Annual Monitoring Report 2018

Contents

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.

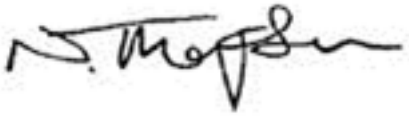
4. Land-use Planning and Mitigation
Through communication with local planning authorities we continue to discourage developments near the airport and spend the full budget for our Noise Insulation Scheme each year.

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	-	Deps. West	Deps. West
Number of PM_{10} exceedances	-	0	0

Air Traffic Data

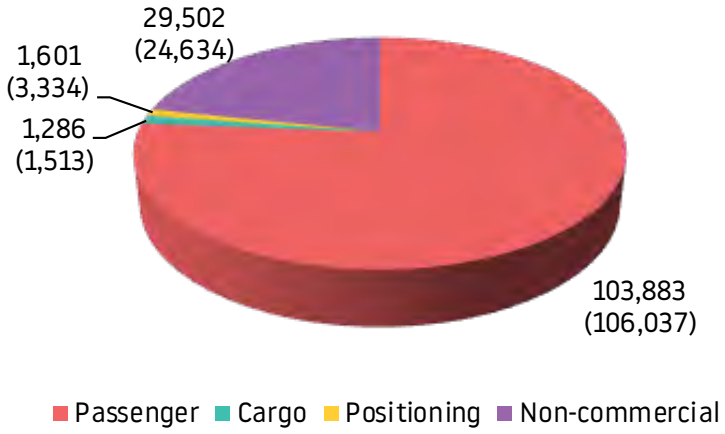
Aircraft movements

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.

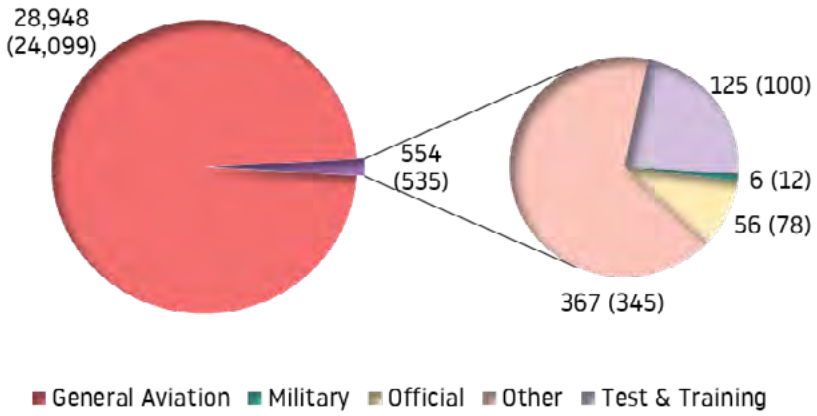
The majority of aircraft movements were passenger flights at 103,881 movements. This includes commercial flights by executive aircraft (compared with 106,037 in 2017). Other movements included cargo, positioning flights and non-commercial flights.

For comparison purposes 2017 data is shown in brackets.

Aircraft Movements



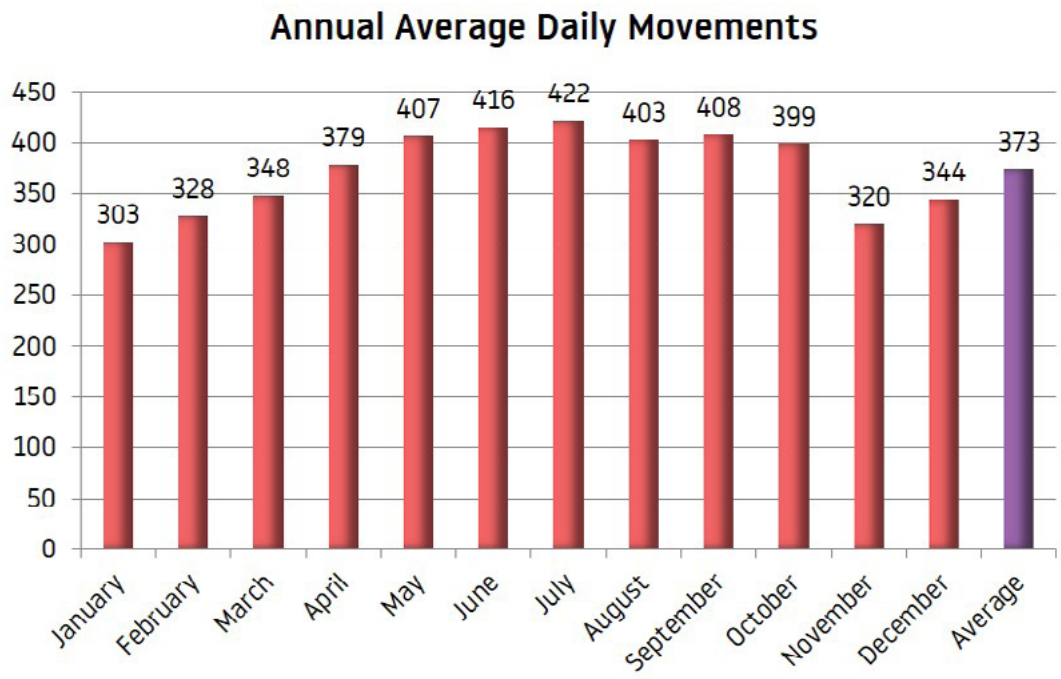
Non-Commercial Aircraft Movements



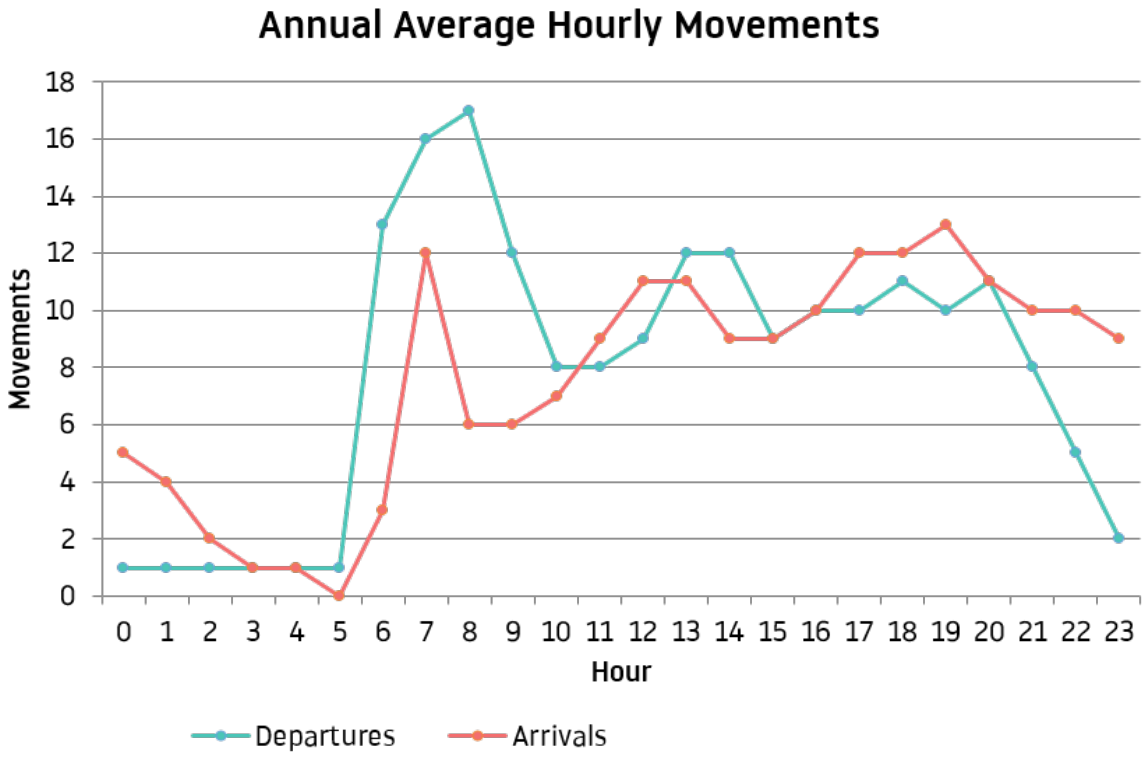
Movement Classification

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).



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.



Passenger data

Scheduled	Charter	Total
•**16,223,039** passengers •5.6% increase compared with 2017 •**159** average passengers per flight	•**358,811** passengers •16% decrease compared with 2017 •**182** average passengers per flight	•**16,581,850** passengers •5% increase compared with 2017 •**160** 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 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.

Domestic	EU	Non-EU	Total
• **1,188,596** •2.8% increase compared with 2017	• **10,686,996** •2.6% increase compared with 2017	• **4,706,258** •11% increase compared with 2017	• **16,581,850** •5% increase 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.

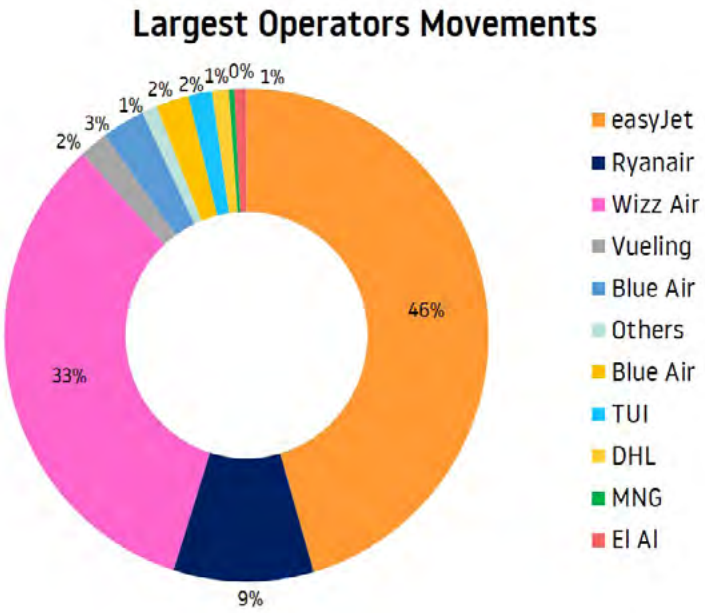
Operator	Movements			Tonnes
	Day Movements	Night Movements	Total	Total
2018	**706**	**1,582**	**2,288**	**27,096**
2017	455	1,442	1,897	22,061
2018/2017 comparison	+55%	+9.7%	+20.6%	+22.8%

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
Bari, Italy	25-Mar-17	Wizz Air
Bratislava, Slovakia	25-Mar-18	Wizz Air
Palermo, Italy	27-Mar-18	easyJet
Genoa, Italy	27-Mar-18	easyJet
Reus, Spain	27-Mar-18	easyJet
Dalaman, Turkey	28-Mar-18	easyJet
Tirana, Albania	19-Apr-18	Wizz Air
Keflavik, Iceland	29-Apr-18	Wizz Air
Athens, Greece	29-Apr-18	Wizz Air
Dalaman, Turkey	02-May-18	Thomas Cook
Antalya, Turkey	02-May-18	Thomas Cook
Larnaca, Cyprus	21-May-18	Wizz Air
Antalya, Turkey	15-Jun-18	Sun Express
Ankara, Turkey	17-Jun-18	Sun Express
Bodrum, Turkey	18-Jun-18	Sun Express
Gaziantep, Turkey	20-Jun-18	Sun Express
Thessaloniki, Greece	26-Jun-18	easyJet

Destination	Launch	Airline
Tallinn, Estonia	17-Sep-18	Wizz Air
Lviv, Ukraine	18-Sep-18	Wizz Air
Ovda, Israel	28-Oct-18	Wizz Air
Malaga, Spain	28-Oct-18	Ryanair
Cork. Ireland	28-Oct-18	Ryanair
Bologna, Italy	28-Oct-18	Ryanair
Lisbon, Portugal	28-Oct-18	Ryanair
Krakow, Poland	29-Oct-18	easyJet
Alicante, Spain	30-Oct-18	Ryanair
Athens, Greece	02-Nov-18	Ryanair
Kharkiv, Ukraine	13-Nov-18	Wizz Air
Barcelona, Spain	01-Dec-18	Ryanair
Gibraltar, Gibraltar	04-Dec-18	easyJet
Tromso, Norway	14-Dec-18	Wizz Air
Verona, Italy	15-Dec-18	Wizz Air
Grenoble, France	15-Dec-18	Wizz Air

Routes Ending 2018

Whilst there were 33 new routes launched from LLA in 2018, 13 routes ended.

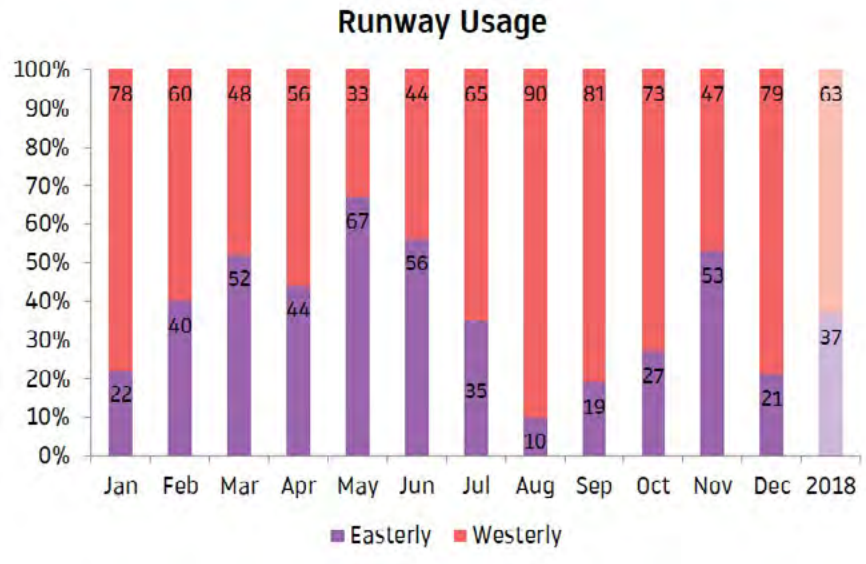
More information about our destinations can be found on the airport's website:
http://www.london-luton.co.uk/inside-lla/destination-map

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 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.

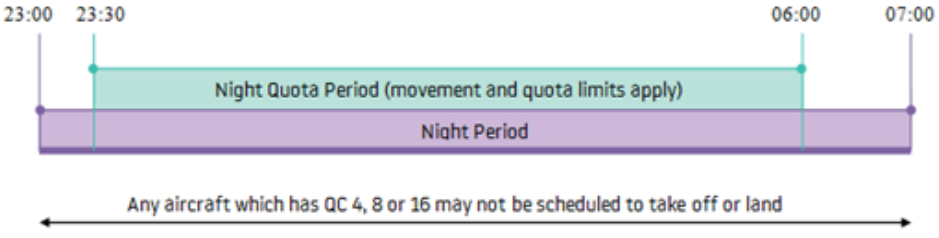
Night Flights

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 unkown classification. These movements were by a Tupolev 204-3004.

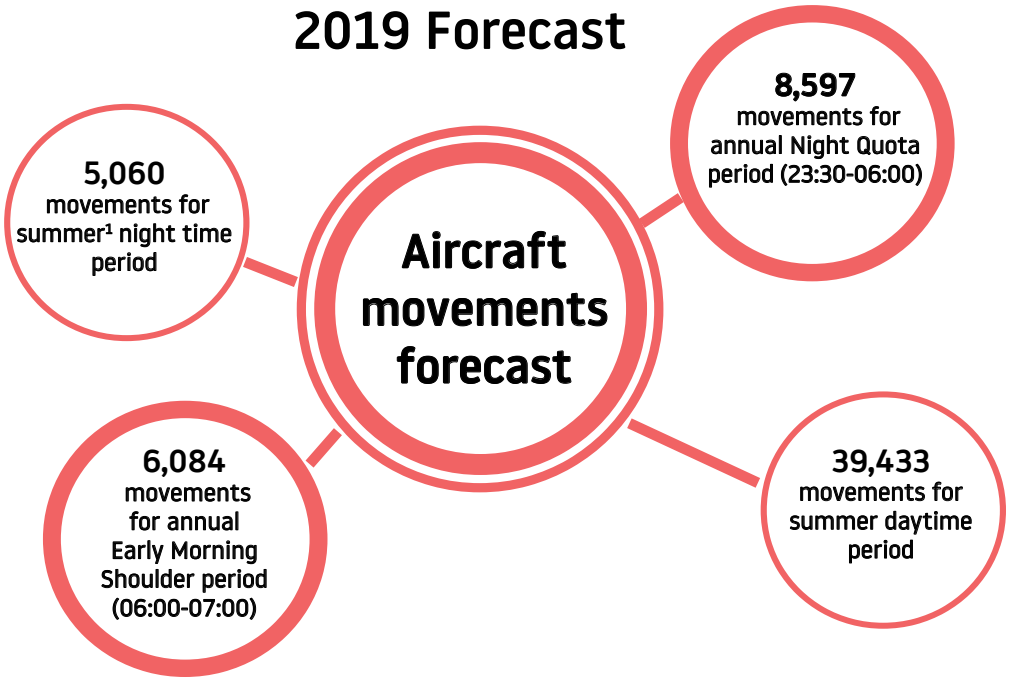
Day/Night ratio of movements

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.

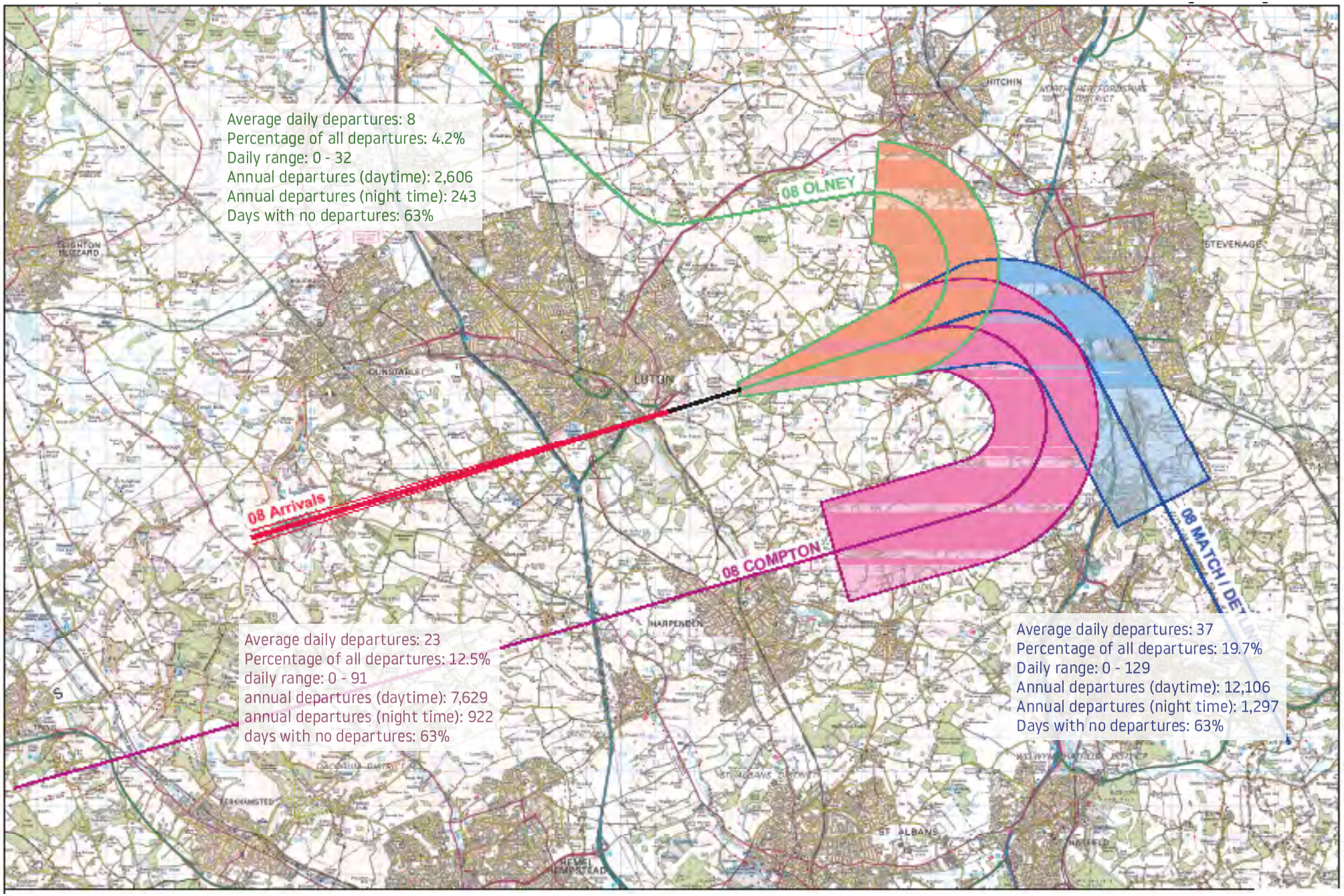
Associated with each NPR is a swathe of airspace extending 1.5km (1km for RNAV) each side of the NPR centre line, within which aircraft concentrate and are considered to be flying on track. Aircraft must follow the NPR controls applicable to the runway in use at that time.

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.

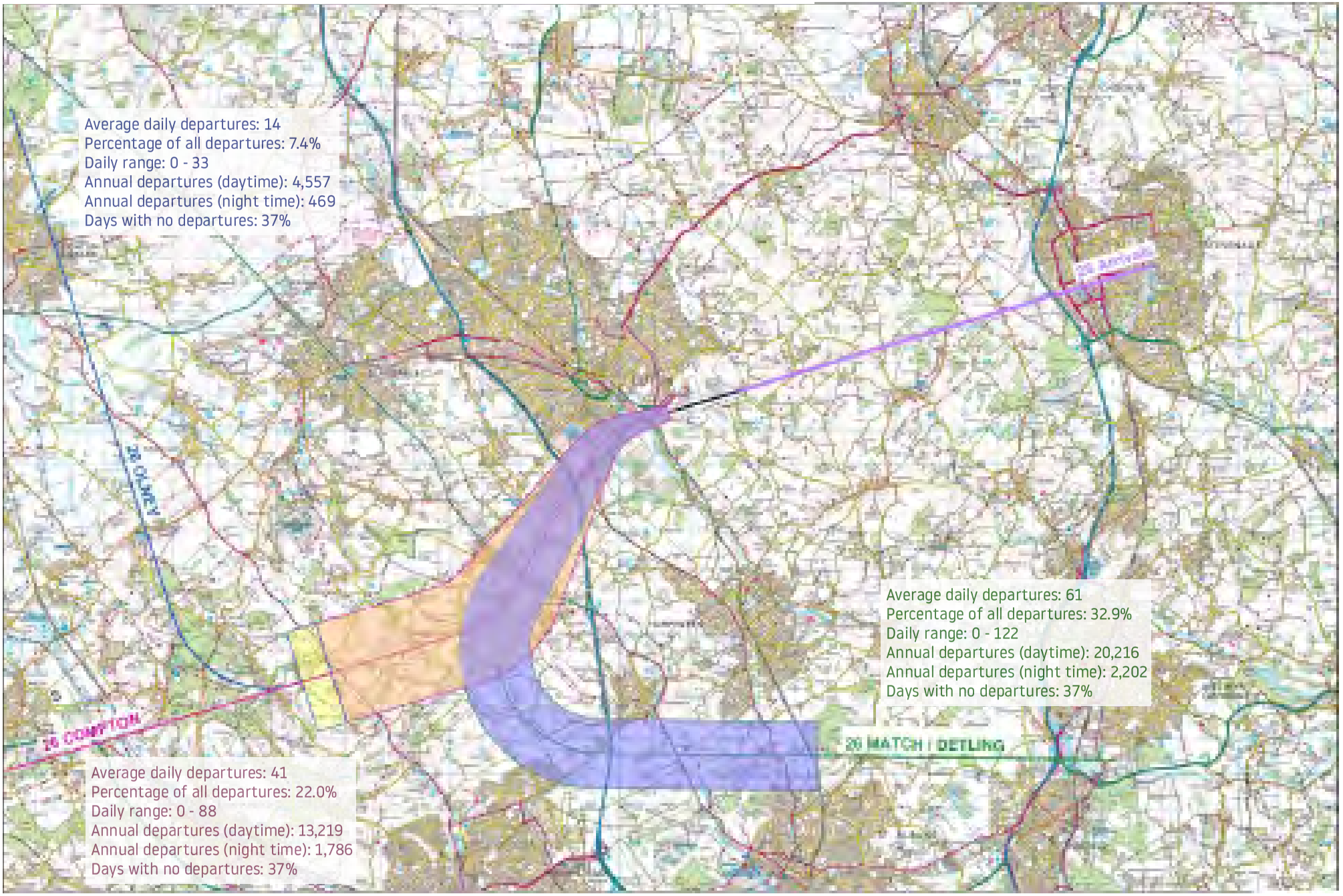
Once aircraft have reached the NPR restricted altitude they will be considered no longer on the Noise Preferential Route. At that stage the aircraft may be directed by Air Traffic Controllers onto a different heading in order to integrate with the overall flow of traffic, this is known as vectoring. 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 № 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)

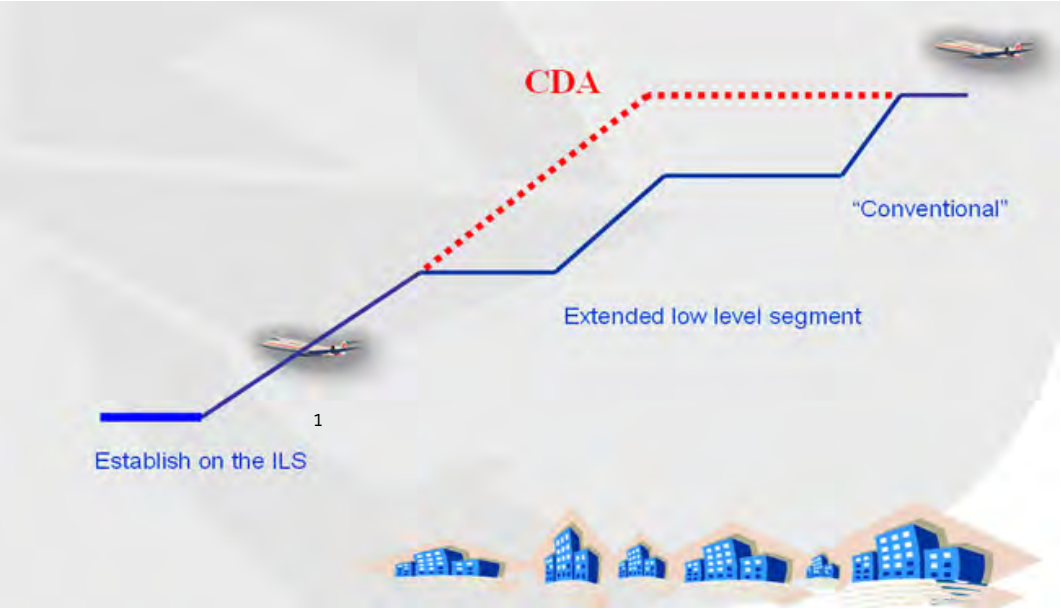
The London airspace is a particularly busy area and requires modernisation. The Department for Transport have notified aviations takeholders via the Upgrading UK airspace: strategic rationale, published in February 2017, that the controlled airspace in southern England used to support commercial air 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 Proposale that will modernise the overall airspace s tructure and route network. In late-2018, work started on the Future Airspace Stategy 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.

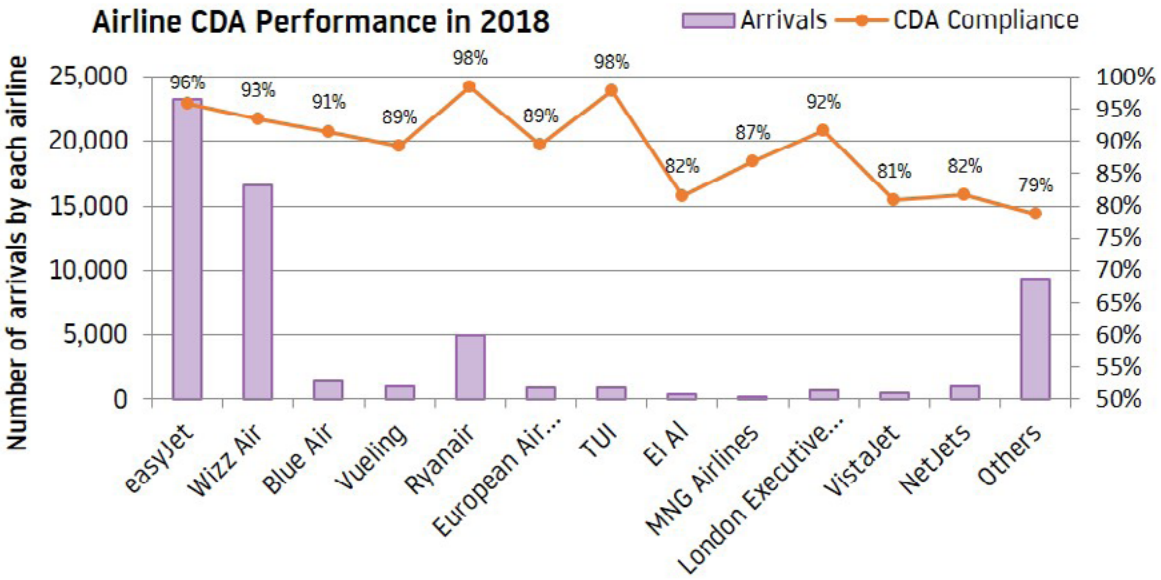
Arriving Aircraft

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.

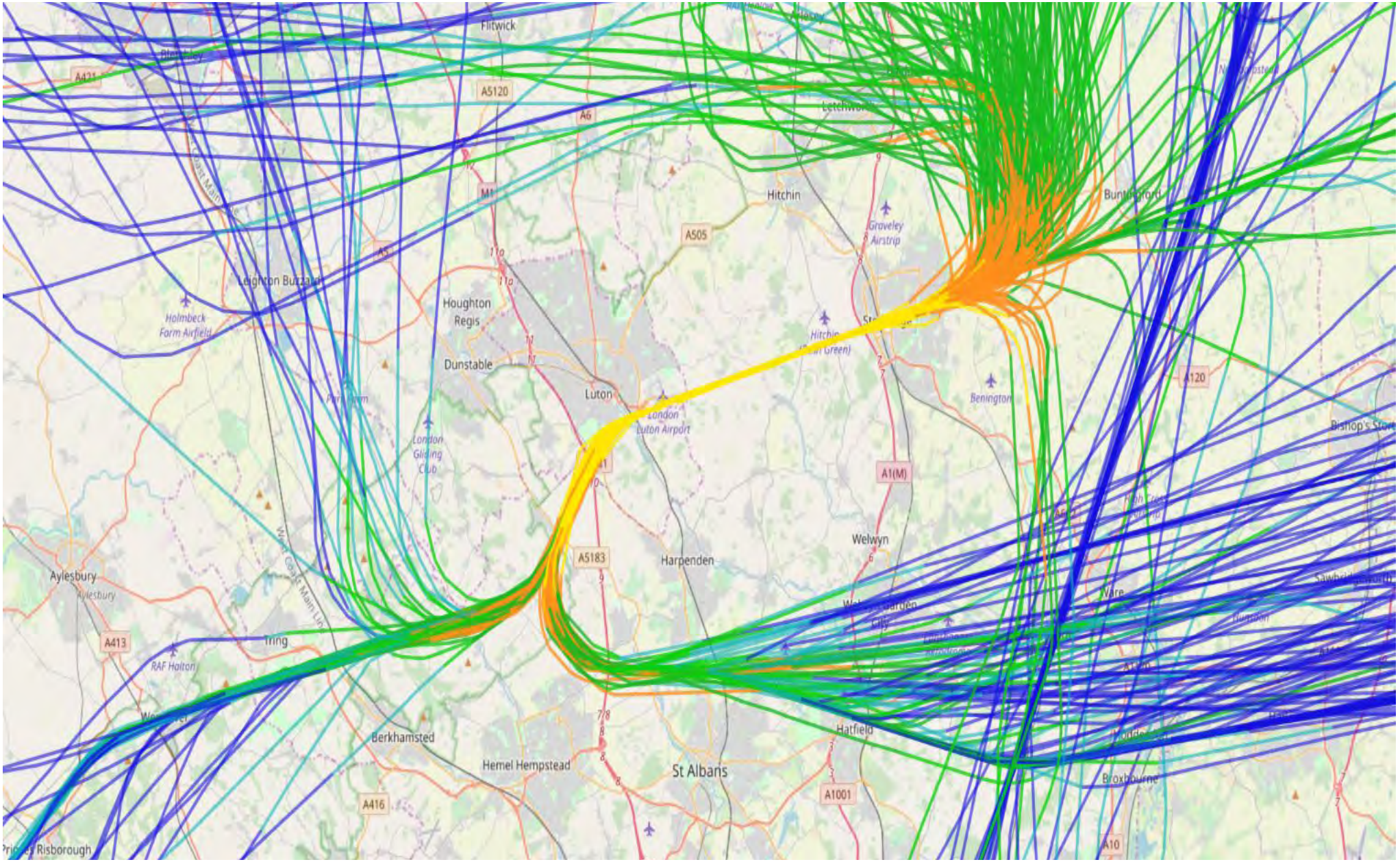
Departure and arrival flight tracks

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.

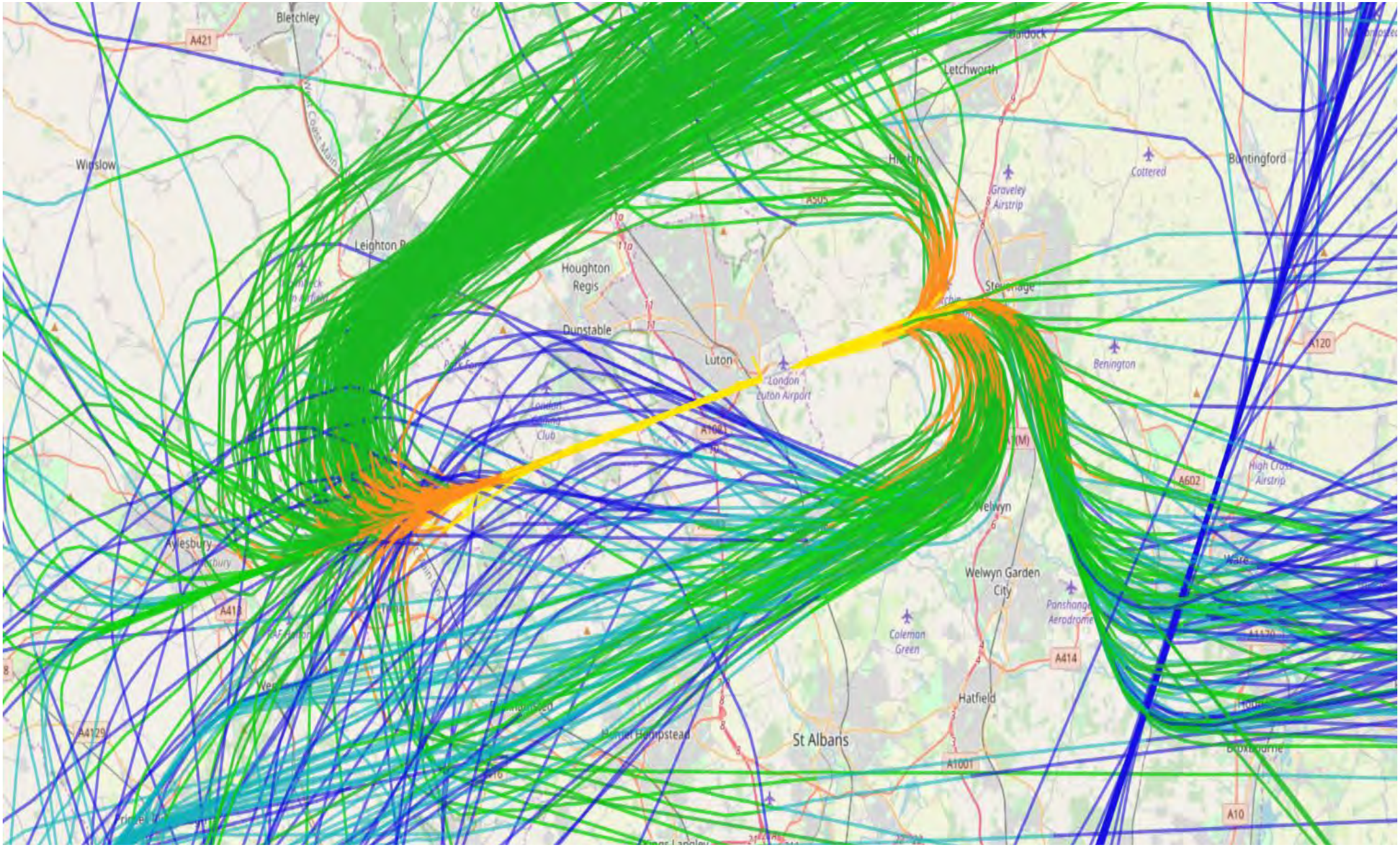
The last two maps display aircraft track density plots for the summer period 16th June - 15th September 2017. A track density plot is a map which displays the pattern of aircraft flight track passing over the region around the airport during a specific period. The system analyses the number of flights 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.

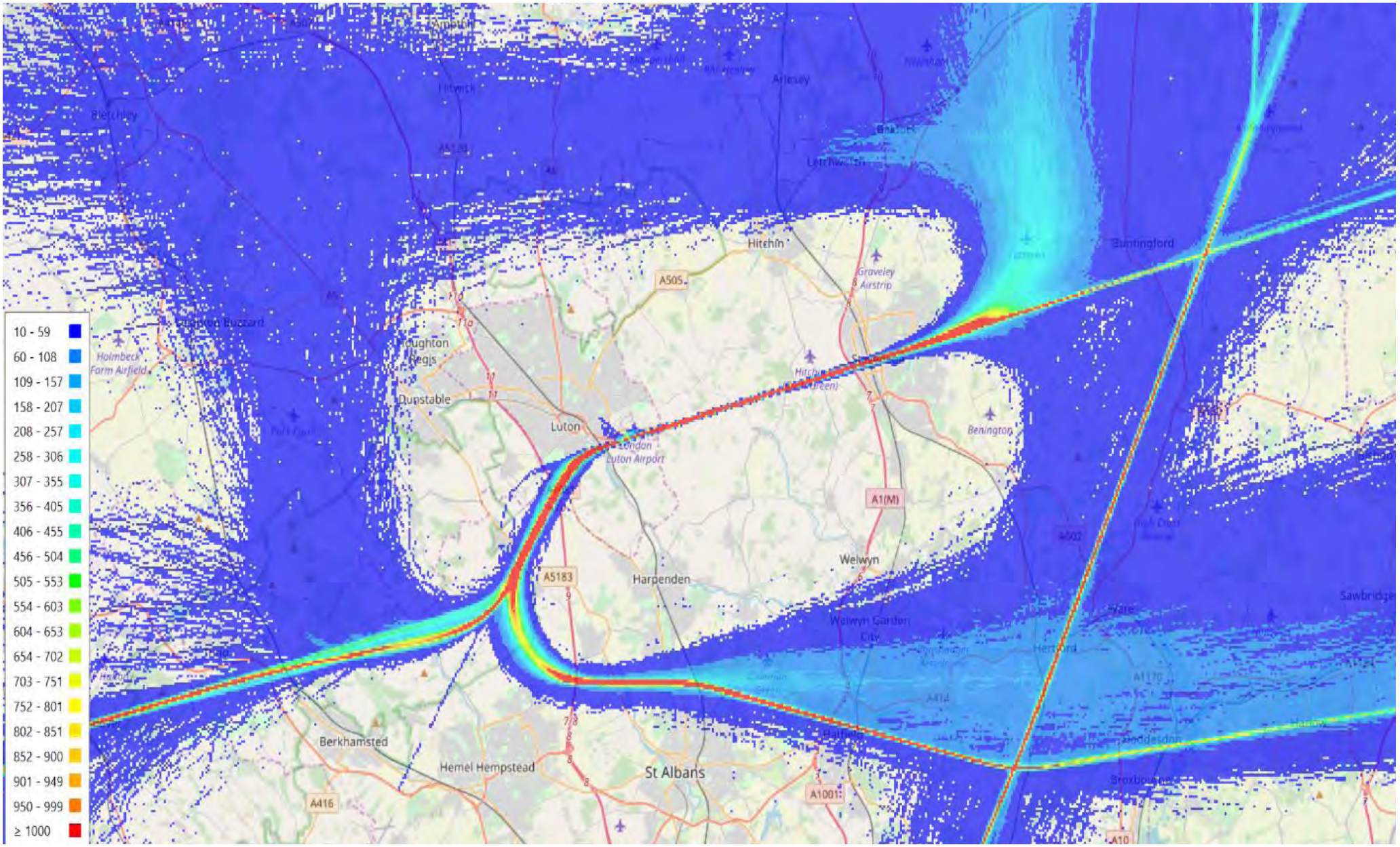
Westerly (26) Flight Routes (24 hour period)



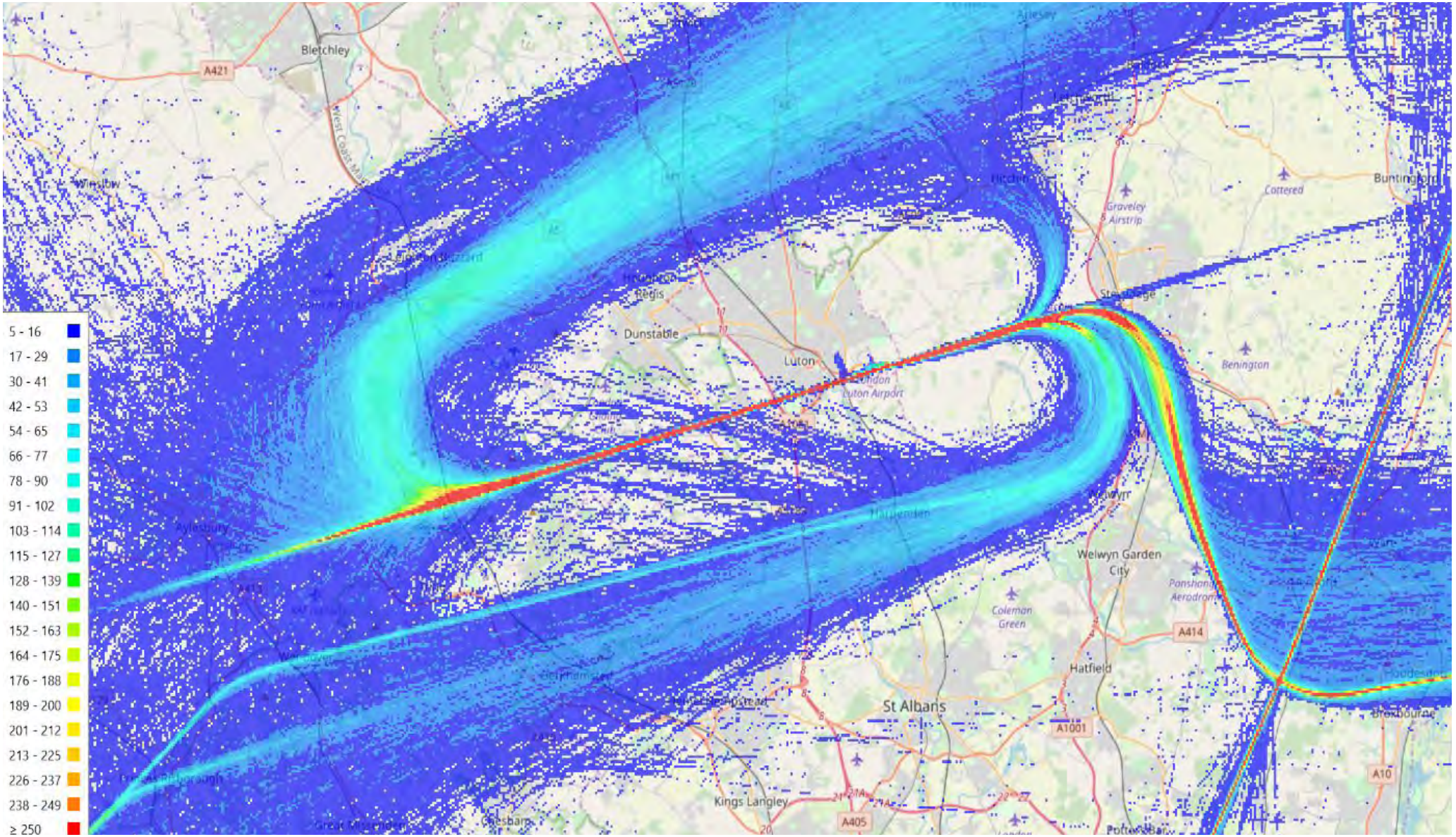
Easterly (08) Flight Routes (24 hour period)



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.

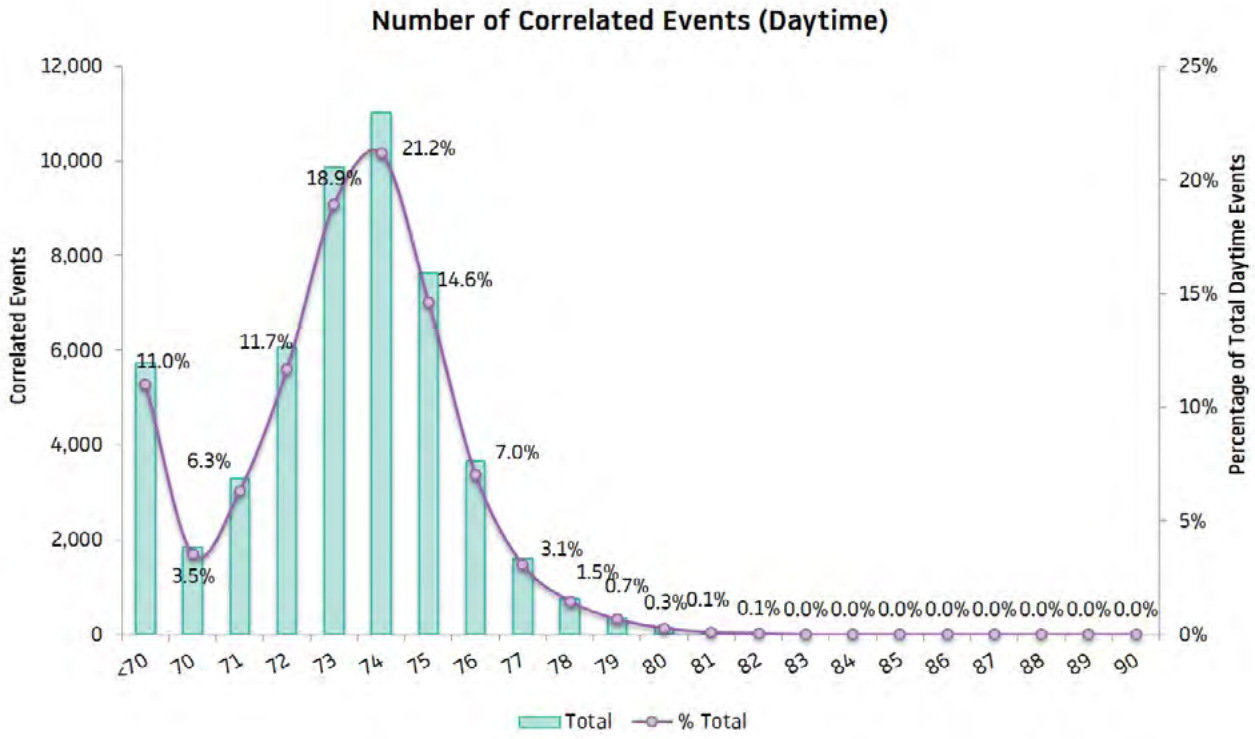
There were no correlated departing aircraft in the daytime which recorded a maximum noise level greater than 82dB.

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.

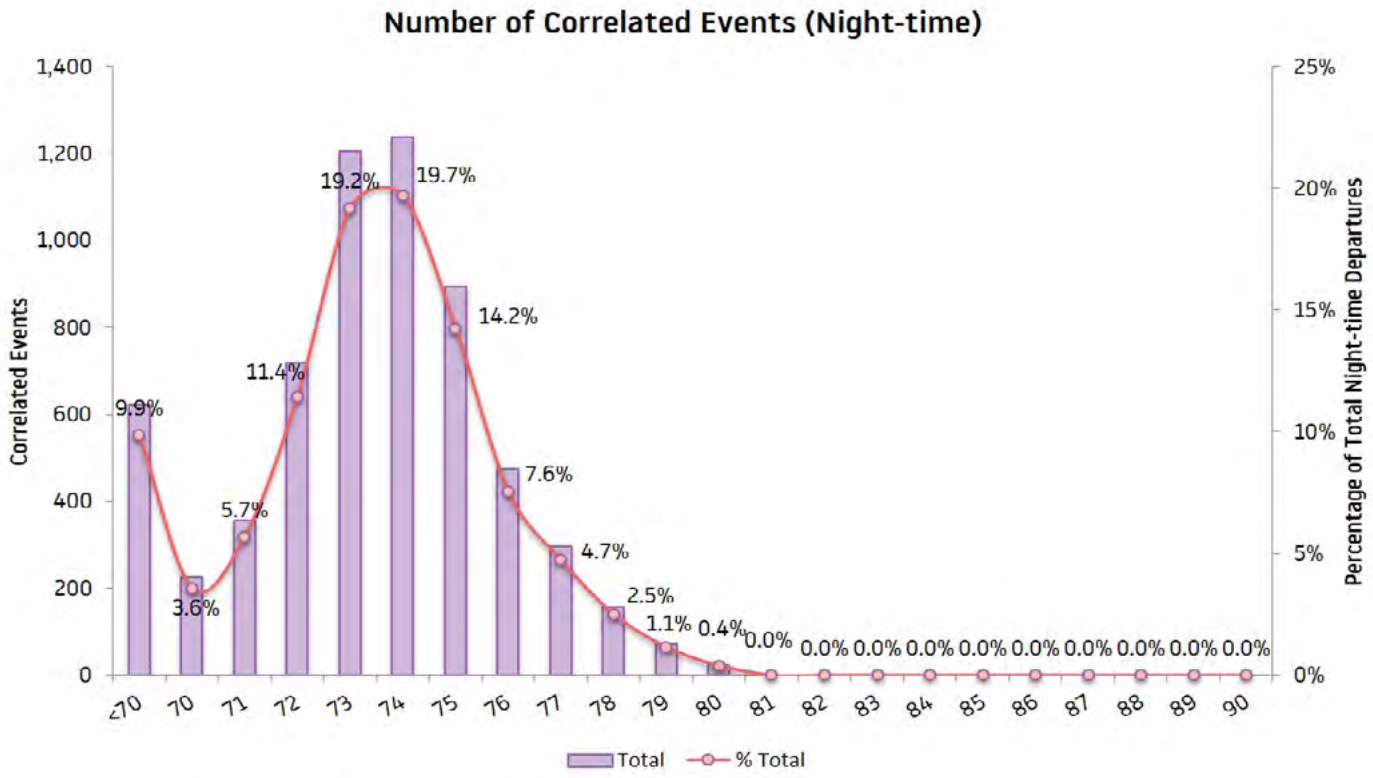
Daytime Noise

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.



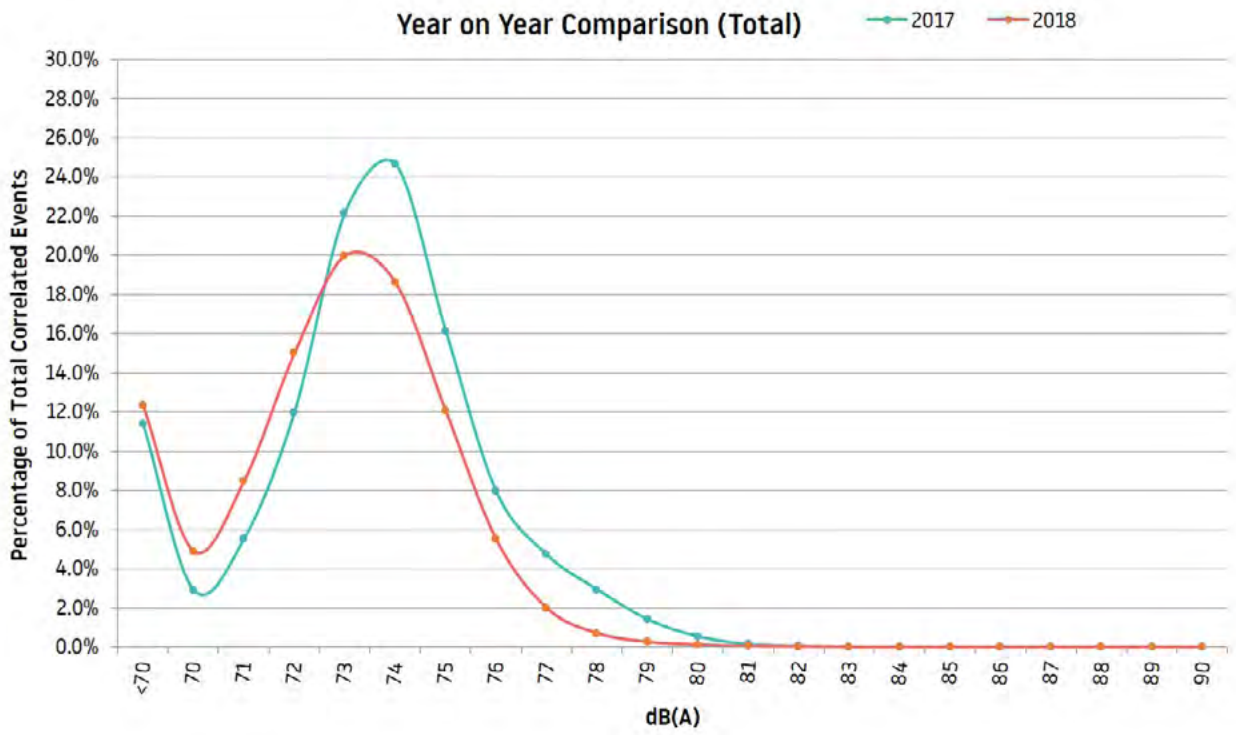
Night-time Noise

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 Insultation 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 (km²)					
	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

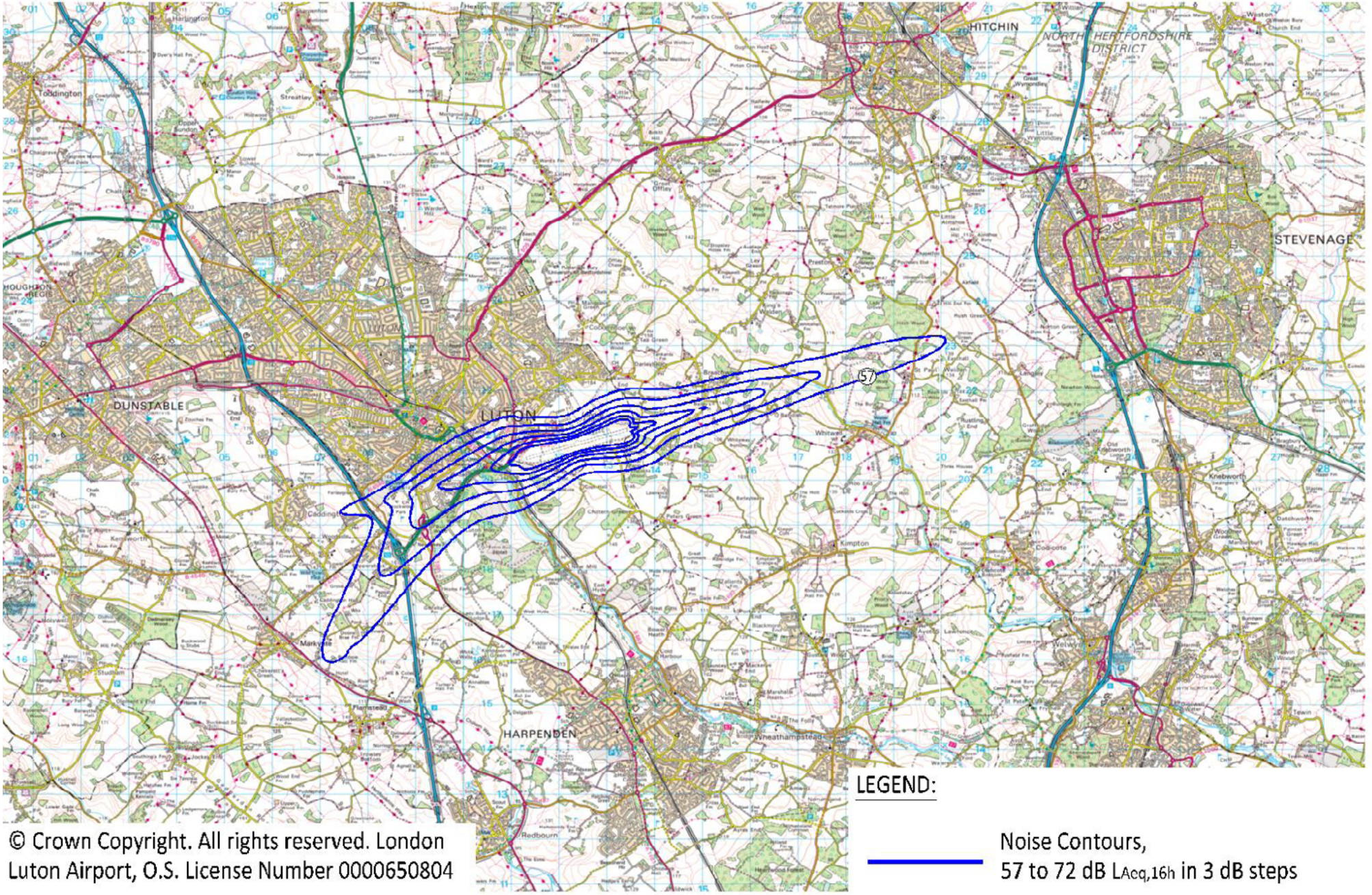
The population counts shown in the tables below were calculated using the CACI Ltd, 2018 postcode database. Each postcode in the database is described by a single geographical point, and if this point is within a contour then all of the dwellings and population in the postcode are counted. Please note, 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.

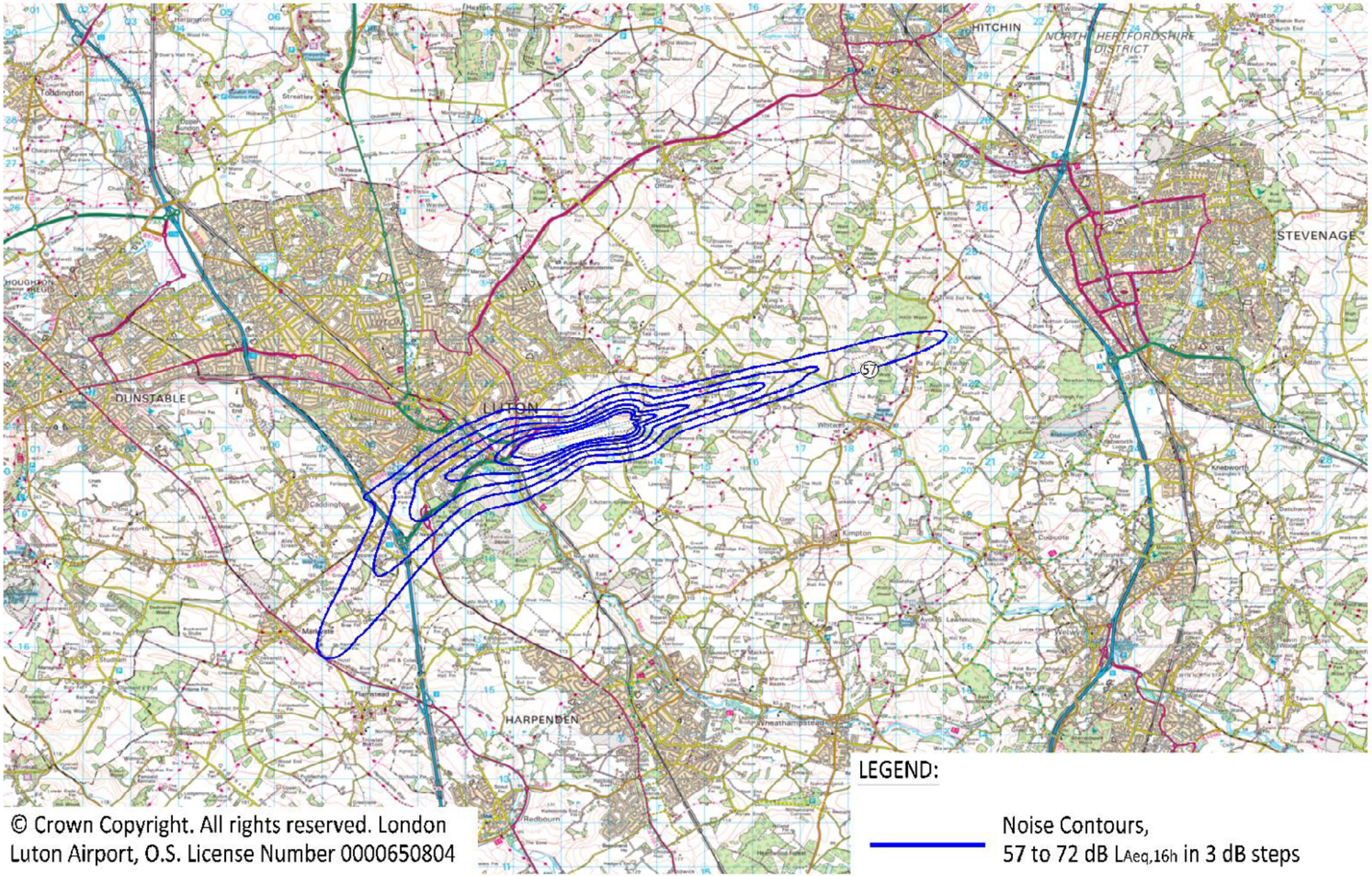
Annual Day Noise Contours Summer 2018



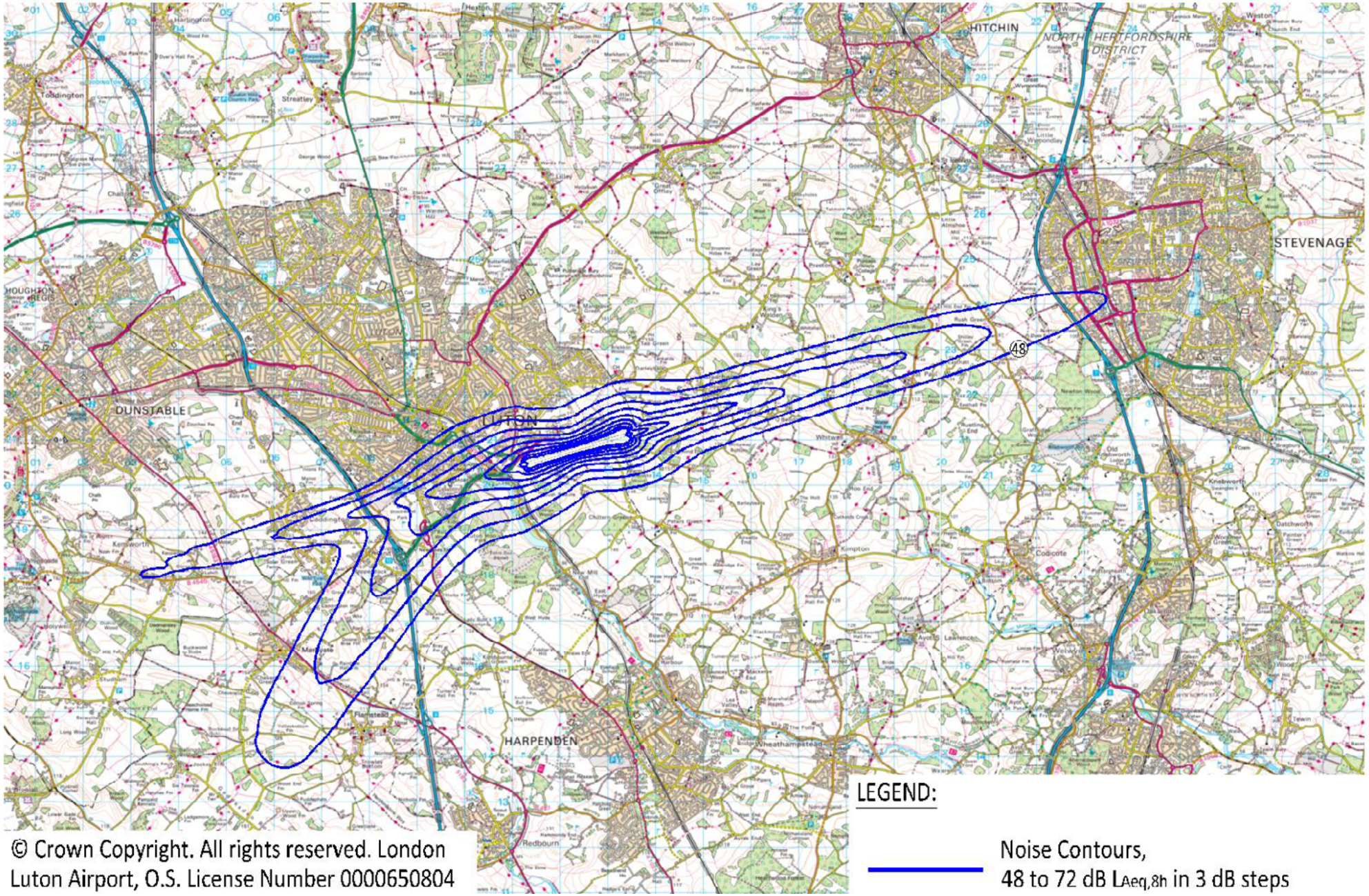
LEGEND:

Noise Contours,
57 to 72 dB $L_{Aeq,16h}$ in 3 dB steps

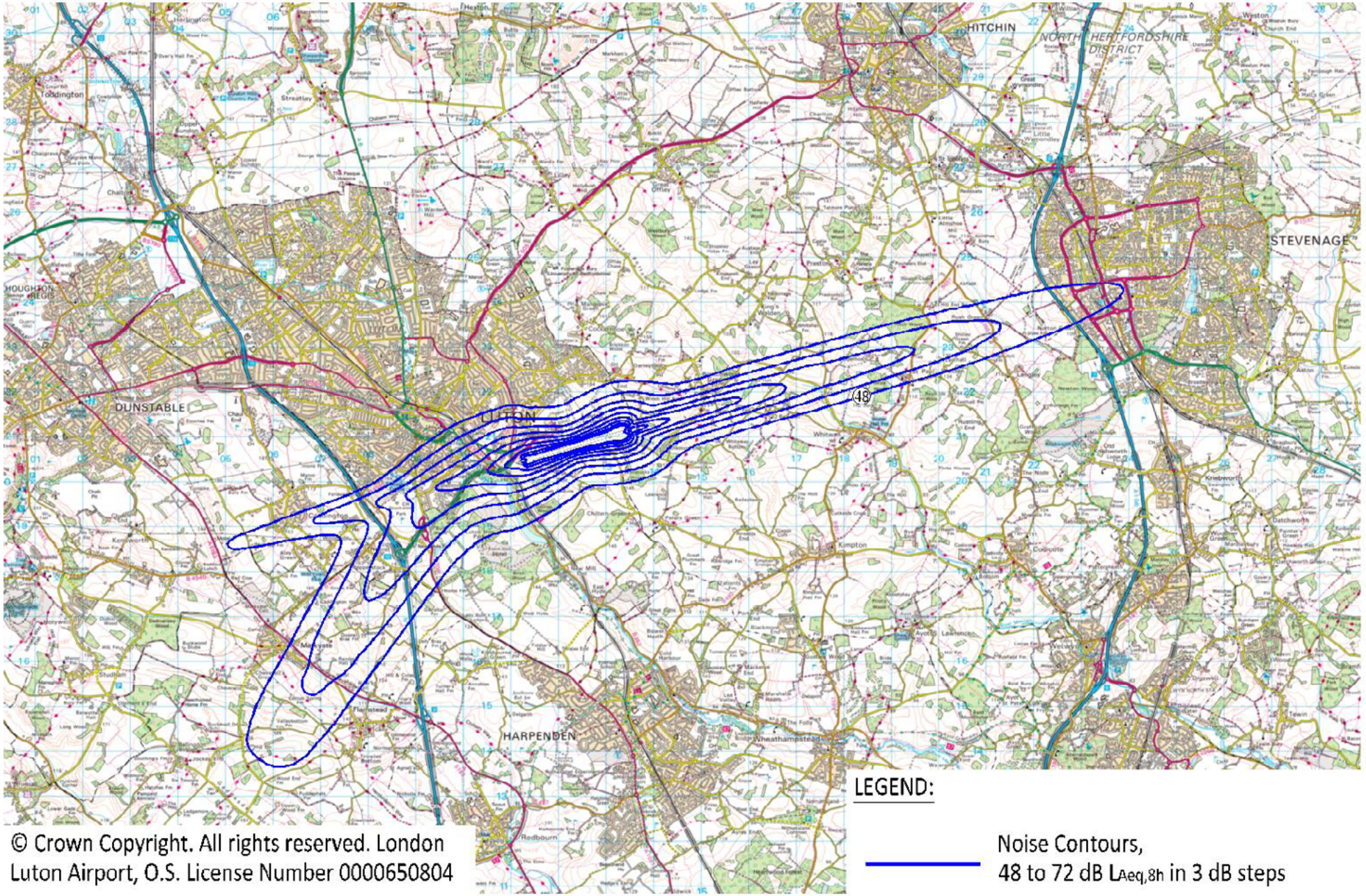
Annual Day Noise Contours Summer 2017



Annual Night Noise Contours Summer 2018



Annual Night Noise Contours Summer 2017



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 (km²)		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

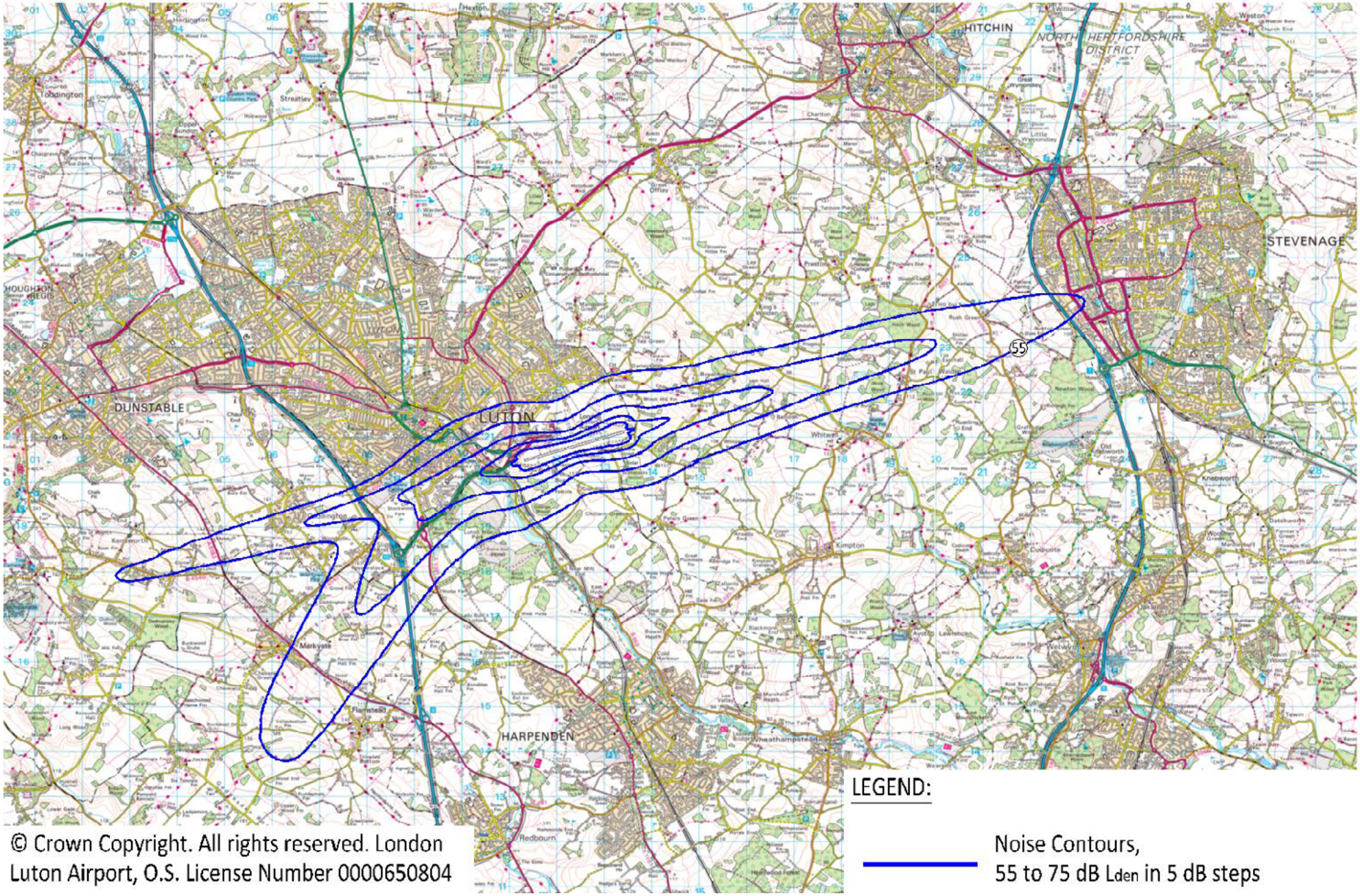
Contour Value (dB(A) L_{night})	Contour Area (km²)		Population[1]		Dwellings[2]	
	2017	2018	2017	2018	2017	2018
>66	0.9	1.0	0	0	0	0
>63	1.5	1.6	0	0	0	0
>60	2.5	3.0	<100	<100	<50	<50
>57	4.9	5.6	800	1,300	300	500
>54	8.9	10.1	2,200	3,100	800	1,150
>51	17.1	18.9	6,800	8,100	2,700	3,450
>48	**30.5**	**33.7**	**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.

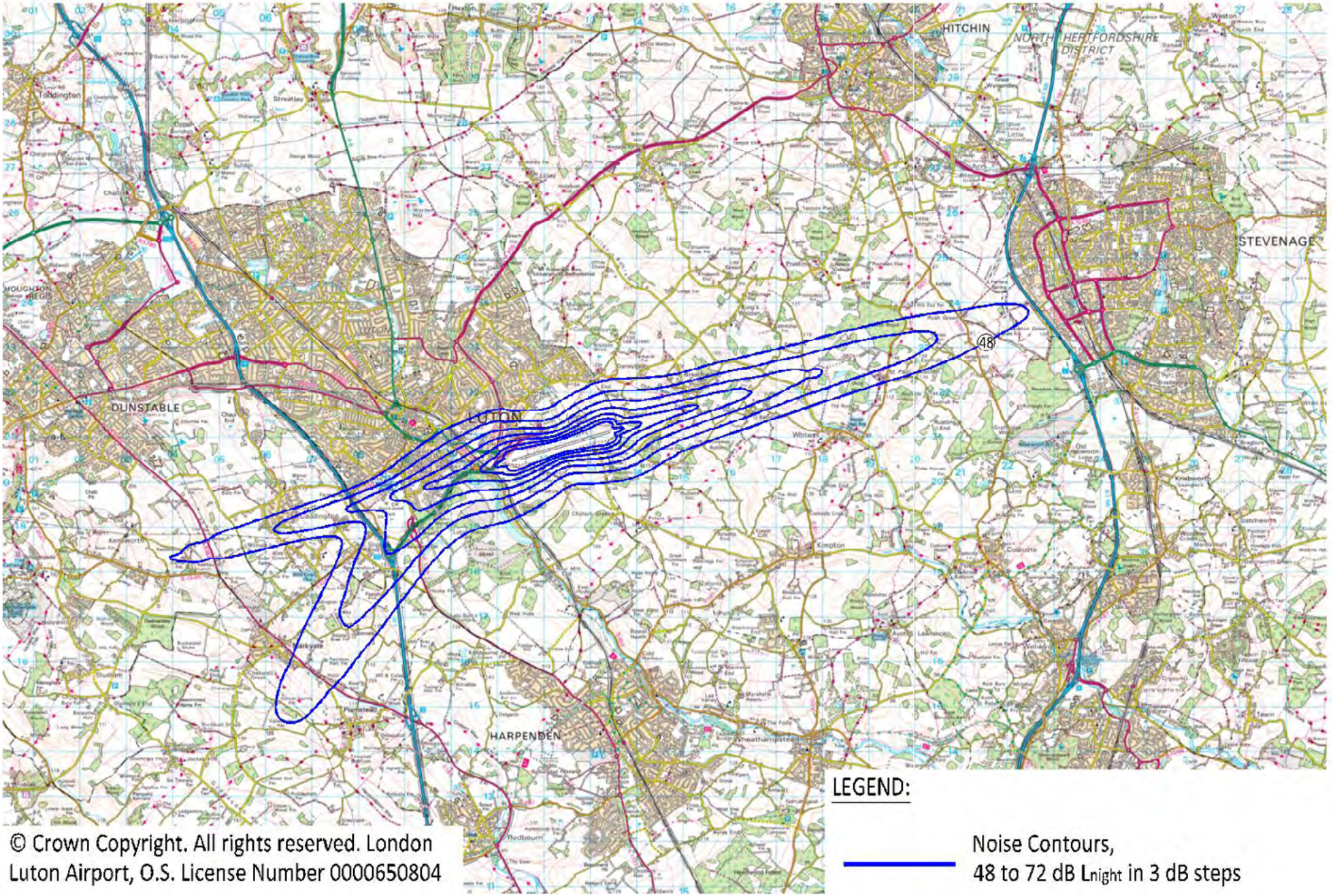
[1] - Population counts rounded to nearest 100

[2] - Dwelling counts rounded to nearest 50

Annual L_{den} Noise Contours 2018



Annual L_{night} Noise Contours 2018



Correspondence and Complaints

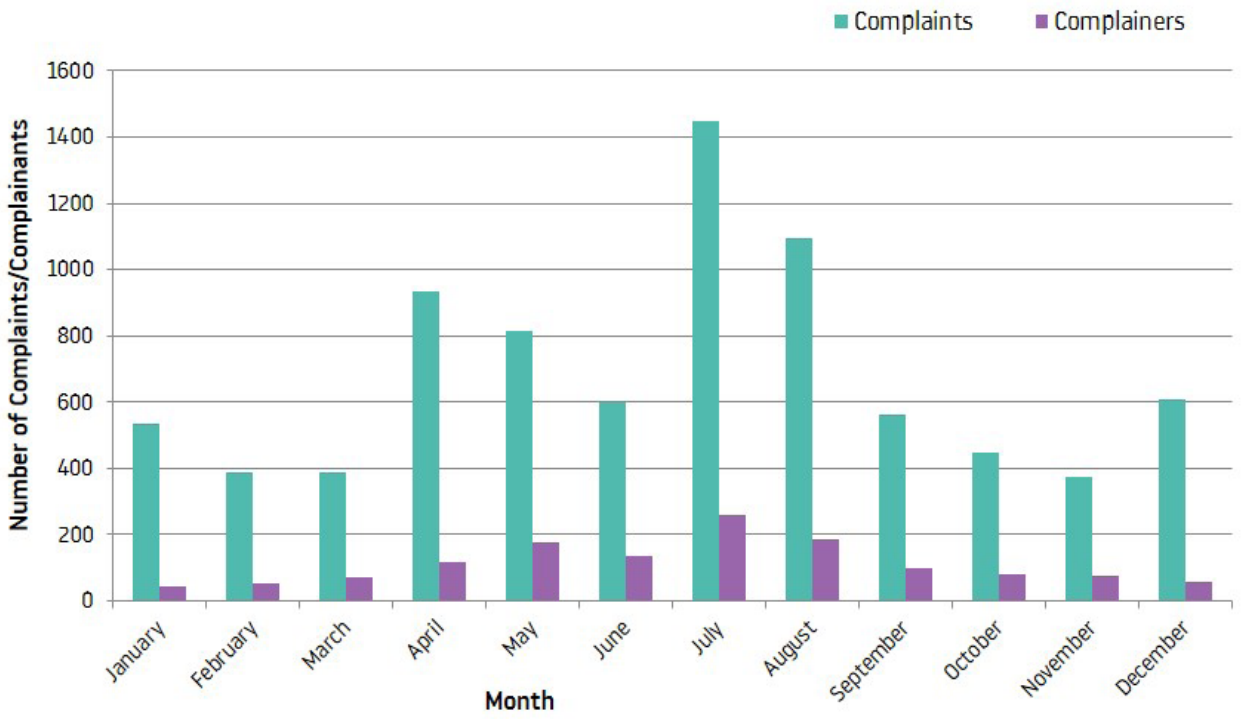
Complaint statistics can be extremely difficult to interpret as people's tolerance of noise and their perception of what causes annoyance varies widely. It is highly subjective and differs between neighbours experiencing the same levels of noise.

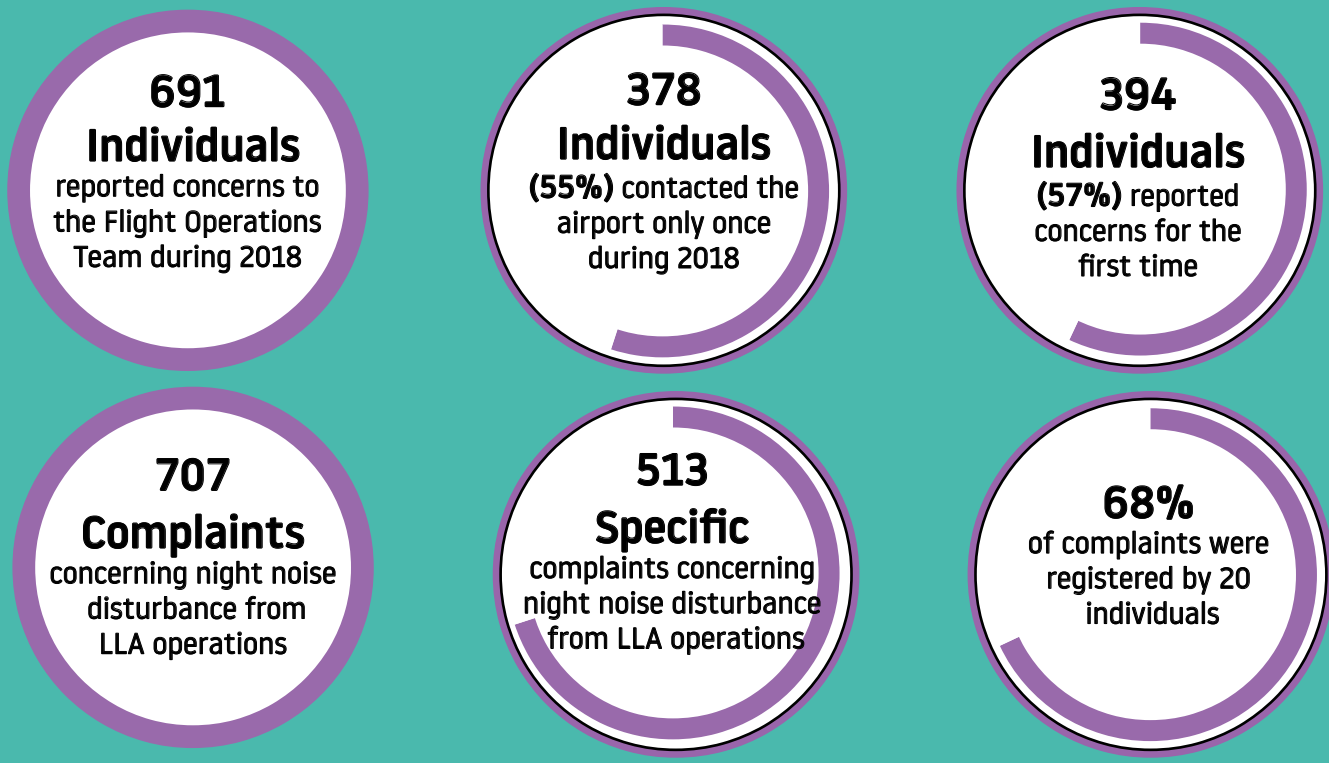
Complaints are reported in two forms – general disturbance and specific disturbance. A general disturbance relates to a complaint that does not specify a time period, examples of this type of complaint includes frequency, air quality and ground noise. A specific complaint relates to a complaint which 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.



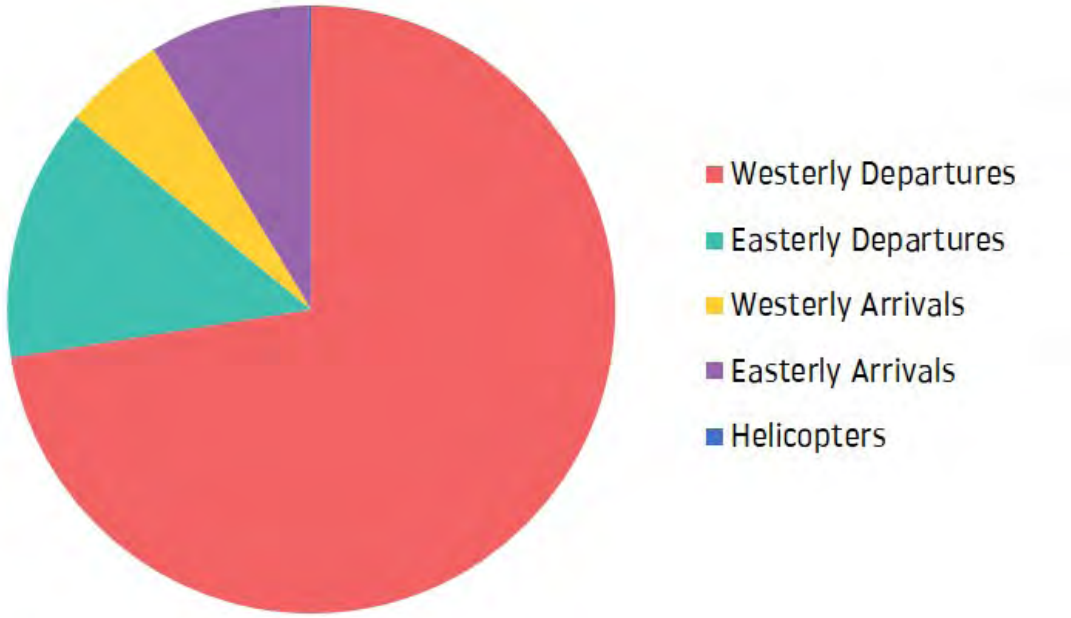


Complaints by aircraft type

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

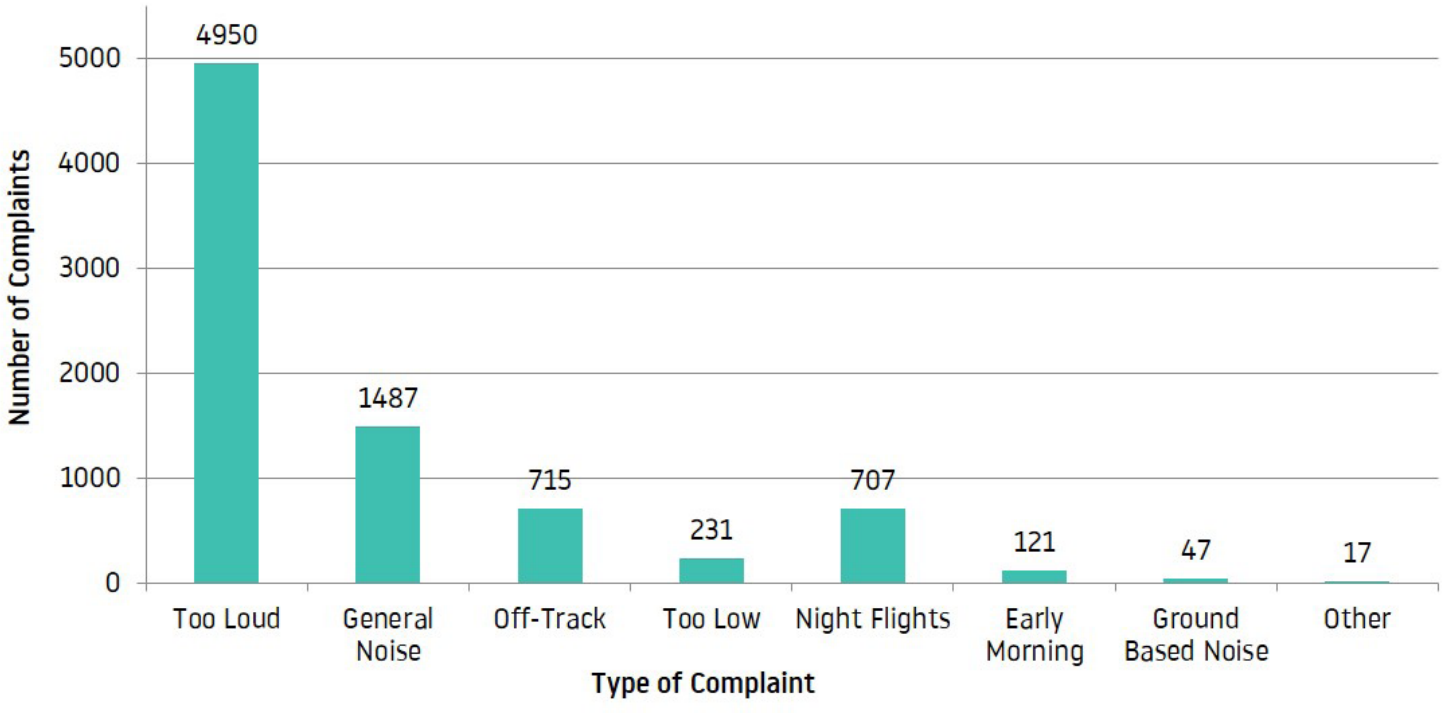
Nature of Disturbance



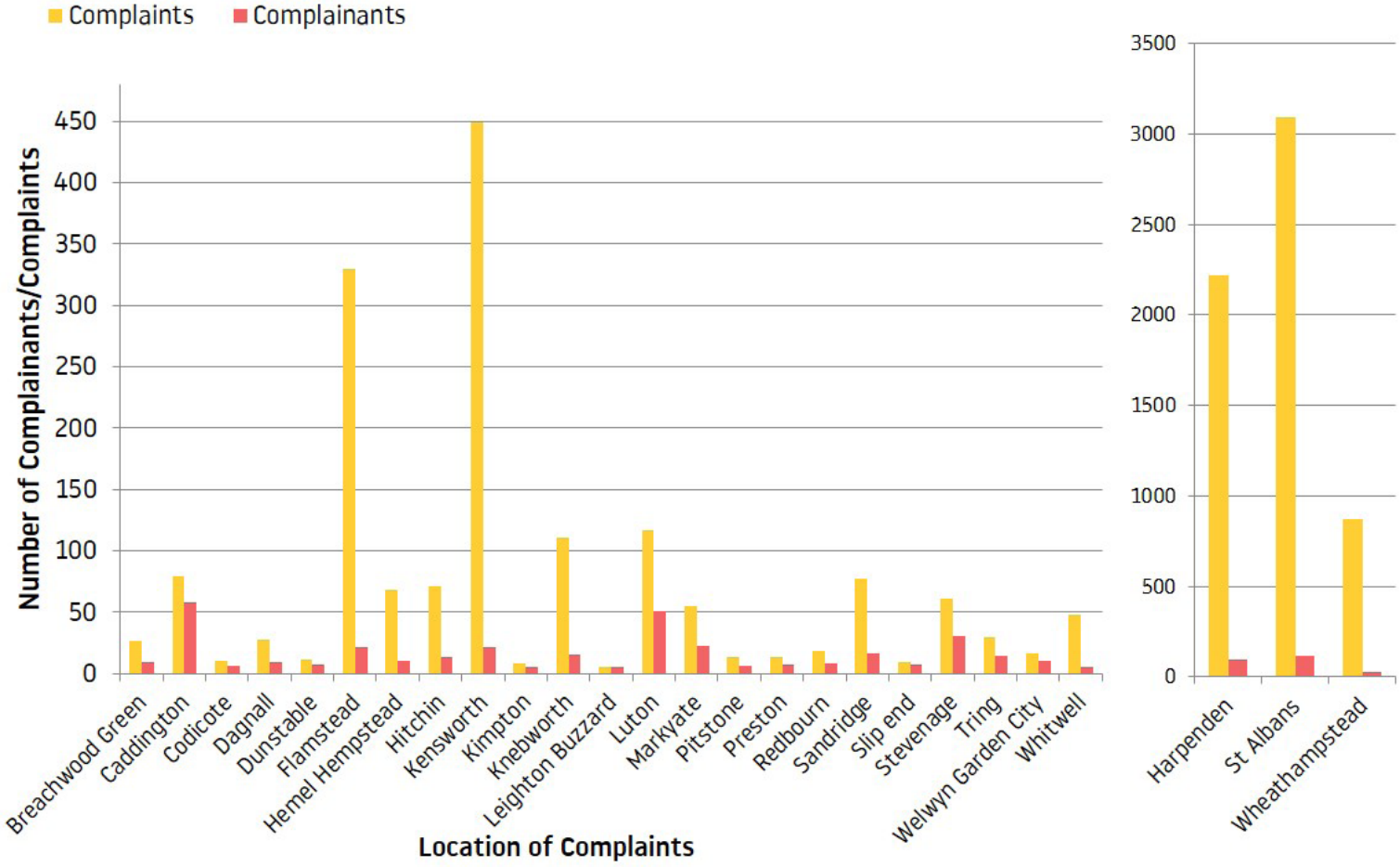
Within the 4,224 specific complaints correlated to aircraft movements concerning westerly departures, 4,113 reported specific aircraft following the Match/ Detling route, 73 related to aircraft on the Compton route and 27 related to aircraft following the Olney heading.

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 operaitons and and 500 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	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 recieved 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. Furtermore, 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	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: • 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	(continued) For the Night Quota Period (2330 – 0600) this shall have the following limits incorporated into the scheme: • 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. For the Early Morning Shoulder Period (06.00 – 07.00) this shall have the following limit incorporated into the schemes: • Total annual movements by aircraft in any 12 month period shall be limited to 7000. Review the Noise Control Scheme no later than the first and fourth year after introduction, and every subsequent five years.	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 15.2km2 for the area exposed to >57dB Leq16hr (0700-2300) and above and for night time noise to 31.6 km2 for the area exposed to >48dB Leq8hr (2300-0700) and above.	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: • 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: • 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

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 IBDR 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.

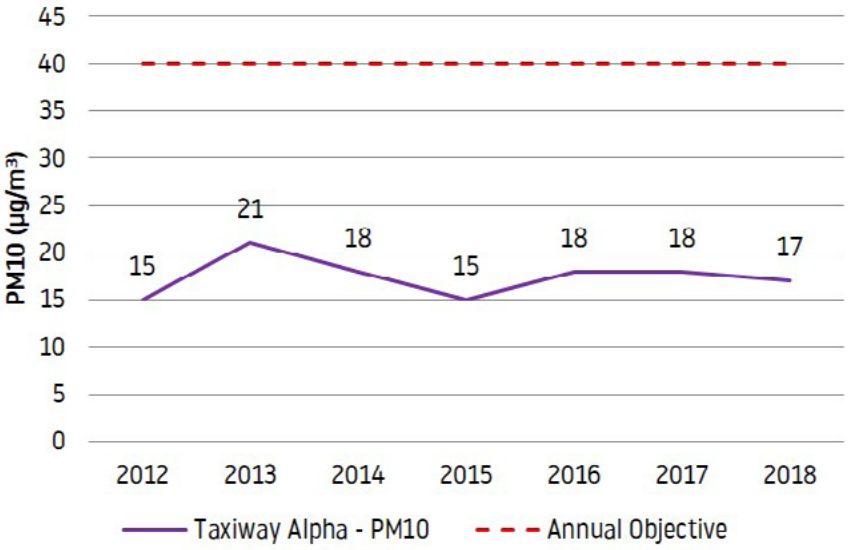
Air Quality

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 PM_{10} and NO_2.

PM_{10} (Particulates measuring 10µm or less)

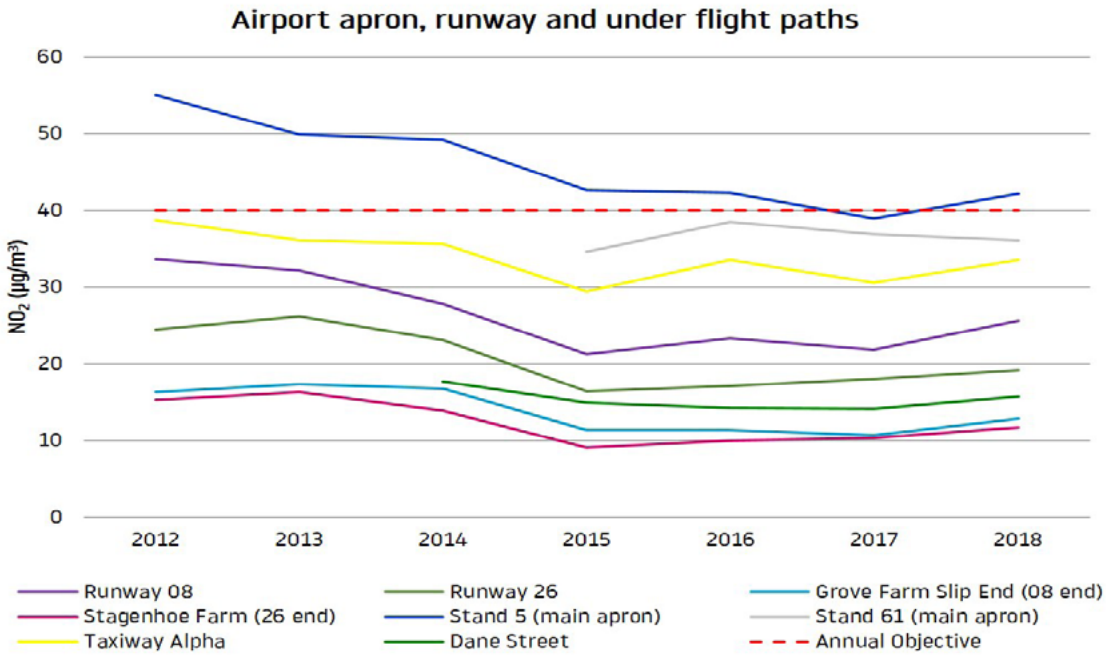
PM_{10} is one of the main contributors to reduced ambient air quality. Particulate matter is made up of fine particles including dust and soot which are suspended in the air. When you breathe in these particles they can stick to the surface of your lungs, and in areas of high pollution can cause respiratory health problems. Local sources include emissions from vehicles and aircraft engines, wear of brakes, tyres, and construction debris.

PM_{10} 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.

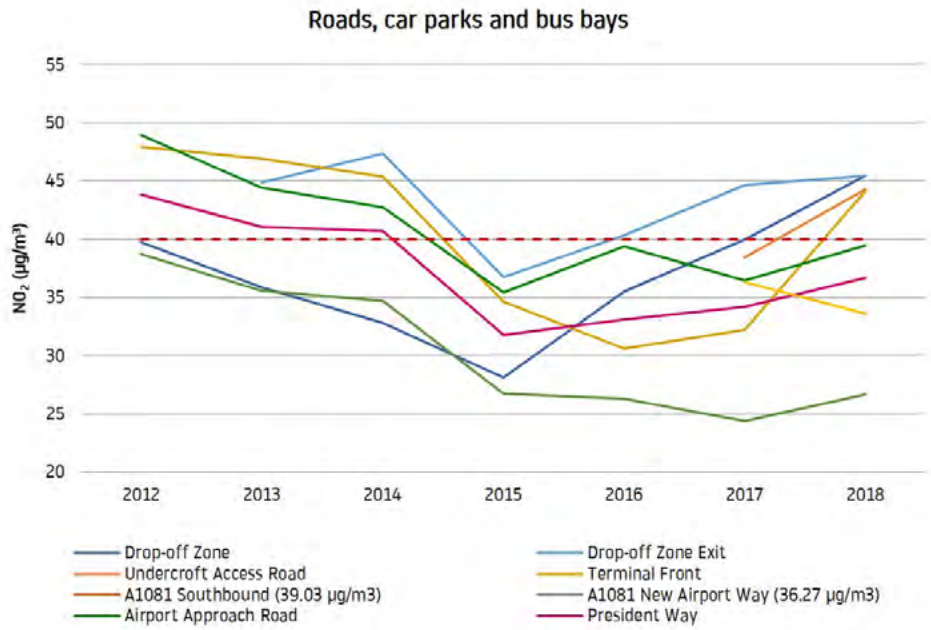


Nitrogen Dioxide (NO_2)

NO_2 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. NO_2 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 NO_2.



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 underaken 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

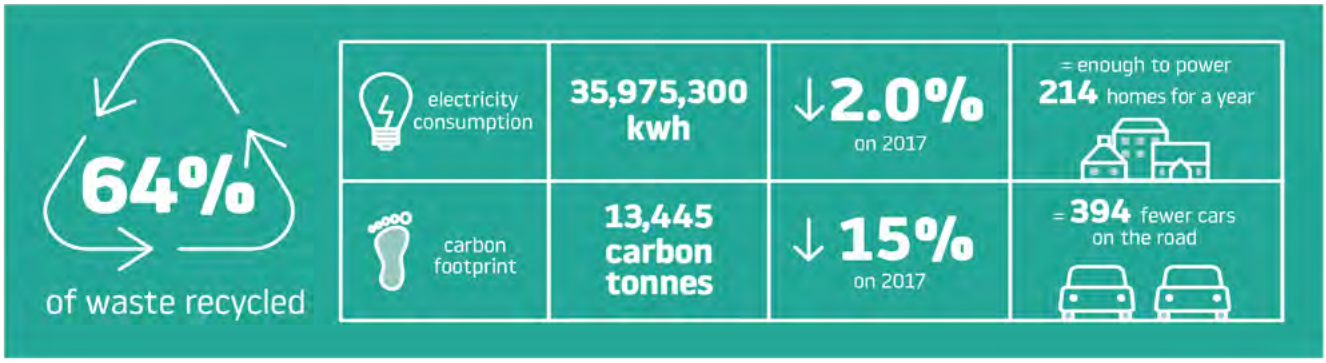
Sustainability

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, carboard 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, carboard 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 Pan 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 under croft 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.