Community Noise Report

Flamstead and Markyate

May – Aug 2018

London Luton Airport

Introduction

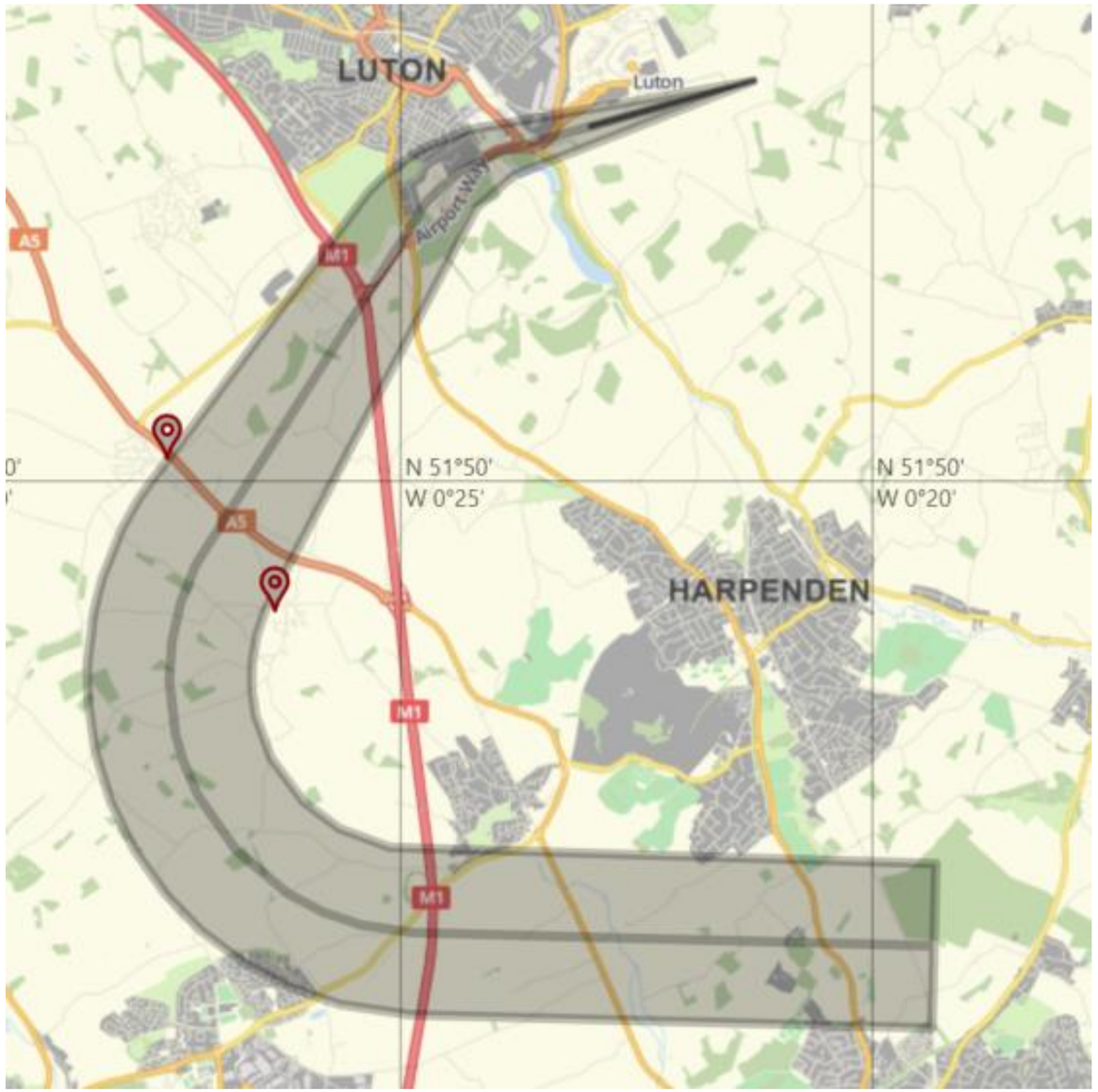
As part of the ongoing noise monitoring programme, London Luton Airport deployed portable noise monitoring terminals in Flamstead and Markyate.

The purpose of the monitoring programme is to understand the typical noise levels created in the local community. For Flamstead and Markyate, it specifically related to westerly departures.

The noise monitor in Flamstead was in place between 11th May and 2nd August 2018 whereas the noise monitor in Markyate was in place between 3rd July and 7th August 2018.

The monitors' location were on the edge of the main westerly departure corridor approximately 6.5km from the Luton runway at an altitude of approximately 460 feet above sea level.

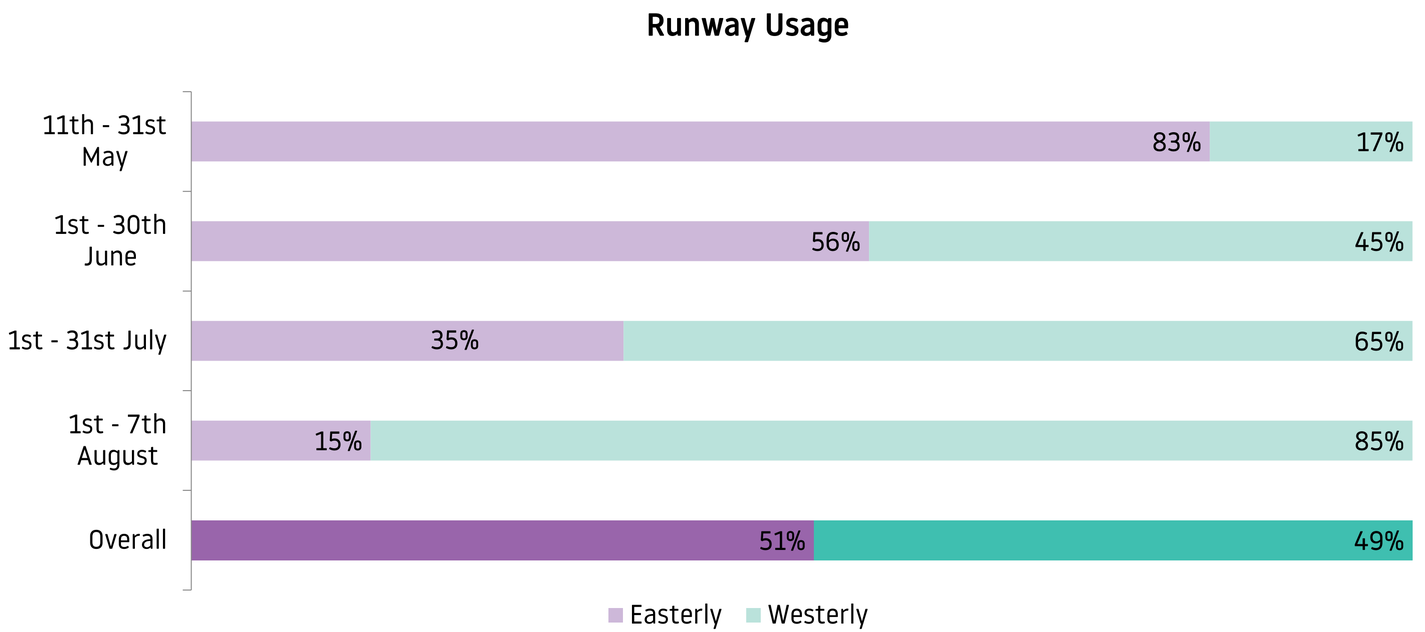
Aircraft noise and tracks recorded were extracted from LLA's noise and track-keeping system. This document evaluates the lateral and vertical positioning of aircraft near the monitor as well as the noise recorded at ground level.



LLA Operations During the Monitoring

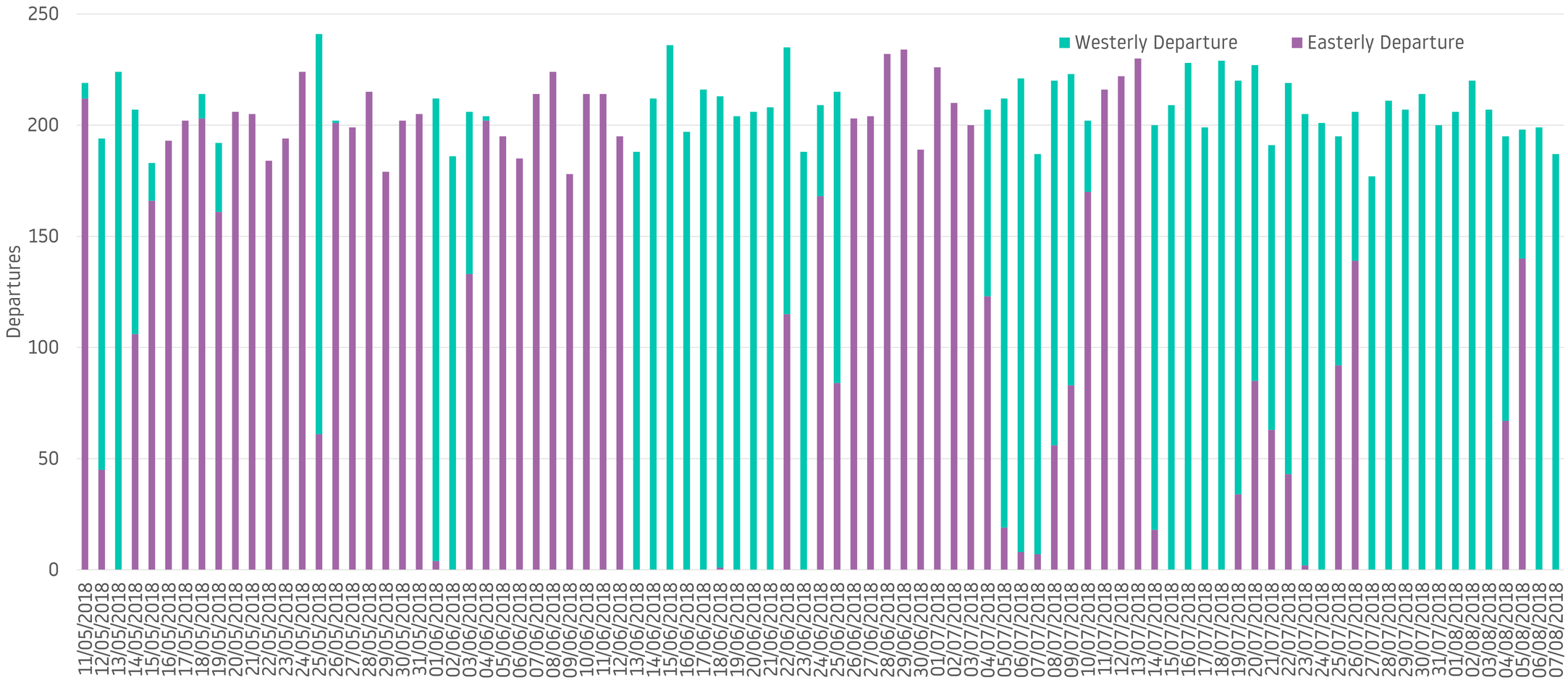
During the period of monitoring, the direction of operation was 51% Easterly and 49% Westerly. The 5 year average for this time of year is 28% Easterly vs 72% Westerly which demonstrates that residents in the area would have experienced decreased movements during the monitoring period.

9,022 aircraft departed on westerly SIDs operated from the airport whilst the monitors were located in Flamstead and Markyate.



Daily Movements During Monitoring Period

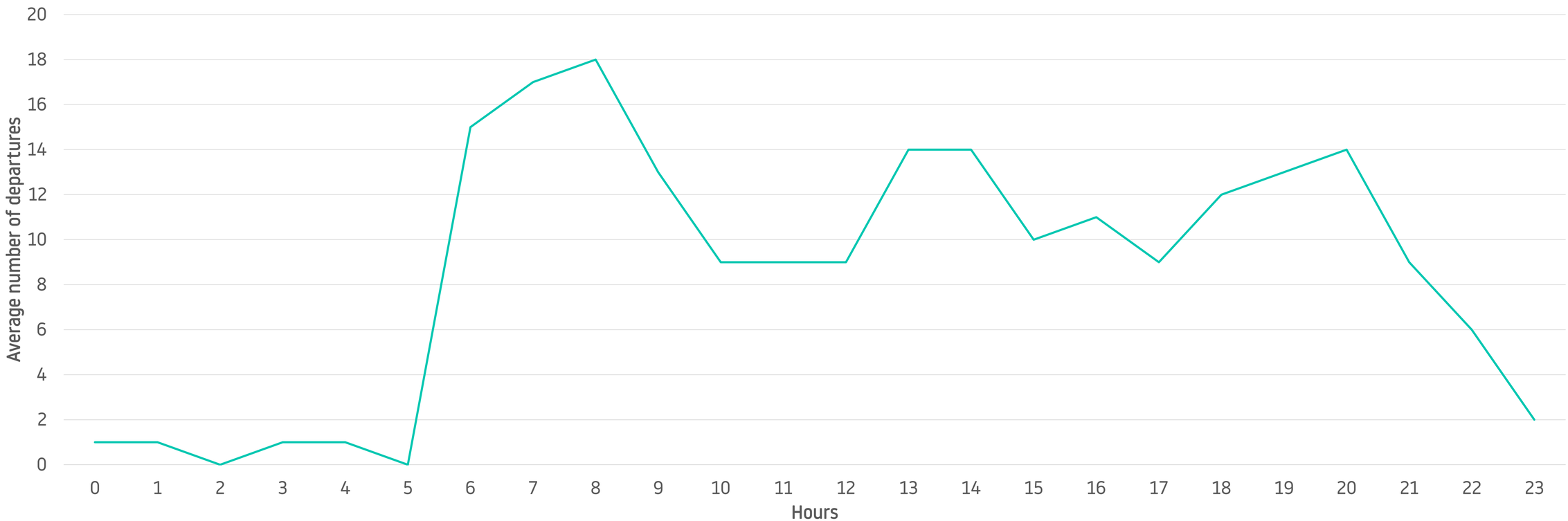
The chart below shows the number of daily departures that passed the noise monitor. Due to the location of Flamstead and Markyate, all flights that departed on our Standard Instrument Departure (SID) routes during westerly operations would have flown passed the monitors. During the monitoring period there were 31 full days of easterly operations and therefore no flights passed near the monitor on these days.



Operations during the monitoring period

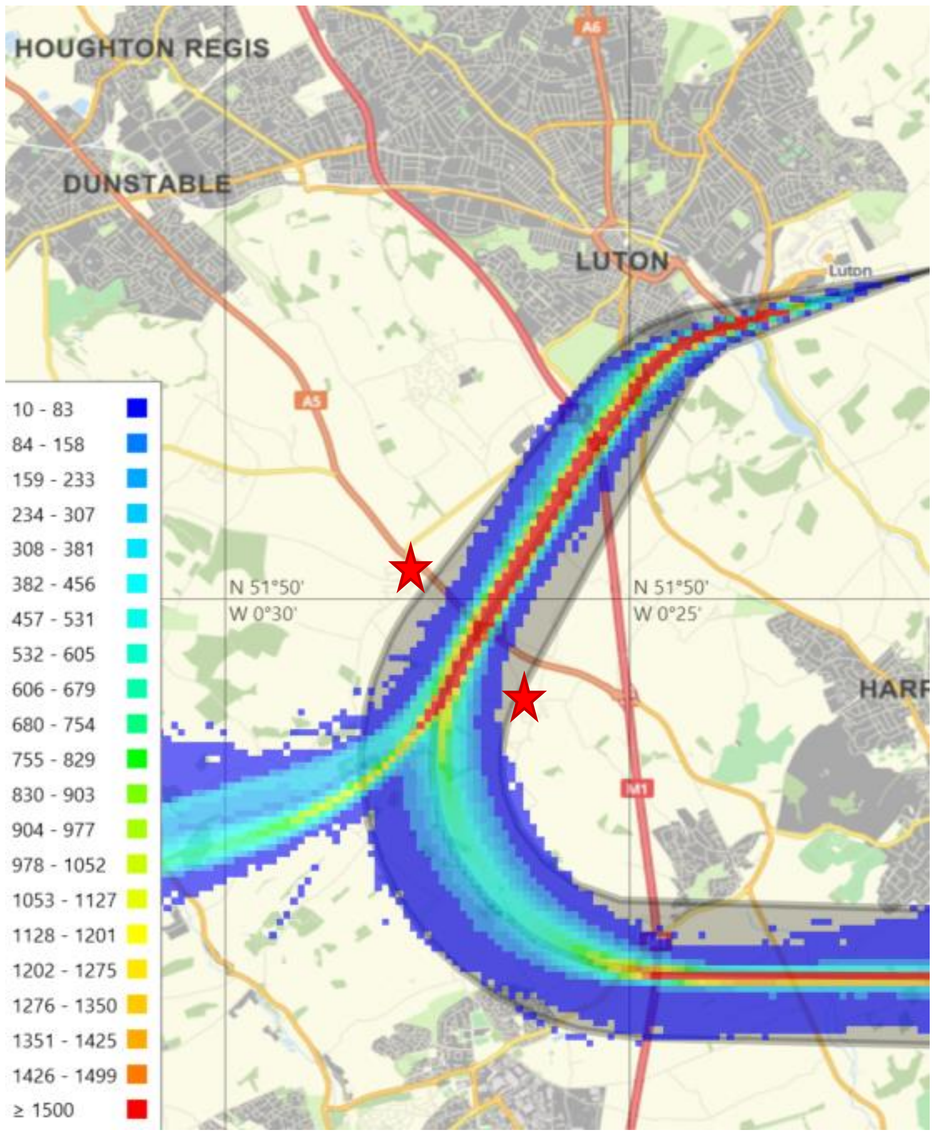
The graph below represents the average number of departures during the monitoring period. During the peak periods, local residents of Flamstead and Markyate may notice more aircraft. Peak periods were at 0600-0900, 1300-1500 and 2000-2100.

During the night period of 23:00 – 06:00 there was an average of 6 departures compared to 9 for the previous year showing a small decrease in night time operations during the monitoring period.



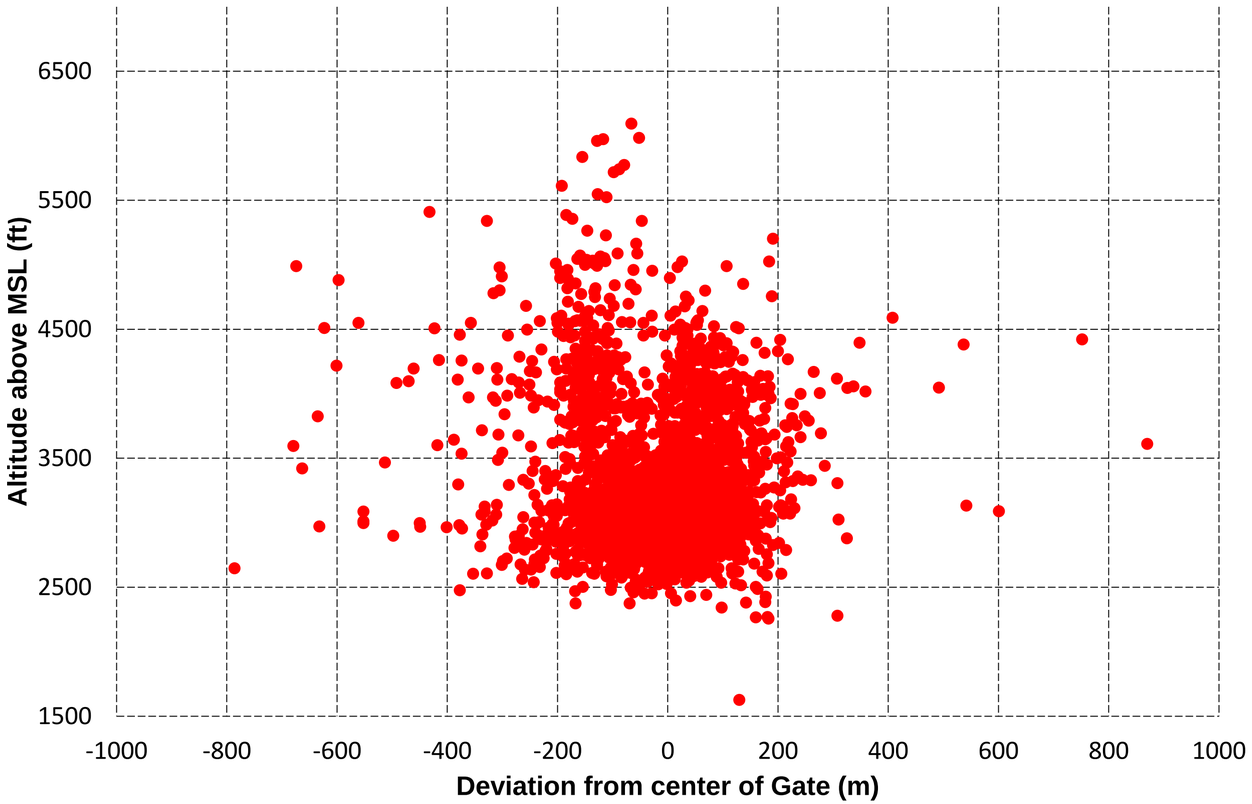
Aircraft Tracks During the Monitoring Period

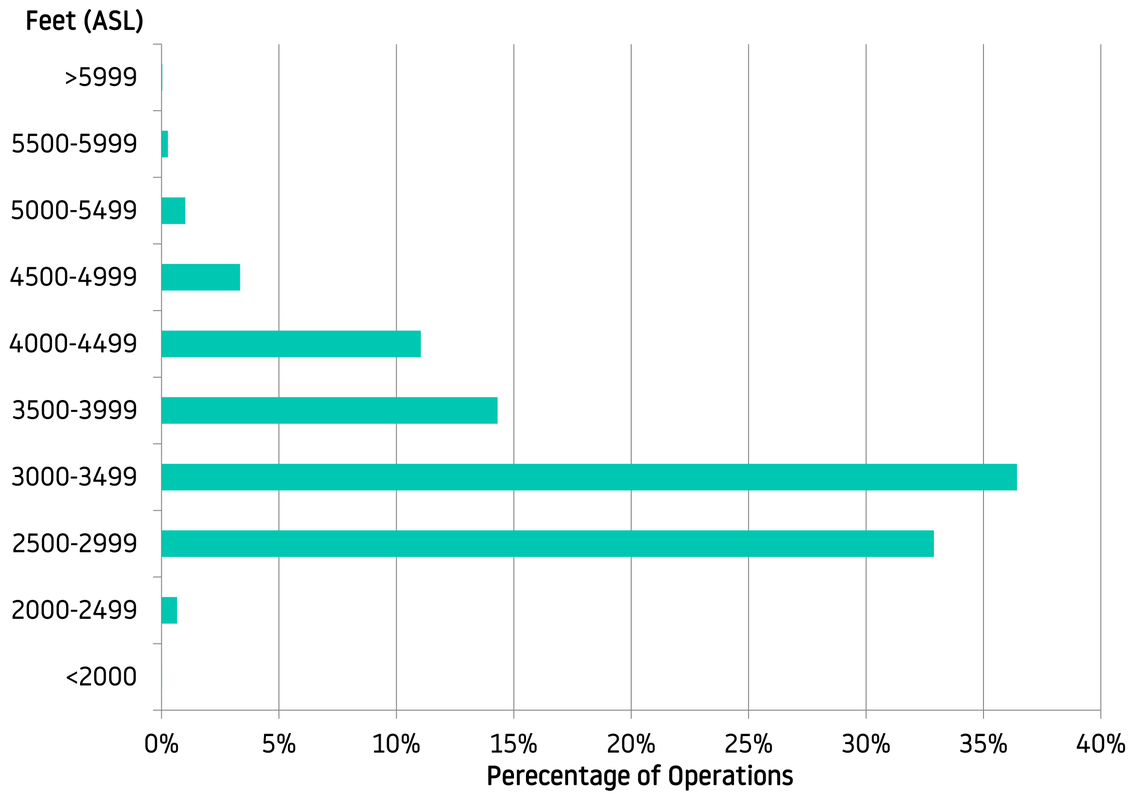
The sample below shows the representative flight tracks that passed nearby the monitor during the monitoring period.



Altitude Analysis During Monitoring Period

Altitude analysis shows the vertical and lateral dispersion of aircraft between the two noise monitors. The chart below shows that 66% of flights were above 3,000 feet. The average altitude of aircraft in this area was 3,342 feet above mean sea level.





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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 results. When analysing the results the first thing we do is ensure that there are no unusual noise events present which might not be caused by aircraft (i.e. vehicles or wildlife).

The weather also plays a big part in the data recorded and in periods of extreme weather the equipment can record noise incorrectly so during these weather conditions we exclude recordings from the analysis. i.e (periods of heavy rain, extreme temperatures or very strong winds)

We are always looking at new ways to make our Noise Reports easier for the local communities to understand as well as including the right information. If you have any suggestions about how we can make these reports better, please don't hesitate to let us know.

For the monitoring period in Flamstead and Markyate, the Noise Monitoring Terminals collected results for 9,807 movements. 4,364 results were excluded for weather reasons as outlined above, which left 5,443 noise results to analyse which are shown in the next few pages.

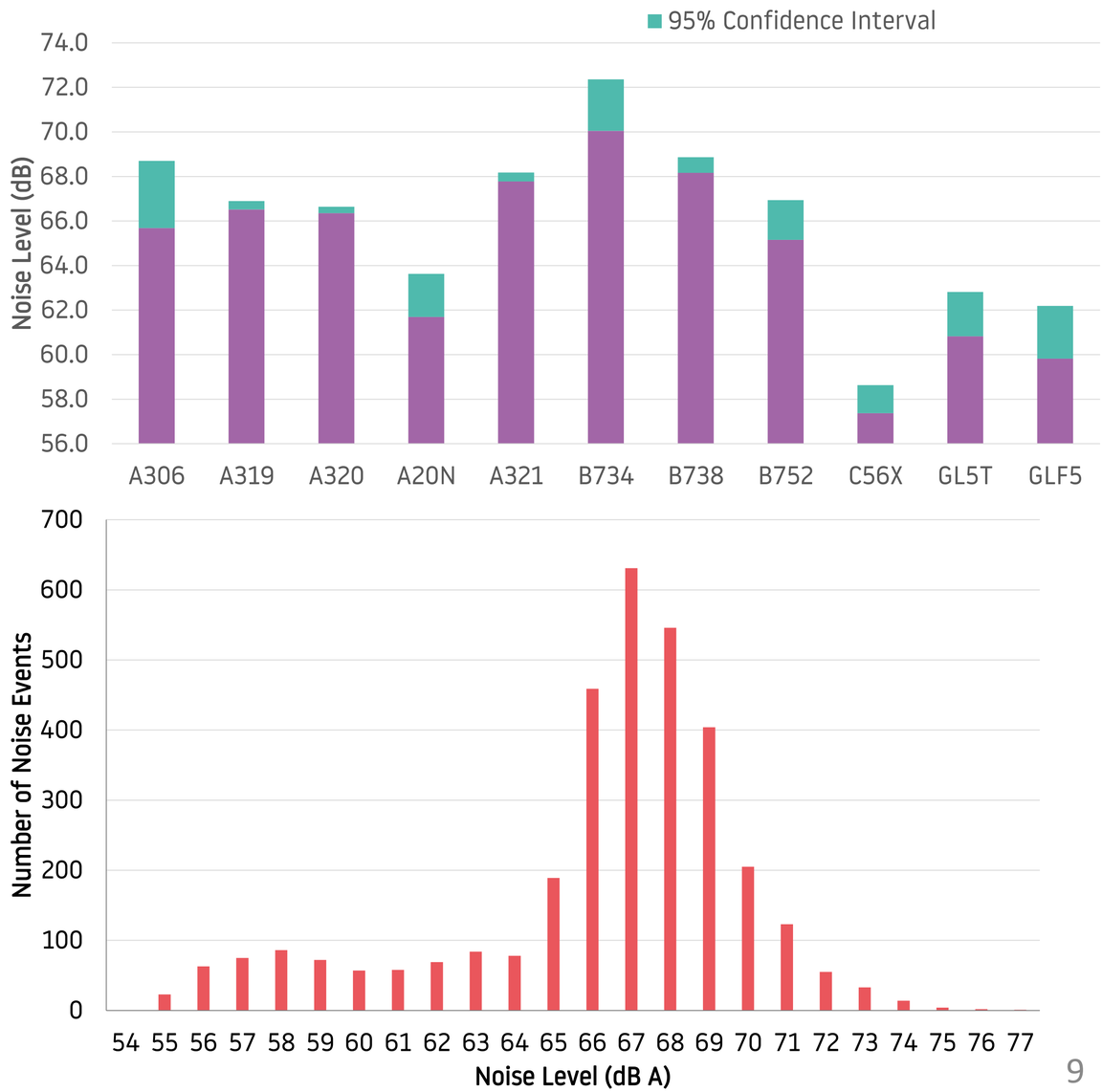
Flamstead Noise Results During Monitoring Period

During the monitoring period, noise results were gathered from various aircraft types, the most popular aircraft types are shown in the table below*.

Aircraft Type	Number of movements	Average Noise (dB)
A306	27	67.2
A319	781	66.7
A320	1,097	66.5
A20N (A320 NEO)	44	62.7
A321	384	68.0
B734	20	71.2
B738	428	68.5
B752	51	66.0
C56X	34	58.0
GL5T	70	61.8
GLF5	36	61.0

The average noise in Flamstead is 66.2dB, an increase of 0.7dB from the same location last year. This is based on a sample size of 3,331. The table shows the average noise for each aircraft type and the green bar on the chart shows the uncertainty caused by the spread in readings and the sample size (95% confidence interval). From the results, the A320 NEO produced less noise than any other A320 Family aircraft, including the A319 which has a lower maximum take off weight. The B734 was the noisiest aircraft type at Flamstead during the monitoring period.

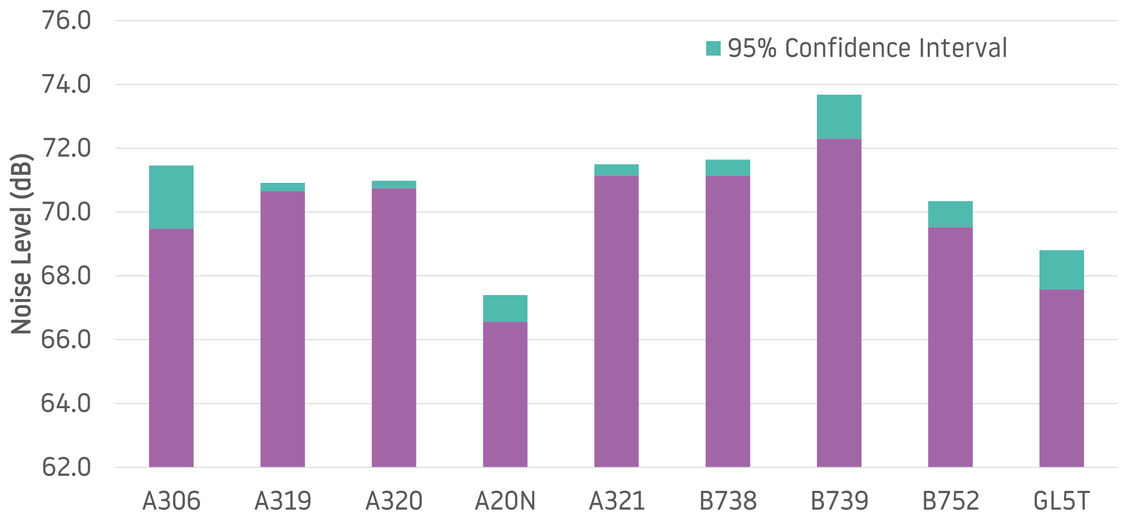
*The noise results shown in the analysis are only for those aircraft types that recorded more than 30 events per aircraft (A306 and B734 included for comparison for Markyate).

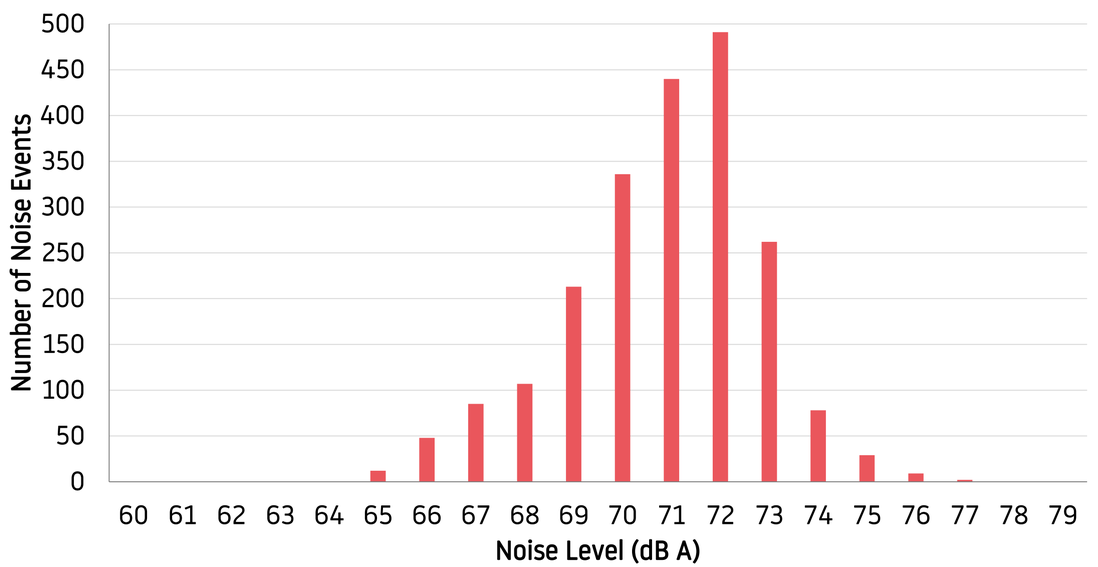


Markyate Noise Results During Monitoring Period

During the monitoring period, noise results were gathered from various aircraft types, the most popular aircraft types are shown in the table below*.

Aircraft Type	Number of movements	Average Noise (dB)
A306	22	70.5
A319	450	70.8
A320	861	70.9
A20N (A320 NEO)	33	67.0
A321	291	71.3
B738	266	71.4
B739	21	73.0
B752	24	69.9
GL5T	33	68.2





The average noise in Markyate is 70.8dB. This is based on a sample size of 2,112. The table shows the average noise for each aircraft type and the green bar on the chart shows the uncertainty caused by the spread in readings and the sample size (95% confidence interval). From the results, the A320 NEO produced less noise than any other A320 Family aircraft including the A319, and the Bombardier Global 5000, both with lower maximum take off weight. The B739, stretched version of B738, was the noisiest aircraft type during the monitoring period. Unfortunately, B734 did not record enough noise events for analysis.

*The noise results shown in the analysis are only for those aircraft types that recorded more than 20 events per aircraft.

Conclusion

- During the monitoring period, the airport was using westerly operations for 49% of the time, this is less than the five year average of this time period, and therefore residents would have experienced less noise during this period than in recent years.

- The main aircraft types operating at the airport are A320 & A319 therefore the aircraft flying in the vicinity of Flamstead and Markyate are in line with this.

- 77 noise events recorded were created by easyJet A320 NEO aircraft, registering average noise events of 64.5 dB, lower than A319 and Bombardier Global 5000, both with lower maximum take-off weight.

- The average altitude of aircraft in the area is 3,342 feet above sea level, and as Flamstead and Markyate are already approximately 460 feet above sea level, aircraft will typically be 2,882 feet above ground level in this area.

- Above Flamstead and Markyate aircraft are typically between 3,000-3,499 feet, during the monitoring period this accounted for 36% of all aircraft. We also saw 14% of aircraft achieve altitudes between 3,500-3,999 feet with a further 16% achieving altitudes higher than 4,000 feet.

- Three aircraft shown in the altitude analysis that achieved altitudes above 6,000 feet, were business jet aircraft. These aircraft operated during the night period and had clearances to climb higher than during the daytime because the airspace is typically quieter during this period.

- During the monitoring period, four aircraft were investigated as part of the Noise and Track violation scheme. All fines generated by this scheme go directly into the community trust fund, more information on the community trust fund can be found here.

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 follow the departure route in the direction of Flamstead and Markyate.

SID: Standard instrument departure, is the published route that an aircraft must follow on departure.

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

Gate Analysis: A 2km gate which is drawn across an area and will gather information about every aircraft passing through the gate area.

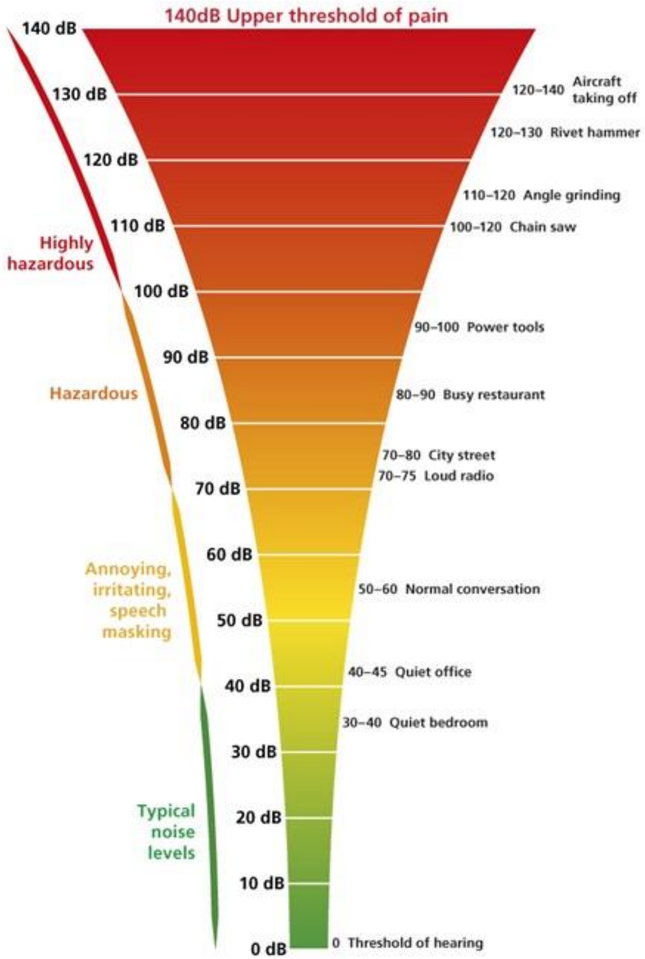
Noise Event: A single event is the period from when an aircraft approaches the monitor until when the aircraft is leaving the area.

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.

LAeq (16hr day): the average noise level during the day (a 16-hour day) during the summer period. The measure of noise is given in decibels (dB). This averaged decibel measurement 'LAeq', is the most common international measure of aircraft noise, it means 'equivalent continuous noise level'.

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



Source: iosh.co.uk