already operate outside of the night-time period. This would include Formula 1 cars, live animals, clothing, machine parts and

Operator	Movements			Tonnes
	Day Movements	Night Movements	Total	Total
2019	1,210	1,618	2,828	36,906
2018	706	1,582	2,288	27,096
2019/2018 comparison	+70%	+2%	+24%	+36%

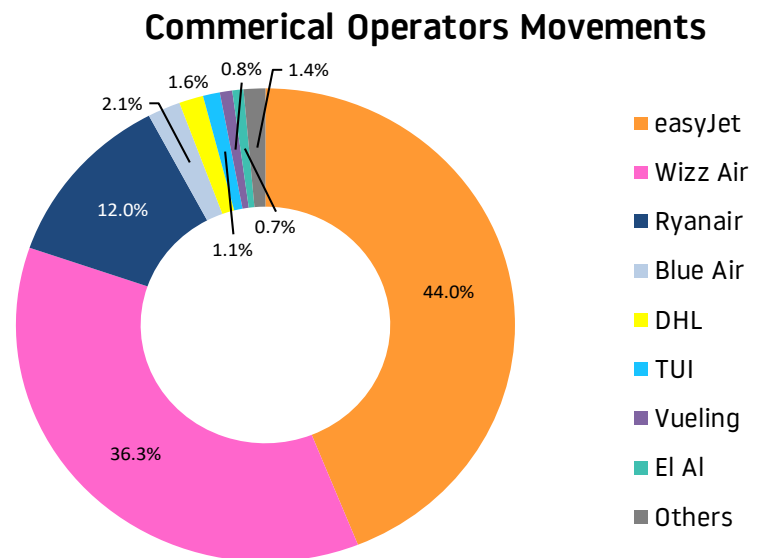
N.B. The cargo movement count is the total number of movements that carried cargo as opposed to flights that are primarily operated for the carriage of cargo. This is because 1% of total cargo tonnage was carried on passenger aircraft. Consequently the movement figures in this section will differ from figures in the Aircraft Movements piechart which shows dedicated cargo movements.



Airlines

London Luton Airport works very closely with its airline partners. The table below provides the movement statistics by commercial operators.

Operator	Movements
easyJet	49,160
Wizz	40,636
Ryanair	13,393
Blue Air	2,384
DHL	1,761
TUI	1,224
Vueling	898
El Al	813
Others	1,568
TOTAL	111,837



N.B This table includes movements for both passenger & cargo aircraft but excludes positioning flights and air-taxis.



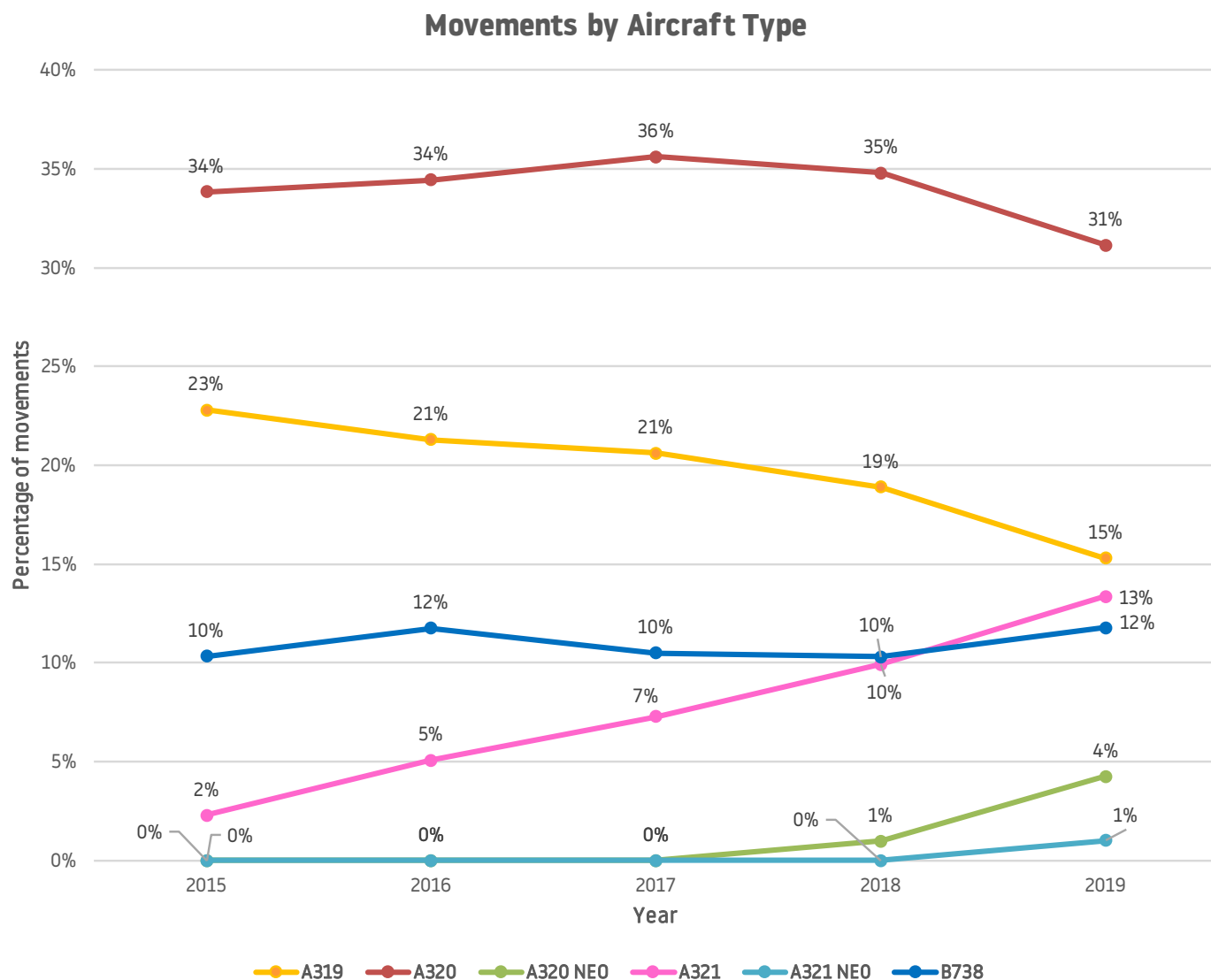
Movements by aircraft type

Aircraft Type	Movements	% of Total movements
A306	1,758	1.2%
Airbus A319	21,642	15.3%
Airbus A320	44,074	31.2%
Airbus A320 NEO	6,013	4.3%
Airbus A321	18,922	13.4%
Airbus A321 NEO	1,434	1.0%
Airbus A330	66	-
Boeing B737-300	152	0.1%
Boeing B737-400	598	0.4%
Boeing B737-500	182	0.1%
Boeing B737-700	227	0.2%
Boeing B737-800	16,683	11.8%
Boeing B737-900	550	0.4%
Boeing B757	1,414	1.0%
Boeing B767	26	-
Boeing B777	64	-
Boeing B787	40	-
Canadair Global Express GLEX	3,562	2.5%
Cessna Citation Excel C56X	2,435	1.7%
Canadair Challenger CL30	291	0.2%
Canadair Challenger CL60	1,622	1.1%
Gulfstream 3,4 & 400 series GLF3/GLF4	1,122	0.8%
Gulfstream 5 and 500 series GLF5	1,668	1.2%
Gulfstream 650 GLF6	1,590	1.1%
Embraer Legacy 600	459	0.3%
Cessna Citation Jet C525	76	-
Dassault Falcon FA7X	1,067	0.8%
Helicopter	578	0.4%
Other aircraft	13,160	9.3%
TOTAL	141.475	100%

The aim of this section is to provide the number of movements for a specific aircraft type. The groups are conditional, assuming that these are the typical aircraft types used for passengers, cargo and general aviation movements. As a result the number quoted here within this section will differ from those within the Aircraft Movements Section.

¹ - Winglets and sharklets are small aerodynamic surfaces mounted almost vertically at the wingtips. There is no difference between winglets and sharklets; the term sharklet is just the name used by Airbus for the winglets fitted to their aircraft.

The graph below shows the percentage of the most popular type of movements by aircraft type at LLA. The data goes back five years for data comparison purposes.



Destinations

London Luton Airport has seen continuous passenger growth during 2019, making 2019 the busiest year ever in the airport's history.

Our airlines fly to 141 destinations across 41 different countries.

The table below shows the number of movements on our busiest routes in 2019.

Destination	Number of Movements
Amsterdam	6,145
Bucharest-Otopeni	3,473
Geneva	3,236
Barcelona	3,117
Tel Aviv	3,075
Budapest	2,994
Dublin	2,657
Nice	2,627
Belfast	2,580
Malaga	2,568

New Routes 2019

Destination	Launch	Airline	Destination	Launch	Airline
Krakow	04-Apr-2019	Wizz Air	Oslo	16-Sept-2019	Wizz Air
Thessakiniki	02-May-2019	TUI	Catania	17-Sept-2019	Wizz Air
Heraklion	02-May-2019	TUI	Sarajevo	24-Sept-2019	Fly Bosnia
Enfidha	03-May-2019	TUI	Moscow	01-Oct-2019	Wizz Air
Thessaloniki	01-Jul-2019	Wizz Air	St Petersburg	01-Oct-2019	Wizz Air
Bergen	01-Jul-2019	Wizz Air	Krakow	27-Oct-2019	Ryanair
Porto	02-Jul-2019	Wizz Air	Prague	28-Oct-2019	EasyJet
Turku	02-Jul-2019	Wizz Air	Seville	09-Nov-2019	Ryanair
Kiev	01-Sept-2019	Wizz Air	Castellon	09-Dec-2019	Wizz Air
Stavanger	16-Sept-2019	Wizz Air			

Routes Ending 2019

Whilst there were 19 new routes launched from LLA in 2019, 21 routes ended.

More information about our destinations can be found on the airport's website: <http://www.london-luton.co.uk/inside-lla/destination-map>

Runway usage

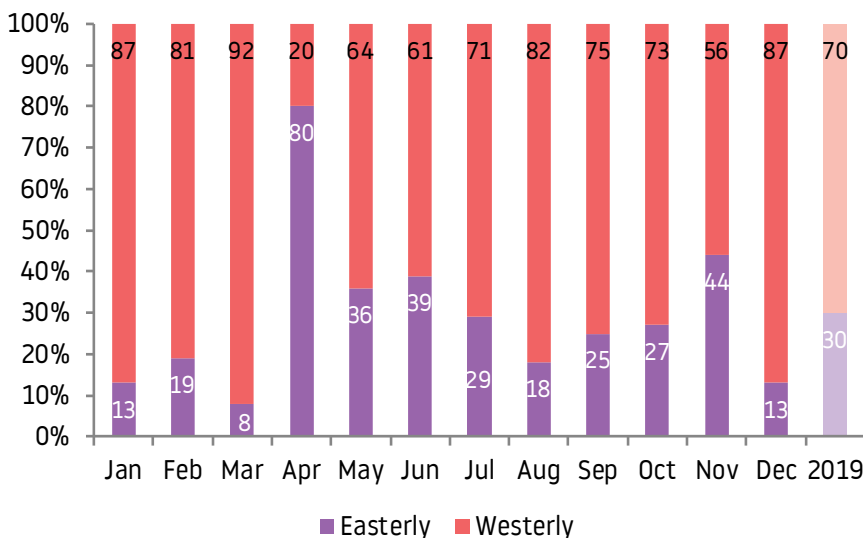
Aircraft need to land and take off into the wind and therefore the prevailing wind direction determines the direction of airfield operation. South westerly and westerly winds prevail for much of the year, typically around 70 per cent of the time.

Wind speeds and directions recorded at higher altitudes can vary considerably from those recorded at ground level. The position of the wind is under constant review by NATS which is why the operation can change direction more than once in a day. However it is also not unusual for the runway to operate in the same direction for several weeks.

A monthly breakdown is shown, highlighting unusually prolonged spells of westerly operations over the summer and increased levels of easterly operations over Q2 of 2019.



Runway Usage



Year	Easterly	Westerly
2019	30%	70%
2018	37%	63%
2017	21%	79%
2016	30%	70%
2015	28%	72%
Average	29%	71%

The runway split during 2019 was 30% easterly and 70% westerly (compared to 37% / 63% in 2018). A breakdown of runway usage over the last five years is also shown in the table, giving a historical split of 29% easterly and 71% westerly.

Night Flights

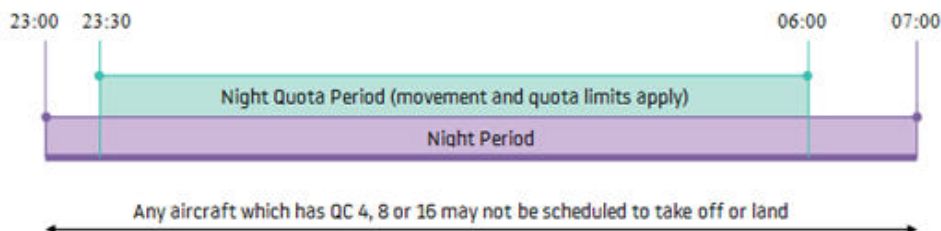


Night Flying Restrictions

As from 1st April 2015 London Luton Airport introduced new night restrictions as part of the planning conditions imposed by Luton Borough Council.

These restrictions have been put in place to limit and mitigate noise disturbance from aircraft operating at night, to prohibit aircraft of certain types from operating, as well as limiting the number of occasions on which aircraft may take off or land.

The night flying restrictions contain a 12 month period aircraft movement limit and a 12 month period quota count limit. The quota count (QC) means that points are allocated to different aircraft types according to how noisy they are. The noisier the aircraft type, the higher the points allocated. This provides an incentive for airlines to use quieter aircraft



The table overleaf records the QC bands identified by the certified noise levels, and gives some typical example aircraft, some of which operate from LLA.

The 'Night Quota Period'

The 'Night Quota Period' is from 23:30 to 06:00 hours local, during which period aircraft movements (take-off or landing) are restricted by a limit on the number of movements with noise quotas as an additional measure.

Aircraft are certificated by the International Civil Aviation Organisation (ICAO) according to the noise they produce during specific certification tests conducted by the manufacturer. They are classified separately for both take off and landing. The points are then allocated to different aircraft types according to how noisy they are.

The 'Early Morning Shoulder Period'

The 'Early Morning Shoulder Period' is 06:00 to 07:00 hours local. During this period aircraft movements (take-off or landing) are restricted by a limit on the number of movements (the same as the Night Quota Period).

Aircraft movement and quota count limits (per 12 month period)

Condition 9(iii) requires that for the Night Quota Period (2330 - 0600) the following limits shall not be exceeded:

- 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.

Certificated noise level (EPNdB)	Typical aircraft	Quota Count
96 to 98.9	B732, MD10	QC 4
93 to 95.9	B772, A306, A332	QC 2
90 to 92.9	A320/A321, some B738, B752, B788	QC 1
87 to 89.9	A319/A320, some B734, B738, B788	QC 0.5
84 to 86.9	A319/A320, GLEX, FA7X/F900/F2TH	QC 0.25
Less than 84	Challenger series (eg CL60), ATP, C525/C550 & A320 NEO	QC 0

Condition 9(iv) requires that for the Early Morning Shoulder Period (0600 - 0700) the total annual movements by aircraft in any 12 month period shall be limited to 7,000.

The table below provides total aircraft annual movements and noise quota per 12 month period and compares those against the limits set by planning conditions.

	Night Quota Period (2330 - 0600)		Early Morning Shoulder (0600 - 0700)
	Movements Limited to 9,650	Quota Count Limited to 3,500	Movements Limited to 7,000
Jan 2019	480	194.25	402
Feb 2019	447	180.25	358
Mar 2019	508	183.25	418
Apr 2019	816	266.25	606
May 2019	937	301.25	671
Jun 2019	873	320.75	585
Jul 2019	1,033	398.75	629
Aug 2019	1,003	361.75	575
Sep 2019	834	301.50	516
Oct 2019	896	292.25	516
Nov 2019	449	167.25	335
Dec 2019	568	191.50	357
Total for preceding 12 months	8,844	3,159.00	5,968

There were 53 QC 2 aircraft movements in 2019 during the night time period; 35 were departures by Airbus A300-600 aircraft, 15 were departures by Airbus A330-200 aircraft, 1 was an arrival by an AgustaWestland AW189 helicopter and 2 were departures by Boeing 777-200 aircraft. The two movements by a Boeing 777-200 aircraft were operated by El Al as part of a childrens charity flight. There were no night time aircraft movements with a QC value greater than 2 in 2019.

Marginally Compliant Chapter 3 aircraft

Taking the year as a whole, of the 140,028 movements where Chapter 3 categorisation is applicable, 4 are known to be marginally compliant. These movements were by a Gulfstream IIB and a Gulfstream 3. 2 aircraft movements were by aircraft with unknown classification. These movements were by an Antonov AN-124.



Day/Night ratio of movements

There were 17,175 night movements during 2019 (compared to 16,333 in 2018, a increase of 5%), an average of 47 movements per night (compared to 45 last year). Arriving aircraft accounted for 56%

of total night movements, relating primarily to the last rotation of Luton based passenger aircraft scheduled to land back at the airport at night, between 23:00 hrs and midnight. 68% of total night

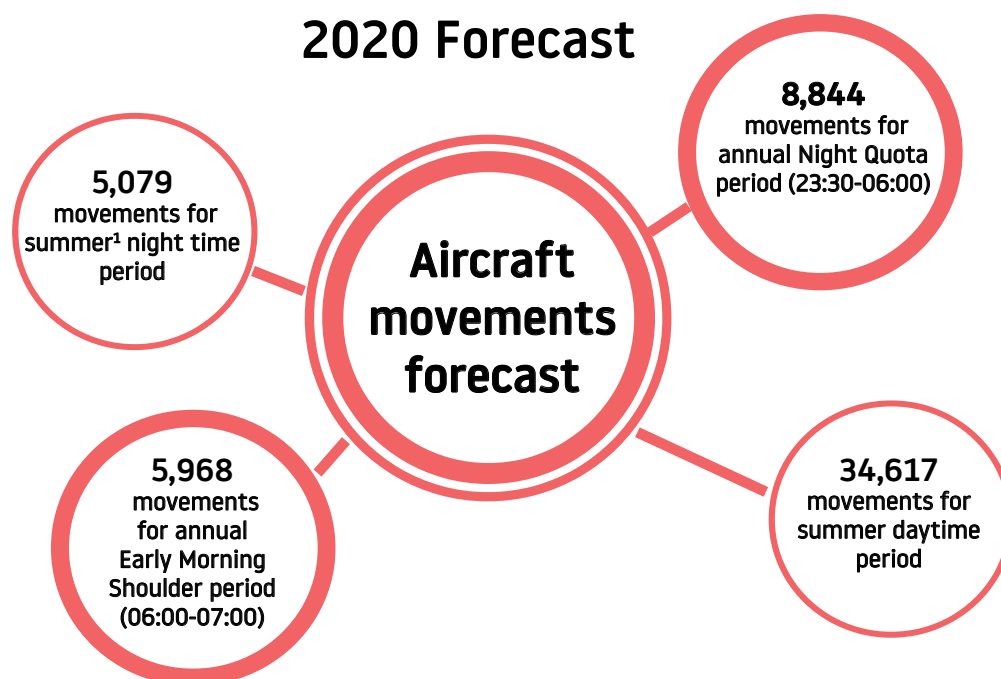
departures took off between 0600 - 0700 in the morning.

The average ratio of total aircraft movements during 2019 was 88% day / 12% night (same as 2018).

2019	Day Movements (0700 - 2259)	Night Movements (2300 - 0659)		
	Day Movements	Night Quota Period (2330 - 0559)	Early Morning Shoulder (0600 - 0659)	Total Night Movements (2300 - 0659)
Departures	63,183	1,996	5,125	7,562
Arrivals	61,123	6,848	843	9,613
TOTAL	124,306	8,844	5,968	17,175

The figure below shows forecast aircraft movements for 2020, separated into daytime and night time periods. Please note, this forecast was created before COVID-19 in the UK.

2020 Forecast



¹ - Summer time covers period from 16th June until 15th September

Departing Aircraft

All propeller-driven aircraft with Maximum Take Off Mass (MTOM) over 5,700kg and all jet aircraft leaving London Luton Airport are required to follow specific departure routes known as Noise Preferential Routes (NPRs). These are established by consultation with the Safety and Airspace Regulatory Group (SARG) at the CAA and the London Luton Airport Consultative Committee, and they are designed to avoid flying over built-up areas wherever possible.

There are four Standard Instrument Departure (SID) routes for each runway – OLNEY, COMPTON, MATCH and DETLING.

Associated with each NPR is a swathe of airspace extending 1.5km (1km for RNAV) each side of the NPR centre line, within which aircraft concentrate and are considered to be flying on track. Aircraft must follow the NPR controls applicable to the runway in use at that time.

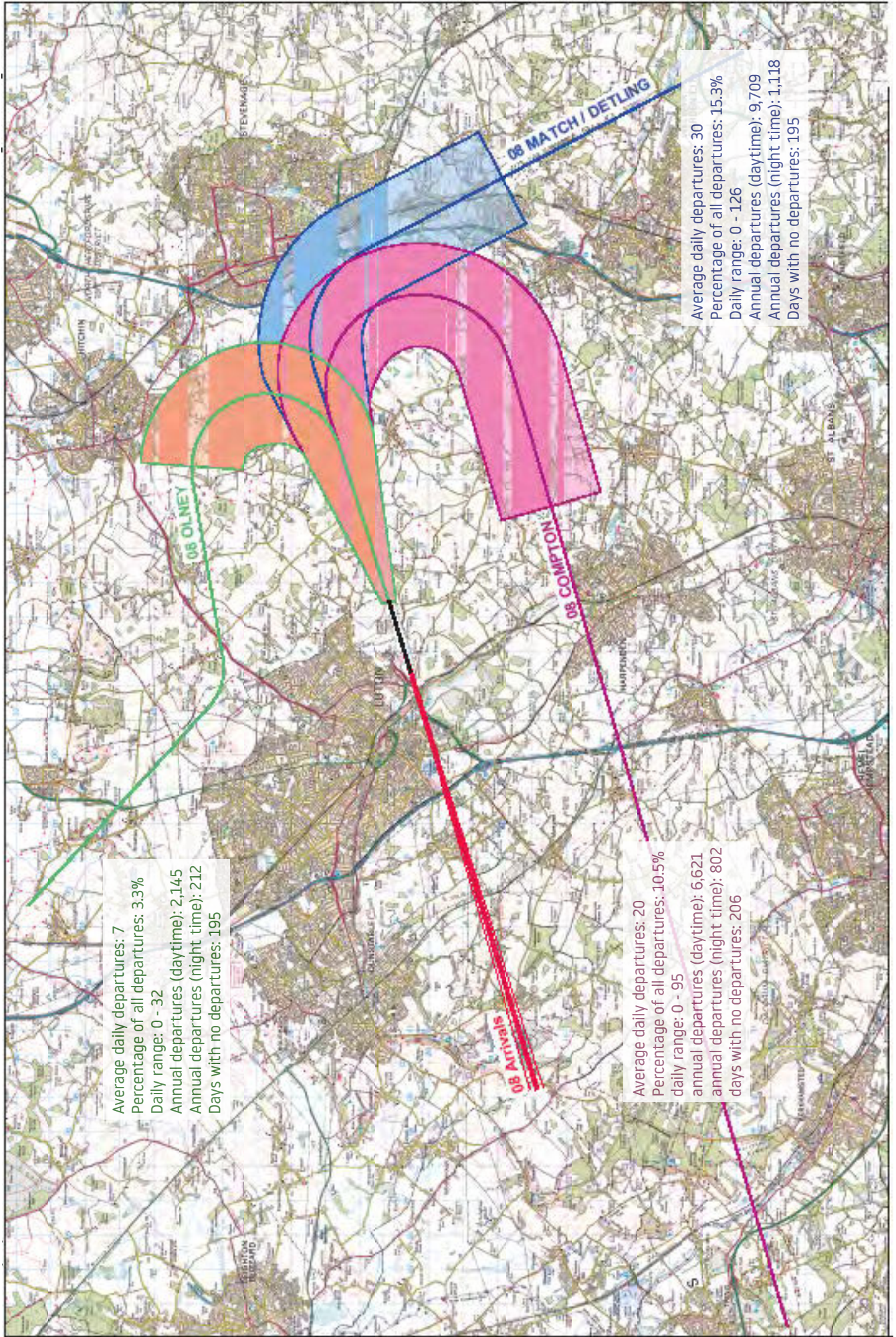
In the UK, the obligations of Noise Preferential Routings for aircraft following conventional SIDs cease when a height of 3,000ft (between 07:00hrs to 22:59hrs local time) and 4,000ft (during night time, 23:00hrs to 06:59hrs local time) has been reached. The obligations of the RNAV NPR ceases when a height of 4,000ft has been reached at all times.

Once aircraft have reached the NPR restricted altitude they will be considered no longer on the Noise Preferential Route. At that stage the aircraft may be directed by Air Traffic Controllers onto a different heading in order to integrate with the overall flow of traffic, this is known as vectoring. However on RNAV Match/Detling SID aircraft should not be vectored before the railway line between St Albans and Harpenden, unless this is required for safe separation from other aircraft or for other safety issues such as avoiding adverse weather.

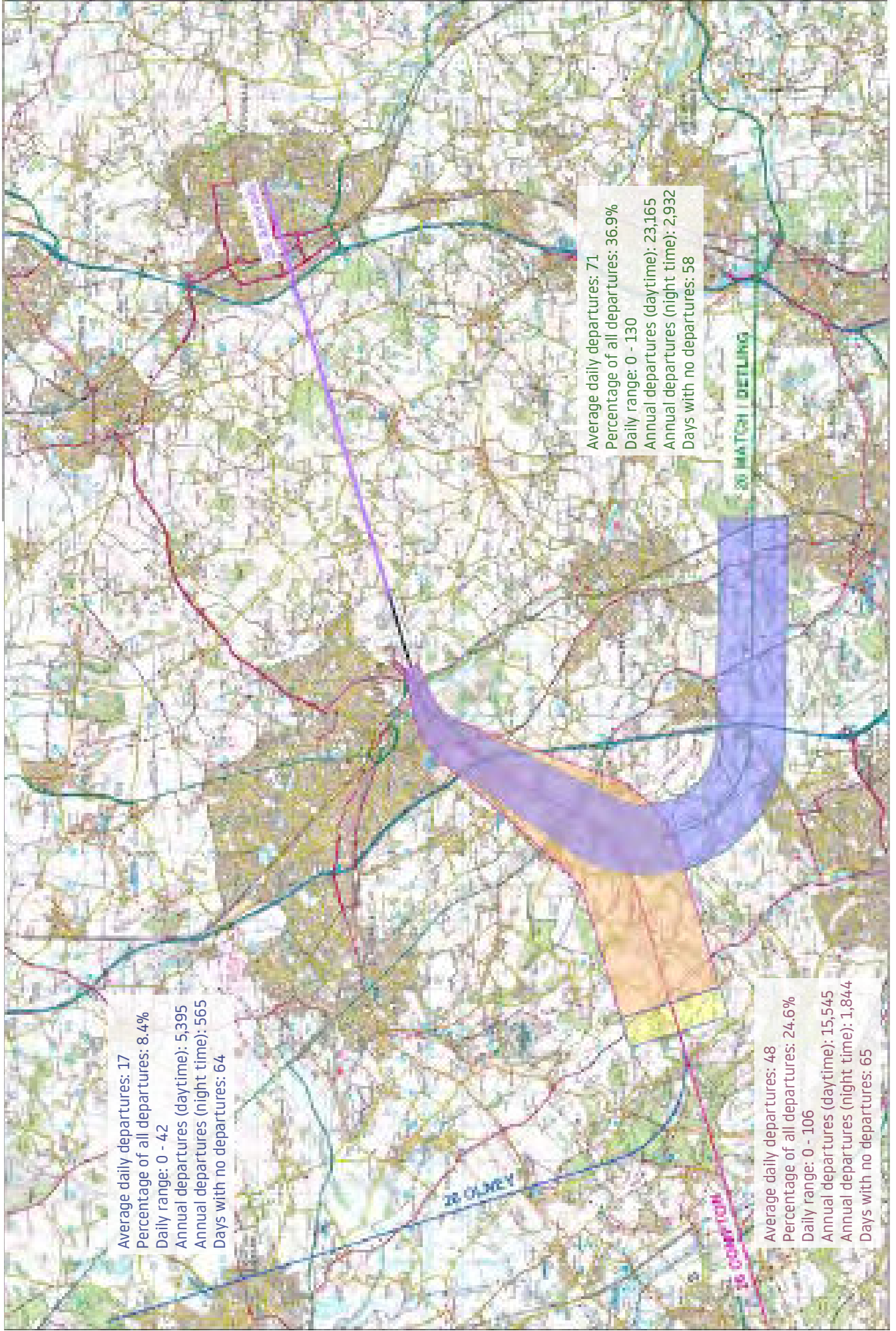
Two maps overleaf show indicative flight routes for westerly and easterly operations at London Luton Airport with detailed information about each departure route.



Plan showing Easterly (08) flight routes



Plan showing Westerly (26) flight routes



On Track performance

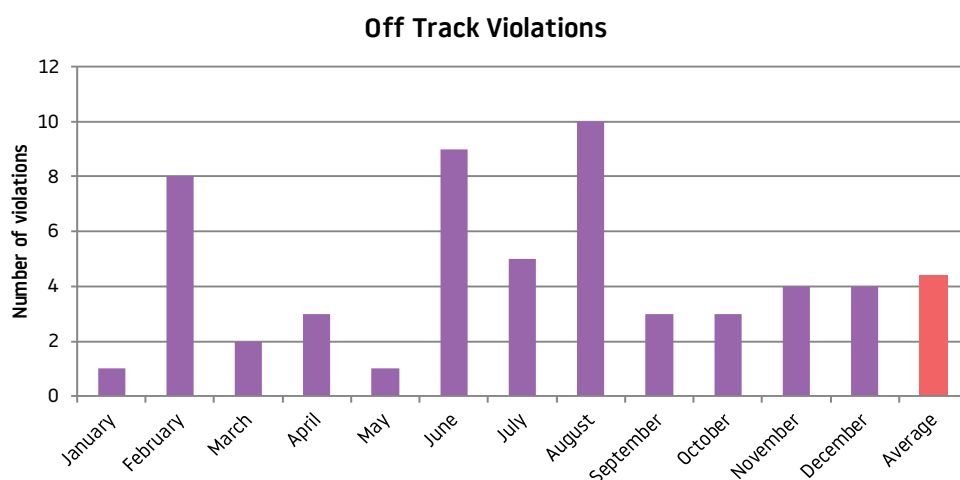
On the 1st April 2015 London Luton Airport implemented a Track Violation Penalty System as part of the noise related planning conditions. Using the airport's Aircraft Noise and Track Monitoring System, the Flight Operations Team evaluates the radar tracks and investigates them with required input from Air Traffic Control (ATC) and airlines. A departure is deemed to have complied with the Noise Preferential Routing if the portion of flight below the appropriate vectoring altitude is flown wholly within the Lateral Swathe (LS). Where the aircraft is clearly flying outside the LS, the aircraft is identified as causing a "possible" track violation and is subject to a nominal fine. This money is transferred to our Community Trust Fund which awards grants to community projects.

From 1st April 2018, the penalty was increased to £1,000 for a daytime violation (07:00-22:59hrs) and £2,000 for a night time violation (23:00-06:59hrs).

As always, safety is paramount and there may be cases which involve vectoring an aircraft sooner than at the NPR height restriction. If ATC identifies any valid justification that could explain the deviation from the track, then the operator causing it will be exempt from the fine. Valid justifications include:

- Safety or operational reasons, i.e ATC vectoring
- Weather avoidance due to thunderstorm activity (as instructed by ATC)
- Emergencies

The diagram below shows off-track violations by month in 2019. The track keeping performance was 99.6%. This calculation excludes deviations for weather, traffic avoidance and those identified as violations.



£58,000 the total of all collected fines transferred to Community Trust Fund

The breakdown of the violations by aircraft type is shown in the tables below.

A/C Type	Total № Violations
GLEX	12
GLF6	6
BE40, C550, C560, C56X, C680, C68A, CL60, CN35, F2TH, FA10, FA7X, GLF4, GLF5, H25B, LJ45, RJ1H, ZLJ4, ZLJ6	25
A319, A320, B734, B737, B738	9
A306	1
TOTAL	53

Airspace Change Proposal's

At LLA we are currently working on our next phase of airspace change which involves Performance Based Navigational procedures. In order to change any piece of airspace, the Civil Aviation Authority (CAA) require all airports to follow a regulatory process which is detailed in the CAA's publication CAP 1616. This document can be downloaded from [here](#).

Furthermore, in line with the CAP 1616 process all documentation surrounding an Airspace Change Proposal will be uploaded to the CAA's dedicated portal which can be accessed at <https://airspacechange.caa.co.uk/>

Swanwick Airspace Improvement Project - Airspace Development 6 (SAIP AD6)

In 2019, LLA started an airspace change proposal with joint sponsors, NATS. The purpose of the airspace change is to reduce the complexity of LLA arrivals (and their interacting relationship with London Stansted Airport arrivals), in turn assuring a safe operation for the future. This involves a new holding stack for Luton arrivals.

In April 2019, LLA and NATS submitted the Stage 1 documentation to the CAA, this included design principles and the purpose of the change. This was after engagement with stakeholders (including community, airlines and general aviation). The CAA approved the work and allowed the airspace change to proceed.

Throughout the summer of 2019, work continued on the airspace design; NATS predominantly investigated the upper airspace (above 7,000ft) and LLA worked on the lower designs (below 7,000ft). These designs were then analysed through an initial options appraisal and design principle evaluation. This documentation was submitted to the CAA in November 2019, whereby the CAA approved LLA/NATS to continue.

This airspace change will continue throughout 2020 with a targeted implementation of May 2021. All updated documentation submitted to the CAA for this airspace change is available on the CAA's airspace change portal [here](#).

Future Airspace Strategy Implementation - South (FASI-S)

As part of a National airspace change programme, as detailed in the Civil Aviation Authority's (CAA) Airspace Modernisation Strategy, London Luton Airport is required to update all of its arrival and departure procedures in a move towards satellite based technology. The programme is known as FASI-S and involves many airports and NATS.

The Future Airspace Strategy Implementation South (FASI South) programme in 2019 was co-ordinated by a new group known as ACOG (Airspace Change Organisation Group). However, each airport is an airspace change sponsor and responsible for their own designs and integrating these routes with other airports and upper airspace.

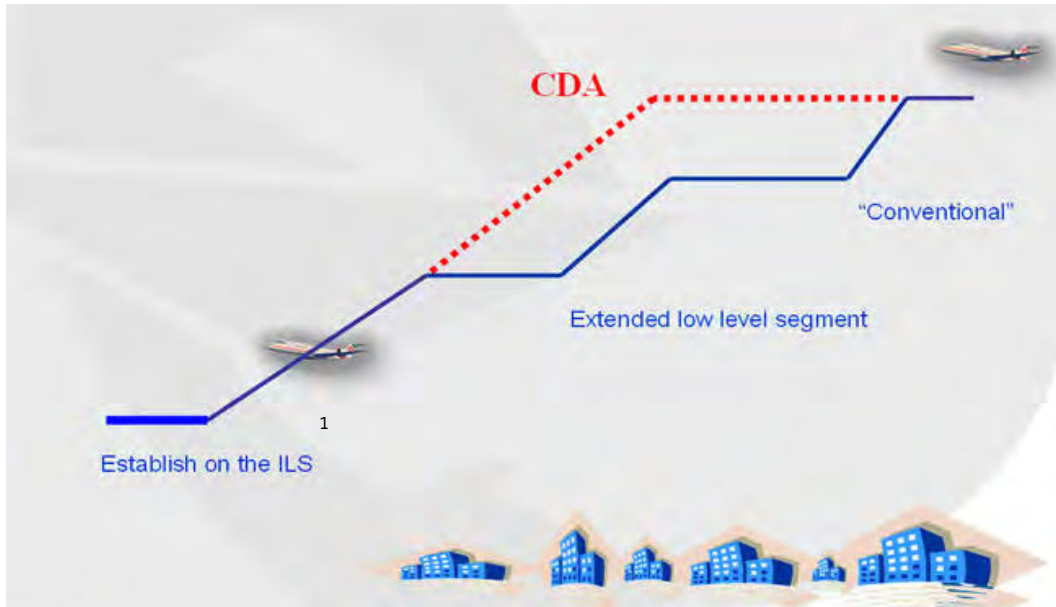
LLA started the FASI-S airspace change in November 2018 and submitted a Statement of Need to the CAA. In the Statement of Need LLA stated that we are using this opportunity to look at options of aircraft reaching higher altitudes sooner on departure and remaining higher for longer on arrival enabling significant environmental benefits.

In the first half of 2019, LLA conducted engagement with stakeholders (this included community, airline and general aviation stakeholders) regarding design principles and the purpose of the airspace change. This documentation was submitted to the CAA in May 2019 as part of the Stage 1 Gateway; this work was subsequently approved by the CAA. During the second half of 2019, work continued on designs based on the design principles submitted in the CAA gateway, this is Stage 2A of the CAP 1616 process working towards a Stage 2 gateway in July 2020.

All updated documentation submitted to the CAA for this airspace change is available on the CAA's airspace change portal [here](#).

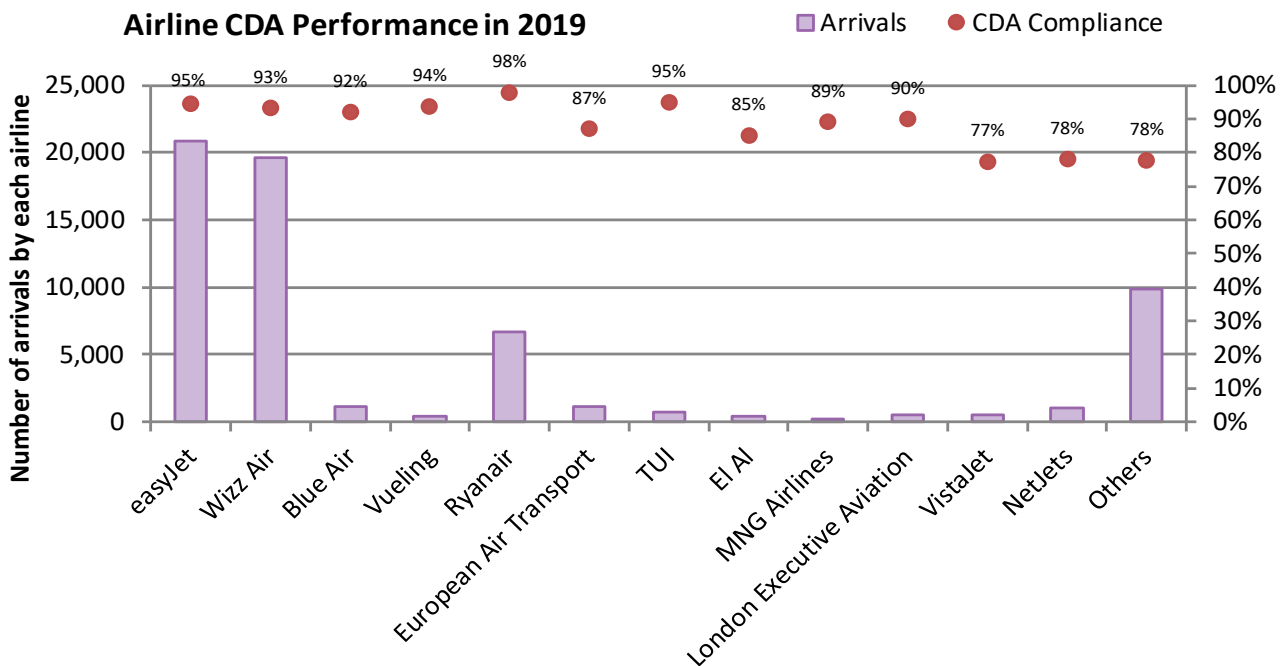
Arriving Aircraft

Although there are no set routes for arriving aircraft there are long established procedures to mitigate the disturbance that can be caused on approach to the airfield. One of the most successful measures is a noise mitigation procedure called Continuous Descent Approach (CDA).



The conventional approach involves descending in steps using engine thrust to level off. In a Continuous Descent Approach, or CDA, an aircraft stays higher for longer and descends at a continuous rate to the runway threshold therefore reducing periods of prolonged level flight at lower altitudes. With CDA less fuel is burnt, less emissions are produced but most importantly it reduces the noise by avoiding the use of engine thrust required for level flight.

The overall CDA achievement was 91% with several major LLA operators achieving higher performance; Ryanair, easyJet and TUI. The chart compares the level of CDA performance by our main airline operators.



¹ - An Instrument Landing System (ILS) is a ground-based instrument approach aid based on two radio beams which together provide lateral and vertical guidance to an aircraft approaching and landing on a runway.

Delayed Landing Gear Deployment

At LLA we always aim to work constructively with our local community in order to reduce the impacts of noise. In 2017, LLA conducted an aviation leading trial to reduce noise by from arriving aircraft. The trial, conducted during the summer, consisted of aircraft delaying the deployment of landing gear.

As an aircraft makes its final approach most noise is caused by the flow of air over the fuselage as drag is created to slow the aircraft down. Noise was measured along the arrivals flightpath to understand what, if any, reduction which could be achieved. Stevenage, Dagnall and Whipnade were among those communities who saw the greatest benefit of between 2.7db and 3.4db

Following the successful trial, some operators have already changed their operating procedures to make this standard practice. During 2019, LLA continued to work with operators to encourage delayed landing gear deployment.

Departure and arrival flight tracks

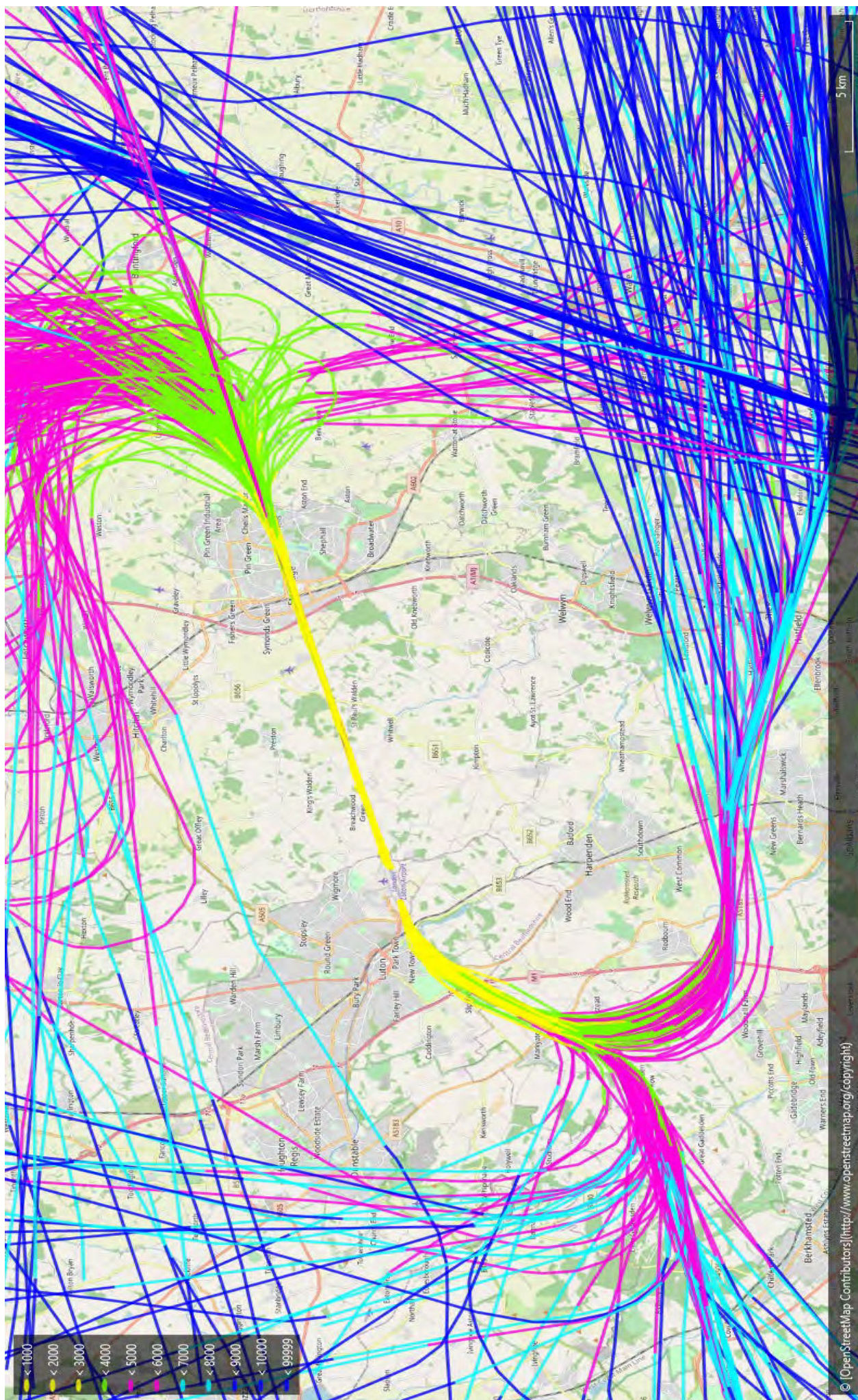
Maps overleaf display typical 24 hour periods of both westerly and easterly operations. The colour coding from yellow to blue represents different altitude bands up to 10,000ft above mean sea level.

The last two maps display aircraft track density plots for the summer period 16th June - 15th September 2019. A track density plot is a map which displays the pattern of aircraft flight track passing over the region around the airport during a specific period. The system analyses the number of flights passing over each grid element of an array. The colour coding from purple to red represents the range 1 to over 147 flight tracks over a grid element. If any grid element is not colour-coded, the number of aircraft flight tracks passing over that element was less than 1 flight. The red areas represent locations where operations are more densely concentrated.

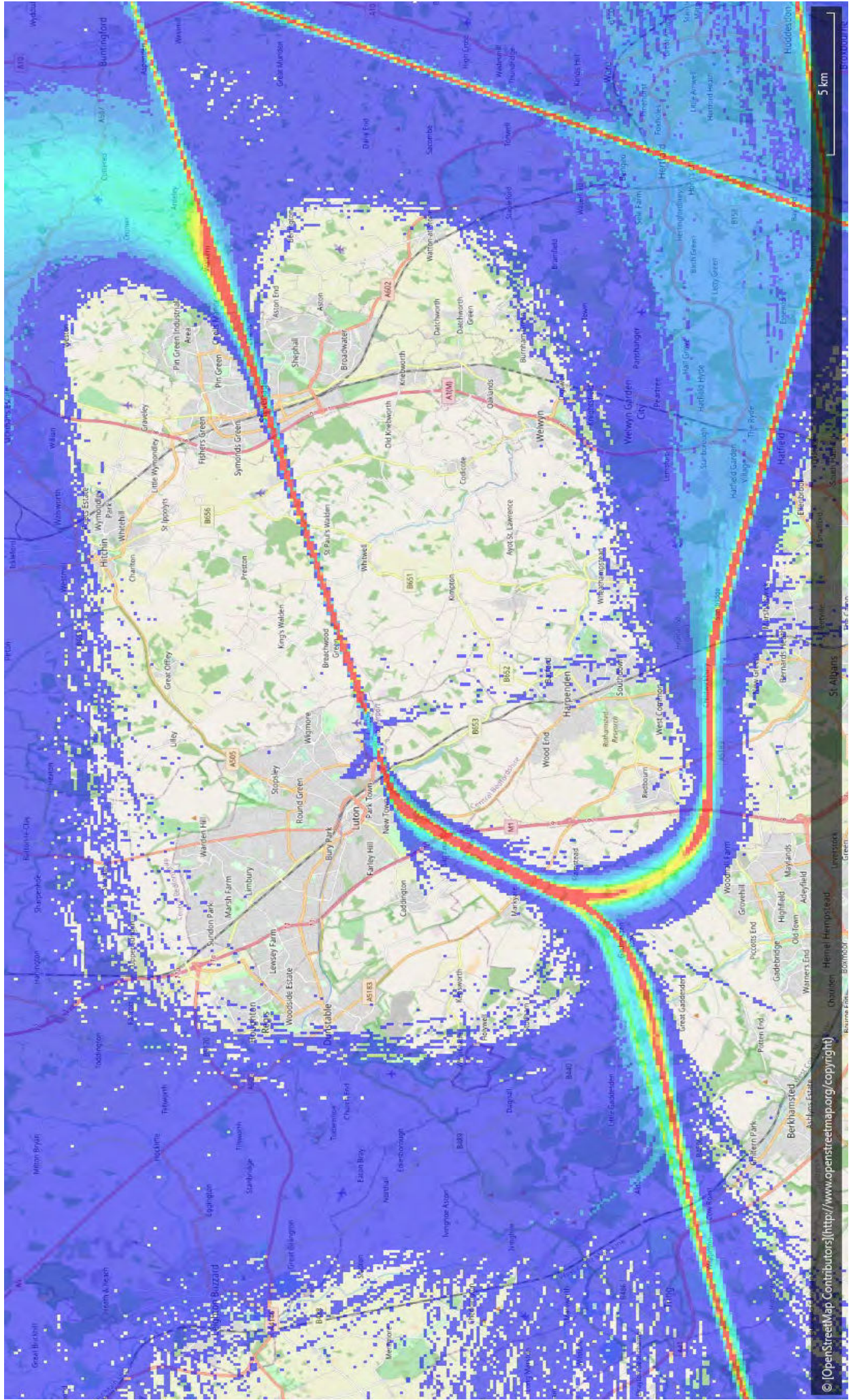
It should be noted that London Luton Airport's aircraft movements integrate with a traffic network travelling to and from other airports in the region, and the South East is one of the world's busiest sectors of airspace. However the following sample flight tracks only include operations for London Luton Airport and overflights from other airports have been omitted for clarity.



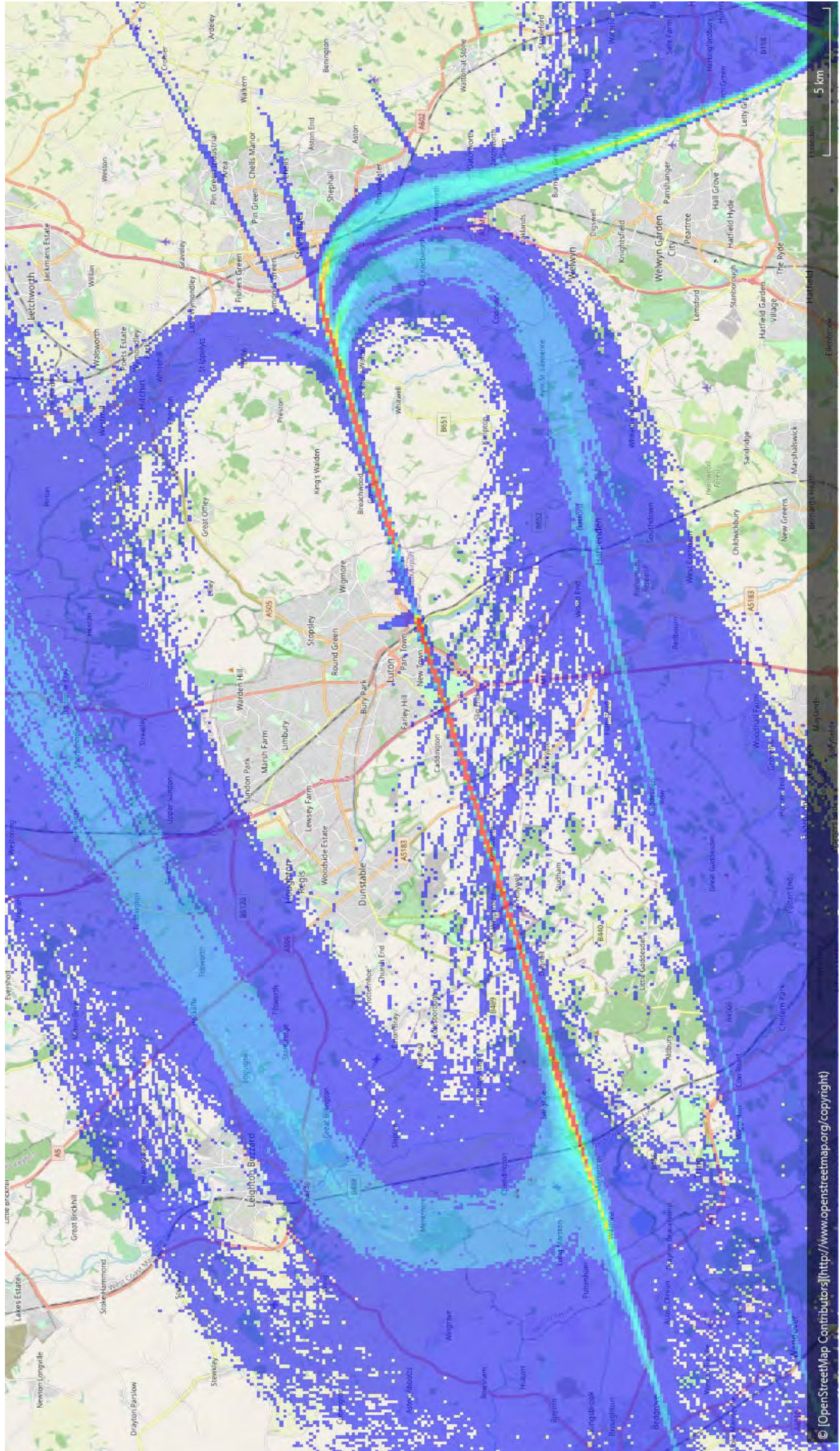
Westerly (26) Flight Routes (24 hour period)



Plot Density - 16th June - 15th September 2018 - Westerly (26)



Plot Density - 16th June - 15th September 2018 - Easterly (08)



Aircraft 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. Most airport related noise is created by aircraft approaching, taking-off and taxiing to and from the runway. The management and control of noise continues to be a major element of the airport's policy to constantly seek to minimise and mitigate our environmental impact.

How is noise monitored?

People who live close to airports or under flight paths can often feel strongly about the disturbance to their lives from noise. Effects of noise include general distraction, speech interference and sleep disturbance which can lead to annoyance and complaints.

At LLA we monitor noise and track keeping with a specialised system that 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 6.5km from the aircraft start of roll, at either end of the runway within the neighbouring communities. This method records the maximum noise level at a point, rather than the way it is spread over the surrounding area. New features and system enhancements continue to improve the functionality and capabilities available to the Flight Operations Department.



LLA has 7 portable noise monitors and 3 fixed noise monitors. During 2019, noise was monitored in 12 locations: Breachwood Green, Caddington, Dagnall, Flamstead, South Harpenden, Kensworth, Leighton Buzzard, Letchworth, South Luton, Markyate, St Alban, Stevenage and Wheathampstead. The Community Noise Report for each location can be found on <https://www.london-luton.co.uk/corporate/community/noise/community-noise-reports>.

Noise violation levels



The following table identifies daytime and night-time noise levels correlated to departing aircraft at the fixed noise monitoring terminals.

In order for a noise event to be correlated to an aircraft it should reach a detection threshold. The noise monitoring terminals are set at the lowest level to record the maximum number of aircraft noise events. However, a number of smaller aircraft types, such as business jets and propeller aircraft, get very close to but do not reach the detection threshold. Ambient background noise is also an important factor as specific incidents such as loud road traffic, emergency vehicle sirens, lawn mowers, drills etc. can register noise levels louder than an aircraft overhead, which results in not all aircraft movements being correlated to noise events. Generally, the louder noise events have more certainty of being correlated with aircraft movements.

Weather conditions can also effect the number of noise monitoring events recorded in the table; for example, if winds are greater than 10m/s and temperature is either higher than 25°C or below -10°C, results from noise monitors will be invalid and therefore will not be correlated.

	dB (A)	Daytime	NightTime	Total
Number of Correlated Events	<70	6,064	579	6,643
	70	2,007	238	2,245
	71	3,030	353	3,383
	72	5,764	726	6,490
	73	9,964	1,328	11,292
	74	11,353	1,493	12,846
	75	8,700	1,139	9,839
	76	4,685	589	5,274
	77	1,866	302	2,168
	78	745	102	847
	79	243	51	294
	80	123	12	135
	81	50	0	50
	82	37	0	37
	83	0	0	0
	84	0	0	0
	85	0	0	0
	86	0	0	0
	87	0	0	0
	88	0	0	0
89	0	0	0	
90	0	0	0	

During the daytime 99.2% of correlated departing aircraft recorded maximum noise levels less than 79dB(A), with 85.8% registering below 76dB(A). Throughout the year 453 correlated daytime departures (0.8%) registered maximum noise levels at 79dB(A) or above.

There were no correlated departing aircraft in the daytime which recorded a maximum noise level greater than 83dB.

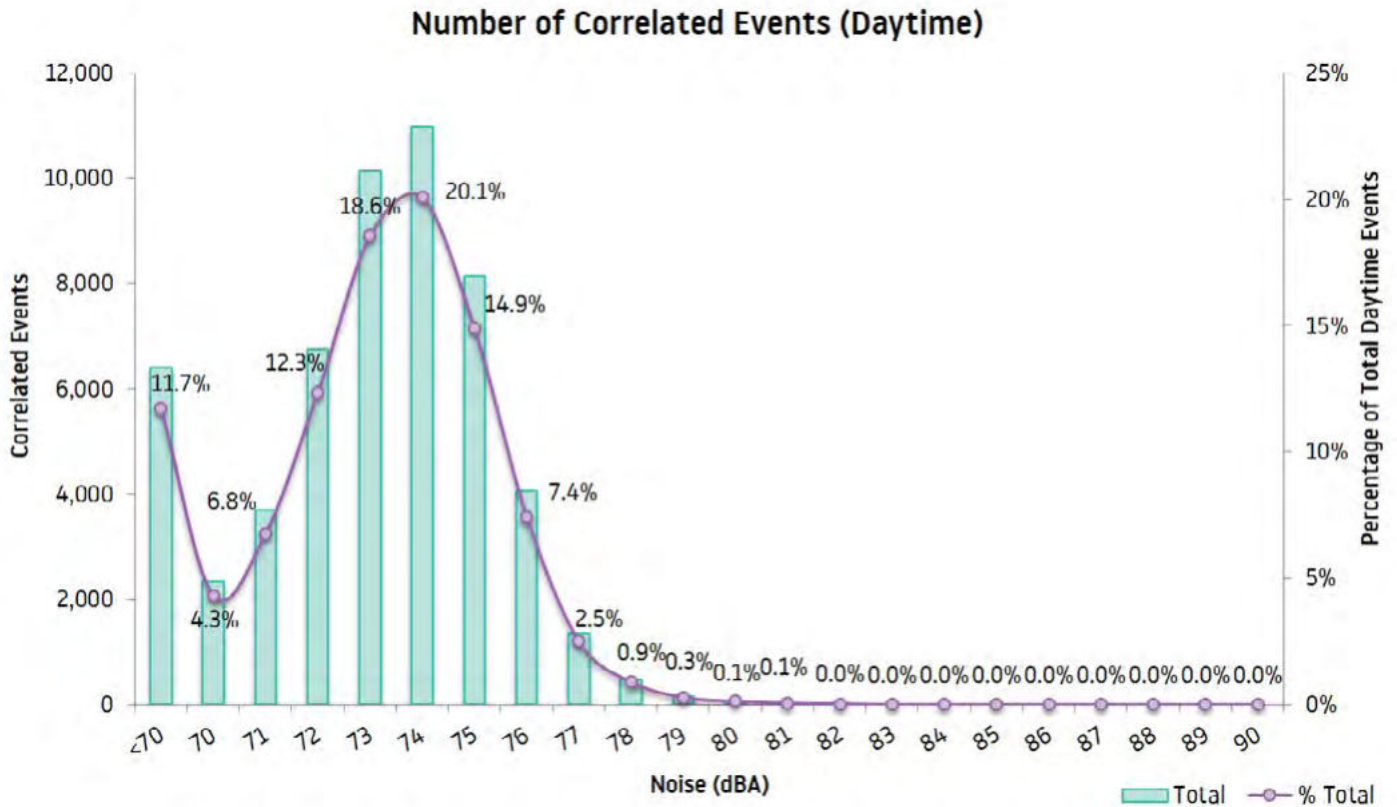
During the night 99.0% of correlated departures recorded maximum noise levels below 79dB(A), with 84.7% below 76dB(A). During the year 63 correlated night departures (0.9%) registered maximum noise levels at or above 79dB(A).

There were no correlated departing aircraft in the night time which recorded a maximum noise level greater than 81dB.

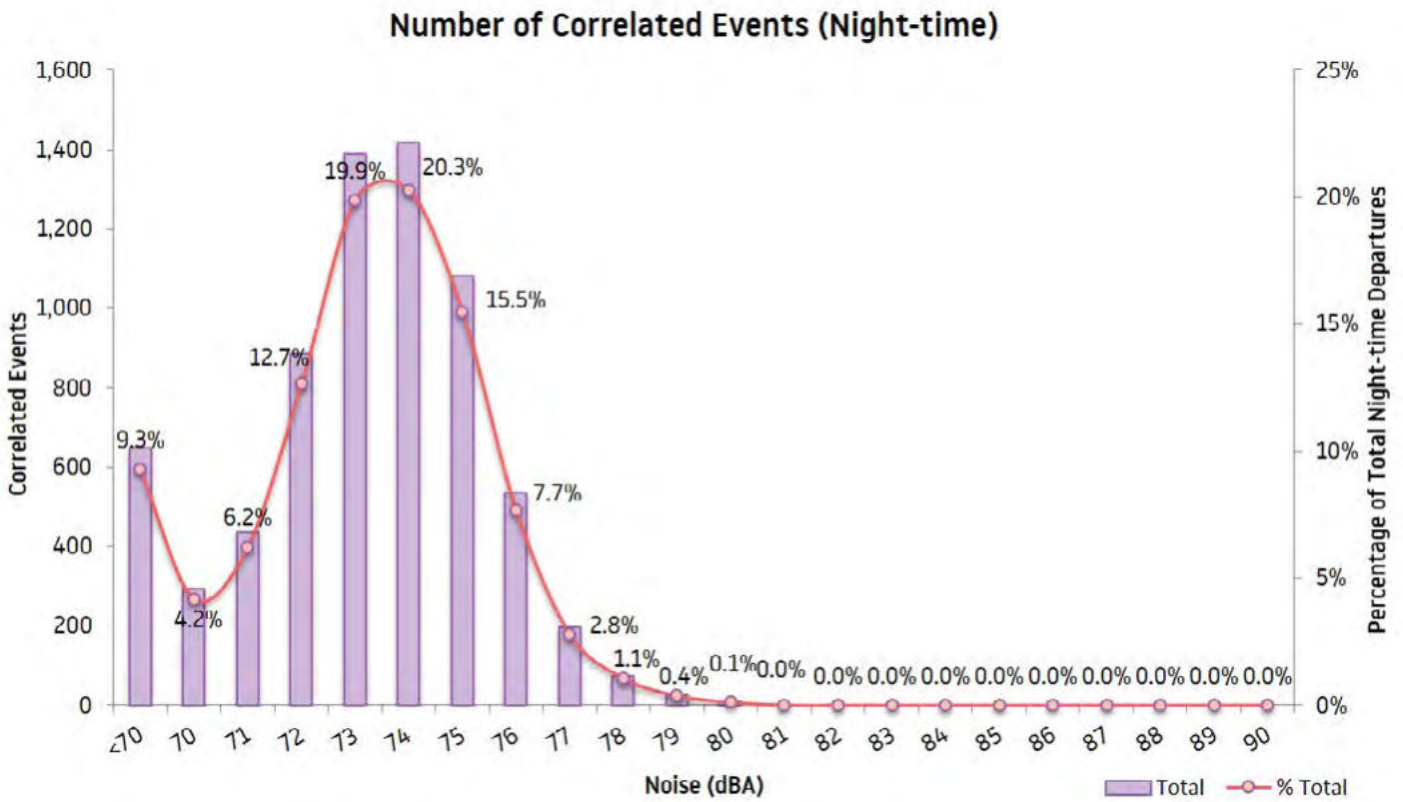
Note: This table comprises of noise measurements from NMT01 and NMT02 fixed monitors only. Readings from NMT03 have been discarded due to system downtime.

Daytime Noise

The following graph shows the number of correlated events during the daytime period (07:00hrs - 22:59hrs) compared to the total percentage of correlated events during the daytime.

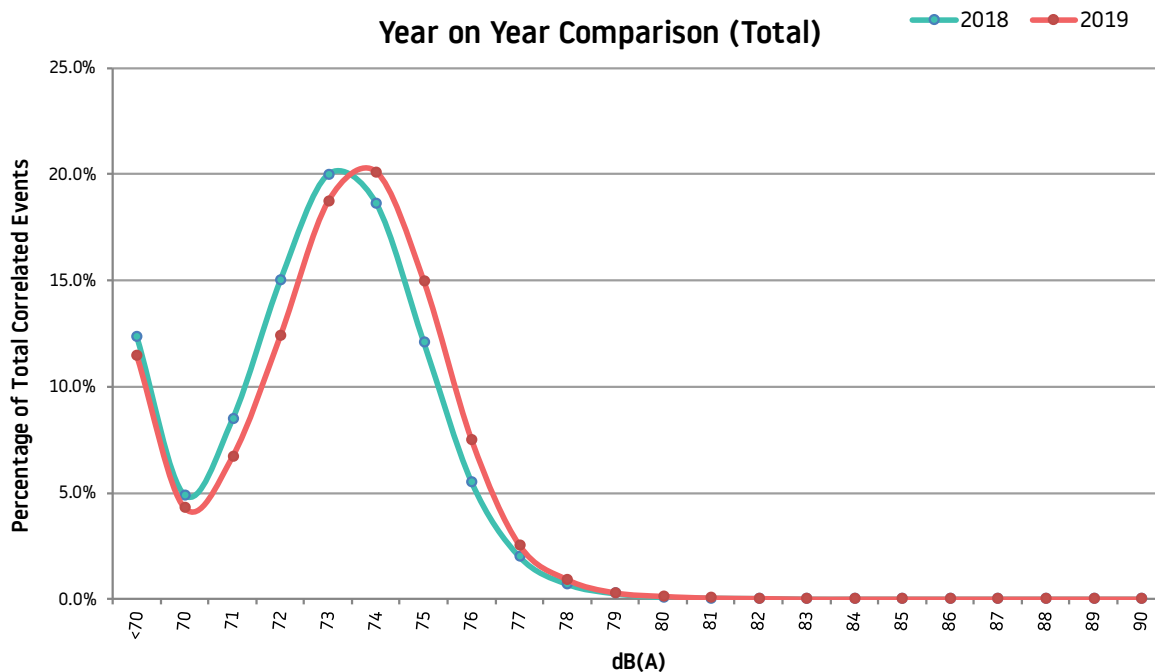


The following graph shows the number of correlated events during the night-time period (23:00hrs - 06:59hrs) compared to the total percentage of correlated events during the night-time.



Annual Comparison

The graph below shows the year on year comparison of the correlated departure noise events. The increase in noise level in 2019 was mainly due to some smaller aircraft have been replaced by larger aircraft, thus creating more aircraft noise to the surrounding area.



Noise violations during 2019

There was no daytime or night time noise violations during 2019. Although, from 1st April 2018 the fine was increased to £1,000 for a daytime noise violation and £2,000 for a night time noise violation. Noise Violation fines are passed to the London Luton airport Community Trust Fund, further details of which can be found at: <https://www.london-luton.co.uk/corporate/community/noise/supporting-lla's-community-trust-fund>

Noise Insulation Scheme

Our Noise Insulation Scheme is just one element of our noise management plan to reduce the impact of noise on those properties in Hertfordshire and Bedfordshire closest to the airport. The scheme covers both residential and non-residential properties. Depending on any existing insulation in the property, double glazing, secondary glazing and ventilation units can be provided. Rooms eligible for insulation include living rooms, dining rooms, kitchen-diners and bedrooms.

During 2019, works were carried out in properties located in south Luton, 42 properties were contacted and 34 properties accepted the insulation.

Noise Contours

Since 1989 the preferred measure of aircraft noise, recognised by UK Government, has been the A-weighted equivalent noise level Leq. This indicator takes account of all the noise energy that occurs over a particular time period and thus takes account of all the 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 LAeq averaged over the 16 hour period from 0700-2300 for an average day between the 16th June and 15th September.

When planning permission was given in 2014 for development at London Luton Airport a number of conditions were imposed. Condition 12 requires that daytime and night-time contours are produced on an annual basis for the previous summer period based on actual aircraft movement data and for the following summer period based on predicted aircraft movement data. The areas of these contours are to be compared to the area limits contained in Condition 12.

Year on year changes in the noise impact are dependent on changes in the number and type of aircraft that used the airport and also the departure routes flown. Changes in the size and shape of the contours can also depend on differences in the runway usage which in turn depends on the relative proportion of westerly and easterly modes of operation, determined by the prevailing wind direction.

Methodology

Aircraft movement data for use in the contour production. The 2019 contour production methodology has been updated from that used for the 2018 contours. It retains the inclusion of terrain, and the use of the INM software (Version 7.0d), but the validation has been updated. The validation is now based on measured results in 2018 at the fixed noise monitors.

The exception to this is the Airbus A321neo, which operated in 2019 and is forecast to operate in 2020, but for which there are only limited measured results available as it didn't operate at Luton in significant numbers in 2018. Therefore modelled noise levels for this new type have been based on its certification noise levels when compared to the Airbus A321ceo, which it is the replacement for, as shown in the table below.

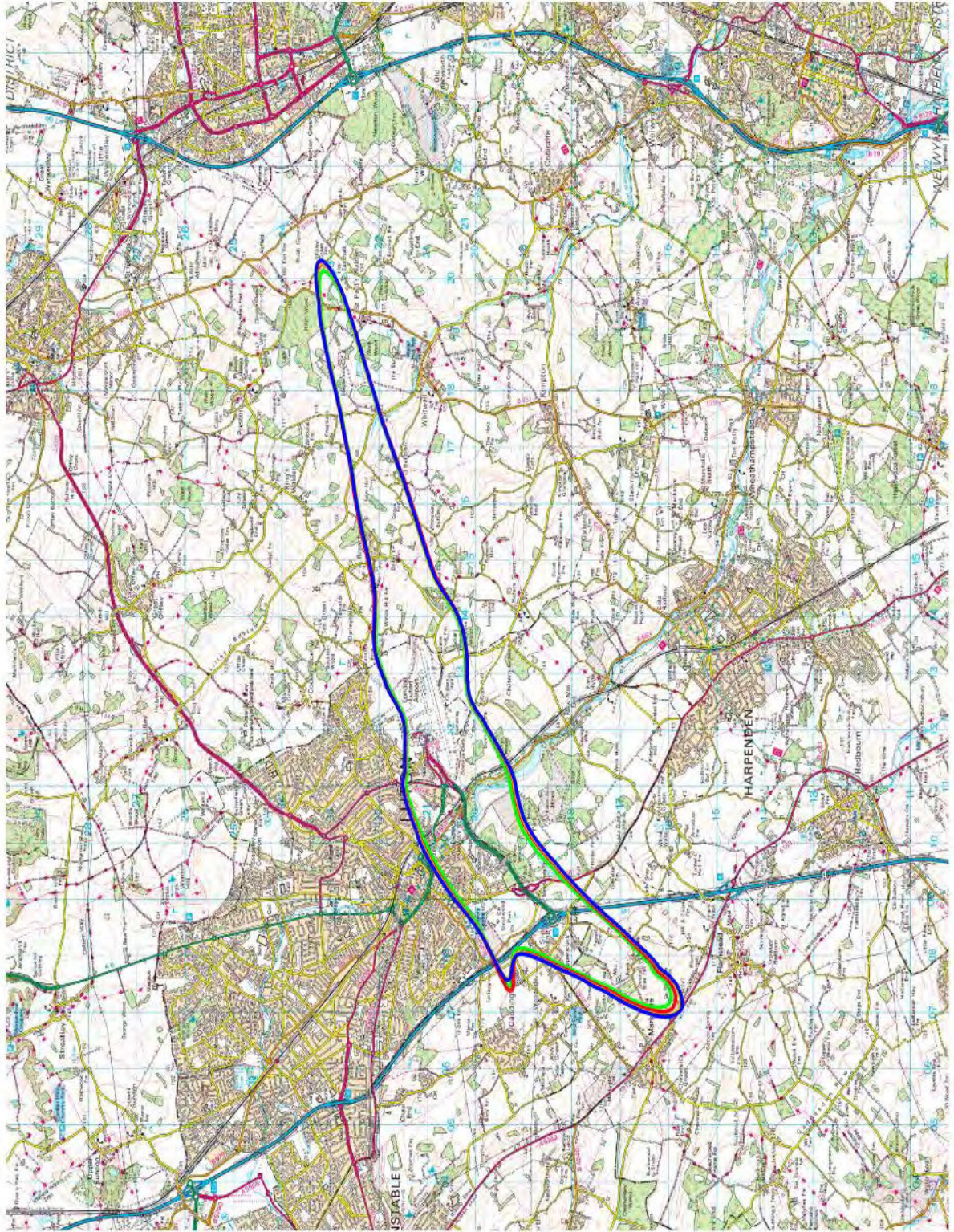
Replacement Aircraft Type	Current Aircraft Type	Noise Level Adjustment (dB)	
		Arrival	Departure
Airbus A321neo	Airbus A321	-1.8	-6.3

The 2020 contours have been produced using a long term (2015-2019) average modal split, which is shown in the table below. 2019 contours have been produced twice, once based on this long term average runway split, and also based on the actual runway usage in 2019. The 2018 contours which are included for comparison are based on the actual runway usage in 2018.

Year	% of Summer Movements	
	Runway 08	Runway 26
2018 Actual	27%	73%
2019 Actual	27%	73%
Long Term Average (2015-2019)	22%	78%

A comparison of the 2018 actual, 2019 actual, 2019 average modal and 2020 forecast daytime 57 dB LAeq,16h and night time 48 dB LAeq,8h contours has been provided. This shows that the 2018 actual, 2019 actual, 2019 average modal and 2020 forecast contours are all similar. The night time 2018 actual and 2019 actual contours are longer at the western end and slightly shorter at the eastern and south western ends compared to the 2019 average modal contours, this is due to the differences in modal split.

Summer Day time Comparison 2018, 2019 and 2020



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LEGEND:

- 57 dB Leq,15th Noise Contours,
- 2018 Actual
- 2019 Actual
- 2019 Average Modal
- 2020 Forecast

NO.	REVISIONS

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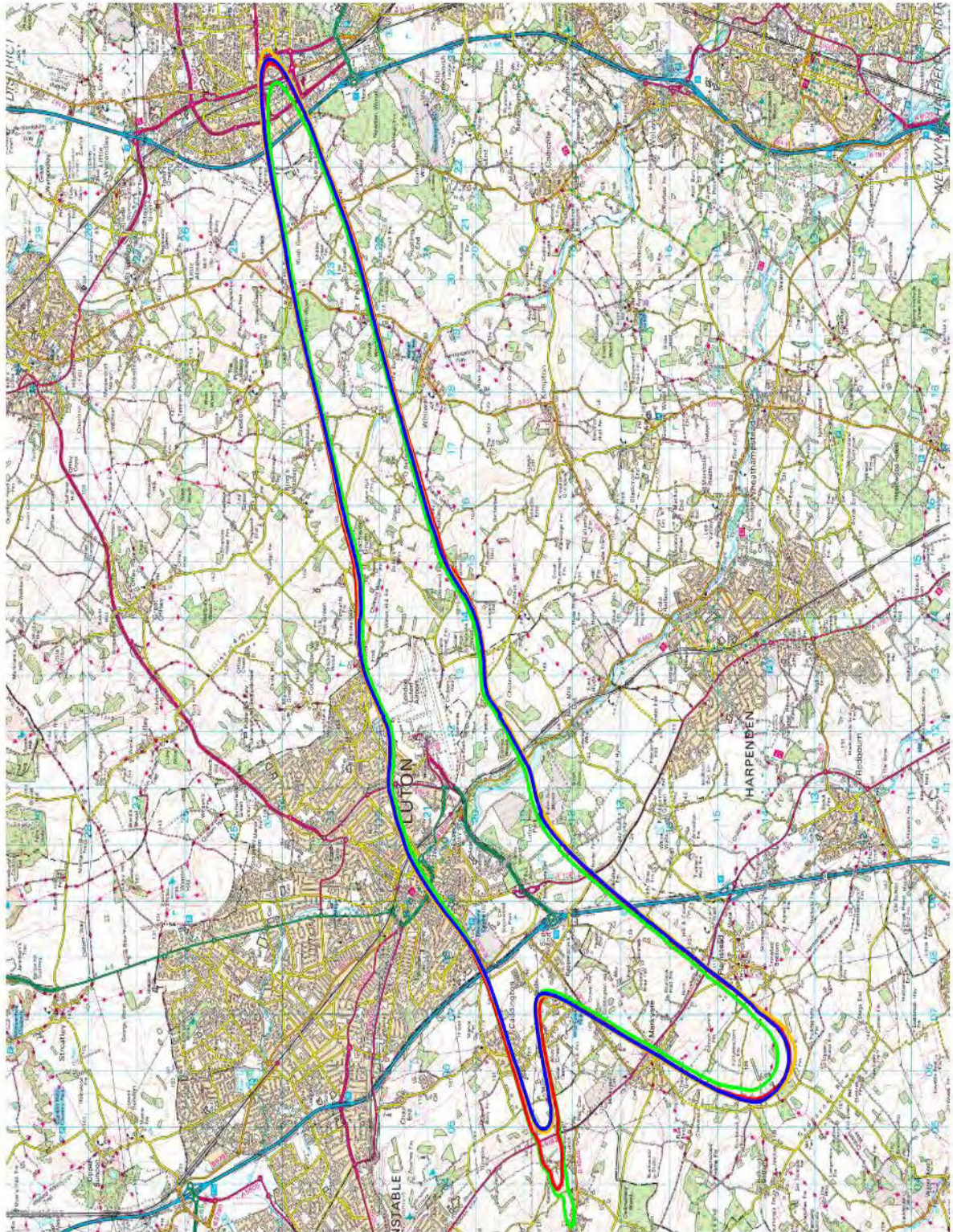
**London Luton Airport
 Regular Contouring**

**Airborne Aircraft Noise Contours
 Summer Daytime Comparison
 2018, 2019 and 2020**

DRAWN: DR CHECKED: DC
 DATE: November 2019 SCALE: 1:100000@A4

FIGURE No: **A11060/N41/07**

Summer Night time Comparison 2018, 2019 and 2020



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LEGEND:

- 48 dB Leq,eqh Noise Contours,
- 2018 Actual
- 2019 Actual
- 2019 Average Modal
- 2020 Forecast

NO.	REVISIONS

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London Luton Airport
 Regular Contouring

Airborne Aircraft Noise Contours
 Summer Night time Comparison
 2018, 2019 and 2020

DRAWN: DR CHECKED: DC
 DATE: November 2019 SCALE: 1:100000@A4

FIGURE No: **A11060/N41/08**

Annual noise contours summer 2019

The table below shows the annual daytime noise contours for summer 2019 covering the standard summer period from 16th June to 15th September inclusive, using the latest version of INM software (the Integrated Noise Model) version 7.0d which is the method used by many other airports in the UK.

L _{Aeq, 16 hour} Daytime	Contour Area (km ²)						
	1984	1999	2018 actual	2019 actual	2019 average	Difference 2018-2019 (actual)	2020 (forecast)
>72	1.63	1.5	1.0	1.1	1.1	+0.1	1.2
>69	2.80	2.5	1.7	1.9	1.9	+0.2	1.9
>66	4.86	4.4	3.1	3.6	3.6	+0.5	3.7
>63	9.10	7.3	6.1	6.7	6.7	+0.6	6.9
>60	17.18	11.8	10.6	11.5	11.5	+0.9	11.8
>57	31.52	19.6	19.4	20.8	20.8	+1.4	21.3

Considering the 57 dB LAeq,16h daytime noise contour there is an increase in area of approximately 8% when comparing the 2019 actual contour with the 2018 actual contour. This increase caused an exceedance of Condition 12 which relates to the area of the daytime summer noise contour; condition 12 limits the area to 19.4km². This is largely due to the increase in daytime movements. The 2019 contours based on the long term average runway split have the same areas as those based on the actual runway usage in 2019. The 2020 daytime contours are slightly larger than those for 2019, largely due to the forecast increase in daytime movements.

The table below shows the annual night time noise contours for summer 2019 covering the standard summer period from 16th June to 15th September inclusive, using the latest version of INM software (the Integrated Noise Model) version 7.0d which is the method used by many other airports in the UK.

L _{Aeq, 8 hour} Night-time	Contour Area (km ²)						
	1984	1999	2018 actual	2019 actual	2019 average	Difference 2018-2019 (actual)	2020 (forecast)
>69	1.39	1.8	0.7	0.8	0.8	+0.1	0.8
>66	2.42	3.0	1.1	1.3	1.3	+0.2	1.2
>63	4.01	5.2	1.9	2.2	2.2	+0.3	2.1
>60	7.06	8.3	3.7	4.4	4.4	+0.7	4.2
>57	13.05	13.2	6.8	8.0	8.0	+1.2	7.6
>54	24.48	21.6	12.6	14.6	14.6	+2.0	14.0
>51	44.92	36.0	23.0	26.0	26.1	+3.0	25.0
>48	85.04	60.6	40.2	44.2	44.0	+4.0	42.6

Considering the 48 dB LAeq,8h night time noise contour there is an increase in area of approximately 10% when comparing the 2019 actual contour with the 2018 actual contour. The 2019 night time contour area also exceeded the limit as detailed in Condition 12 (the limit is 37.2km²). The 2019 contours based on the long term average runway split have very similar areas to those based on the actual runway usage in 2019. The 2020 night time contours are smaller than those for 2019, largely due to the forecast decrease in night time movements.

Contour population counts

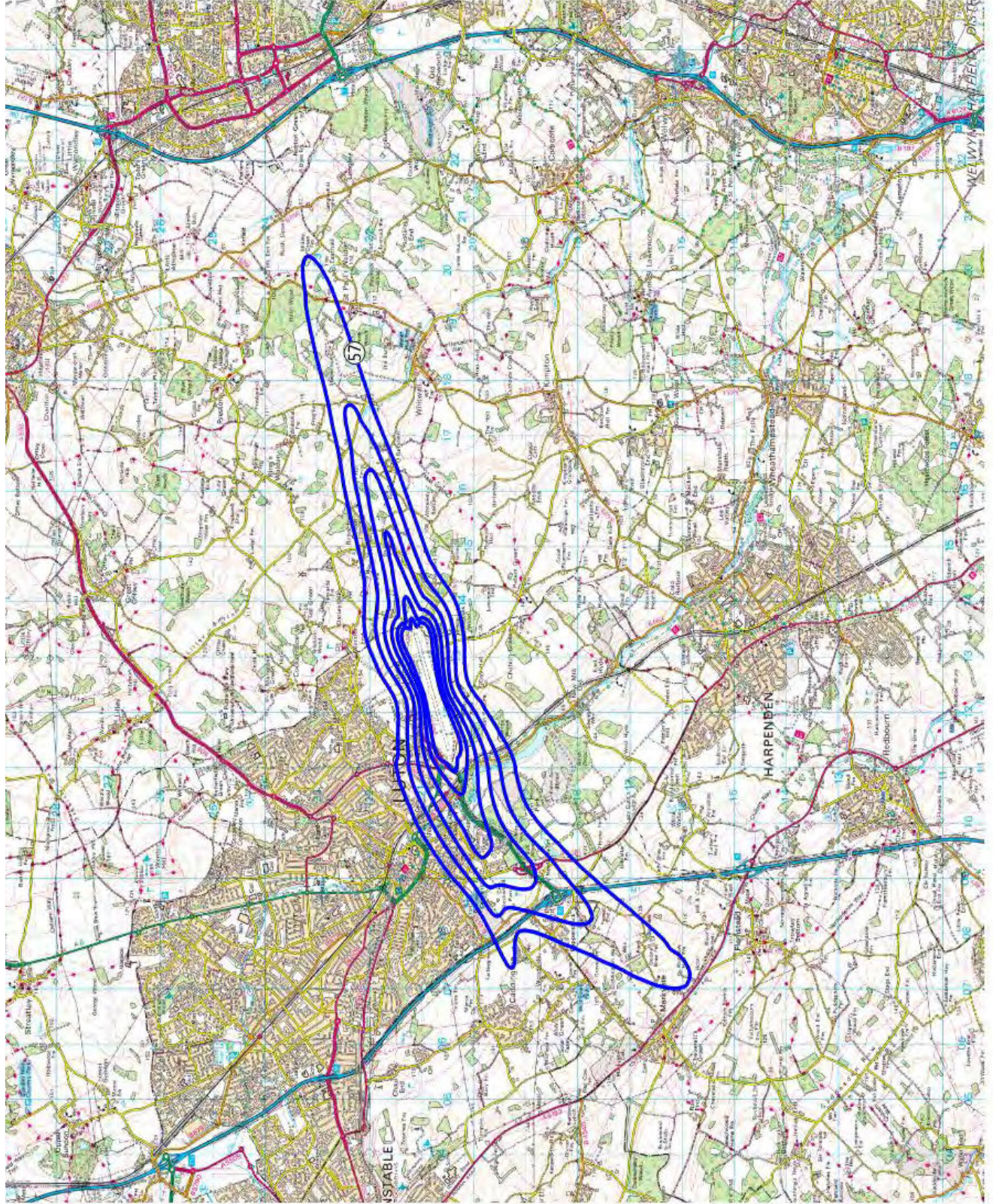
The population counts shown in the tables below were calculated using the CACI Ltd, 2018 postcode database. Each postcode in the database is described by a single geographical point, and if this point is within a contour then all of the dwellings and population in the postcode are counted. Please note, the population and dwellings data has been rounded to the nearest 50.

$L_{Aeq, 16 \text{ hour}}$ Daytime	2018 actual		2019 actual	
	Dwellings	Population	Dwellings	Population
>72	0	0	0	0
>69	0	0	0	0
>66	9	22	11	27
>63	550	1,400	700	1,950
>60	1,650	4,350	2,050	5,150
>57	3,950	9,100	4,550	10,550

$L_{Aeq, 8 \text{ hour}}$ Night-time	2018 actual		2019 actual	
	Dwellings	Population	Dwellings	Population
>69	0	0	0	0
>66	0	0	0	0
>63	0	0	0	0
>60	150	400	150	450
>57	750	2,050	800	2,150
>54	1,950	5,000	2,450	6,150
>51	4,500	10,300	5,100	11,800
>48	8,050	19,150	8,950	21,250

The population and number of dwellings within the contours have increased, in lined with the contour area.

Annual Day Noise Contours Summer 2019 (actual)



LEGEND:

Noise Contours,

57 to 72 dB $L_{eq,16h}$ in 3 dB steps

NO.	REVISIONS

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London Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
2019 Summer Actual Daytime

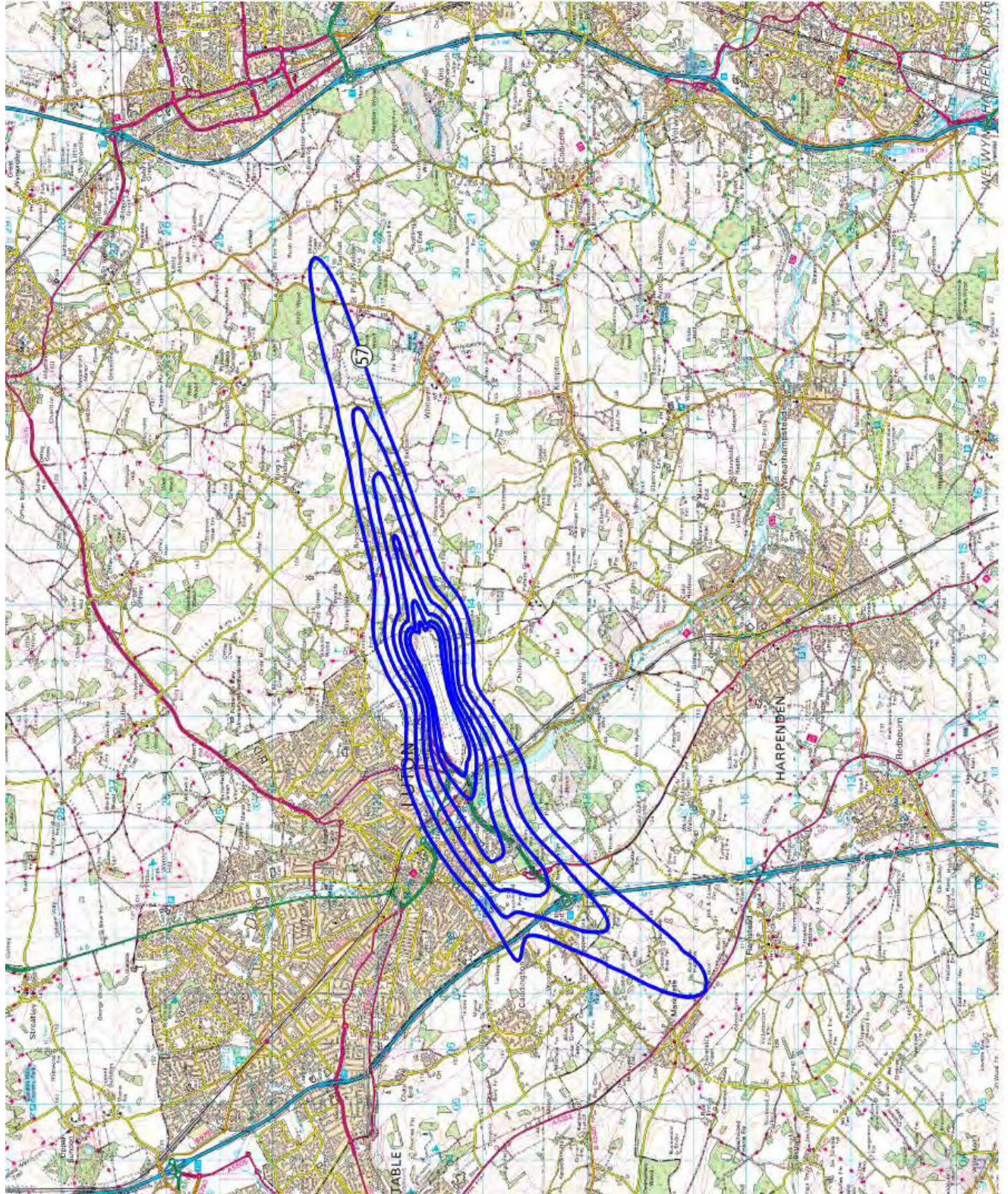
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DATE: November 2019 SCALE: 1:10000@A4

FIGURE No:

A11060/N41/0

Annual Day Noise Contours Summer 2019 (average)



Supplied by the author, 18/11/2019

LEGEND:

Noise Contours,

57 to 72 dB L_{aeq,16h} in 3 dB steps

REVISIONS

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London Luton Airport
 Regular Contouring

Airborne Aircraft Noise Contours
 2019 Summer Average Modal Daytime

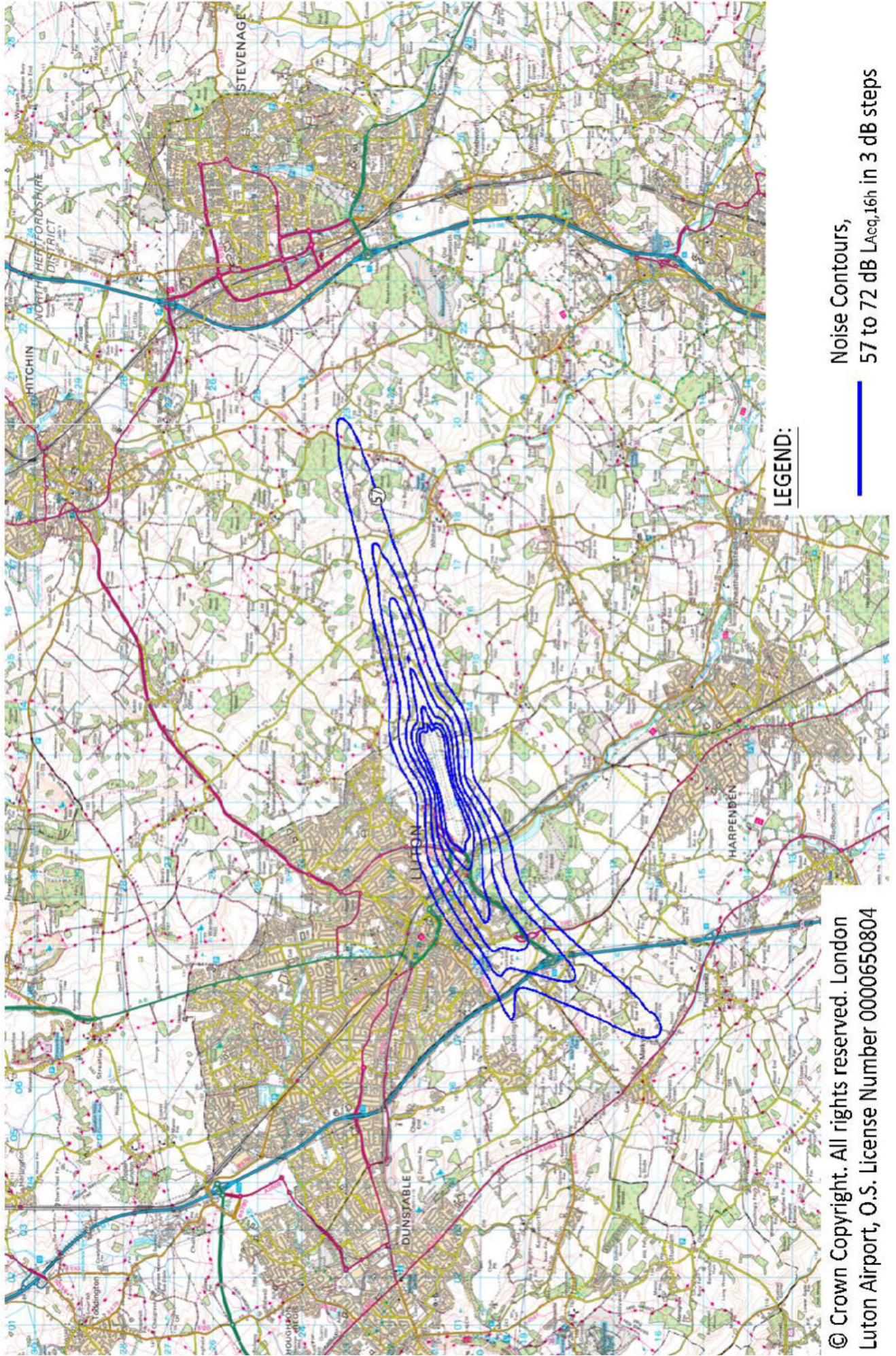
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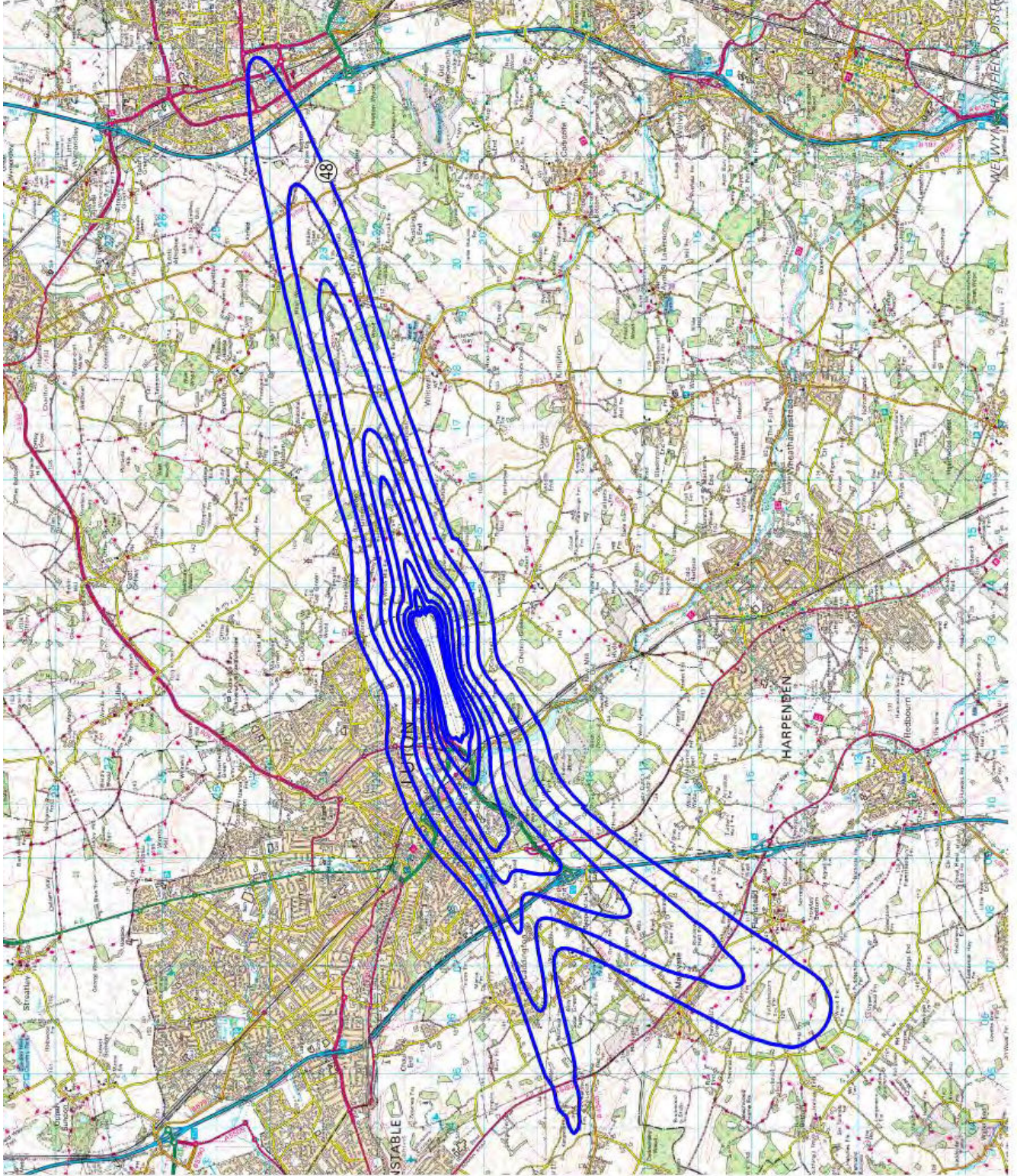
A11060/N41/03

Annual Day Noise Contours Summer 2018

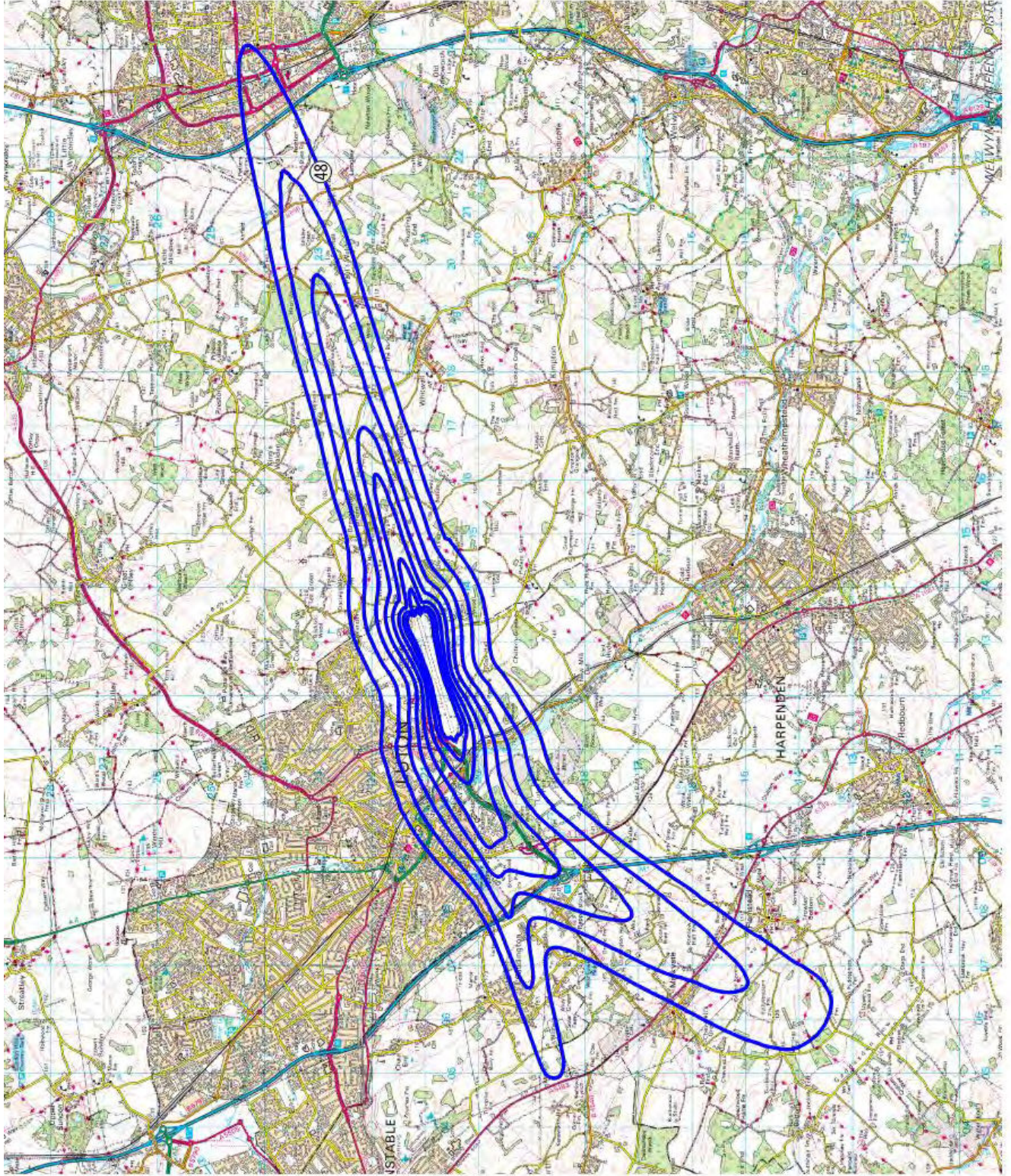


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Annual Night Noise Contours Summer 2019 (actual)



Annual Night Noise Contours Summer 2019 (average)



LEGEND:

Noise Contours,

48 to 69 dB Leq,8h in 3 dB steps

REVISIONS

**Bickerdike
Allen
Partners**
Architecture
Acoustics
Technology

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Luton Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
2019 Summer Average Modal Night time

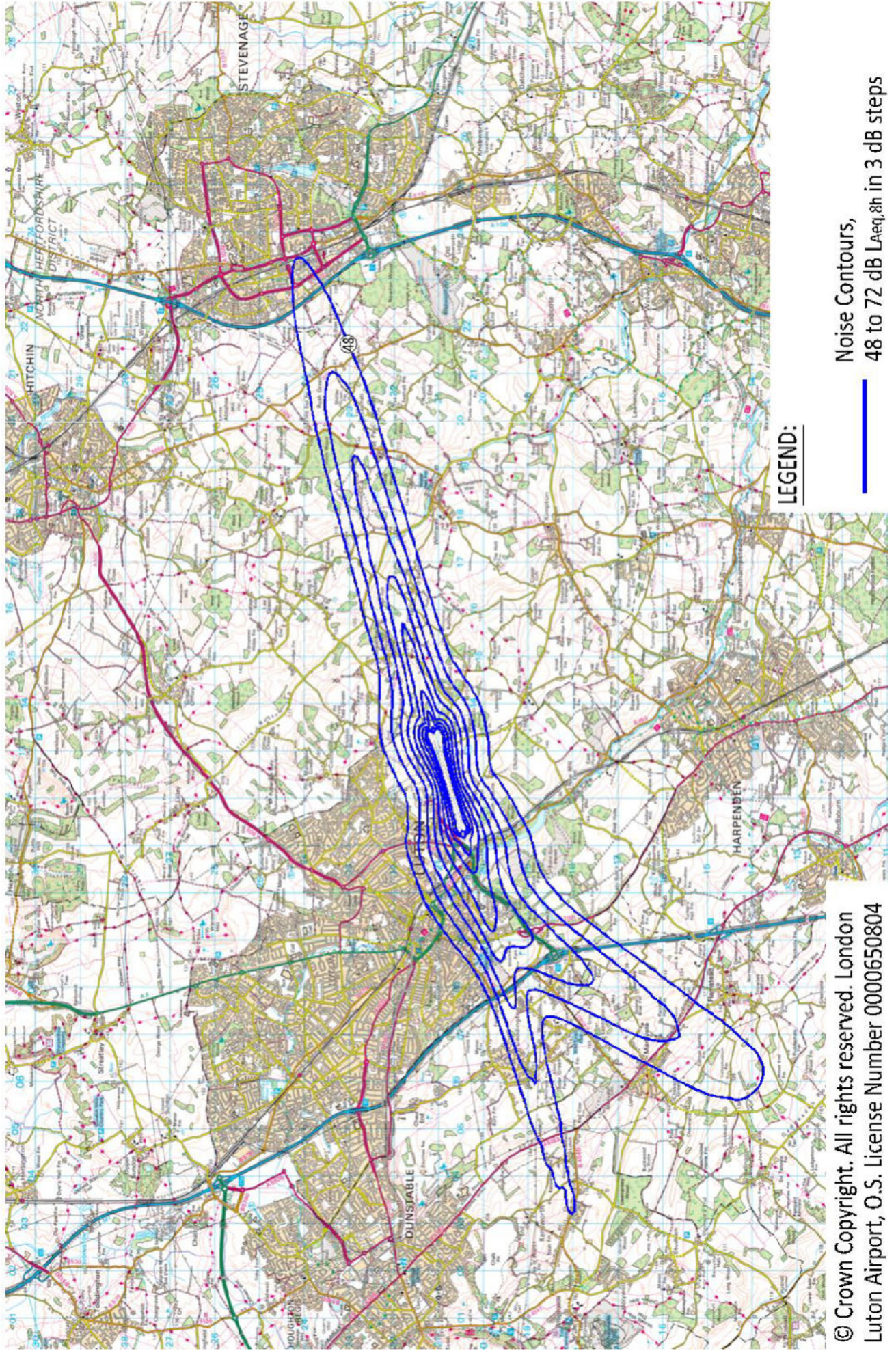
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FIGURE No:

A11060/N41/04

Annual Night Noise Contours Summer 2018



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Annual Noise Contours 2019

The annual Lden noise contours for 2019 have been produced in accordance with London Luton Airport's Noise Action Plan. The corresponding annual Lnight noise contours have also been produced, along with population and dwelling counts for each contour.

Compared to annual summer 2019 noise contours Lden is an A-weighted, Leq noise level, measured for an average 24 hr day between 1st January and 31st December 2019, with a 10dB penalty added to the level between 23.00 and 07.00 hours and a 5 dB penalty added to the level between 19.00 and 23.00 hours to reflect people's extra sensitivity to noise during the night and the evening.

Lnight is similarly an A-weighted Leq noise level, for an average 8 hour night period between 2300 and 0700 for the period 1st January to 31st December 2019.

Annual Lden Noise Contour Results

Contour Value (dB(A) L _{den})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2018	2019	2018	2019	2018	2019
>75	0.9	1.0	0	0	0	0
>70	2.1	2.3	0	0	0	0
>65	6.3	7.1	1,500	1,900	550	700
>60	17.0	18.5	7,100	8,300	2,950	3,450
>55	43.0	45.6	20,400	22,000	8,550	9,400

Annual Lnight Noise Contour Results

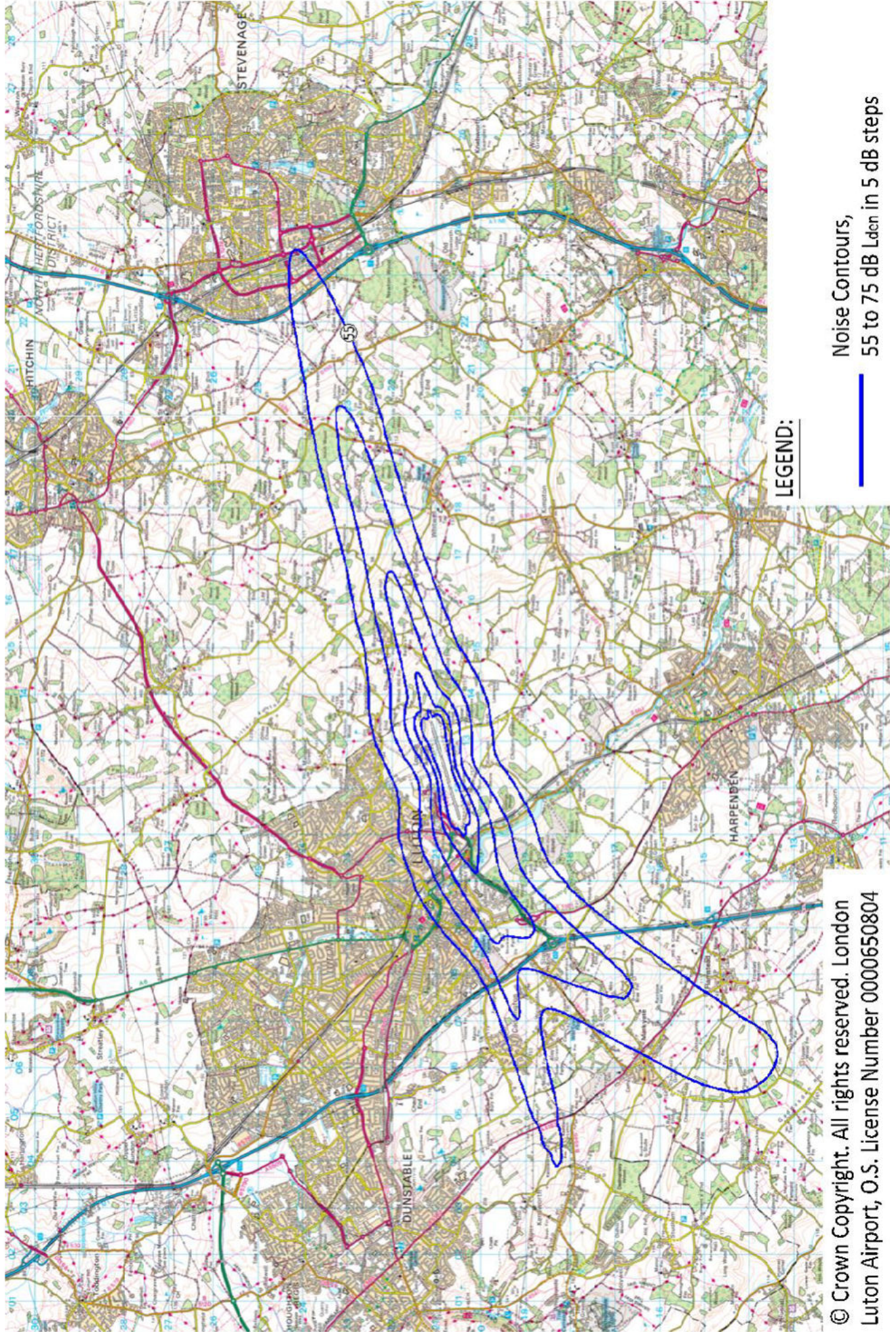
Contour Value (dB(A) L _{night})	Contour Area (km ²)		Population ¹		Dwellings ²	
	2018	2019	2018	2019	2018	2019
>66	1.0	1.1	0	0	0	0
>63	1.6	1.8	0	0	0	0
>60	3.0	3.5	<100	<100	<50	<50
>57	5.6	6.6	1,300	1,500	500	550
>54	10.1	11.7	3,100	4,300	1,150	1,650
>51	18.9	21.3	8,100	9,300	3,450	4,000
>48	33.7	36.9	15,000	17,300	6,350	7,300

As can be seen from the tables above, the areas of the Lden and Lnight contours have increased. The night contours have increased the most in line with what would be expected due to the increase in night passenger jet movements. The Lden contours have increased slightly less due to the slight decrease in evening movements. The population and number of dwellings within the contours have also increased, due to the greater contour areas.

¹ - Population counts rounded to nearest 100

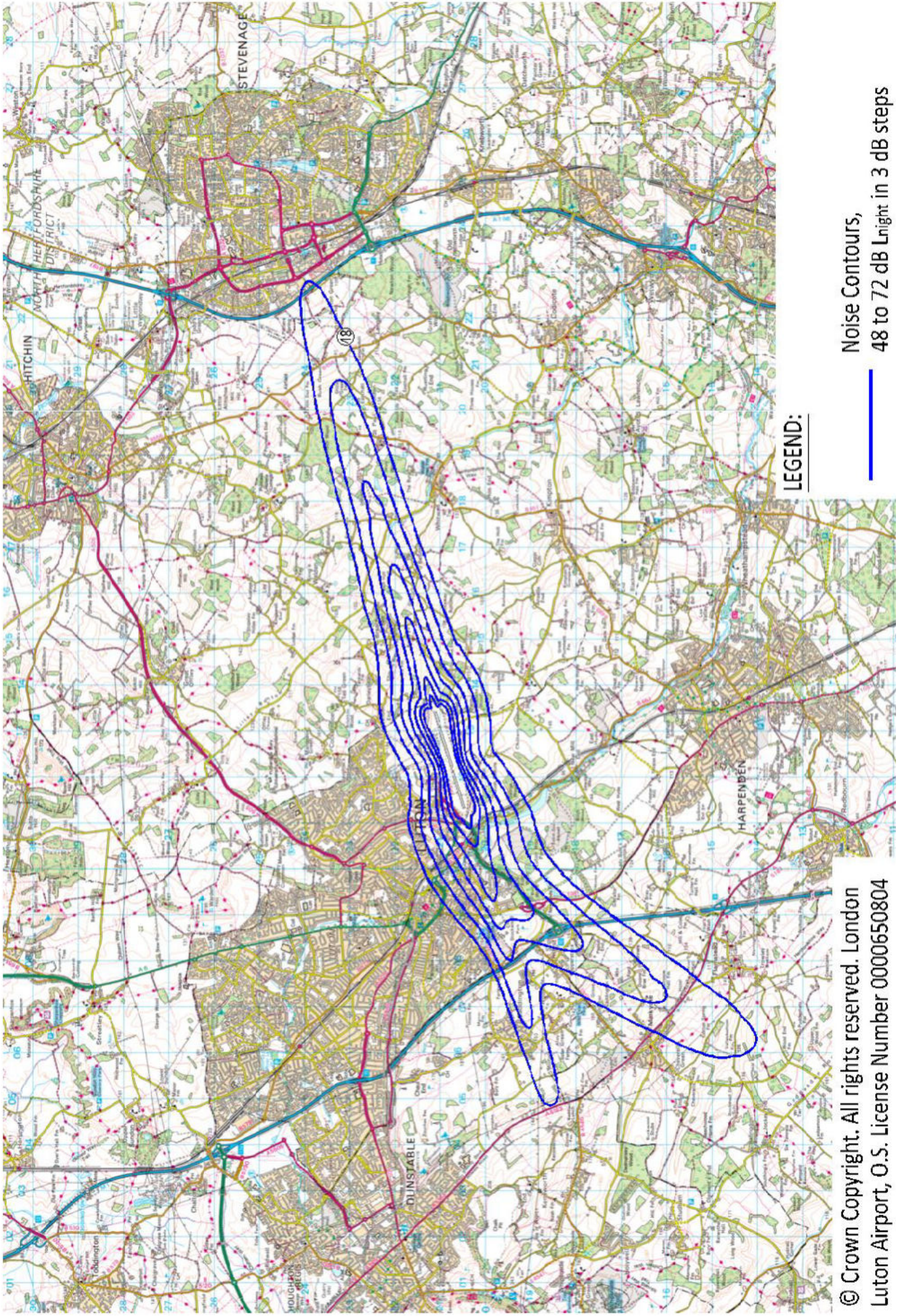
² - Dwelling counts rounded to nearest 50

Annual L_{den} Noise Contours 2019



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Annual L_{night} Noise Contours 2019



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Correspondence and Complaints

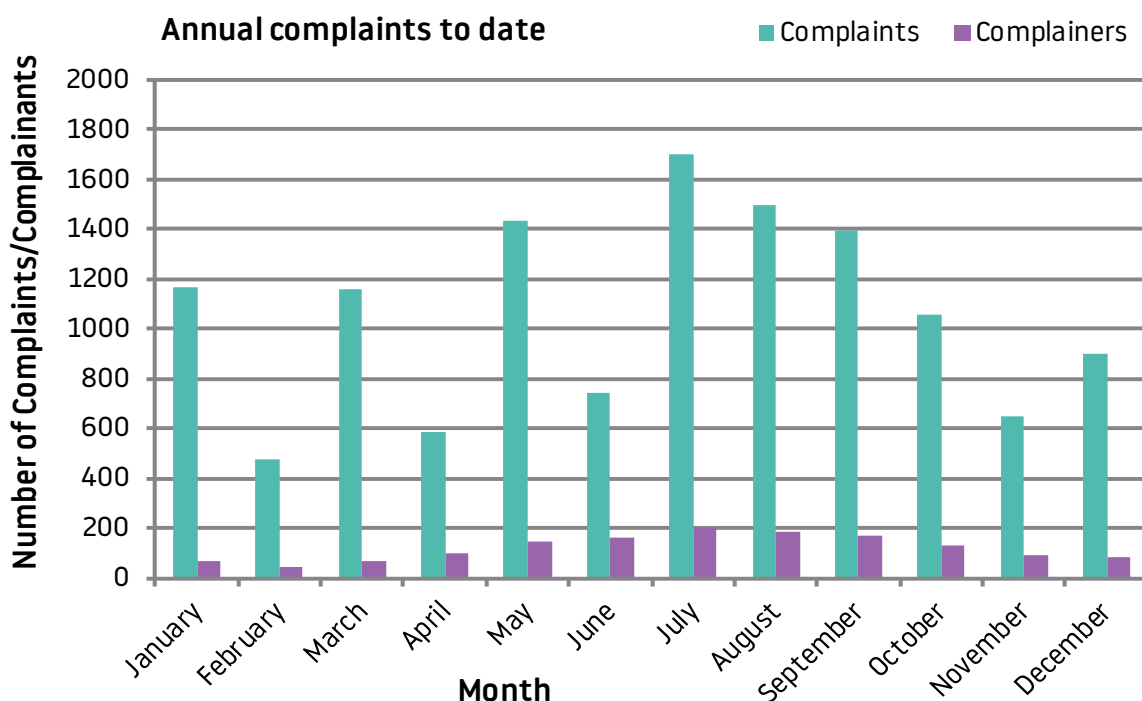
Complaint statistics can be extremely difficult to interpret as people’s tolerance of noise and their perception of what causes annoyance varies widely. It is highly subjective and differs between neighbours experiencing the same levels of noise.

Complaints are reported in two forms – general disturbance and specific disturbance. A general disturbance relates to a complaint that does not specify a time period, examples of this type of complaint includes frequency, air quality and ground noise. A specific complaint relates to a complaint which specifies the time which can be correlated to an aircraft, example complaints of this type include too low, too loud, night flight and off-track. If a single piece of correspondence contains multiple specific disturbances, this will be logged as a general complaint regarding frequency.

Total complaints relating to LLA aircraft operations

	2018	2019	% change
Total No. of Complaints relating to LLA aircraft operations	8,275	12,735	54%
No. of Complainants	691	664	-4%
No. of General Complaints	1,866	1,478	-26%
No. of Specific Complaints	6,409	11,257	76%
Average No. of Complaints per Complainant	12.0	19.1	59%
No. of Aircraft Movements per Complaint	16.5	11.1	-32%

During 2019 a total of 12,735 complaints (on average 34.9 complaints per 24 hours) relating to LLA aircraft operations were received, compared with 8,275 complaints in 2018. Out of the total complaints 68% were registered by the 20 most regular complainants and 40% from just five individuals. A further 187 complaints received were not attributable to LLA traffic. The figure below shows the complaints statistics throughout 2019, more complaints were received in the July and August, correlating with an increase in aircraft activity.



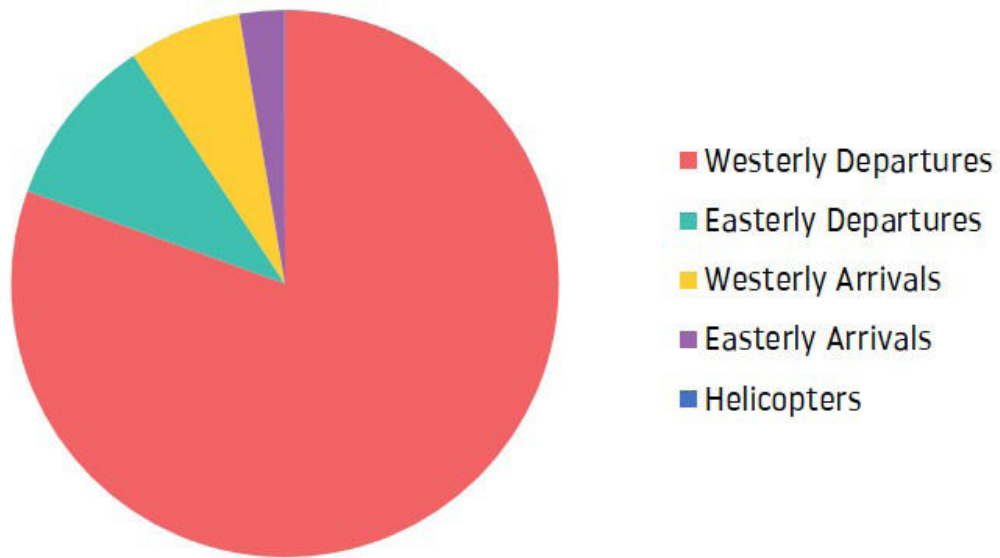


Complaints by aircraft type

Of the 12,735 complaints relating to LLA aircraft operations registered during the year, 10,454 complaints (82%) were clearly correlated to a specific aircraft type, although many complaints were of a general nature. The table below shows aircraft types generating complaints.

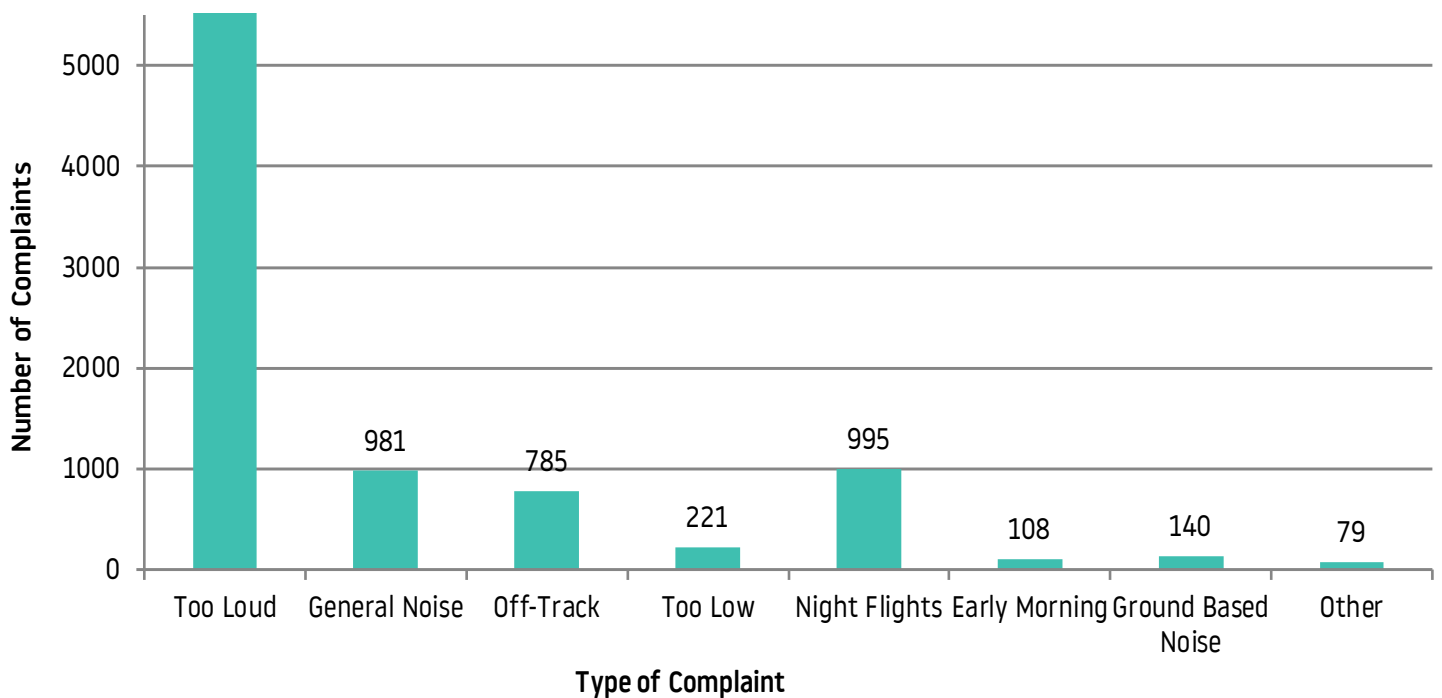
Aircraft Type	No. of Correlated Complaints	% of Correlated Complaints	Annual No. of Movements of Aircraft Type	Movements of Aircraft Type per Correlated Complaint
A319	705	6.7%	21,642	31
A320 Neo	206	1.9%	6,013	29
A320	3,065	29.3%	44,074	14
A321	1,713	16.4%	18,922	11
A321 Neo	117	1.1%	1,434	12
B737-800	789	7.6%	16,683	21
A306 (Cargo)	235	2.2%	1,758	7
B737-400	67	0.6%	598	9
GLF4/GLF5/GLF6	82	0.8%	4,380	53
B757 & B767	106	1.0%	1,440	14
B737-300	11	0.1%	152	14
B737-900	73	0.7%	550	8
Helicopter	3	0.03%	578	193
CL30/CL60	68	0.7%	1,913	28
GLEX/GL5T	79	0.8%	3,562	45
Other Aircraft	3,135	30.0%	17,782	6

Nature of Disturbance

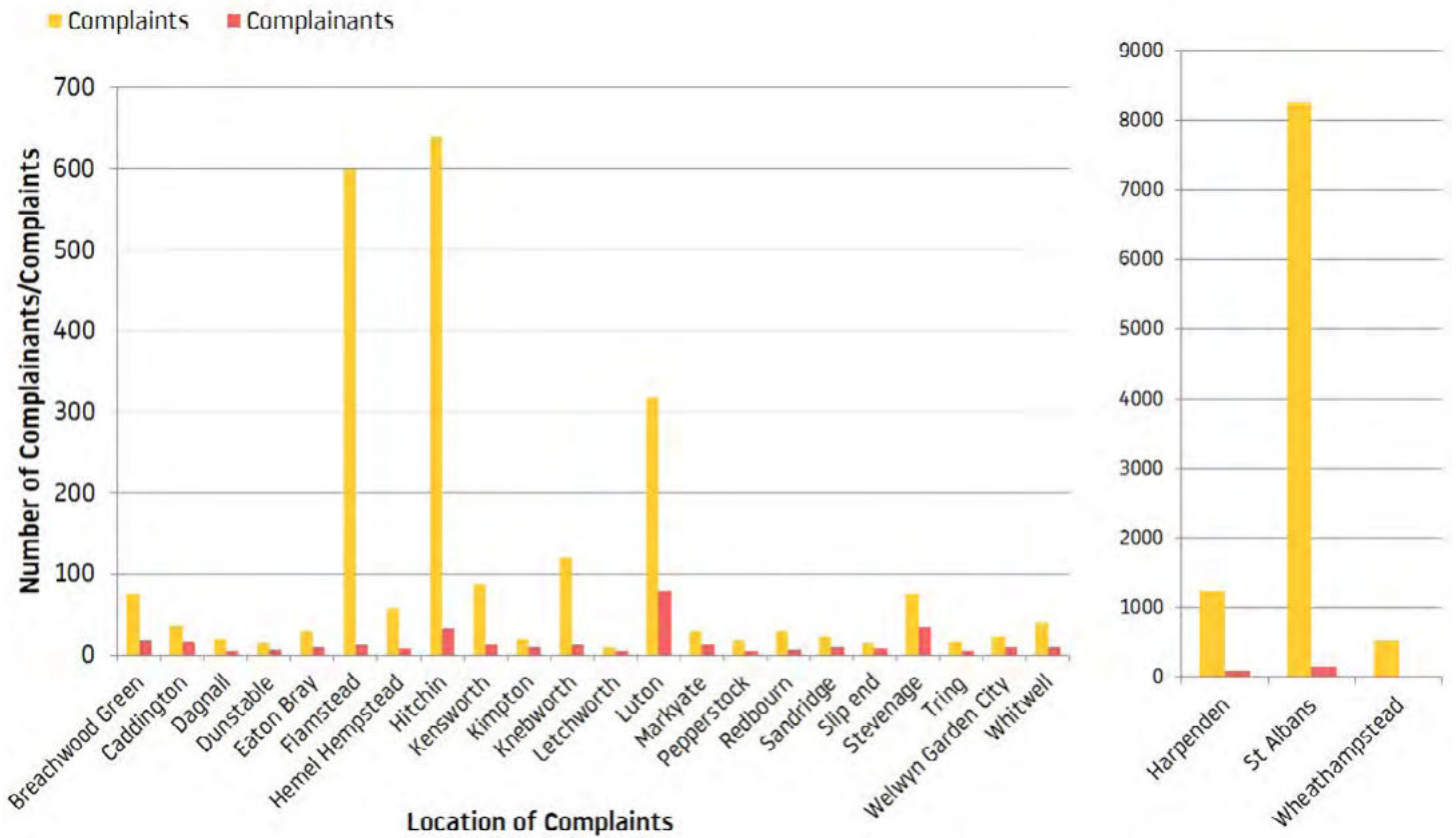


Within the 8,415 specific complaints correlated to aircraft movements concerning westerly departures, 8,155 reported specific aircraft following the Match/Detling route, 172 related to aircraft on the Compton route and 72 related to aircraft following the Olney heading. 16 other complaints involved positioning flights following off-airways flight routes. Of the 1,064 complaints specifically attributed to easterly departures 751 related to aircraft following the Compton heading, 35 related to aircraft on Olney flight route and 270 to aircraft on the Match/Detling heading. A further 8 complaints involved positioning flights following off-airways flight routes.

Out of the total 972 complaints correlated to specific arriving aircraft, 695 related aircraft arriving at the airport during westerly operations and 277 complaints related to easterly arrivals.



Location of Complainants (5+)



Communication method

The following table shows the method of communication used to contact London Luton Airport regarding noise.

Communication Method	% of Total Complaints
TraVis	55%
Email	39%
Telephone	6%
Letter	0%

Any concerns relating to aircraft operations associated with London Luton Airport can be reported to the Flight Operations Team by the following means:

Postal Address	Flight Operations London Luton Airport Percival House Percival Way Luton Beds LU2 9NU
Direct Telephone	(01582) 395382 (24 hours)
Direct email	noise.enquiries@ltn.aero
TraVis	www.travisltn.topsonic.aero

Complaints analysis

During 2019 there was an increase in complaints and a decrease in complainants compared to 2018.

- A large number of complaints were generated by a small number of people. The 20 most regular complainants in 2019 created 68% of total complaints.
- Out of the specific complaints that were reported, the main reason that was that aircraft were too loud, this reason accounted for 74% of the complaints.
- As winds dictated westerly operations for 70% of the time, the largest percentage of complaints related to aircraft operations during westerlies, this is in line with previous years.
- High numbers of complaints were recorded from specific locations, for example Harpenden, St Albans and Wheathampstead. Complaints from these areas accounted for 79% of total complaints. In these areas there is a heightened awareness of aircraft, particularly in relation to the growth on this route.
- St Albans recorded the highest number of complaints with 8,244 complaints in 2019; of the 8,244 complaints 5,009 (61%) were recorded from 5 individuals.

Community Relations

Through the London Luton Airport Consultative Committee (LLACC), which meets every quarter, London Luton Airport maintains a close working relationship with representatives of its local authorities and resident groups. Information on the Consultative Committee including meeting minutes and its representatives can be found at the following link: <http://www.llacc.com/>

In 2019, the Flight Operations Team continued the Public Surgery programme. These drop-in events allow local residents to talk to the team face to face to discuss any concerns regarding the impact of LLA's operations. Over 150 residents attended to the Public Surgeries which were held in Breachwood Green, South Luton, Edlesborough, Stevenage, Harpenden and Leighton Buzzard. These will continue to be scheduled in 2020, details of upcoming surgery events can be viewed [here](#).

The Flight Operations team, held meetings with Kings Walden Parish Council, a member of LADACAN and a member of Bedfordshire Association of Town and Parish Councils. Additionally, members of the team attended meetings in the community with local residents, as well as attending Bedfordshire Association of Town and Parish Councils AGM and St Albans Parish Council Conference. Furthermore, invitations are often extended to local residents and LLACC members to visit the Flight Operations Team for a demonstration of the Aircraft Noise & Track Monitoring System, to discuss specific concerns and to view the specific tracks of LLA aircraft operations in their area.

Responsible Business Strategy

We finalised our Responsible Business Strategy in 2019, setting our commitments on environmental, social and business ethics at the airport.

The strategy concentrates on six key areas, supported by a governance and management structure which provides leadership and resources to manage the material responsible business issues. The six focus areas are:

- Ensure Environmental Responsibility and Efficiency
- Community Engagement: A healthy today and a skilled tomorrow
- A Safe and Secure Airport
- Grow with our People
- Deliver Great Customer Experience
- Sustainable Supply Chain

Community Engagement

Following a review in 2018 of how we engage and support our community, we continue to recognise the critical role of our local community. Our operations are intrinsically linked to the community's wellbeing and future prosperity. The proximity to residential areas means that impacts such as noise, produced by aircraft and airport operations, has the potential to adversely impact the life of people living nearby and under its flight paths. Whilst schemes exist to mitigate noise, it cannot be completely eliminated. Further, we recognise that our futures are intertwined; we prosper together. Our Community Engagement programme therefore aims to ensure those living close by also see the benefits of a successful airport. Thus, our focus for community engagement is promoting a healthy life, and supporting skills development of the local community.

In 2019 the funding for the airport's Community Trust Fund was increased to £150,000, supporting beneficiaries across Hertfordshire, Bedfordshire and Buckinghamshire. We were in our second year of the two-year charity partnership with Macmillan Cancer Support and once again raised more than £45,000 this year, exceeding our year two target of £80k.

Our school engagement programme continued with partnerships with the Prince's Trust and the Launch Group delivering two 'Get into Airports' programmes for unemployed people aged 18-30.

Noise Action Plan

LLA's Noise Action plan is valid from 2019- 2024, the full document can be downloaded [here](#).

1: Operational Procedures

Ref:	Action	Impact	Timescale	Performance Indicator	Numbers Affected	Target	Progress to date
1.1	Reduce the Maximum Noise Violation Limits (NVL) for departing aircraft and bi-annually review the penalties to ensure it remains effective in seeking to reduce departure noise.	Departure Noise	2020	Reduction of NVL's.	Residents within and beyond 55dB L_{den}	Reduce NVL's to 80dB during the day time and 79dB during the night-time by 2020.	Ongoing-reduction planned from 1st Jan 2020
1.2	We will work with our airline partners to improve performance relating to Continuous Descent Approach (CDA) with the aim of reducing the noise impact to the communities below.	Arrival Noise	Ongoing	CDA Compliance.	Residents within and beyond 55dB L_{den}	92% compliance by 2020. 95% compliance by 2022.	Ongoing - new target from 1st Jan 2020
1.3	We will identify and act on opportunities to minimise noise through modernisation of the airspace structure working with both community and industry partners.	Departure/Arrival Noise	Ongoing	Progress through CAP 1616 process.	Residents within and beyond 55dB L_{den}	Submit Airspace Change Proposal to the CAA by 2022.	Ongoing - Stage 1 of FASI-S change complete in 2019.
1.4	Work with Air Traffic Control, airlines and local communities stakeholders to explore opportunities to facilitate more continuous climb operations (CCO).	Departure Noise	2019-2023	Evidence of work.	Residents within and beyond 55dB L_{den}	Explore opportunities and make appropriate changes to facilitate more CCO's.	Ongoing
1.5	Undertake a review of Noise Abatement Departure Procedures used at London Luton Airport to evaluate their effectiveness and work with our airline partners to identify and implement improvements.	Departure Noise	2019	Evidence of the review.	Residents within 55dB L_{den}	To assess the effectiveness and establish targets for noise reduction.	Incomplete - new target to be complete by end of 2020.
1.6	Review and promote the Arrivals Code of Practice and Departures code of Practice and work with our airline partners to set minimum performance criteria and a method for measuring performance.	Arrivals/Departure/Ground Noise	2019-2023	Evidence of review and new performance criteria.	Residents within and beyond 55dB L_{den}	Set minimum performance criteria by Q2 2019.	Incomplete - new target to be complete by end of 2020.
1.7	Continue to promote and encourage the use of single engine taxi procedures at London Luton Airport.	Ground Noise	Ongoing	Minutes of FLOPC meetings.	Residents within 65dB L_{den}	Increase the number of aircraft using single engine taxi procedures.	Ongoing
1.8	Work with our airline partners to promote and encourage the adoption of low power, low drag procedures such as delayed landing gear deployment in order reduce noise from arriving aircraft.	Arrival Noise	Ongoing	% of aircraft using low power, low drag procedures.	Residents within and beyond 55dB L_{den}	Increase the number of operators using low power, low drag procedures.	Ongoing
1.9	Working with our partners at Sustainable Aviation we will challenge current operational procedures to ensure continuous improvement to best practice.	Departure/Arrival Noise	Ongoing	Minutes of Sustainable Aviation meetings.	Residents within and beyond 55dB L_{den}	Annually review and improve the departures and arrivals code of practice.	Ongoing

2: Quieter aircraft

Ref:	Action	Impact	Timescale	Performance Indicator	Numbers Affected	Target	Progress to date
2.1	We will work with our Airline Partners to achieve the voluntary phase out of aircraft that are Chapter 3 or below, to encourage the introduction of quieter aircraft.	Departure/ Arrival/ Ground Noise	2019-2023	% of Chapter 4 aircraft.	Residents within and beyond 55dB L_{den}	100% Chapter 3 aircraft by 2020 and 100% Chapter 4 aircraft by 2022.	Ongoing - 4 marginally compliant Chapter 3 aircraft operated in 2019.
2.2	We will review our landing charges annually to encourage the use of quieter aircraft at London Luton Airport.	Departure/ Arrival/ Ground Noise	Annually	Publication of Charge's and Conditions of use.	Residents within and beyond 55dB L_{den}	Reduce the size of the noise contours.	Ongoing
2.3	Introduce incentives for airlines to adopt the quietest aircraft e.g. Airbus NEO and Boeing Max.	Departure/ Arrival/ Ground Noise	2019	Publication of Charge's and Conditions of use.	Residents within and beyond 65dB L_{den}	Introduce new charges in 2019.	Complete - new charges implemented for 2020-2021.



3: Operational restrictions

Ref:	Action	Impact	Timescale	Performance Indicator	Numbers Affected	Target	Progress to date
3.1	We will operate within our agreed Total Annual Movement caps.	Night Noise	Ongoing	Movement reports in AMR and QMR.	Residents within and beyond 48dB L_{night}	A maximum of 9,650 movements between 23:00hrs-06:00hrs and a maximum of 7000 movements between 06:00hrs-07:00hrs for a rolling 12-month period.	Ongoing
3.2	We will continue to operate within our agreed Total Annual Quota Count (QC) caps.	Night Noise	Ongoing	QC reports in AMR and QMR.	Residents within and beyond 48dB L_{night}	3,500 QC points for a rolling 12-month period between (23:30hrs-06:00hrs).	Ongoing
3.3	To review and reduce the Total Annual Quota Count (QC) cap.	Night Noise	2020	Reduction of annual QC cap.	Residents within and beyond 48dB L_{night}	To review the Quota Count (QC) cap in 2020 to minimise night time noise disturbance.	Ongoing
3.4	We will operate within our agreed contour area limits.	Arrivals/Departure/ Ground Noise	Ongoing	Area of noise contours	Residents within 57dB $L_{aeq 16 hr}$ and within 48dB L_{night}	57dB(A) Leq16hr (0700-2300) - 19.4 sq km. 48dB(A) Leq8hr (2300- 0700) - 37.2 sq km.	Incomplete
3.5	Develop a noise contour reduction strategy to define methods to reduce the area of the noise contours.	Arrivals/Departure/ Ground Noise	2021	Evidence of work.	Residents within 57dB $L_{aeq 16 hr}$ and within 48dB L_{night}	Submit strategy to Local Planning Authority in 2021.	Complete - submitted to local planning authority in 2019.
3.5	In order to minimise ground noise we will monitor and enforce restrictions around the use of Aircraft Auxiliary Power Unit's (APU).	Ground Noise	Ongoing	Minutes of FLOPC meetings.	Residents within 65dB L_{den}	Ensure operators are aware of the APU procedures at Flight Operations Committee meetings.	Ongoing
3.6	In order to minimise ground noise, particularly at night, we will restrict the permitted hours for engine testing to daytime periods only.	Ground Noise	Ongoing	Log of engine testing.	Residents within 48dB L_{night}	Restrict engine testing for aircraft in the daytime period only.	Ongoing

4: Land-use Planning and Mitigation

Ref:	Action	Impact	Timescale	Performance Indicator	Numbers Affected	Target	Progress to date
4.1	We will install acoustic insulation in eligible properties as part of our residential and non-residential Noise Insulation schemes.	Ground/Departure/Arrival Noise	Ongoing	Noise Insulation Scheme update in QMR and AMR.	Residents within 63dB L _{day} or 55dB L _{night} or any property in which airborne noise level in excess of 90dB SEL occurs.	Continue to spend the full NIS budget annually.	Ongoing - full budget spent in 2019.
4.2	We will conduct an annual survey of those properties who have received noise insulation to measure the levels of satisfaction with the current Noise Insulation Scheme.	Ground/Departure/Arrival Noise	2019- 2023	Annual Survey Results.	N/A	Conduct annual survey of insulated properties by the following February. Report results of survey to Noise and Track Sub-Committee.	Ongoing
4.3	We will offer households exposed to levels of noise of 69dB L _{Aeq 16h} or more assistance with the cost of moving.	Ground/Departure/Arrival Noise	Ongoing	Evidence in AMR.	Residents within 69dB L _{Aeq}	Continue to offer assistance.	Ongoing - no properties within this contour.
4.4	We will work with community stakeholders to develop a plan to protect quiet areas as defined by UK government policy.	Ground/Departure/Arrival Noise	2020	Evidence of Plan.	Residents within and beyond 55dB L _{den}	Develop a plan by 2020 and ensure this is protecting quiet areas.	Ongoing
4.5	Through the Airspace Change Process we will ensure areas identified as 'quiet areas' are preserved as far as possible. 'Quiet Areas' will be defined and assessed as per government legislation.	Ground/Departure/Arrival Noise	Ongoing	Stages in CAP 1616 process.	Residents within and beyond 55dB L _{den}	Preserve quiet areas through Airspace Change Process as far as possible.	Ongoing
4.6	We will work with local authorities to raise awareness of the impacts of siting new developments that may be affected by aircraft noise.	Ground/Departure/Arrival Noise	Ongoing	Local Planning Group meeting minutes.	N/A	Increase awareness for local authorities through our Local Planning Group.	Ongoing

5: Working with the Local Community and Industry Partners

Ref:	Action	Impact	Timescale	Performance Indicator	Numbers Affected	Target	Progress to date
5.1	Carry out biennial surveys of local communities to seek feedback on our approach to noise management and our complaints service for continual improvement and to offer the ability for local communities to help shape the future of noise controls.	Community relationship	2019 / 2020	Results of Survey.	N/A	Carry out first survey in 2019 to define baseline and set improvements in 2020.	Incomplete - new target, to complete survey by end of 2020.
5.2	We will improve communications through regular updates to our website, noise blog, community newsletters (Inform) and reports.	Community relationship	Ongoing	Evidence of comms. on website.	N/A	Review website annually and publish newsletter bi-monthly.	Ongoing
5.3	We will positively respond to requests for meetings with airport representatives regarding aircraft noise, airspace modernisation and expansion plans*.	Community relationship	Ongoing	Minutes of meetings.	N/A	Engage proactively with any visitors to the airport, as well as visiting local residents.	Ongoing
5.4	We will regularly organise public drop in sessions in locations surrounding the airport for community members to visit and speak to airport employees about noise management.	Community relationship	Ongoing	Evidence in QMR and AMR.	N/A	Organise and attend at least 6 Public Surgery drop-in events each year.	Ongoing
5.5	We will log all enquiries and complaints relating to airport operations and publish complaint statistics in our QMR & AMR.	Community relationship	Ongoing	Evidence in QMR and AMR.	N/A	Regularly publish statistics in monitoring reports on quarterly and annual basis.	Ongoing
5.6	We will annually monitor the Noise Action Plan (NAP) actions with LLACC and where we recognise that further improvements can potentially be achieved; we will look to address it.	Community relationship	Ongoing	Evidence in AMR.	N/A	Publish NAP update in the AMR annually.	Ongoing
5.7	We will give the public access to our online noise and track monitoring system (TraVis) and work with the supplier to enhance future functionality.	Community relationship	Ongoing	Evidence of TraVis website.	N/A	Maintain and enhance functionality of TraVis system.	Ongoing
5.8	We will divert all money raised from noise and track violations penalty schemes into the Community Trust Fund (CTF).	Community relationship	Ongoing	Evidence in annual Community Strategy and AMR.	N/A	Annually publish the amount of money diverted to the CTF.	Ongoing

*expansion of the airport is currently being sought by the airport owners, more detail will be provided as and when it becomes available. Any increase in noise will be addressed through this application process.

Ref:	Action	Impact	Timescale	Performance Indicator	Numbers Affected	Target	Progress to date
5.9	We will produce and publish Quarterly Monitoring reports to inform Stakeholders of performance trends and noise management at London Luton Airport.	Community relationship	Ongoing	QMR published on website.	N/A	Publish reports on our website at earliest opportunity each quarter.	Ongoing
5.10	We will continue to present summer and annual noise contours within our Annual Monitoring Report.	Community relationship	Ongoing	Evidence in AMR.	N/A	Publish contour statistics in Annual Monitoring Reports.	Ongoing
5.11	We will continue to produce and publish an Annual Monitoring Report to inform stakeholders of performance trends and noise management at London Luton Airport.	Community relationship	Ongoing	AMR published on website.	N/A	Publish AMR on our website by 31st May each year.	Ongoing
5.12	We will engage proactively with LLACC and NTSC to identify initiatives which will help minimise noise in our local community.	Community relationship	Ongoing	Minutes of Meetings.	N/A	Meet with LLACC and NTSC every 3 months.	Ongoing
5.13	We will collaborate with our Flight Operations Committee (FLOPC) to determine new initiatives to reduce noise.	Community relationship	Ongoing	Minutes of FLOPC meetings.	N/A	Engage proactively with FLOPC at meetings held twice a year.	Ongoing

Employment

Employment at and surrounding London Luton Airport (LLA) contributes significant economic benefits to Luton as a whole and to the sub-region. A large number of businesses are based in Luton due to the presence of the Airport. Thus, any analysis of the Airport's impact upon the locality needs to contain an economic perspective, and this includes employment. An analysis of employers within and around the Airport boundary has been conducted, the results of which are summarised below. These figures were calculated from 2019 data produced prior to the COVID-19 lock-down period.

A list of businesses at London Luton Airport was matched with the Inter Departmental Business Register (IDBR). The IDBR dataset produced by the Office for National Statistics (ONS) is a comprehensive list of UK businesses that is used by the government for statistical purposes. It provides a sampling frame for surveys of businesses carried out by the ONS and by other government departments. It is also a key data source for analysis of business activity.

The IDBR combines administrative information on VAT traders and PAYE employers with ONS survey data in a statistical register comprising over two million enterprises, representing nearly 99% of economic activity. Analyses that are produced as part of this service are at the same level at which business statistical surveys are conducted. (Source: ONS website www.statistics.gov.uk).

An initial list was received from London Luton Airport of companies within their boundary. The listing was matched against the IDBR. Companies outside the airport boundary were identified by the street names/areas as follows:

- ❖ Spittlesea Road
- ❖ Part of Frank Lester Way
- ❖ President Way
- ❖ Wigmore House
- ❖ Part of airport Way
- ❖ Barratt Industrial Park
- ❖ Airport Executive Park

A handful of companies which appeared on the list, but not the IDBR, had imputed estimates from analysis of the size of the enterprise and information from the airport.

Total employment in and around the airport

Employment was measured using main section headings from the Standard Industrial Classification 2007 (SIC 2007). Data has been rounded to the nearest hundred, as per ONS guidelines.

Standard Industrial Classification 2007, Section Names	Total Employees
Accommodation and Food Service Activities	500
Administrative and Support Service Activities	2,600
Financial and Insurance Activities	<100*
Manufacturing	800
Professional, Scientific and Technical Activities	<100*
Public Administration & Defence; Compulsory Social Security	300
Real Estate Activities	<100*
Transportation and Storage	5,500
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	700
Grand Total	11,200

* - Figures have been suppressed where there are less than three companies in a given Sector and/or employment in that sector is less than 100 in accordance with the regulations covering the use of IDBR data. Standard Industrial Classification 2007 industrial sector codes have been used.

Due to confidentiality issues we are bound by ONS protocols to round to the nearest 100 when reporting IDBR figures. This will mean that any changes in reported figures will be in multiples of 100 and therefore lie within that range.

The table illustrates that there are an estimated 11,200 employees in and around the Airport. This has increased by 800 since 2018, a rise of 8%. There are 9,500 full time and 1,700 part time employees.

Employment by working pattern

The IDBR provides employment figures by full and part time working patterns. The total number of full time employees was 9,500 which increased by 800 between 2018 and 2019, a growth of 9 per cent. The figure for part time employees was 1,700 which was the same as last year's figure.

The percentage split of full/part time employees found at the Airport compared to that found in Luton as a whole is as follows:

	Full Time Employees	Part Time Employees
Vicinity of LLA	85%	15%
Luton UA	67%	33%

Source for Luton UA Figures: ONS Business Register & Employment Survey 2018, latest data. Figures are percentages of those in employment.

Full and part-time working patterns in the vicinity of the Airport differs from that found within Luton as a whole, with the Airport having a higher proportion of full time workers.

Time series

The following figures from 2012 to 2018 show the estimated employment levels in the vicinity of the Airport.



Source: AMR Employment Surveys 2012- 2019

There was an increase in employment between 2018 and 2019 around Luton Airport with approximately 11,200 employees working in the vicinity of the Airport in 2019. There has been employment growth related to the airport since 2016.

Air Quality

London Luton Airport has been monitoring air quality in and around the Airport environment since 2003. Air quality data collected at LLA is integrated into a monitoring programme incorporating data collected by the surrounding Local Authorities, with a monthly report available to view online at <http://www.airqualityengland.co.uk>. The parameters measured are PM10 and NO2.

PM₁₀ (Particulates measuring 10µm or less)

PM₁₀ is one of the main contributors to reduced ambient air quality. Particulate matter is made up of fine particles including dust and soot which are suspended in the air. When you breathe in these particles they can stick to the surface of your lungs, and in areas of high pollution can cause respiratory health problems. Local sources include emissions from vehicles and aircraft engines, wear of brakes, tyres, and construction debris.

PM₁₀ is monitored from one location in the middle of the airport site. The graph shows that the readings have remained well within the annual mean local air quality objective of 40µg/m³.



Nitrogen Dioxide (NO₂)

NO₂ in high concentrations can cause a wide variety of health and environmental impacts. The gas is produced from the combustion of fuels such as diesel and aviation fuel. NO₂ is currently measured using diffusion tubes, which are a simple air quality assessment tool that give an indication of longer-term average NO₂ concentrations.

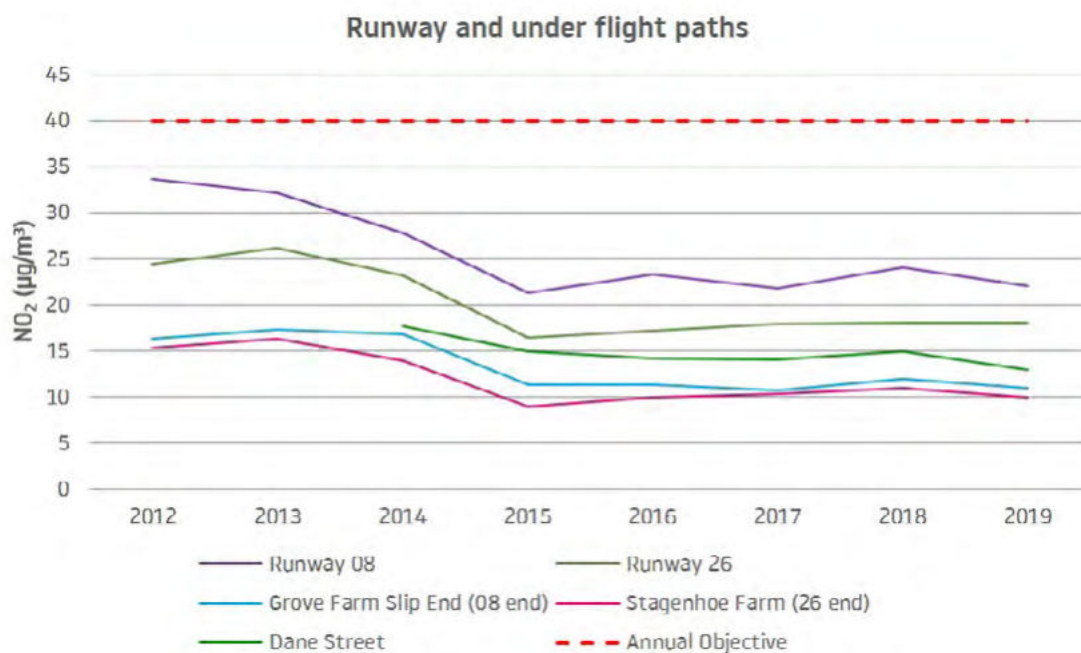
Diffusion tubes are used in 18 locations around LLA and the results provide a monthly average concentration of NO₂. To ensure accuracy of data, we also apply a bias-adjustment factor using national database factors.

- The long term (annual mean) local air quality objective for NO₂ is 40µg/m³.

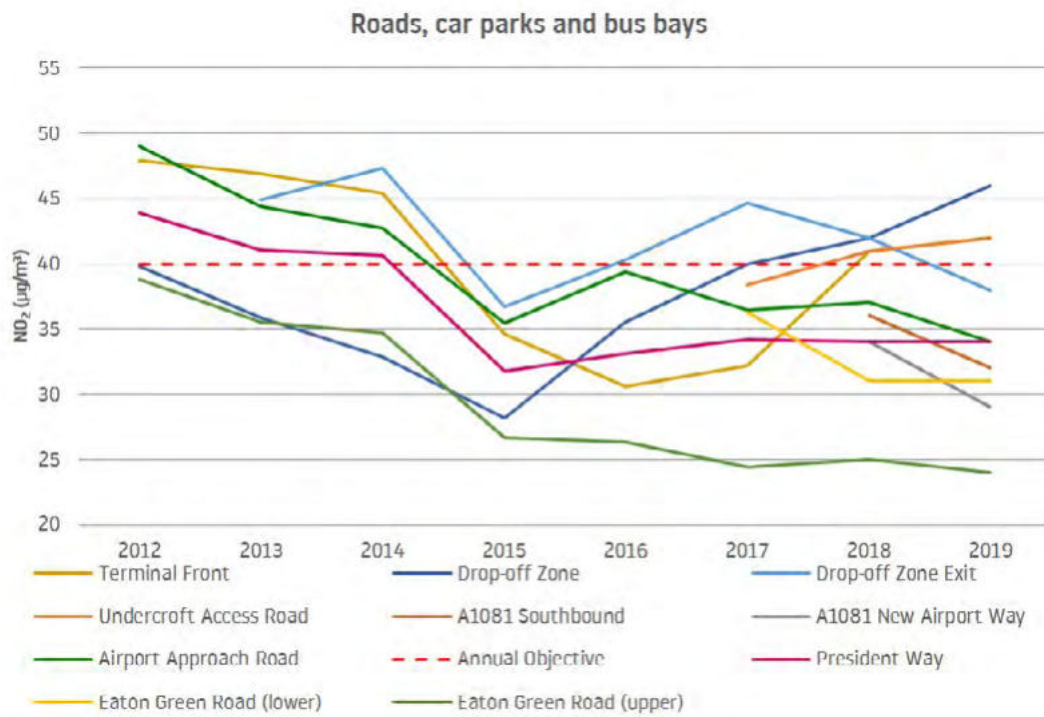
In 2019, we also started a trial of a new monitor that monitors NO₂ concentrations continuously. The monitor is currently located in the drop-off zone (see results on next page).

- The short term (1-hour mean) local air quality objective for NO₂ is 200µg/m³.

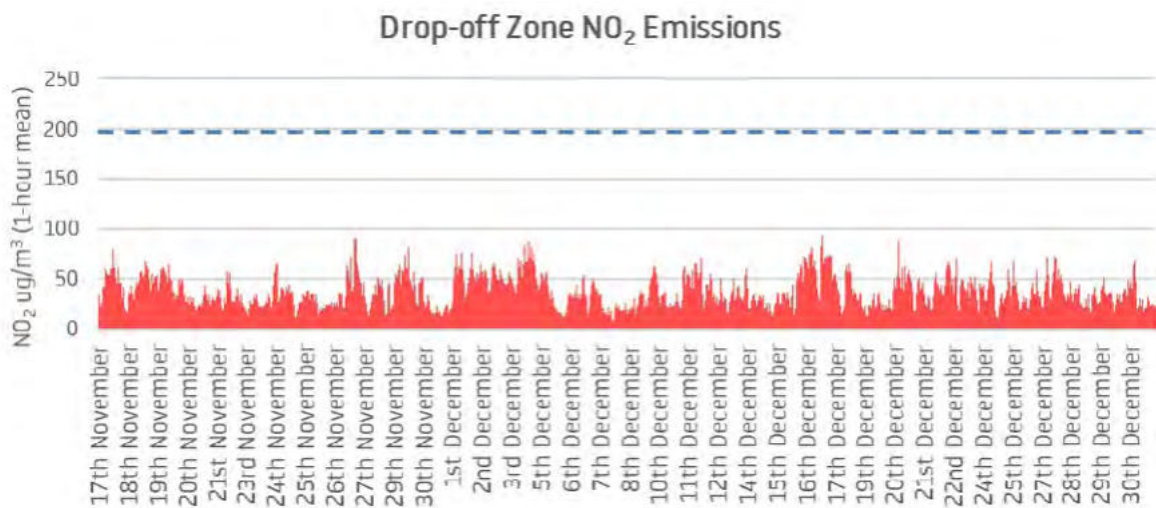
NO₂ levels at the closest residential receptors to the airport, and also along the aircraft flight paths have all seen a slight reduction compared to 2018 results and are significantly below the objective level laid out in the Air Quality (England) Regulations 2000 (as amended).



Levels monitored by the roads around the airport and in the car parks & bus bays are a little higher (graph on next page), with the locations at the drop-off zone, undercroft access road and the terminal front slightly exceeding the annual mean objective of 40 µg/m³ (that said, the objective is only strictly applicable in locations where public can be 24 hours a day such as residential locations).



Towards the end of 2019, we opened a new drop-off zone which is located on the ground floor of the Terminal Car Park 2. To assess the air quality within the drop-off zone, we installed a new monitor that continuously measures NO₂ emissions. The results were assessed against the UK 1-hour mean objective of 200 µg/m³ – the below charts demonstrates that there were no exceedances of the 1-hour mean objective for NO₂.



Surface Access

LLA aims to improve access to the terminal, particularly by public transport in order to reduce the contribution that journeys make to total airport-related CO2 emissions and also to air pollution. The previous Airport Surface Access Strategy (ASAS) expired in July 2017 and has since been replaced by the 2018–2022 ASAS, comprising a summary document and a fuller supporting technical report. The 2018-2022 ASAS was reissued in 2019, to provide an update on the projects and steps taken towards LLA’s sustainable travel targets. The objectives of the ASAS are to:

1. Promote and encourage sustainable surface transport options for employees and passengers;
2. Reduce the impact of surface access to the airport on the local community.

These targets are being monitored regularly, as part of the wider Local Transport Plan 3 (LTP) monitoring framework. The LTP was published in March 2011 and includes a long-term strategy for the period up to 2026. The LTP long-term vision involves providing an integrated, safe, accessible and more sustainable transport system which supports economic regeneration, prosperity and planned growth in the Luton conurbation. LLA’s Surface Access Targets fully support the LTP’s vision for an increased focus on the delivery of high quality, high capacity public transport.

Modes of Transport

LLA is well-placed in relation to many areas of the UK, and benefits from excellent accessibility by road and rail. It is located close to the M1 Motorway, linking London with the East Midlands and North East. It is also situated close to Luton Airport Parkway Railway Station, with local, regional and long-distance services calling at this station, including frequent direct services to Central London and the South-East. The bus and coach interchange at the airport provides extensive local, regional and long-distance journeys, with a range of operators providing services. Major changes are currently underway both at the airport and in the vicinity, to improve surface access modes. For example, work continues on the DART system, which will connect LLA with Luton Airport Parkway Railway Station in less than four minutes from circa Q3 of 2021.

Passenger mode share

The Civil Aviation Authority (CAA) undertakes continual passenger surveys at many of the major airports in the UK, including London Luton. In common with other airports, LLA uses this survey data to assess trends in passenger ‘modal shift’ from private to public transport. The table below shows the weighted CAA data for 2012-2019. The CAA statistics suggest that 38% of airport passengers chose to use the public transport methods of rail, bus or coach in 2019.

%	2012	2013	2014	2015	2016	2017	2018	2019
Drop Off	27	28	25	27	28	43	45	45
Car Park	23	23	28	27	23	20	17	16
Rail	17	16	14	16	16	17	17	21
Bus/Coach	16	16	15	15	16	16	16	17

Whilst the figures have remained fairly static for the last few years, LLA continues to work to promote the use of sustainable transport, examples of which are given below.

The Bus and Coach Station adjacent to the terminal has been significantly improved. Coach and bus services are now closer in proximity to the terminal than other transport options, to encourage growth in sustainable surface access modes. Sufficient bays are available to accommodate anticipated growth in bus and coach use. A new canopy was installed in Q1 2019, providing cover to passengers waiting for onward travel services within the Central Terminal Area, and further improvements to the canopy are expected in 2020. Enhancements to the bay signage has recently facilitated optimal operational use of the area, and to further this development, digital information totems will soon be installed at each of the 18 bays, providing frequency information and enhanced wayfinding.

In the realm of rail, Luton Council's airport company, London Luton Airport Ltd (LLAL), is building the DART, a state-of-the-art, £225m fast transit system that will link London Luton Airport with Luton Airport Parkway station in under four minutes. The aim of the project is to support a seamless journey from St Pancras to the UK's fifth biggest airport in just 30 minutes, and to achieve a reduction in the number of passengers travelling to and from the airport by private car. The DART is intended to be brought into operation in 2021.

LLA recognises that access via private car, and the use of car rental services, is required for passengers that need increased flexibility beyond the offering of public transport options. To reduce carbon emissions associated with these modes, electric charging points are in use across both staff and passenger car parks, alongside an "Electric Vehicle Tariff," allowing for 30 minutes access for a significantly reduced rate versus the standard access fee. LLA is committed to working closely with the on-site car hire suppliers to introduce environmentally friendly transport initiatives, such as hybrid or electric vehicles.

Staff mode share

LLA aims to reduce the proportion of staff travelling alone by car to and from London Luton Airport. Whilst employee travel does not generate as many trips as passengers, it remains an important consideration, due to the frequency of a commute. Staff travel surveys are undertaken once every 2 years, the results for which are presented below.

%	2010	2012	2014	2016	2018
Drive alone	66	66	62	68	59
Car share	12	8	11	7	8
Taxi	1	1	0	1	1
Motorcycle	1	1	1	1	1
Rail	5	5	10	7	8
Bus/Coach	7	9	8	9	16
Cycle	2	2	2	2	2
Walk	5	6	7	5	6

Staff Travel – Progress vs. Airport Surface Access Strategy

The Airports Surface Access Strategy (ASAS) also involves reducing Single Occupancy Vehicles (SOV) use and carbon emissions while enhancing the environment and improving the community's health and quality of life.

The strategy has a target to directly contribute to a reduction in SOV travel by employees to and from LLA. Employee single occupancy vehicle (SOV) travel has achieved the 2016 and 2019 targets, achieving 59.4% mode share in the latest 2019 Staff Travel Survey versus a target of 66%. This is seen in the table below.

	2016	2019	2022
Target	68%	66%	64%
Result	68%	59%	

More information on the Airport Surface Access Strategy can be found at: <https://www.london-luton.co.uk/corporate/lla-publications/surface-access-strategy>

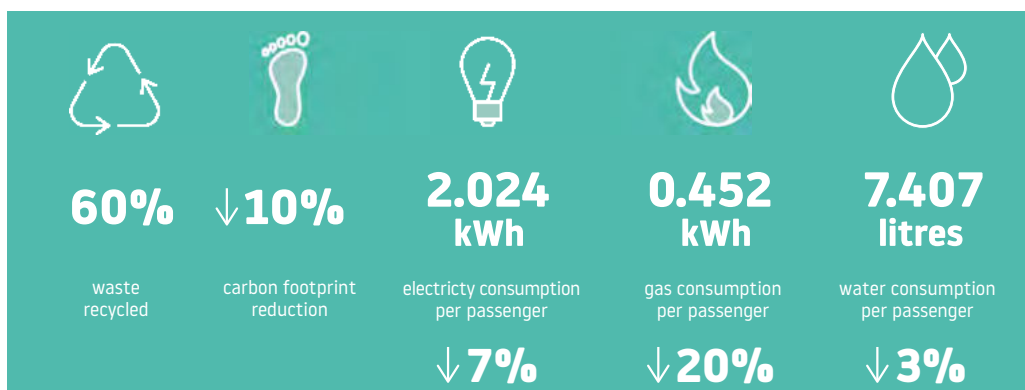


Sustainability

London Luton Airport is committed to operating in a way that maximises the socio-economic benefits for the local and regional area whilst minimising the environmental impacts. To ensure this vision is shared and supported, we work closely with airlines, stakeholders and business partners to promote this approach across the airport, ensuring that the full benefits that London Luton Airport can bring to the region are realised.

LLAOL aims to continuously improve on environmental performance in key areas across the airport.

Our key achievements in 2019 include:
Accreditation with Airport Carbon Accreditation Scheme
10% reduction in carbon footprint Equivalent to around 16 trips around the planet Earth in an average diesel car
Winner of Energy Awards 2019 (Energy Champion of the Year category)
60% of waste recycled
20% reduction in gas usage per passenger
7% reduction in electricity usage per passenger
3% reduction in water usage per passenger
Maintained the ISO14001 and ISO50001 international accreditation standards for Environmental and Energy Management Systems.



Waste Reduction and Recycling

We've continued to work closely with our teams, concessionaires and other 3rd parties to reduce waste at source and segregate recyclable waste such as glass, food, cardboard and mixed recycling. We've also continued to work with our waste provider to ensure waste operatives carry out additional waste sorting to increase the amount of waste that's recycled before it leaves the airport. Despite significant changes in the global recycling market, we achieved 60% recycling rate.

In 2019, we also introduced a new scheme whereby confiscated items collected from passengers at airport security, that would otherwise be disposed of as waste, are now donated to Luton Food Bank. So far, over 100,000 items have been donated in turn reducing our volumes of waste.



Energy and Carbon

Over the last year, we've focused on taking a 'deep dive' into our energy and fuel usage data to identify and understand significant opportunities where usage can be reduced through operational controls and our building management system. We've also improved the way we use the data by installing minimum / maximum tolerances, which allows for early identification and investigation of peaks in consumption.

As part of the upgrades to the main terminal building and the wider airport, we've gradually replaced lighting with LED equivalents as well as reduced the number of lights – throughout 2019, we've upgraded lighting in domestic and international arrivals as well as the central search and the onward travel centre.

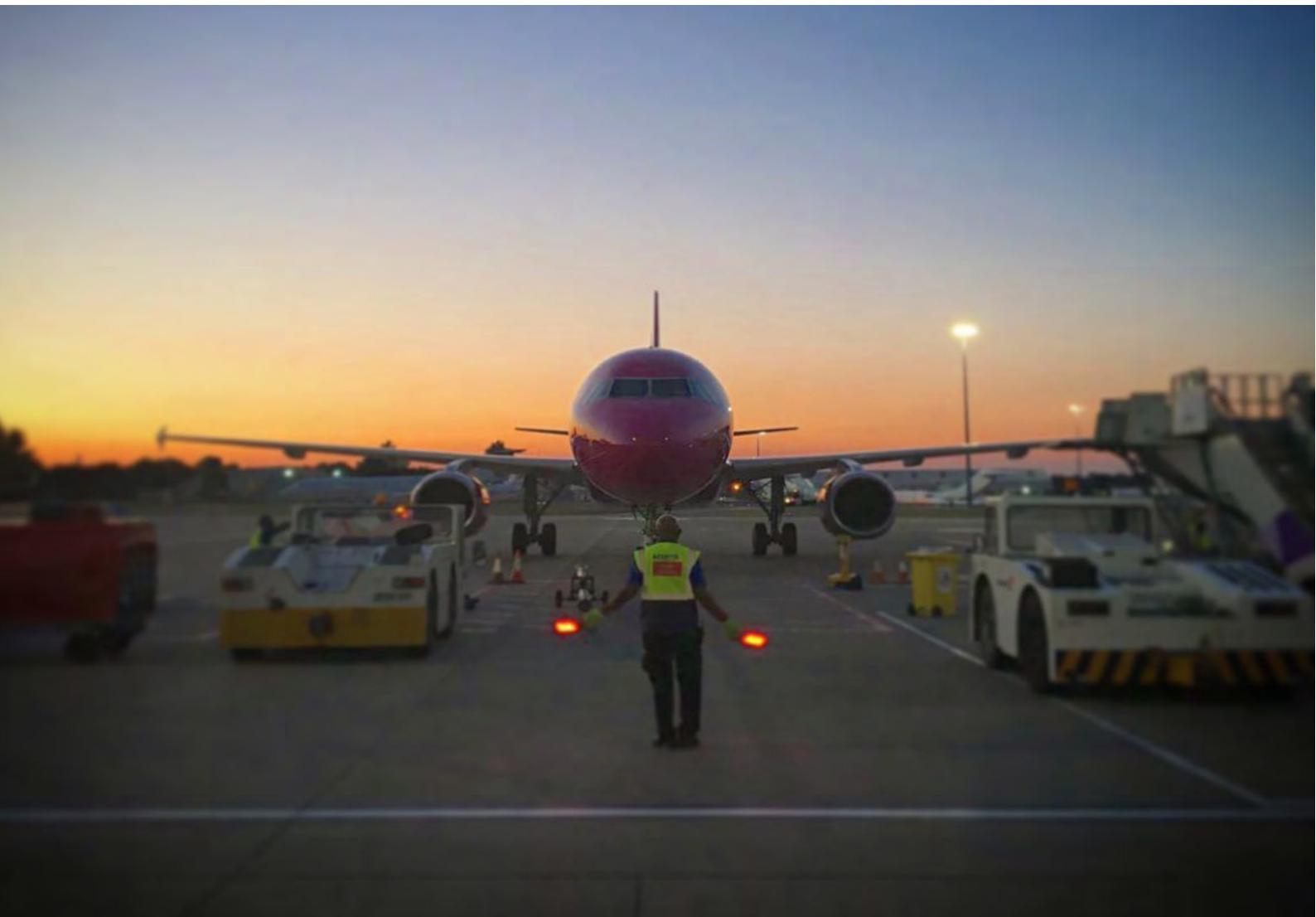
To reduce our gas consumption, we've started an airport wide boiler upgrades to more efficient boilers. This work started with upgrading Cargo and Fire Station boilers, which was completed in 2018. We continued this work in 2019 which saw upgrades to the four boilers heating our main terminal building. This resulted in notable gas consumption savings – compared to 2018, our gas consumption has reduced by over 16% in total which is equivalent to 0.45kWh per passenger.

Our continued focus to identify opportunities to reduce energy consumption have resulted in a saving of 1294 tonnes of CO₂e; this is a 10% reduction compared to 2018.

We've also achieved accreditation with the Airport Carbon Accreditation Scheme.

Water

As part of our continuous maintenance and upgrades to washroom facilities, we've ensured that all facilities have been installed with water efficient fixtures.



Planning and Development

Through its Local Plan, Luton Borough Council (the Council) sets out local planning policies and identifies how land is used, determining what will be built where. The Council also is responsible for the Local Transport Plan (LTP) providing policies, strategies and schemes primarily for Luton, though the LTP does refer to strategic transport and infrastructure and other cross boundary matters for the whole conurbation (Dunstable and the Houghton Regis area).

Local Plan

The Luton Local Plan (2011-2031) was adopted in November 2017. The adopted Local Plan is a strategic document setting out the vision, objectives and spatial planning strategy for the whole of Luton Borough Council's area for the period up to 2031.

It comprises the following document and accompanying plans:

- Luton Local Plan (2011-31), November 2017
- policies map
- town centre inset

These can be viewed by visiting the following page on the Council's website:

<https://www.luton.gov.uk/Environment/Planning/Regional%20and%20local%20planning/Pages/Local%20Plan%202011%20-%202031.aspx>

Policy LLP6 of the Local Plan covers the London Luton Airport strategic allocation, an area of 325 hectares, identified on the policies map, including land within the airport boundary, Century Park and Wigmore Valley Park.

Planning Applications

The permission to expand the airport to allow an increase to up to 18 million passengers per annum (mppa), granted in 2014 (Council reference 12/01400/FUL), has been fully implemented.

Work commenced on the construction of the Direct Air Rail Transit (Luton DART) system in April 2018, with the 'gateway' bridge over the A1081 being placed in position in December 2019 following its construction adjacent to the Airport Way roundabout at the entrance to the airport (ref: 18/01049/FUL). It is anticipated that the DART linking Luton Airport Parkway station and the airport terminal will be open in 2021.

In March 2019 the Development Control Committee resolved to grant planning permission for the New Century Park development (ref: 17/02300/EIA), with the Secretary of State confirming in July that the application was not to be called in, but rather the local planning authority could grant planning permission. The legal agreement associated with this proposal has yet to be signed.

Separately, in February 2019 the airport owner, London Luton Airport Limited (LLAL), put forward its preferred option for the expansion of the airport. This would be a Nationally Significant Infrastructure Project (NSIP) as defined by the Planning Act 2008, with the proposal requiring an application for a Development Consent Order and determination by the Secretary of State. In May 2019 the Planning Inspectorate (PINS) issued its scoping opinion following a scoping request from LLAL in March. In October 2019 LLAL began a consultation on its expansion proposals, producing a Preliminary Environmental Impact Report, and holding exhibitions in 34 separate locations. The consultation concluded on 16 December 2019, with the results of the consultation due to be published in 2020.

Hotel developments

The Luton hotel market is very much dominated by airport related demand, from passengers and crew, with the Luton Hotel Study (July 2015) indicating that demand was likely to continue to grow.

The following hotel developments have been granted planning permission, are being implemented, or are still under consideration, since the table in the 2016 AMR was produced –

Site address	Current status of application	Number of bedrooms
Bartlett Square	Planning permission for 172 bedroom hotel recommended for approval subject to the signing of a legal agreement in November 2018 (still pending in 2019)	172
Napier Gateway (part of the Napier Park site)	Mixed development including 209 bedroom hotel (still to be built)	209
Power Court (Town Centre)	Outline permission for football stadium and associated infrastructure granted planning permission September 2019 (yet to be implemented)	150
Land adjoining junction 10 to junction 10A of M1	Outline application for mixed use development including a hotel granted planning permission September 2019 (yet to be implemented)	350
Former Honda Garage, Cumberland Street (Town Centre)	Five to seven storey hotel (resubmission) granted planning permission in March 2018 (still to be implemented)	235
Phoenix House (Town Centre)	Change of use to hotel granted planning permission August 2017 (development still to be completed)	78
Prudence Place, Proctor Way	Demolition of existing buildings and erection of four storey hotel with undercroft parking granted permission in July 2018 (still to be implemented)	92
New Century Park	Planning permission for 145 bedroom hotel recommended for approval subject to the signing of a legal agreement in March 2019 (still pending in 2019)	145
15-23 Manchester Street (Town Centre)	Planning permission was granted for the change of use of the upper floors to 39 bedroom hotel in January 2019 (yet to be implemented)	39

National Aviation Policy

The Aviation Policy Framework (APF) published by the Coalition Government in March 2013 set out the Government's policy on aviation. The APF focuses on the benefits of aviation to the UK economy as well as its environmental impacts.

The 'Airports National Policy Statement: new runway capacity and infrastructure at airports in the south-east of England' (the Airports NPS) was designated on 26 June 2018. The Airports NPS provides the primary basis for decision making in relation to the Development Consent Order (DCO) for a new runway at Heathrow, whilst also being an important and relevant consideration in respect of applications for new runway capacity in London and the south east of England.

The Airports NPS sets out:

- The Government's policy on the need for new airport capacity in the South East of England;
- The Government's preferred location and scheme to deliver new capacity (the Heathrow Northwest Runway); and
- Particular considerations relevant to a development consent application to which the Airports NPS relates.

The Airports NPS includes policies that will be important and relevant for any nationally significant infrastructure project (NSIP) related to airports in the south east of England.

It should be noted that five applications for judicial review of the Airports NPS were dismissed by the High Court in May 2019 – though permission was granted to apply for a judicial review to the Court of Appeal (these were heard in October 2019 with further written submissions in November and judgement scheduled to be handed down in 2020).

Between December 2018 and April 2019 the Government sought feedback on its proposed new aviation strategy: 'Aviation 2050: The Future of UK Aviation'. The strategy is to focus on: balancing growth from passenger demand with action to reduce environmental and community impacts; improving the passenger experience; and building on the UK's success of establishing new routes and greater choice.

Local Transport Plan (LTP)

The current LTP is the third local transport plan produced by the Council in April 2011, which sets out how the Council will deal with transport matters in and around Luton. It comprises three parts, namely:

- A long term Transport Strategy up to 2026. With regard to the transport affecting the, airport this sets out anticipated passenger numbers of between 15.5mppa and 18mppa by 2026, together with an additional 3,000 employees;
- A series of Transport Policies, setting out how those will be implemented; and
- An Implementation Plan covering the five year period from the date of the LTP, which is reviewed annually. This includes a number of key elements that are relevant to the airport, such as: a focus on smarter choices and travel by more sustainable modes; implementation of a new entrance from the north to Luton Airport Parkway Station; and an extension of Airport Way to serve planned employment sites to the east of the airport.

The Luton DART was not specifically mentioned in the LTP, but it will serve to improve access from Luton Airport Parkway Station to the airport as well as encouraging a modal shift away from the use of private cars to public transport.

The LTP strategy also refers to the role of the Airport Surface Access Strategy (ASAS) in promoting sustainable travel to the airport for both passengers and employees, and the Council will work with



