Community Noise Report

Harlington

May – June 2022

London Luton Airport

Introduction

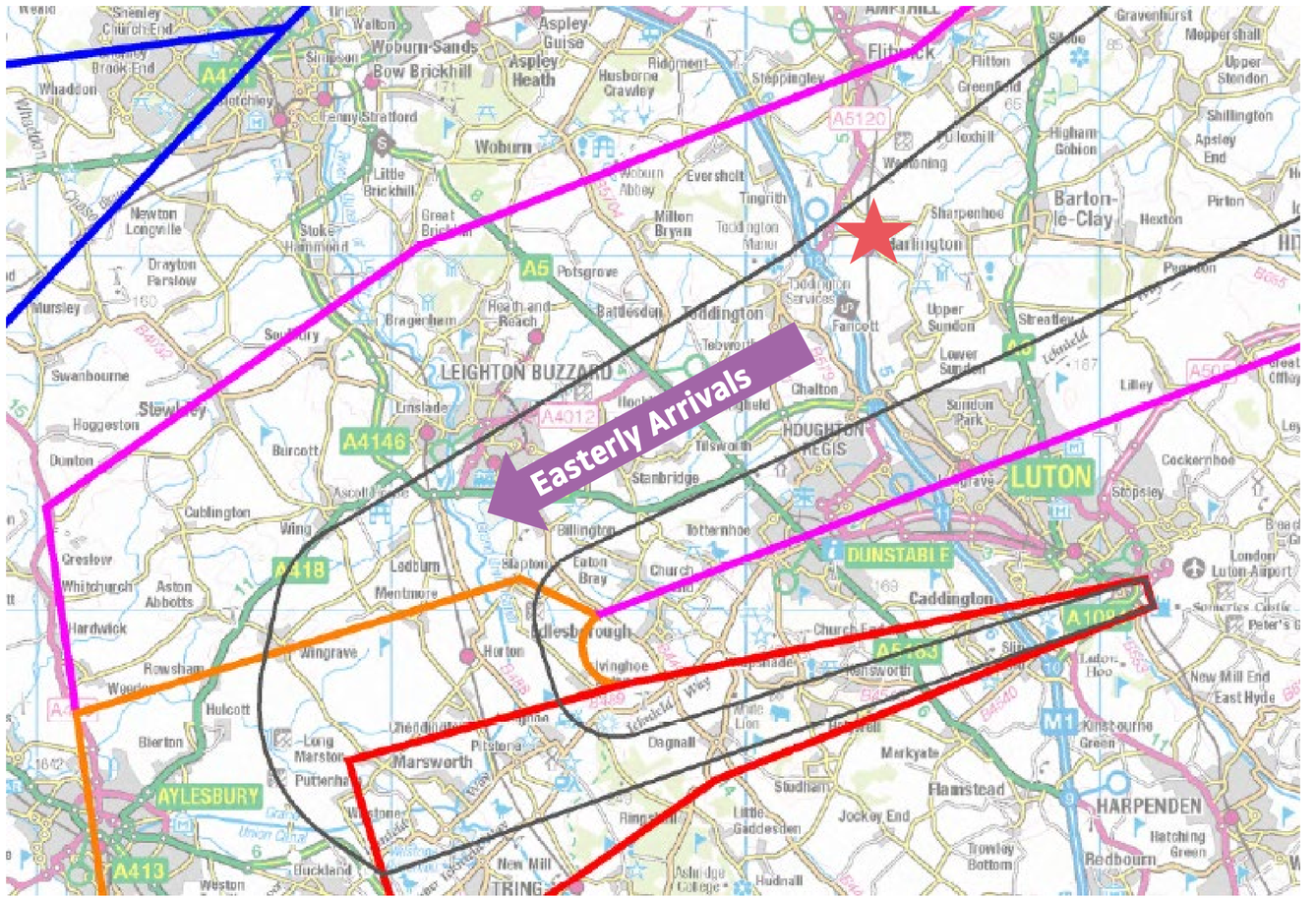
As part of the ongoing noise monitoring programme, London Luton Airport deployed a portable noise monitoring terminal in Harlington.

The purpose of the monitoring programme is to understand the typical noise levels created in the local community. For Harlington, it specifically related to the easterly arrival. The arrival route is shown on the map.

The noise monitor was located at a residential property on Bury Close in Harlington, approximately 27 tracked nm from the airfield, at an altitude of 315 feet above sea level. The red star on the map shows the town of Harlington.

The noise monitor in Harlington was in place between 5th May and 23rd June 2022.

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 sound level recorded at ground level.

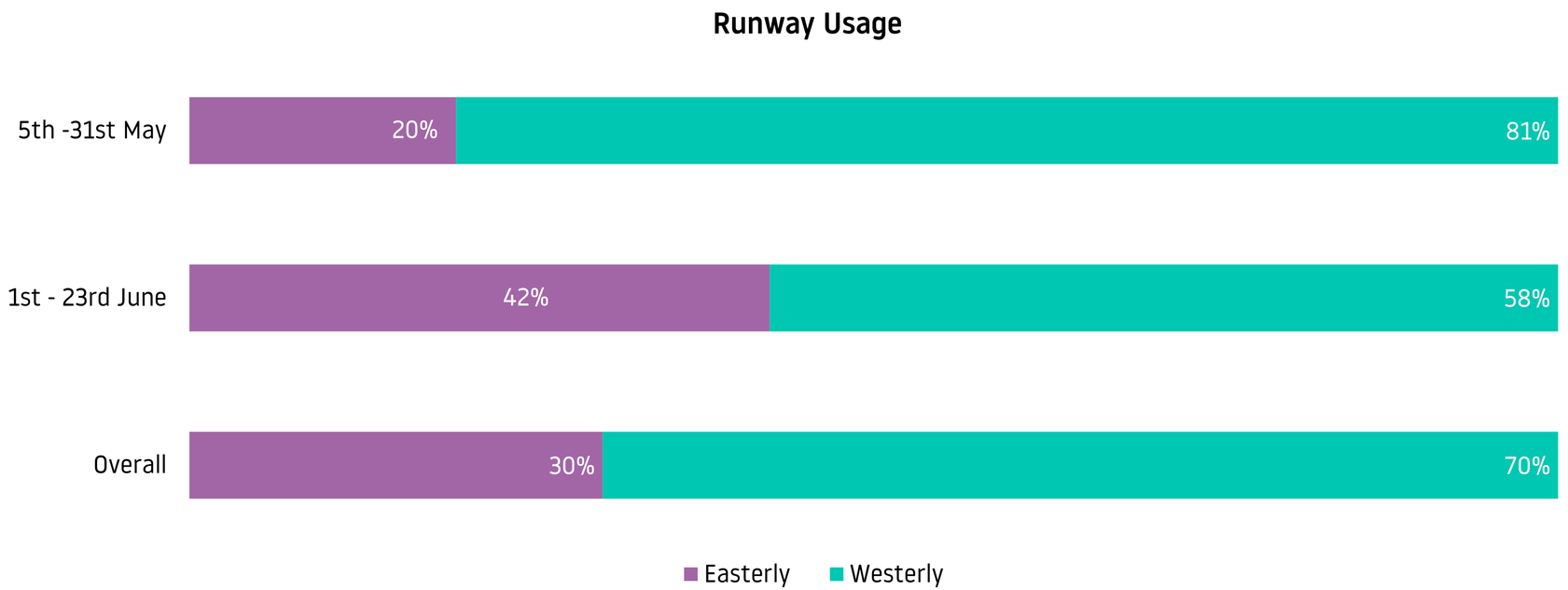


LLA Operations

There are two directions of operation at the airport, depending on the wind direction as aircraft are required to take off and land into the wind for 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 weather.

During the monitoring period, the direction of operation was 30% easterly and 70% westerly. That is in line with the yearly average due to the prevailing wind from the west in England.

Aircraft may fly above or near Harlington when the airport is operating easterly. There were 2,922 aircraft which landed on the easterly runway whilst the noise monitor was located in Harlington. The altitude of these aircraft that flew near Harlington are analysed in this study.



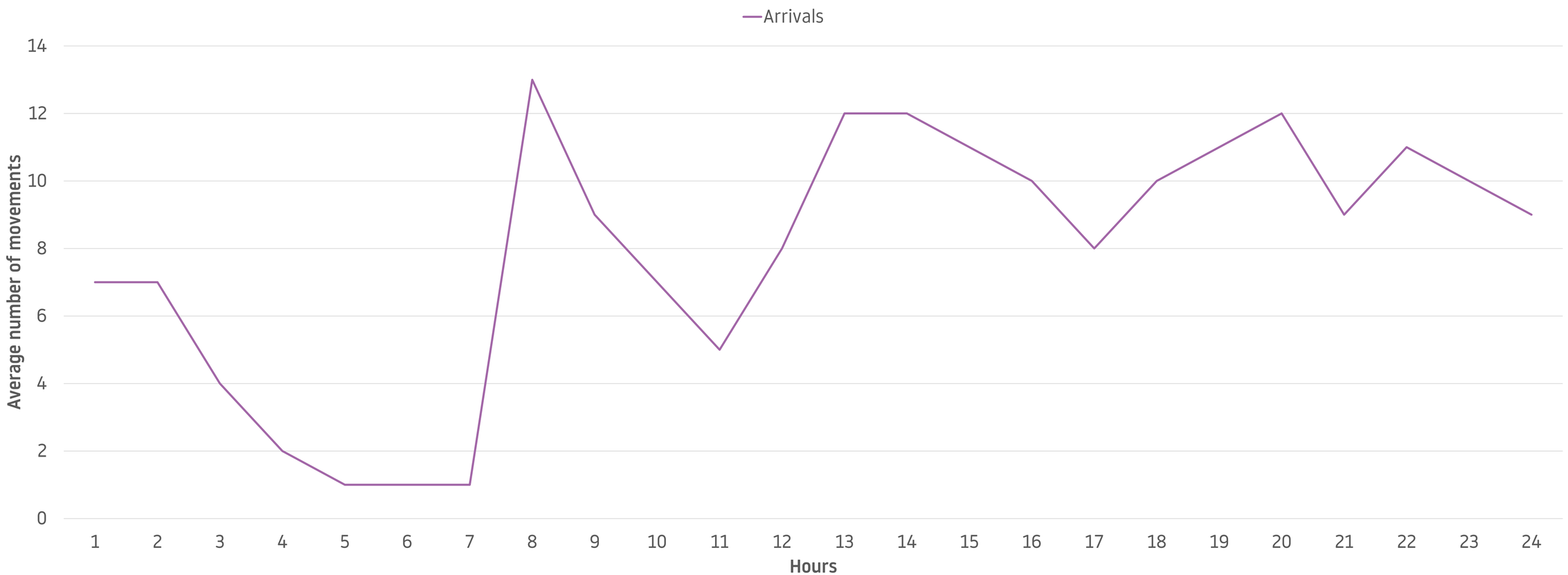
Daily Movements

The chart below shows the number of daily westerly and easterly arrivals at LLA. Due to the location of Harlington, some arriving flights would have flown near the monitor on the days of easterly operation.

Operations

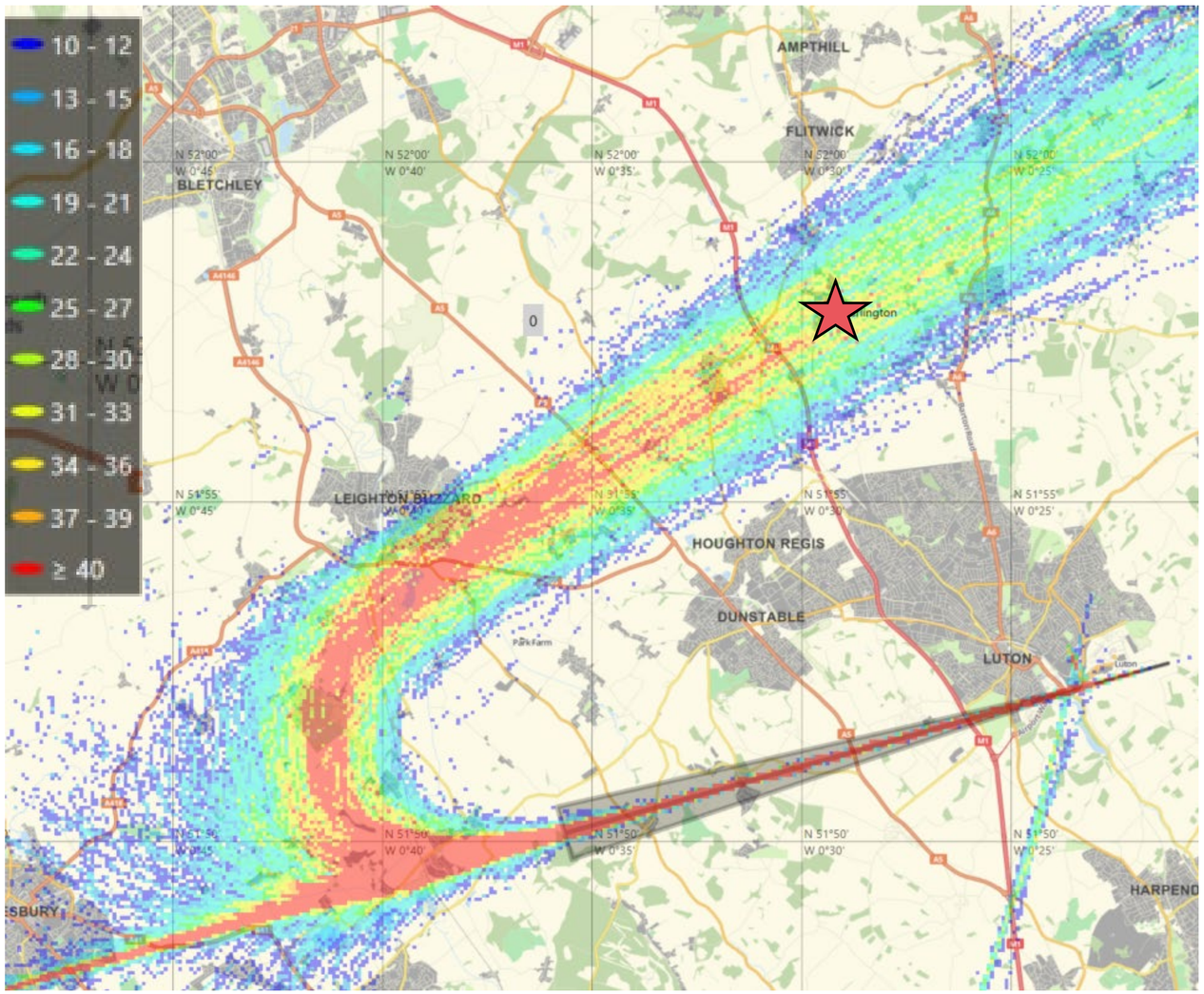
The graph below represents the average number of arrivals during the monitoring period. Depending on the operating direction on the day, residents in Harlington may experience different flight patterns. During the peak periods on a day of easterly operation, local residents of Harlington may notice more frequent aircraft movements. In general, the morning peak is between 8am and 9am and the afternoon starts at 1pm and 8pm.

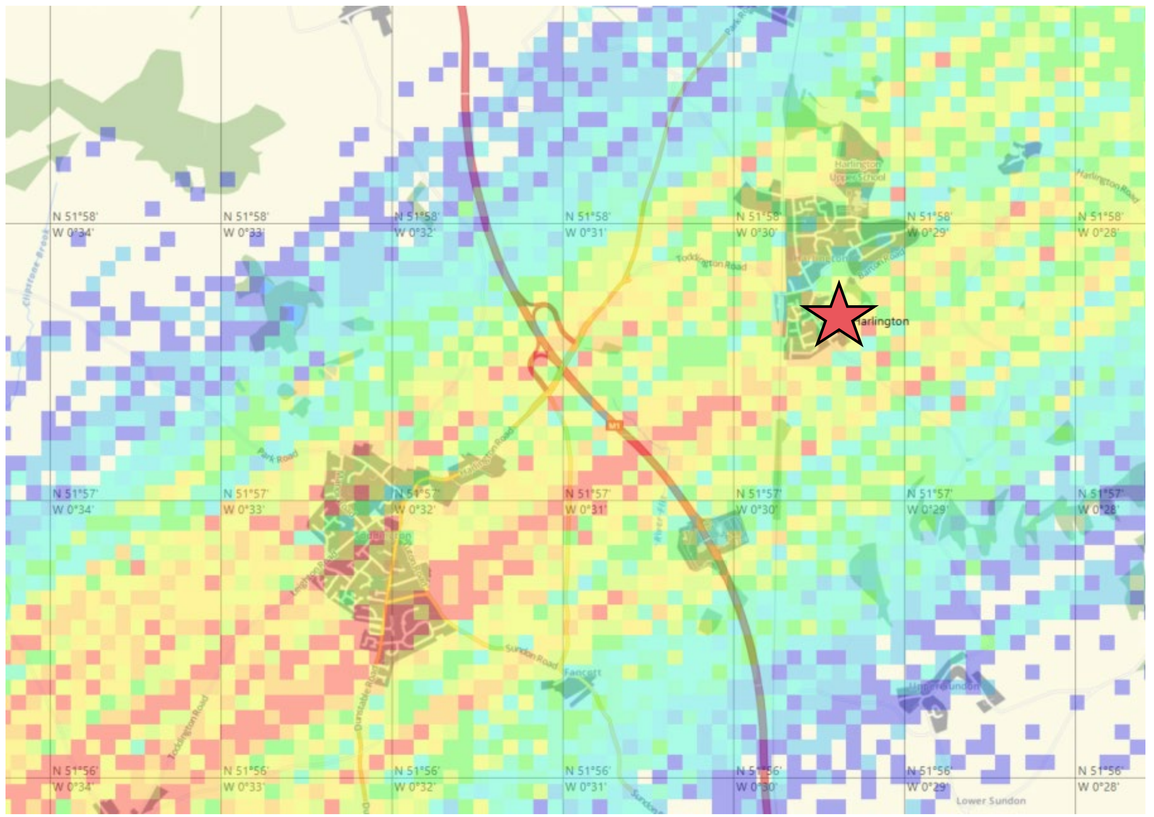
During the night period of 23:00 – 06:00 in the monitoring period, there were average of 31 arrivals.



Aircraft Tracks

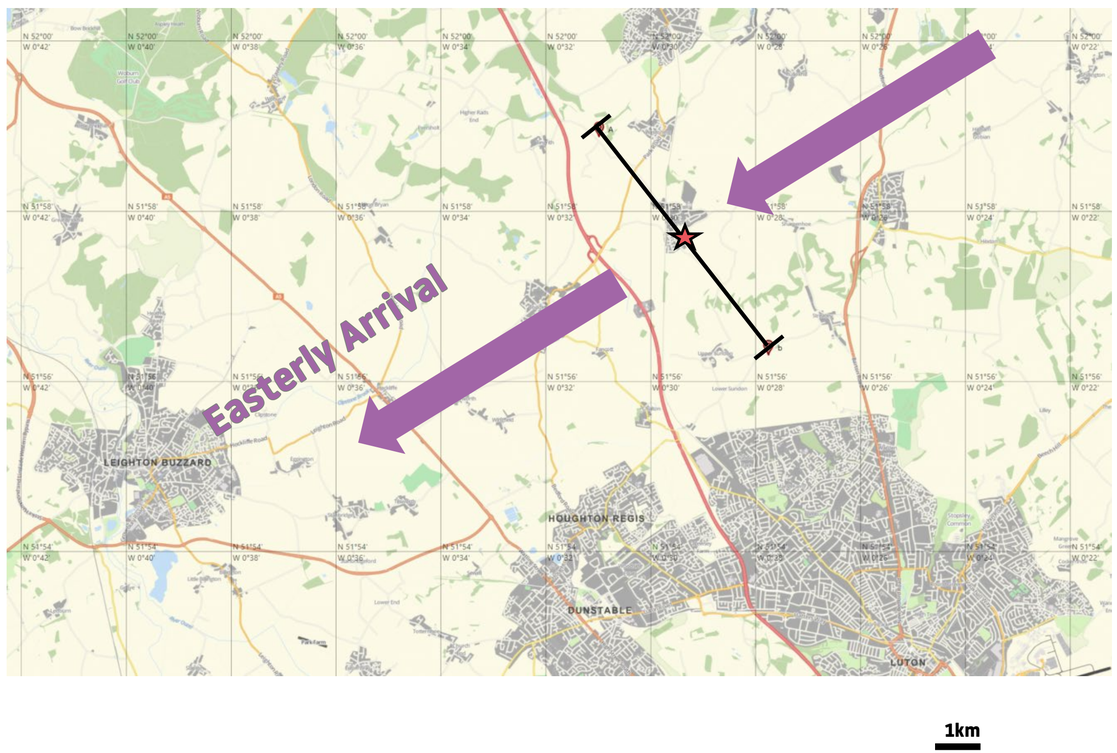
The heat map shows the representative flight tracks that passed near the noise monitor terminals during the monitoring period. The red star indicates the noise monitor location in Harlington. For Harlington, it specifically related to the easterly arrival.

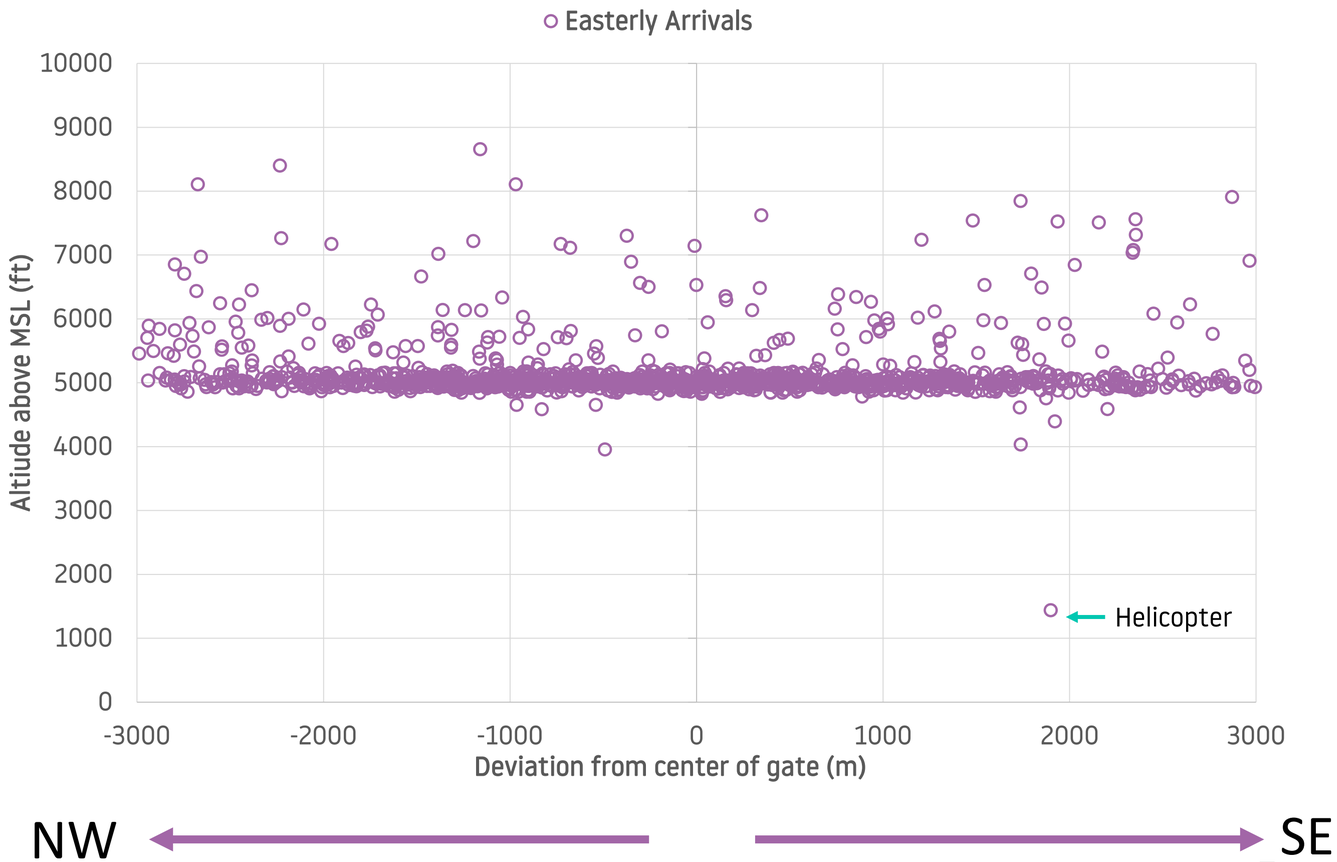




Altitude Gate Analysis

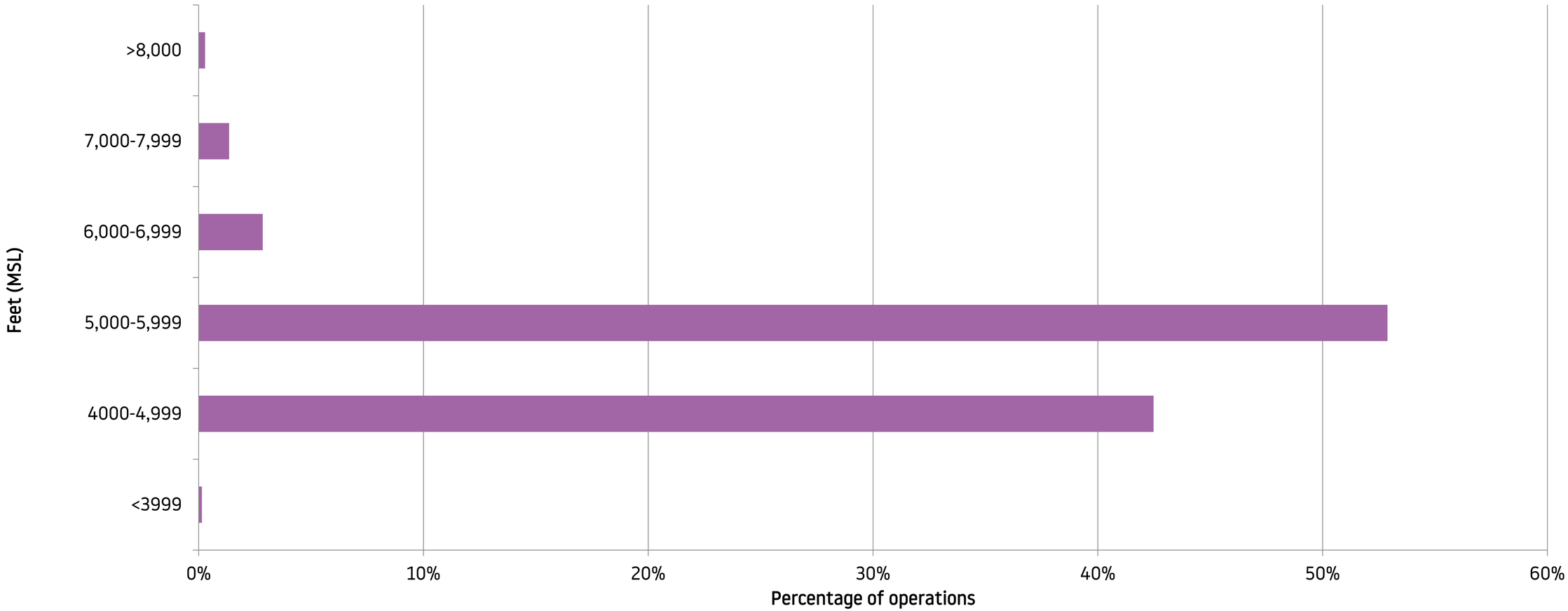
The altitude gate analysis for Harlington shows the vertical and lateral dispersion of aircraft 3km either side of the noise monitor. The map below shows the 6km gate which is drawn perpendicular to the arrival route from northwest to southeast and will gather information of every aircraft passing through the gate area. The scatter chart below shows the distance and altitude of aircraft from the noise monitor during the monitoring period. Of the 2,922 easterly arrivals during the monitoring period, there were 1,401 aircraft that passed through the 6km gate. There were 982 aircraft flew within 1.5km of Harlington. This accounted for 48% of the easterly traffic The majority of the aircraft are maintained at 5,000ft during their approach phrase of the flight at this location. These aircraft are vectored by air traffic controllers for safe separation between aircraft and sequencing.





Altitude Gate Analysis

The bar chart shows the altitude spread when aircraft reach the noise monitor in Harlington. For easterly arrivals at Harlington, the average altitude of aircraft in this area was 5,131 feet above sea level (ASL) (4,816 feet above ground level [AGL]). It shows the majority of the flights flying above or near Harlington were above 4,000 feet and more than 57% of flights were above 5,000 feet.



How Do 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 Harlington, the noise monitoring terminal only collected readings from 33 easterly arriving aircraft. There were total of 2,922 easterly arrivals during the period.

It is noteworthy that the noise monitor may not be able to record every aircraft sound event if the aircraft noise level is below ambient background sound level. 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.

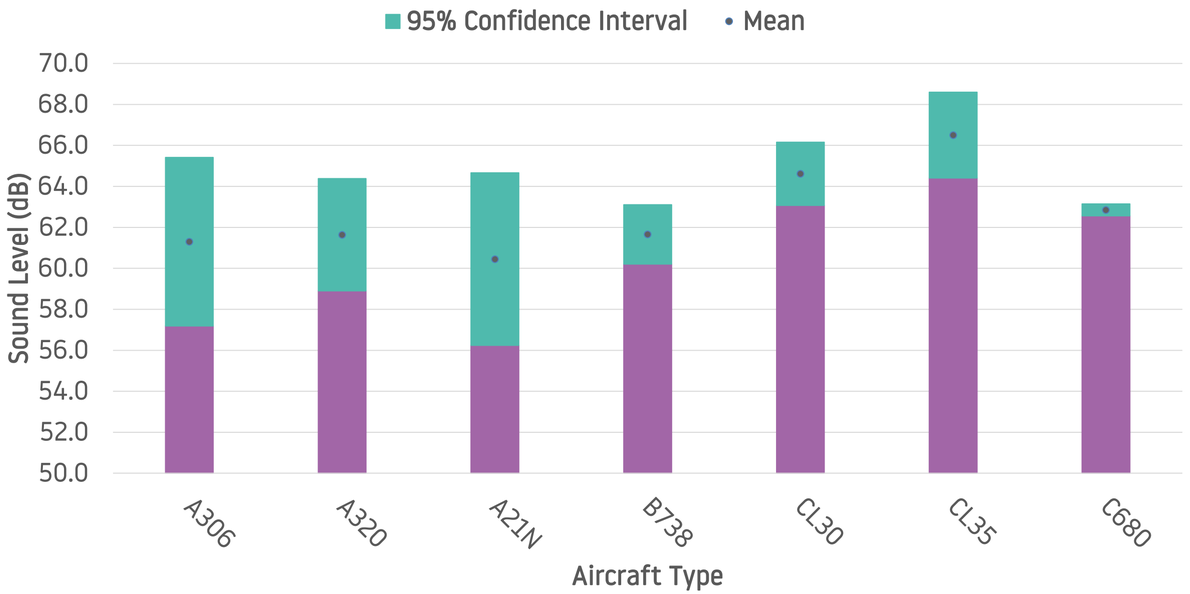
The weather also plays a big part in the data recorded and in periods of extreme weather i.e (very strong winds) the equipment can record noise incorrectly so we exclude samples from the analysis during these weather conditions. When analysing the samples, the first thing we do is to ensure that there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

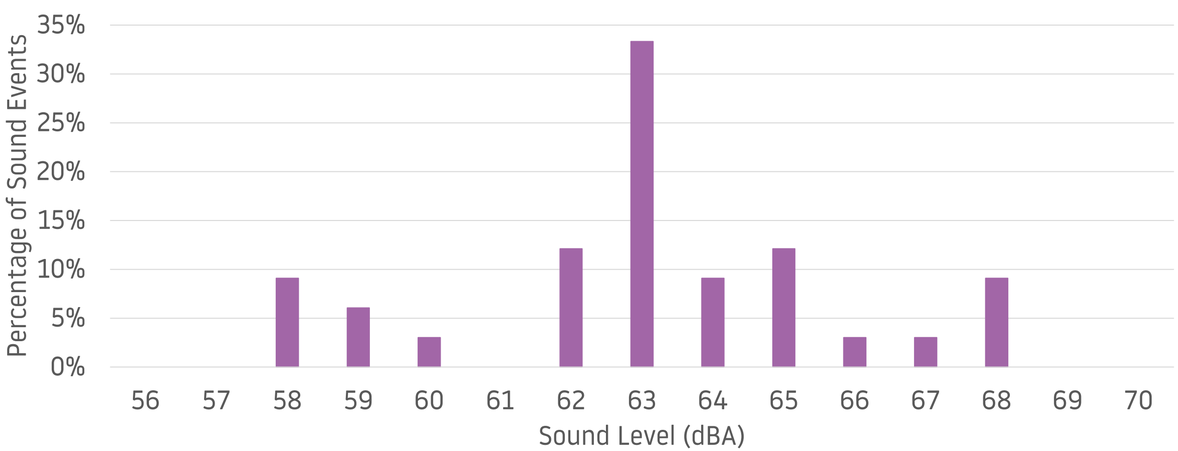
The purpose of the monitoring programme is to understand the typical noise levels created in the local community. For Harlington, it specifically related to easterly arrivals.

Noise Results

During the monitoring period, only 33 sound recording samples were gathered. The noise monitor was not able to record every aircraft noise event if the aircraft sound level is below ambient background sound level. The table below shows the sound level recorded by some various aircraft types that operate at London Luton Airport.

Aircraft Type	Number of movements	Average Sound (dB)
A306	2	61.3
A320 CEO	5	61.6
A321 NEO	2	60.5
B738	7	61.7
CL30	7	64.6
CL35	3	66.5
C680	2	62.9





- The average easterly arrival noise in Harlington is 63.1dB, based on a sample size of 33 recorded.
- The table shows the average sound level by various aircraft types and the green bar on the chart shows the uncertainty caused by the spread in readings and the sample size (95% confidence interval).
- The majority of the sound events were below the detection threshold of the microphone and ambient background sound level. Therefore, the true average value of aircraft noise and sound level may not be reflected in this study.

Summary

- For Harlington, it specifically related to easterly arrivals. During the monitoring period, the airport was using easterly operations for 30% of the time. That is in line with the yearly average due to the prevailing wind from the west in England.

- The average altitude of easterly departing aircraft in Harlington is 5,131 feet above sea level (ASL), and as Harlington is already approximately 315 feet ASL, aircraft will typically be 4,816 feet above ground level (AGL) in this area. Most aircraft were above 4,000ft when reaching near Harlington. More than 57% of the flights were above 5,000 feet.

- There were 2,922 easterly arrivals during the monitoring period. Of those arrivals, 48% and 34% of traffic flew within 3km and 1.5km of Harlington respectively.

- However, only 33 aircraft sound recordings were collected from the NMT. The majority of the easterly arriving aircraft were not captured by the noise monitor due to the higher altitude of aircraft at this location. Almost all events were below the detection threshold of the microphone and ambient background sound level.

- Based on a sample size of 33 recorded, the average easterly arrival noise in Harlington was 63.1dB.

- LLA publish other monitoring reports on a regular basis. These reports can be viewed and downloaded from the LLA Noise webpage on the LLA website - https://www.london-luton.co.uk/corporate/community/noise.

Glossary of Terms

Easterly Operations: As aircraft take off and land into the wind, easterly operations refers to the time when the wind is blowing from the east and aircraft may follow the standard arrival route above or near Harlington.

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

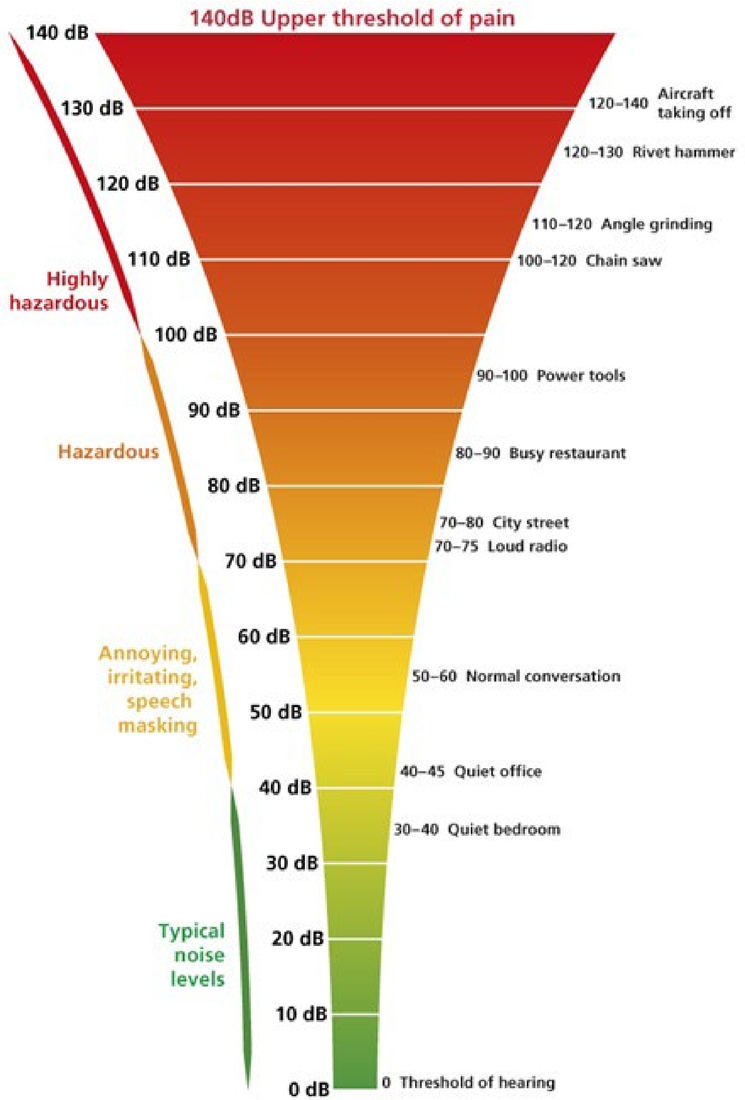
Gate Analysis: A gate which is drawn across an area and will gather information on aircraft altitude and position when passing through the gate area.

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.



Source: iosh.co.uk