Community Noise Report

Dagnall

April- June 2025

London Luton Airport

Introduction

As part of the ongoing noise monitoring programme, London Luton Airport deployed a portable noise monitoring terminal in Dagnall.

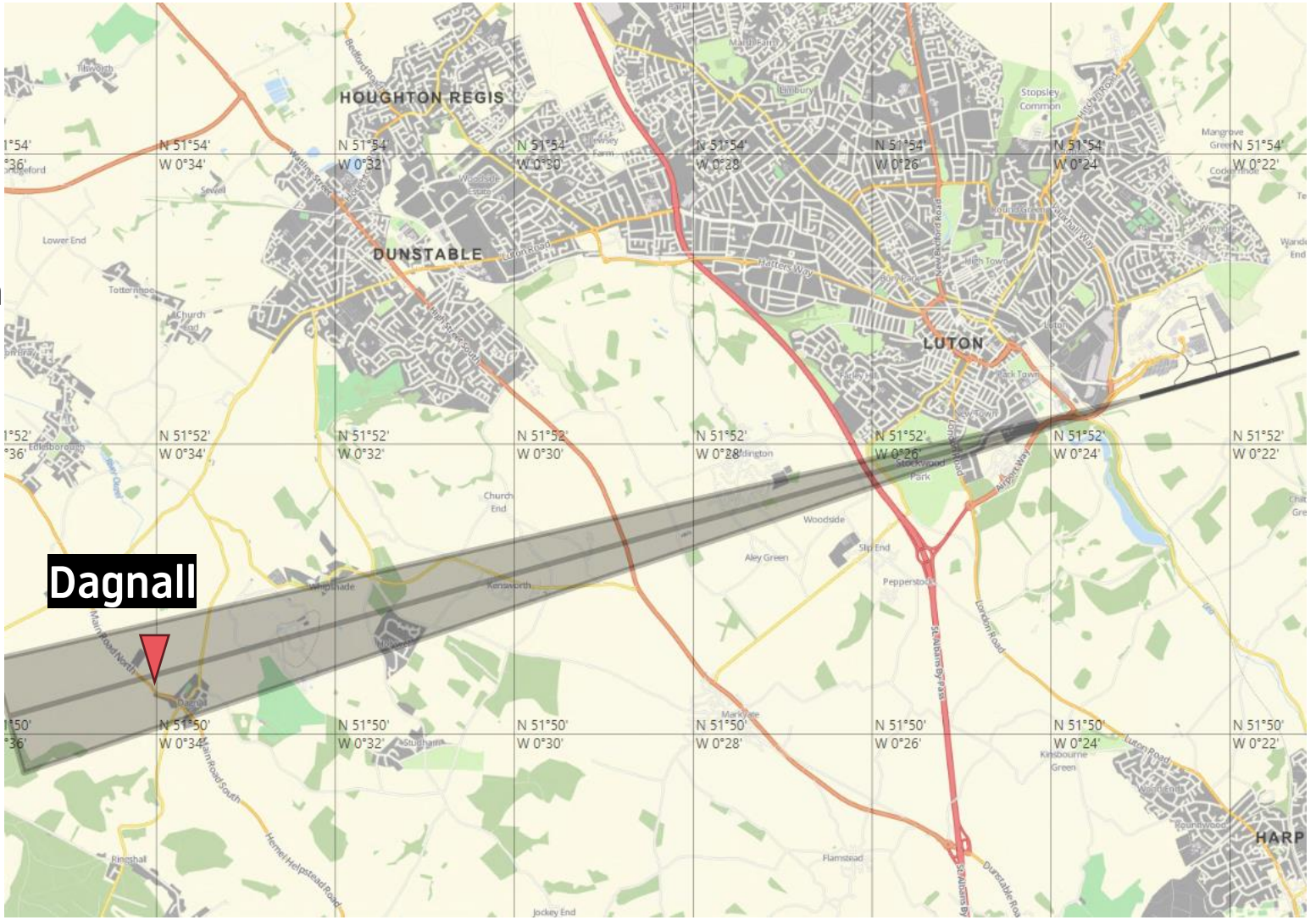
The purpose of the monitoring programme is to understand the typical noise levels created in the local community. **For Dagnall it specifically related to easterly arrivals. The arrival flightpath is shown on the map.**

The noise monitor was located at a residential property on Main North Road in Dagnall at an altitude of 452 feet above sea level. The red pinpoint on the map shows the noise monitor location.

The noise monitor in Dagnall was in place between the 2nd April- 27th June 2025.

Aircraft noise and tracks recorded were extracted from LLA's noise and track-keeping system.

This document evaluates the lateral and vertical positioning of aircraft near the monitor as well as the noise recorded at ground level.

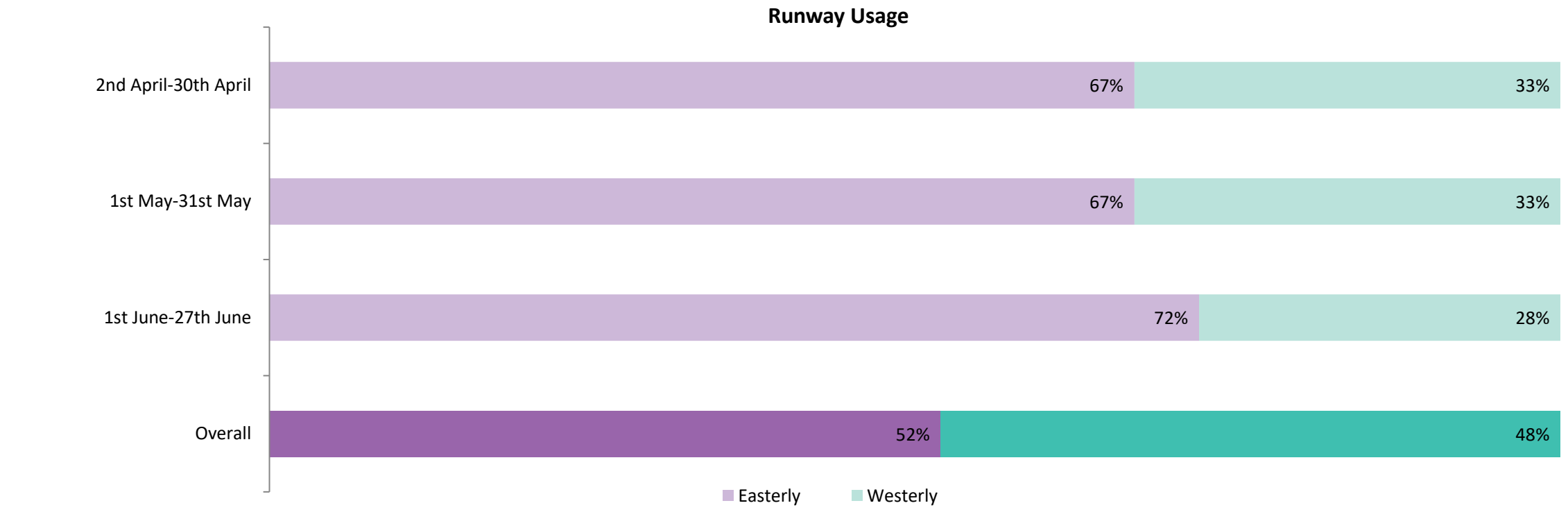


LLA operations during the monitoring period

There are two operating directions at LLA. The operating direction depends on the wind direction as aircraft are required to take off and land into the wind for aircraft performance and safety reasons. These are known as easterly operations and westerly operations and can change the aircraft tracks nearby specific areas. The split in operating direction varies from year to year and month to month. The amount of time that the runway operates in one direction depends on the wind direction.

During the period of monitoring, the direction of operation was 52% Easterly and 48% Westerly. The 5-year average for this time of year is 41% easterly vs 59% westerly.

There were 9,025 aircraft arriving on the easterly route in the monitoring period.



Daily Movements during monitoring period

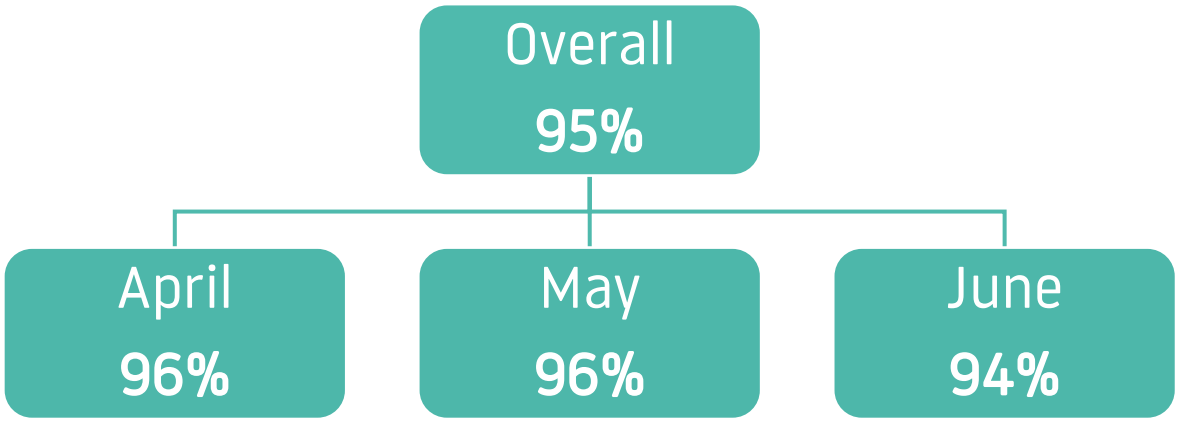
The chart below shows the number of daily easterly and westerly operations. Due to the location, all flights that arrived on our easterly runway would have flown over the noise monitor terminal. The graph shows the westerly operations (purple) as well as easterly operations (green) on the other side.

Continuous Descent Operations (CDO)

Continuous Descent Operations (CDO) is an operational technique for arriving aircraft. This form of operation targets noise, fuel and emission reduction. Each time a plane performs level flight it involves increased thrust therefore an increase in fuel consumption and higher noise. A CDA approach is measured from 5,000ft and has no level flight of more than 2.5nm (nautical miles) using minimal thrust.

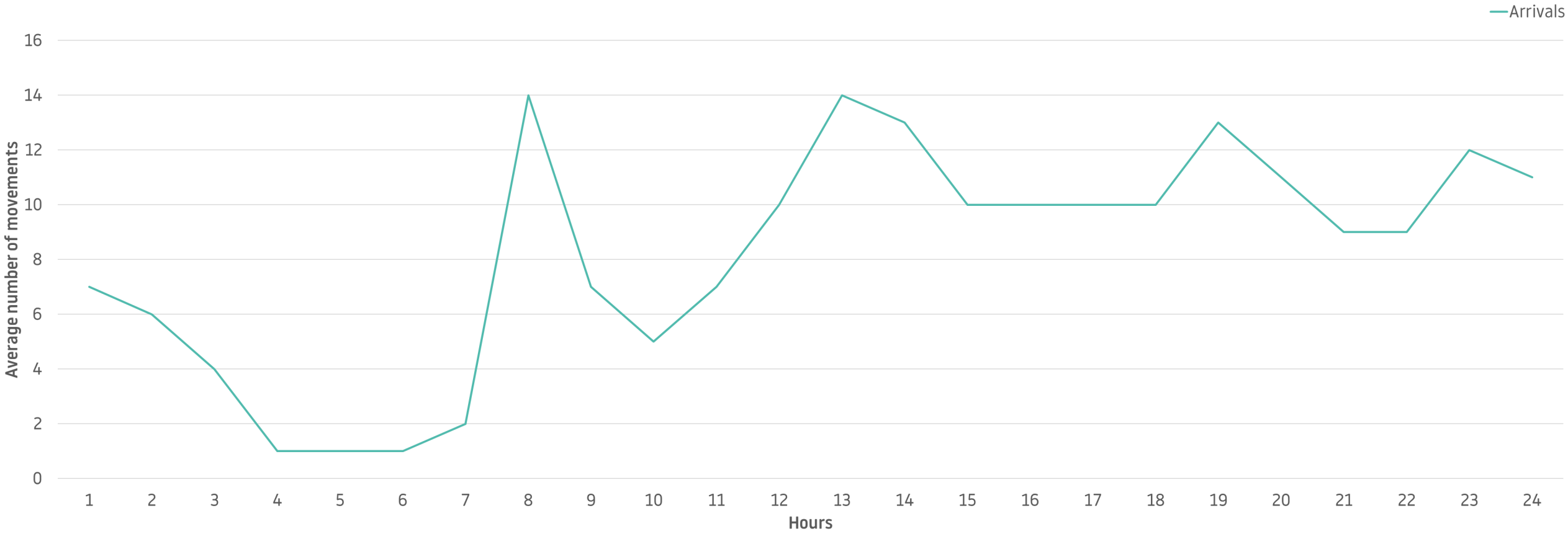
We continuously monitor this and aim to increase these operations for benefit to all, our target for CDO is 95%. CDO is not always possible for every flight as there are factors that would affect this such as- safe operations of the aircraft, ATC instruction, weather, compliance with procedures etc.

The percentages below detail the CDO achieved during the monitoring period.



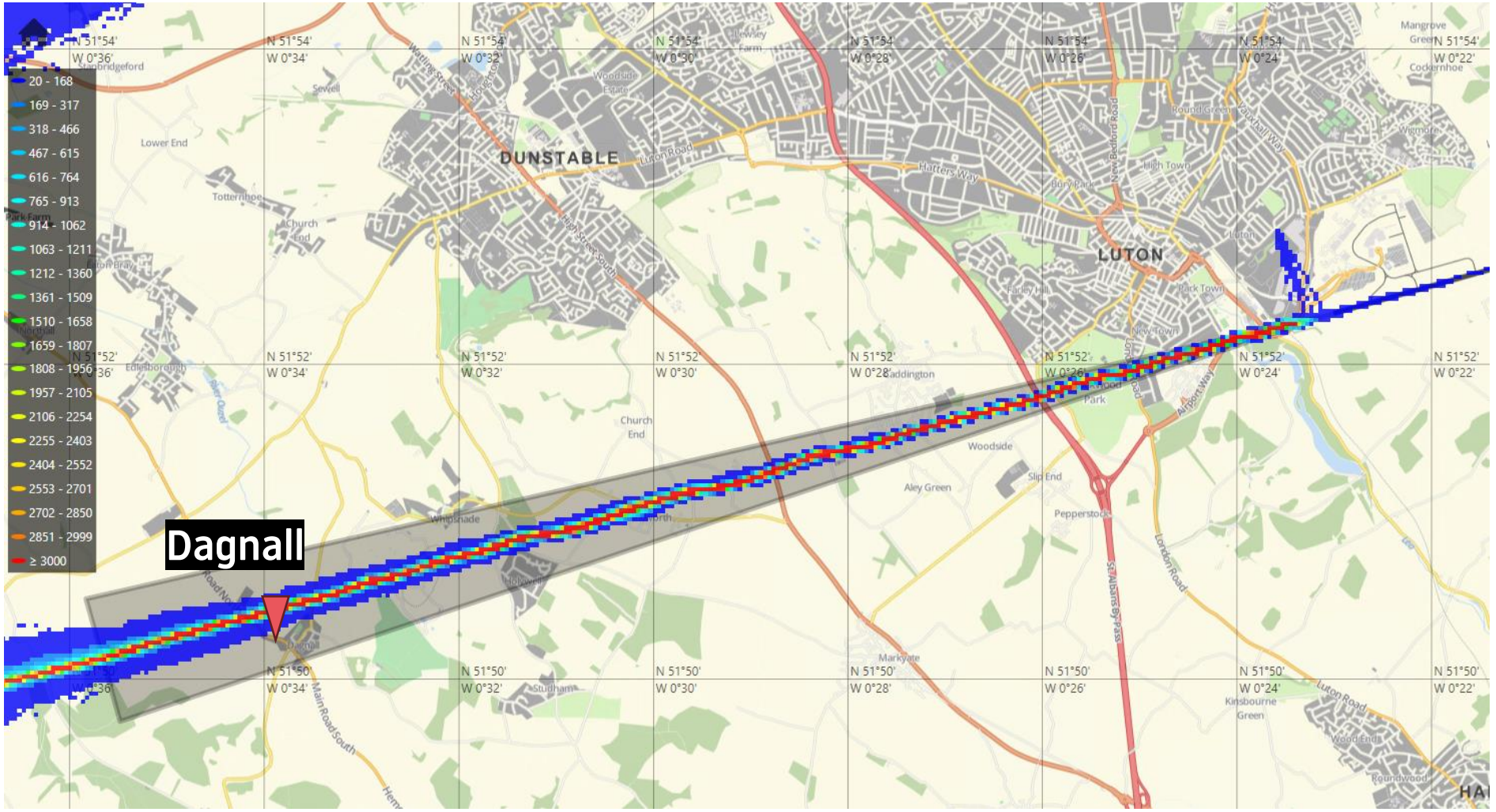
Operations during monitoring period

The graph below represents the average aircraft movement by hours during the monitoring period. Depending on the operating direction on the day, residents in Dagnall may experience different flight patterns. During the peak periods, residents of Dagnall may notice more frequent aircraft movements. In general, the morning peak starts at 7 am on days of arrival operations. These aircraft would be lower at altitude and more noticeable as the dwellings at this location are under the easterly arrival flightpath. During the night period of 23:00 – 06:00 in the monitoring period, there were an average of 31 arrivals which includes either easterly and westerly operations depending on the wind direction.



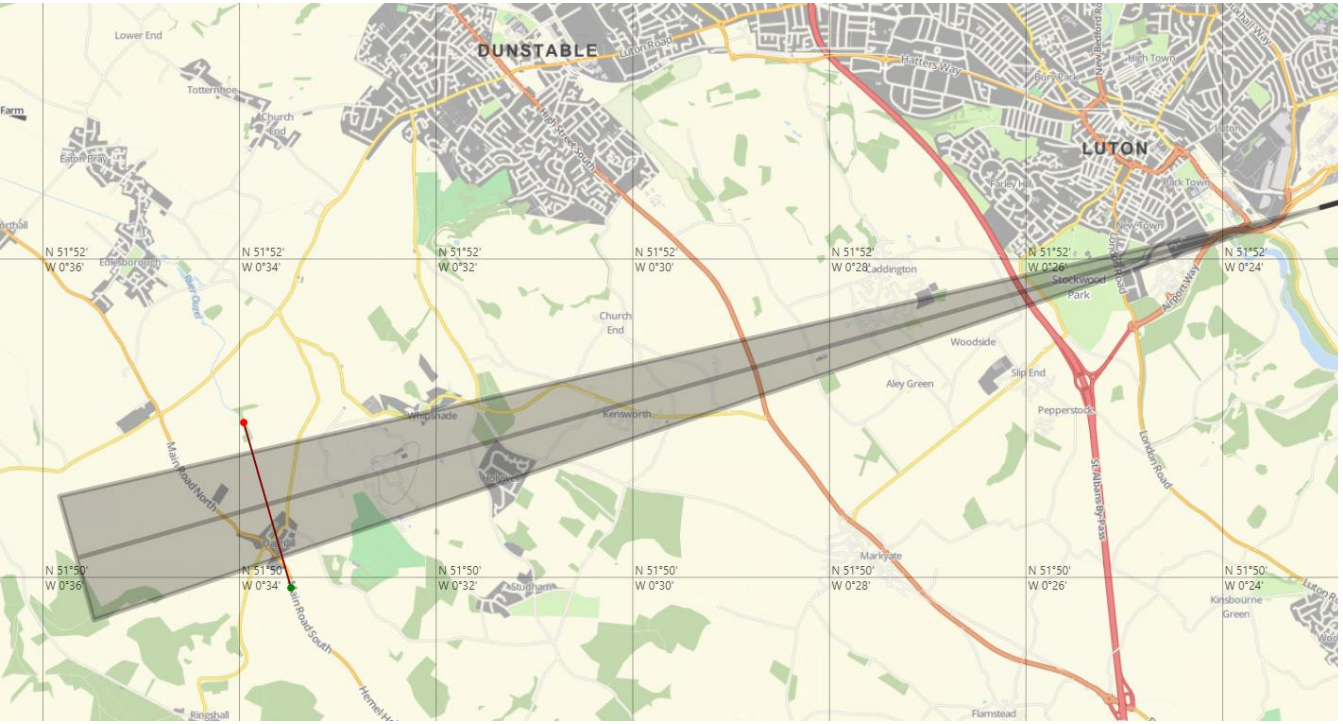
Aircraft Tracks- Easterly Arrivals

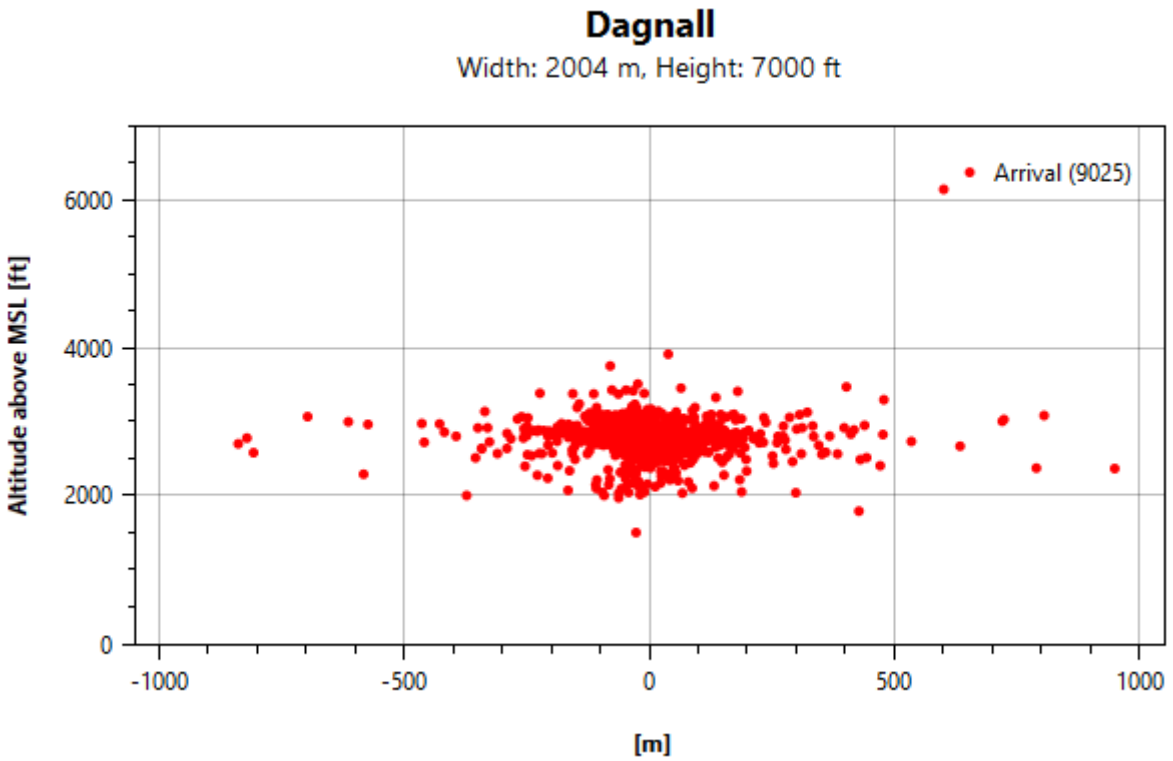
The heat map below shows the representative flight tracks that passed near the noise monitor terminals during the monitoring period. The red pinpoint indicates the location of the noise monitor in Dagnall. This map shows the path of easterly arrivals.



Altitude Gate Analysis- Easterly Arrivals

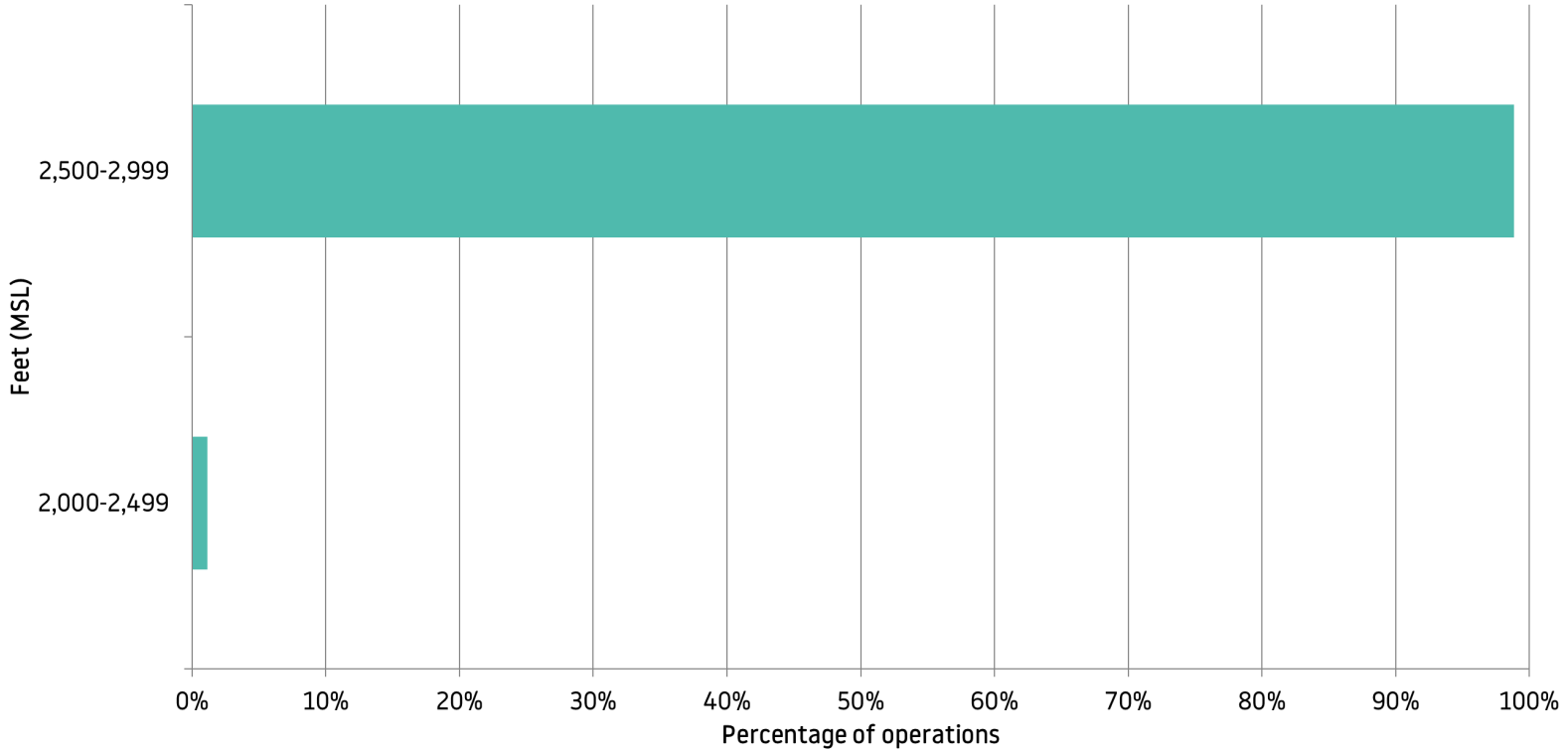
The altitude analysis for Dagnall, shows the vertical and lateral dispersion of aircraft 1km either side of the noise monitor. The map below shows the 2km gate (blue line) which is drawn perpendicular to the centreline from northwest to southeast and it gathered information of every aircraft passing through the gate area. The scatter graph below shows the distance and altitude of aircraft from the noise monitor during the monitoring period. Residents in Dagnall will see arrival aircraft flying on the days of easterly operations.





Altitude Gate Analysis – Easterly Arrivals

The average altitude of aircraft was 2,759 feet AMSL (2,307 feet AGL) when they reach near the noise monitor in Dagnall. The bar chart on the below shows the percentage rate and altitude of aircraft arriving.



Aircraft Type	Number of movements detected	Average Altitude (AMSL in ft)
A306	79	2,708
A319	1,310	2,747
A320 CEO	1,057	2,739
A320 NEO (A20N)	1,197	2,766
A321 CEO	382	2,759
A321 NEO (A21N)	1,918	2,752
B737-800 NG (B738)	704	2,763
B737 Max 8 (B38M)	537	2,759
Global Express (GLEX)	199	2,792
Cessna 560X (C56X)	132	2,806
All	7,515	2,759

How we analyse the noise data

Following the noise monitoring period, we collate the data taken from our Noise and Track Keeping system and analyse the noise reading samples.

During the monitoring period in Dagnall, the noise monitoring terminal collected 7,322 readings. During the period, there were 9,025 easterly arrivals.

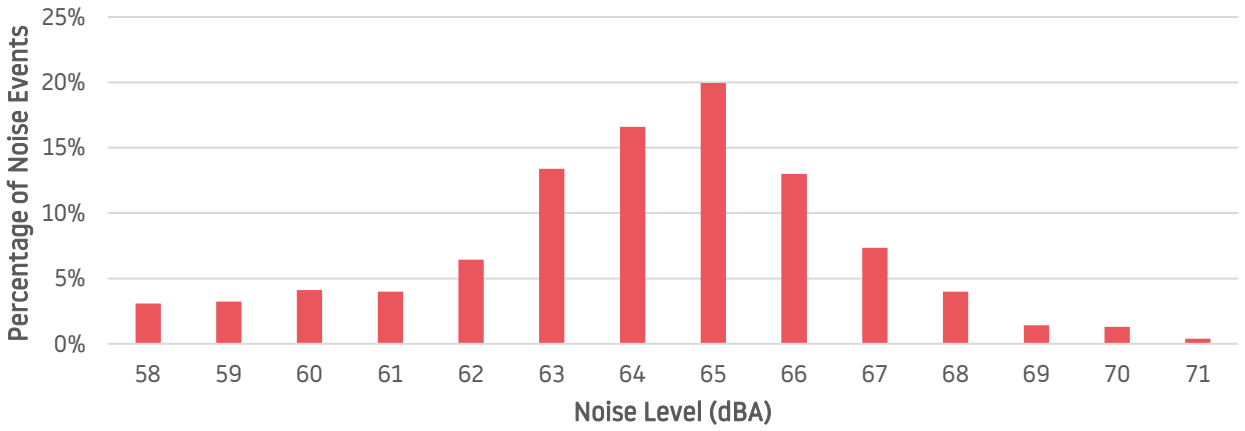
It is noteworthy that the noise monitor may not be able to record every aircraft noise event if the aircraft noise level is below ambient background noise or aircraft following a different route and not through the gate selected. Therefore, there may be a difference between the number of actual air transport movements and number of aircraft noise events collected during the monitoring period.

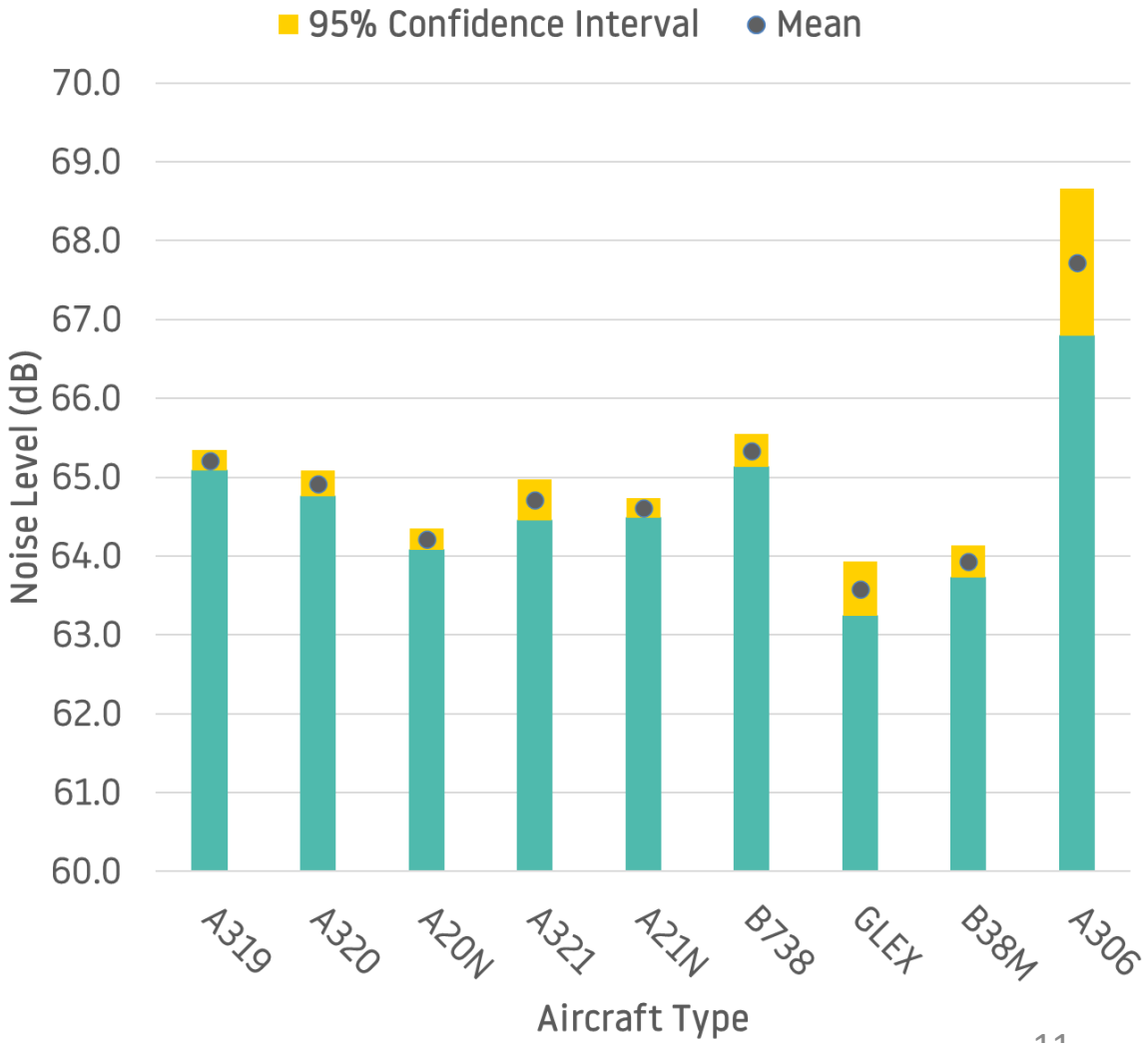
The weather also plays a big part in the data recorded and in periods of extreme weather i.e (very strong winds) the equipment can record noise incorrectly, so we exclude samples from the analysis during these weather conditions. When analysing the samples, the first thing we do is to ensure that there is no unusual noise event present which might not be caused by aircraft (i.e. vehicles or wildlife). A total of 1,960 recordings were excluded from the analysis for the above reasons.

Noise Results – Easterly Arrivals

During the monitoring period, the noise recording samples were gathered from the most popular aircraft types at London Luton Airport*. The summary of the noise results is shown in this section. The tables show the average noise by aircraft type and the bar chart shows the uncertainty caused by the spread in readings and the sample size (95% confidence interval).

Aircraft Type	Number of movements	Average Noise (dB)
A319	1,073	65.2
A320 CEO	853	64.9
A320 NEO (A20N)	1,012	64.2
A321 CEO	310	64.7
A321 NEO (A21N)	1,577	64.6
B737-800 NG (B738)	551	65.3
GLEX	151	63.6
B737 Max 8 (B38M)	446	63.9
A306	48	67.7
All	6,021	64.9





*The noise results shown in the analysis are only for those aircraft types that recorded more than 150 events per aircraft. A306 included for comparison.

Noise Results - Summary

- The average arrival noise in Dagnall was 64.3dB, based on a sample size of 7,322.

- From the results, Dagnall's most popular aircraft type by operators include Airbus and Boeing.

- Airbus operate the A320 CEO, A321 CEO and Boeing the B738-800NG.
- Both Airbus and Boeing also operate the newer generation aircraft. Airbus- A320 NEO (A20N) and A321 NEO (A21N). Boeing- operate the new B737 Max 8.
- These newer generation aircraft are quieter and more fuel efficient which also impacts the reduction in emissions.

- The table below shows the 6 types of aircraft operated by Airbus and Boeing, with three of the aircraft A20N, A21N and B38M being the newer and more efficient aircraft. It breaks down these results by showing their arrival decibel (dB) levels. In red/ green it shows the difference between the older and newer generation aircraft in their arrivals.
- Around 50% of all noise results movements were newer generation aircraft which are more fuel efficient and quieter.

Aircraft type	Arrival dB	New aircraft type	Arrival dB
A320	64.9dB	**A320N (A20N)**	64.2dB (-0.7dB)
A321	64.7dB	**A321N (A21N)**	64.6dB (-0.1dB)
B738	65.3dB	**B737 MAX8 (B38M)**	63.9dB (-1.4dB)

Conclusion

- A mobile noise monitor was installed at a residential property on Main North road from the 2nd April- 27th June.
- For Dagnall, it specifically related to easterly arrivals. During the monitoring period, the airport operated in the direction of easterly and westerly for 52% and 48% of the time, with easterly being the operation that affects Dagnall. Generally, over the year, LLA operate in the westerly direction for 70% of the time due to the prevailing wind.
- The main aircraft type operating at London Luton Airport in this period was the Airbus A321 NEO (A21N) which produced an average noise of 64.6dB for arrivals.
- 42% of the noise events recorded in Dagnall were created by the newer generation aircraft, A320 NEO, A321 NEO and B737 Max 8. The A320 NEO registered average arrival noise of 64.2dB, 0.7dB lower than A320 CEOs.
- During the monitoring period for all operations, 28 aircraft were investigated as part of the Noise and Track violation scheme. Of these, 6 aircraft were fined. All fines generated by this scheme go directly into the community trust fund, more information on the community trust fund can be found on https://www.london-luton.co.uk/corporate/community/community-trust-fund.
- LLA publish other monitoring reports on a regular basis. These reports can be viewed and downloaded from the Noise webpage on the LLA website - https://www.london-luton.co.uk/corporate/community/noise.

Glossary of Terms

Westerly Operations: As aircraft take off and land into the wind, westerly operations refers to the time when the wind is blowing from the west and aircraft use our westerly runway (25)

Easterly Operations: Easterly operations refers to the time when the wind is blowing from the east and aircraft land on the easterly runway (07).

Standard Instrument Departure (SID): Published route that an aircraft must follow on departure.

Noise Preferential Route (NPR): All aircraft except propeller aircraft leaving London Luton Airport should follow flight paths known as Noise Preferential Routes (NPRs) up to an altitude of 3,000 feet or 4,000 feet depending on the route. They lead from the runway to the main UK air traffic routes and form the first part of the Standard Instrument Departure routes (SIDs).

Aircraft Movement: A single aircraft departing or arriving at the airport.

Altitude Gate Analysis: A gate which is drawn across an area and will gather flight date about every aircraft passing through the gate area.

Noise Event: A single event is the period from when an aircraft approaches the monitor until when the aircraft is leaving the area.

Decibel (dB): The unit used to measure noise (typically 50-60dB is equivalent to a normal conversation level).

LasMax: A unit of measure and is the maximum noise level from a single aircraft passing over the noise monitor.

95% Confidence Interval: A range of values that you can be 95% certain contains the population mean.