

Community Noise Report

Redbourn

March – June 2025



London Luton Airport

Introduction

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

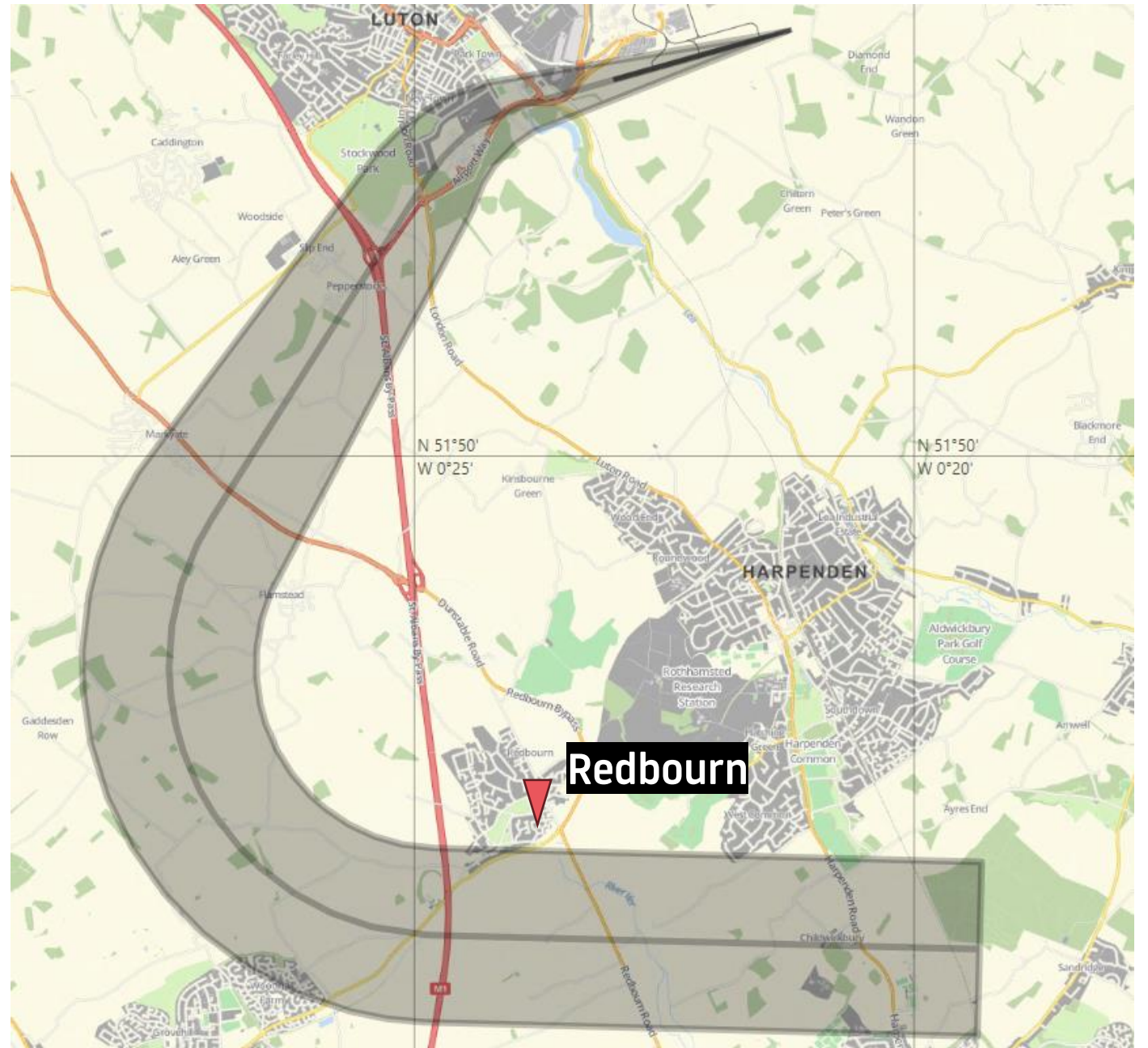
The purpose of the monitoring programme is to understand the typical noise levels created in the local community. **For Redbourn it specifically related to Westerly departures. The flightpath nearest is shown on the map.**

The noise monitor was located at a residential property on The Park, at an altitude of 328 feet above sea level. The red pinpoint on the map shows the noise monitor location.

The noise monitor in Redbourn was in place between the 18th March and 13th 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.

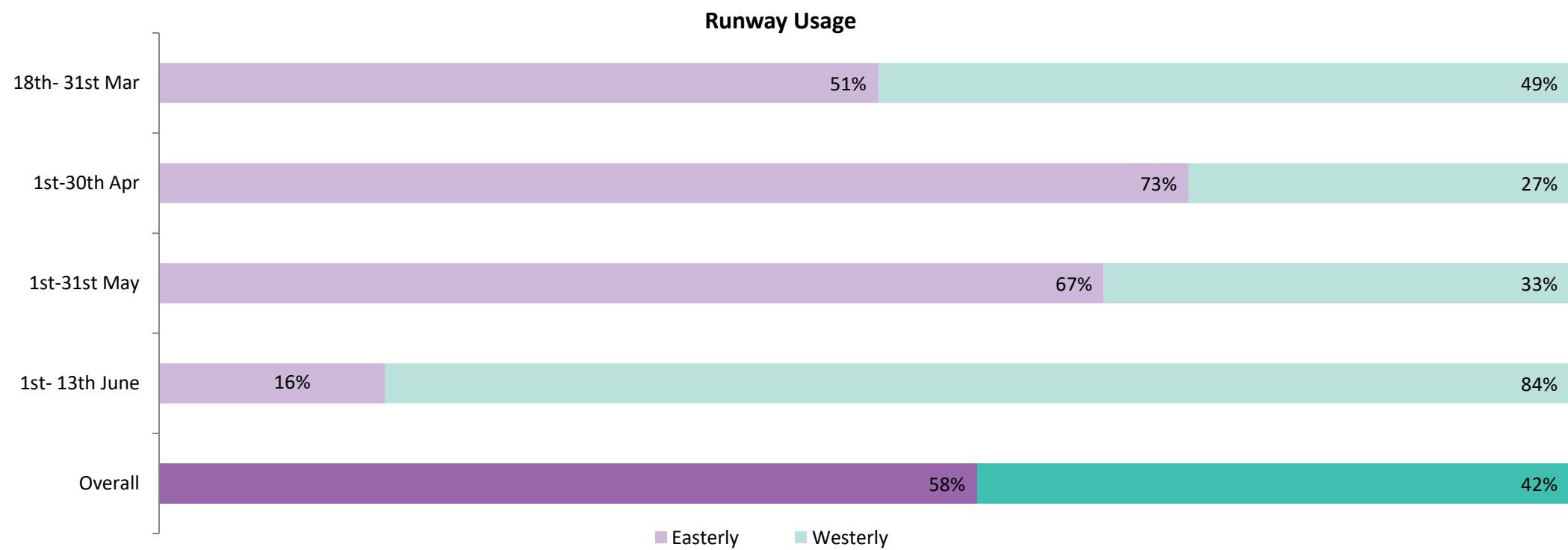


LLA operations during the monitoring period

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 58% Easterly and 42% Westerly. The 5-year average for this time of year is 45% easterly vs 55% westerly.

There were 6,988 aircraft departing on the westerly route during the monitoring period.



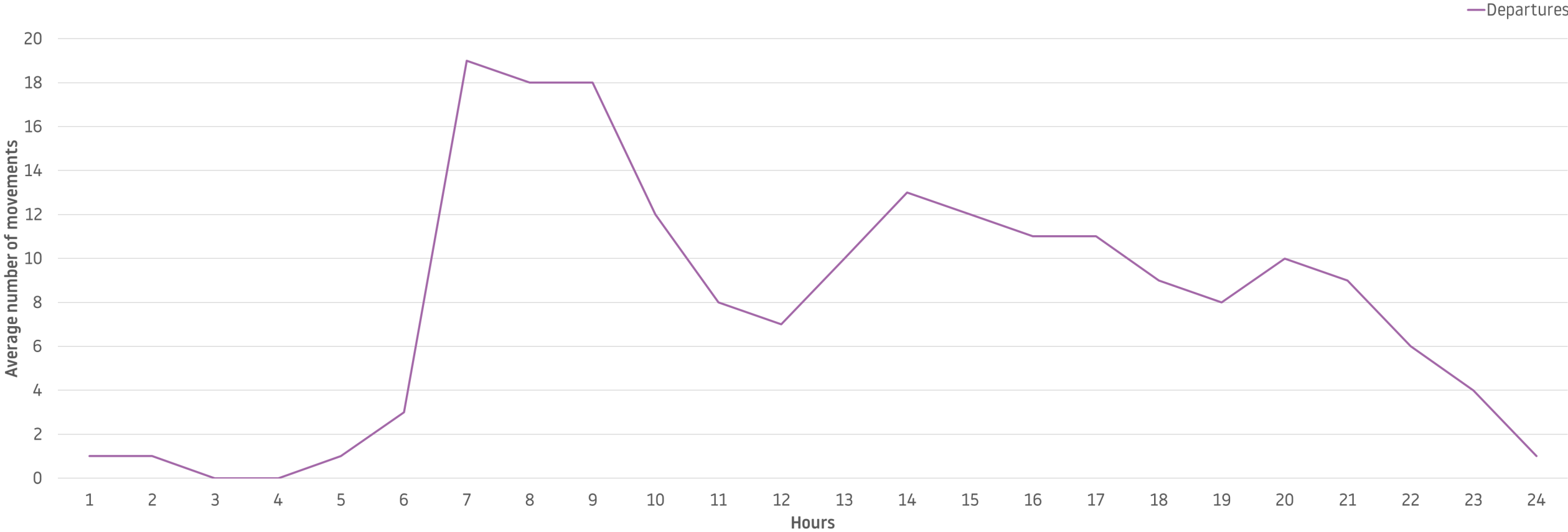
Daily Movements during monitoring period

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



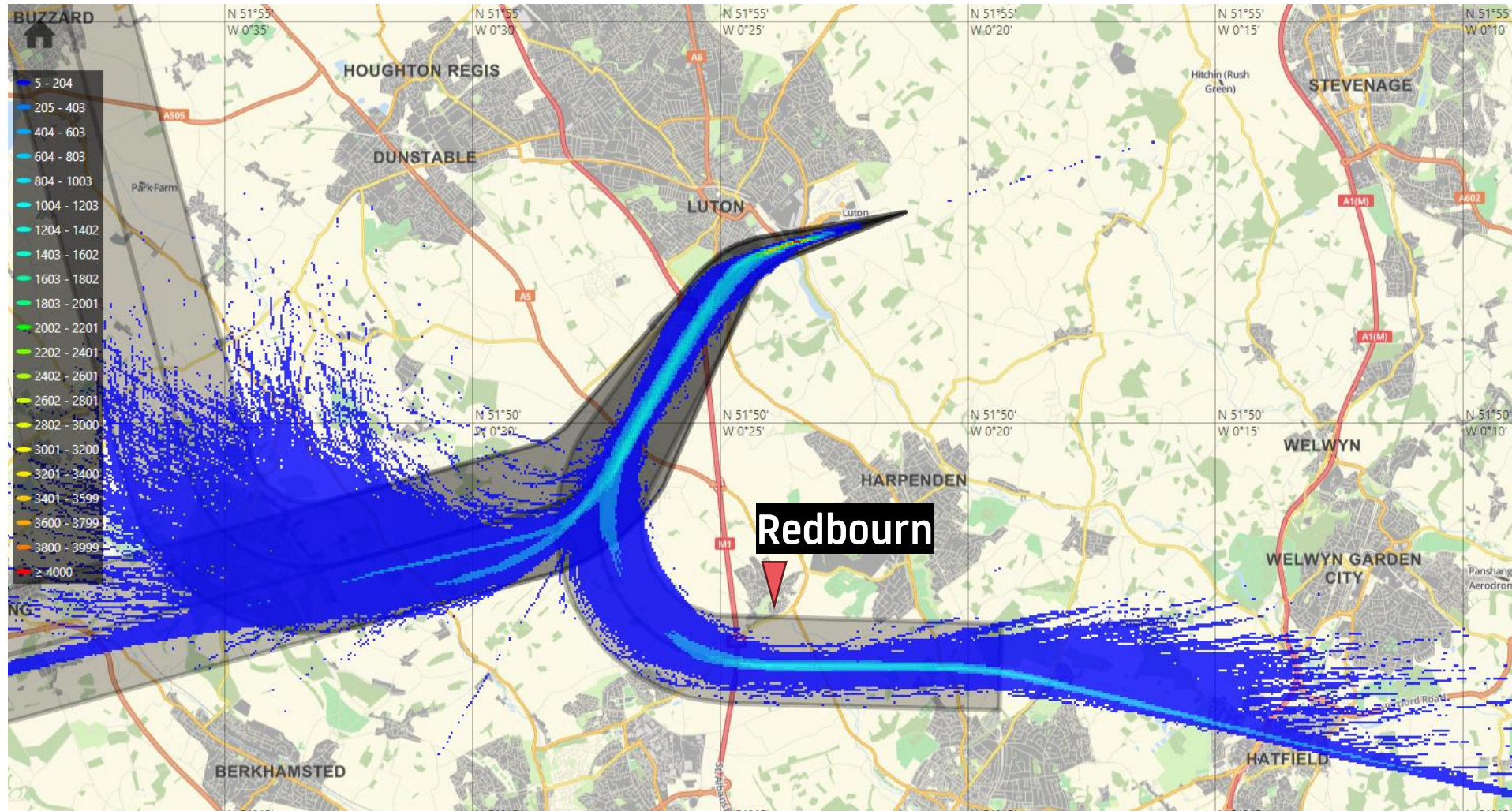
Operations during monitoring period

The graph below represents the average aircraft movement by hours during the monitoring period. Depending on the operating direction on the day, residents in Redbourn may experience different flight patterns. During the peak periods, residents of Redbourn may notice more frequent aircraft movements. In general, the morning peak starts at 6am on the days of westerly departure operations and these aircraft more noticeable as the dwellings at this location are just next to the westerly departure flightpath. During the night period of 23:00 – 06:00 in the monitoring period, there were average of 7 departures.



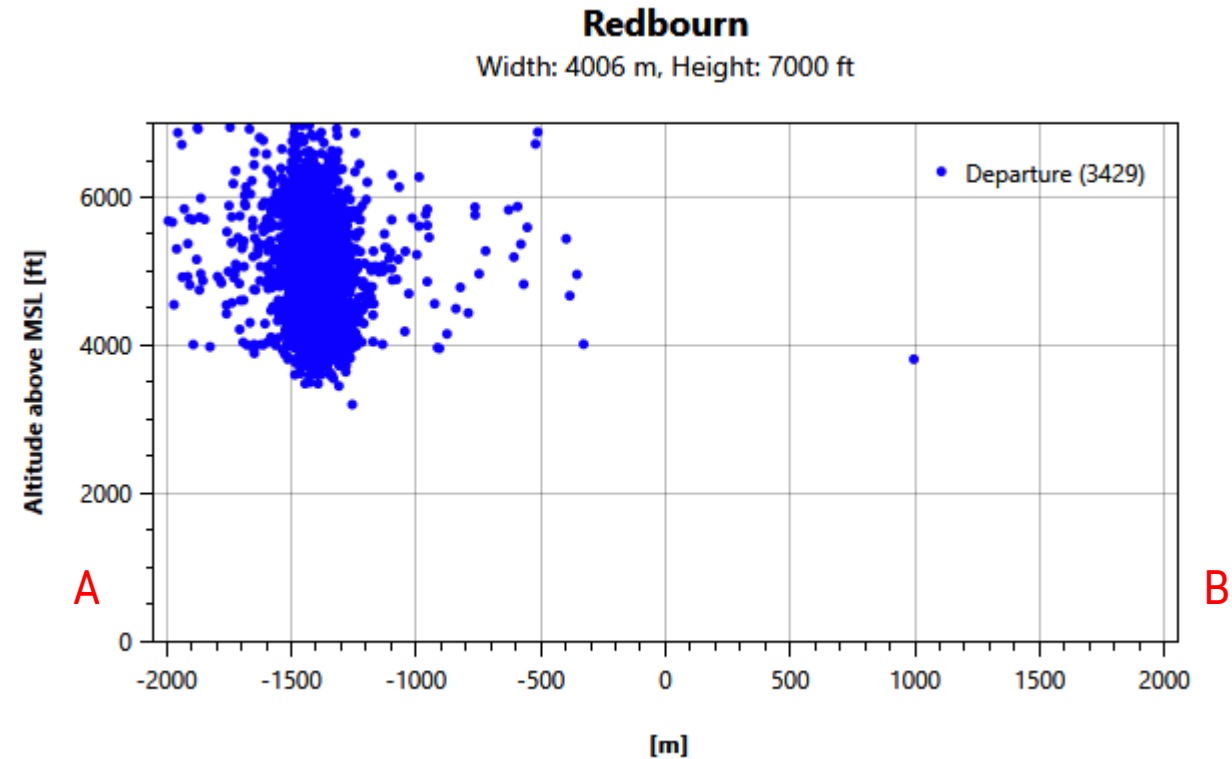
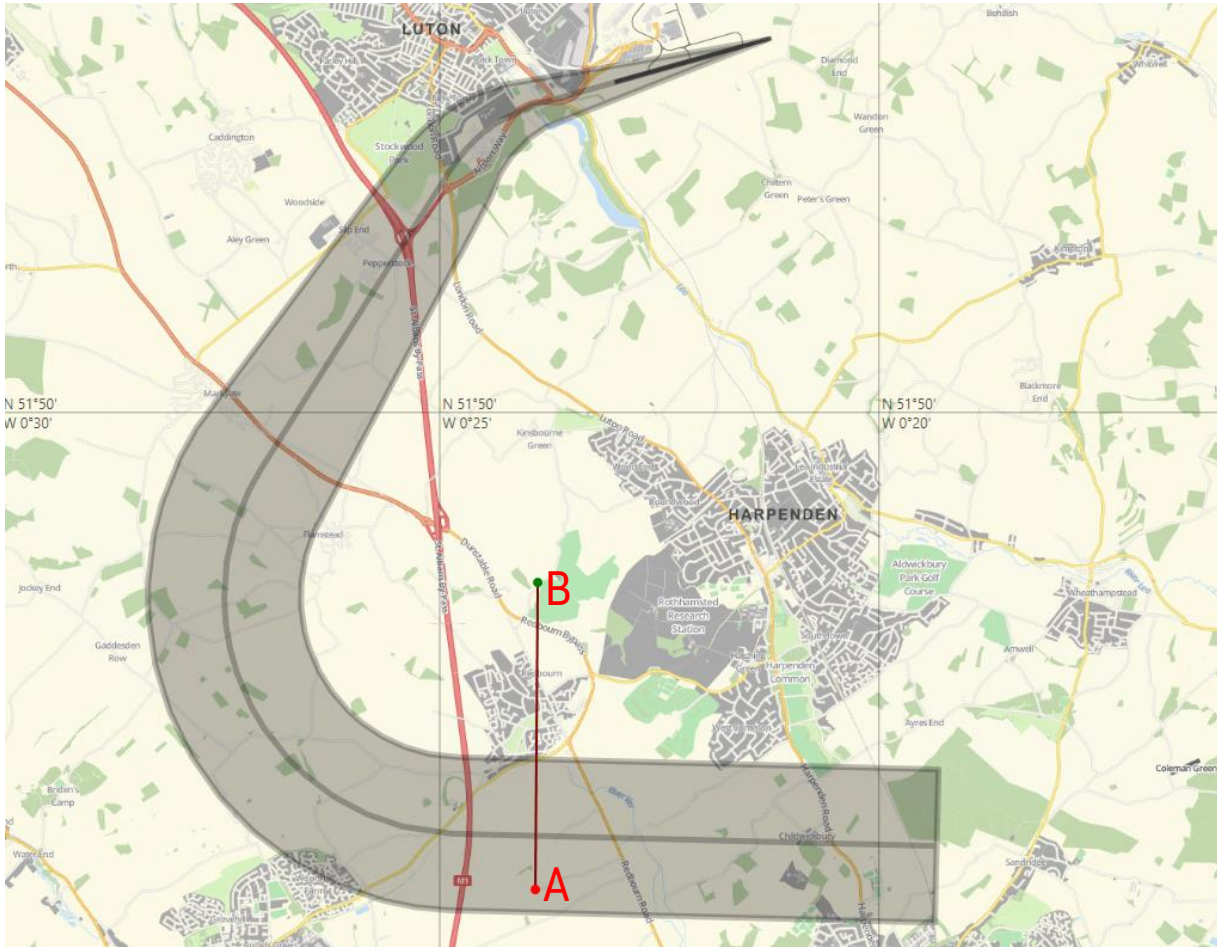
Aircraft Tracks- Westerly Departures

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 Redbourn. This map shows the path of westerly departures.



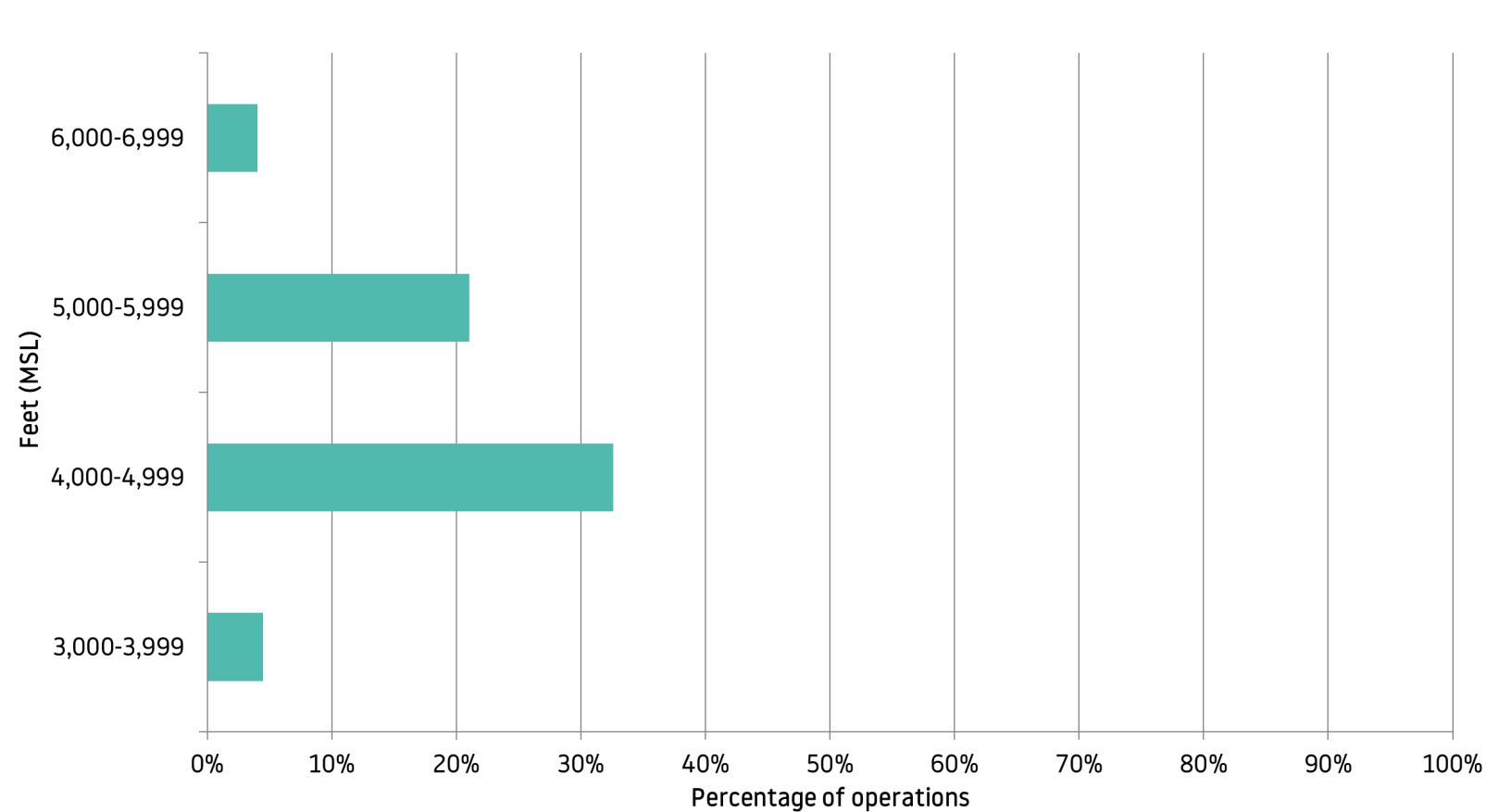
Altitude Gate Analysis- Westerly Departures

The altitude analysis for Redbourn, shows the vertical and lateral dispersion of aircraft 2km either side of the noise monitor. The map below shows the 4km gate (Red line) which is drawn perpendicular to the NPR from north to south 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 Redbourn will see departing aircraft on westerly operations.



Altitude Gate Analysis – Westerly Departures

The average altitude of aircraft was 4,919 feet AMSL (4,591 feet AGL) when they reached the departure gate. 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	40	4,978
A319	210	4,965
A320 CEO	426	4,777
A320 NEO (A20N)	318	5,060
A321 CEO	262	4,801
A321 NEO (A21N)	1,341	4,907
B737-800 NG (B738)	217	4,864
B737 Max 8 (B38M)	116	4,750
Global Express (GLEX)	47	5,046
Cessna 560X (C56X)	29	4,993
All	3,429	4,919

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 Redbourn, the noise monitoring terminal collected 2,418 readings. During the period, there were 6,988 westerly departures.

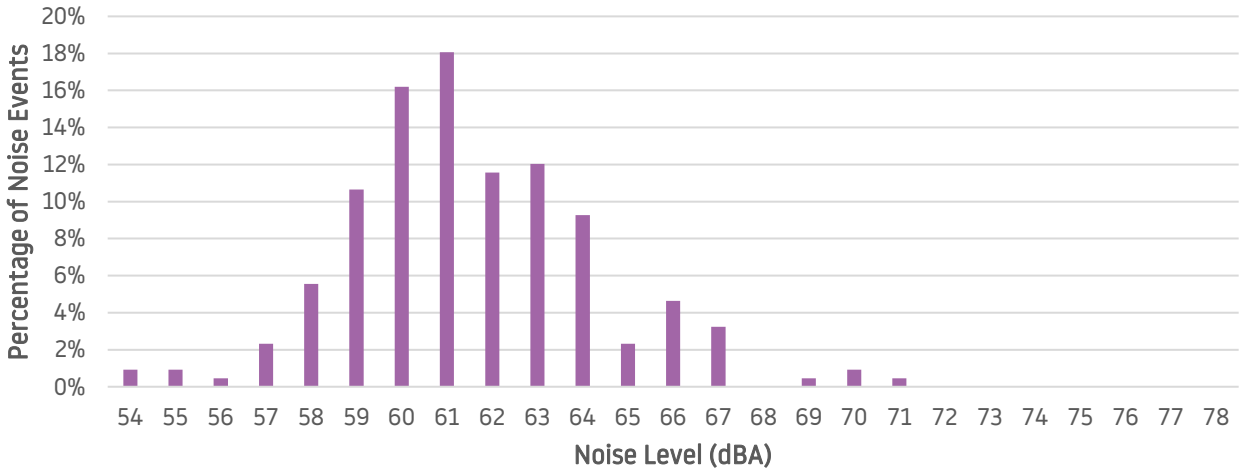
It is noteworthy that the noise monitor may not be able to record every aircraft noise event if the aircraft noise level is below ambient background noise or aircraft following a different route and not through the gate selected. Therefore, there may be a difference between the number of actual air transport 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 324 recordings were excluded from the analysis for the above reasons.

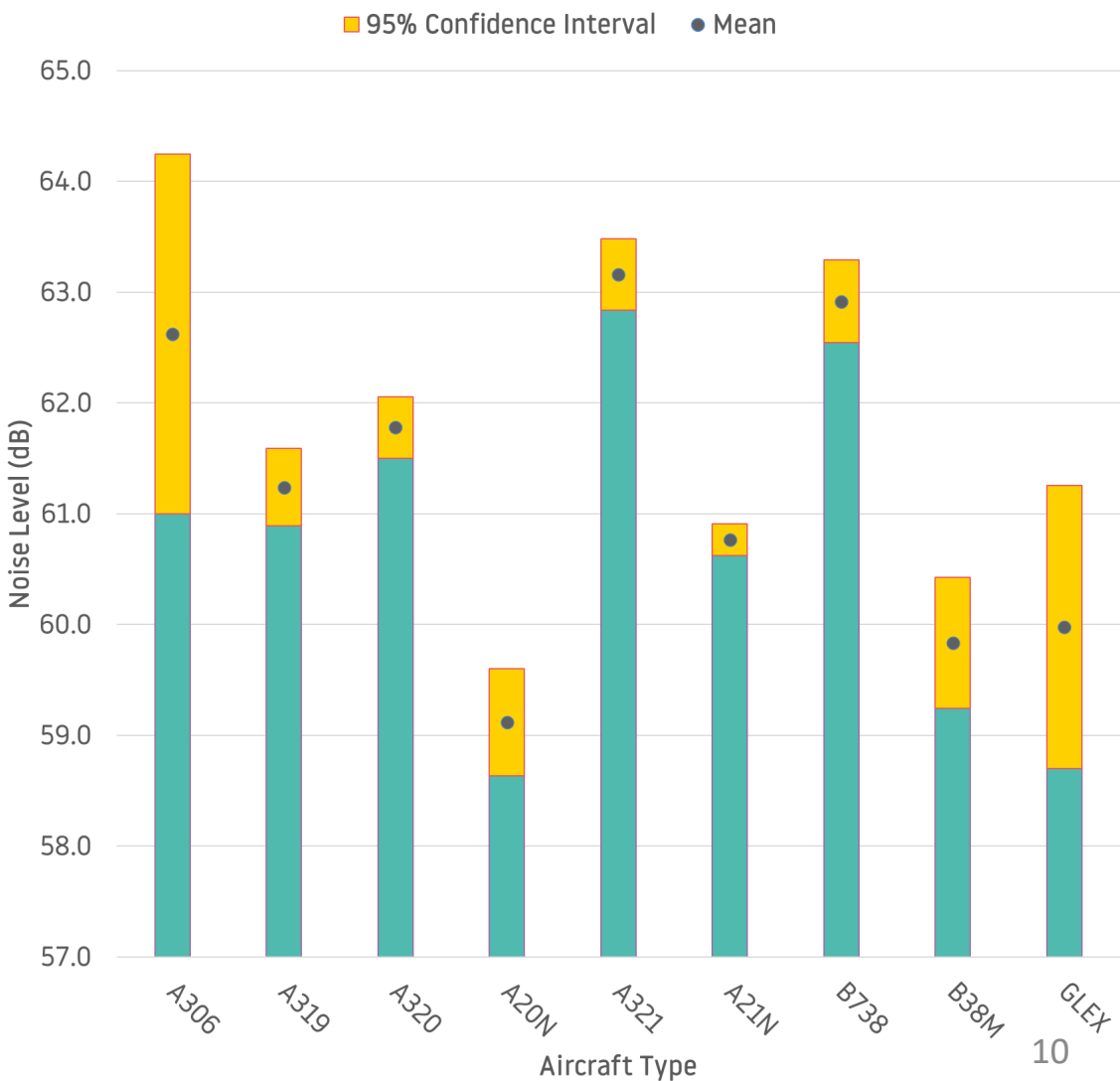
Noise Results – Westerly Departures

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)
A306	23	62.6
A319	212	61.2
A320 CEO	318	61.8
A320 NEO (A20N)	126	59.1
A321 CEO	181	63.2
A321 NEO (A21N)	766	60.8
B737-800 NG (B738)	219	62.9
B737 Max 8 (B38M)	71	59.8
GLEX	18	60.0
All	1,934	61.2



*The noise results shown in the analysis are only for those aircraft types that recorded more than 100 events per aircraft. A306 included for comparison.



Noise Results - Summary

- The average departure noise in Redbourn was 61.2dB, based on a sample size of 1,934.
- From the results, Redbourn'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 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 both their arrival and departure decibel (dB) levels. In red/ green it shows the difference between the older and newer generation aircraft in their arrivals and departures.
- Around 50% of all noise results movements were newer generation aircraft which are more fuel efficient and quieter.

Aircraft type	Departure dB	New aircraft type	Departure dB
A320	61.8	A320N (A20N)	59.1 (-2.7dB)
A321	63.2	A321N (A21N)	60.8 (-2.4dB)
B738	62.9	B737 MAX8 (B38M)	59.8 (-3.1dB)

Conclusion

- A mobile noise monitor was installed at a residential property on The park from the 18th March to 13th June 2025.
- For Redbourn, it specifically related to westerly departures. During the monitoring period, the airport operated in the direction of easterly and westerly for 58% and 42% of the time, respectively. 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 is the Airbus A320 CEO which produced an average noise of 61.8dB for departures.
- 50% of the noise events recorded in Redbourn were created by the newer generation aircraft, A320 NEO, A321 NEO and B737 Max 8. The A320 NEO registered average departing noise of 59.1dB, 2.7dB lower than the A320 CEO. During the monitoring period, 47 aircraft were investigated as part of the Noise and Track violation scheme. Of these, 10 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 follow the departure route in the direction of South Luton.

Easterly Operations: Easterly operations refers to the time when the wind is blowing from the east and aircraft land on the easterly runway and would fly above South Luton.

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 data 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.

