

Community Noise Report

Croydon

Sept – Dec 2024



London Luton Airport

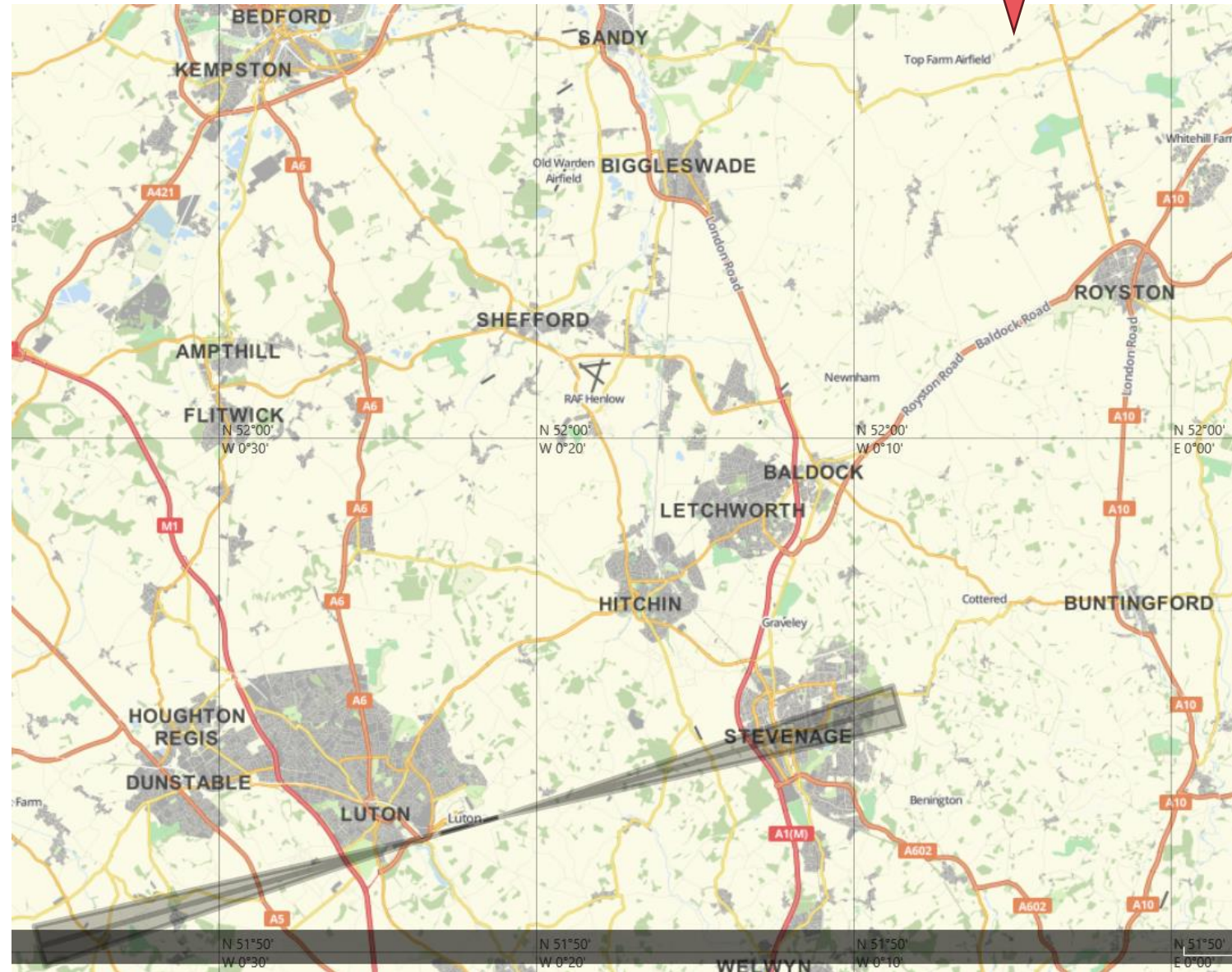
Introduction

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

The purpose of the monitoring programme is to understand the typical noise levels created in the local community. **For Croydon it specifically related to easterly and westerly arrivals. The final approach flightpaths are shown on the map.** The noise monitor was located at a residential property on High street at an altitude of 170 feet above sea level. The red pinpoint on the map shows the noise monitor location.

The noise monitor in Croydon was in place between the 25th September and 17th December 2024.

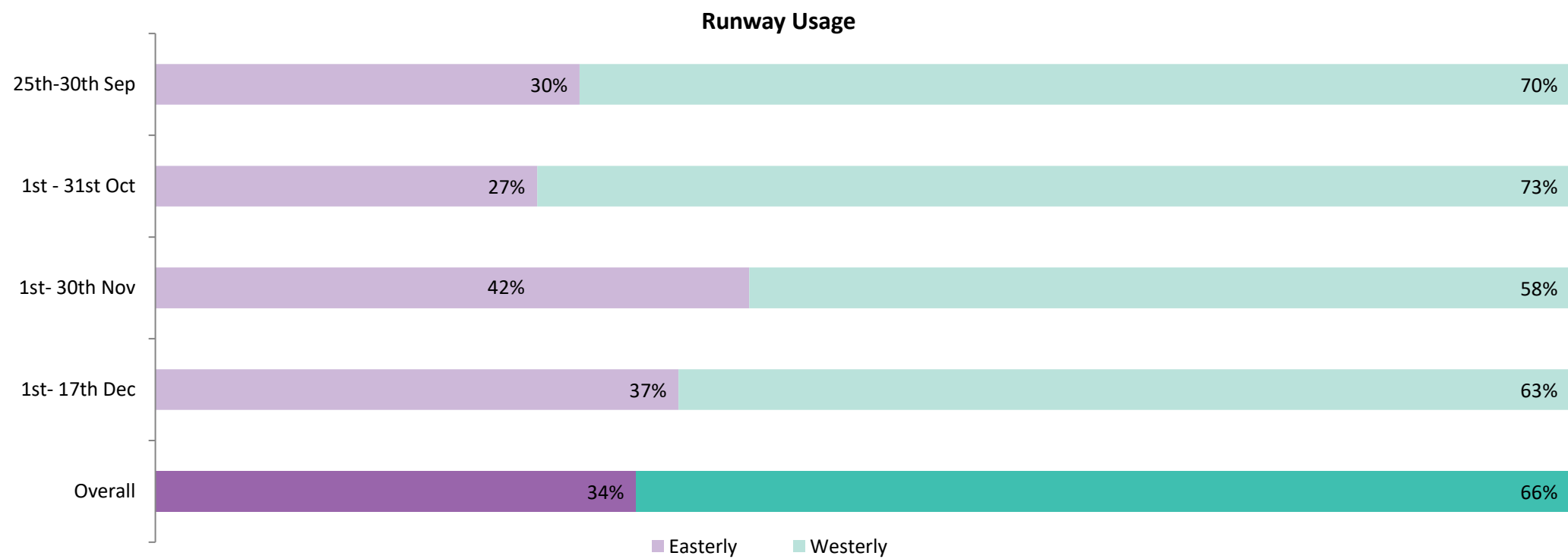
Aircraft noise and tracks recorded were extracted from LLA's noise and track-keeping system. This document evaluates the lateral and vertical positioning of aircraft near the monitor as well as the noise recorded at ground level.



LLA operations during the monitoring period

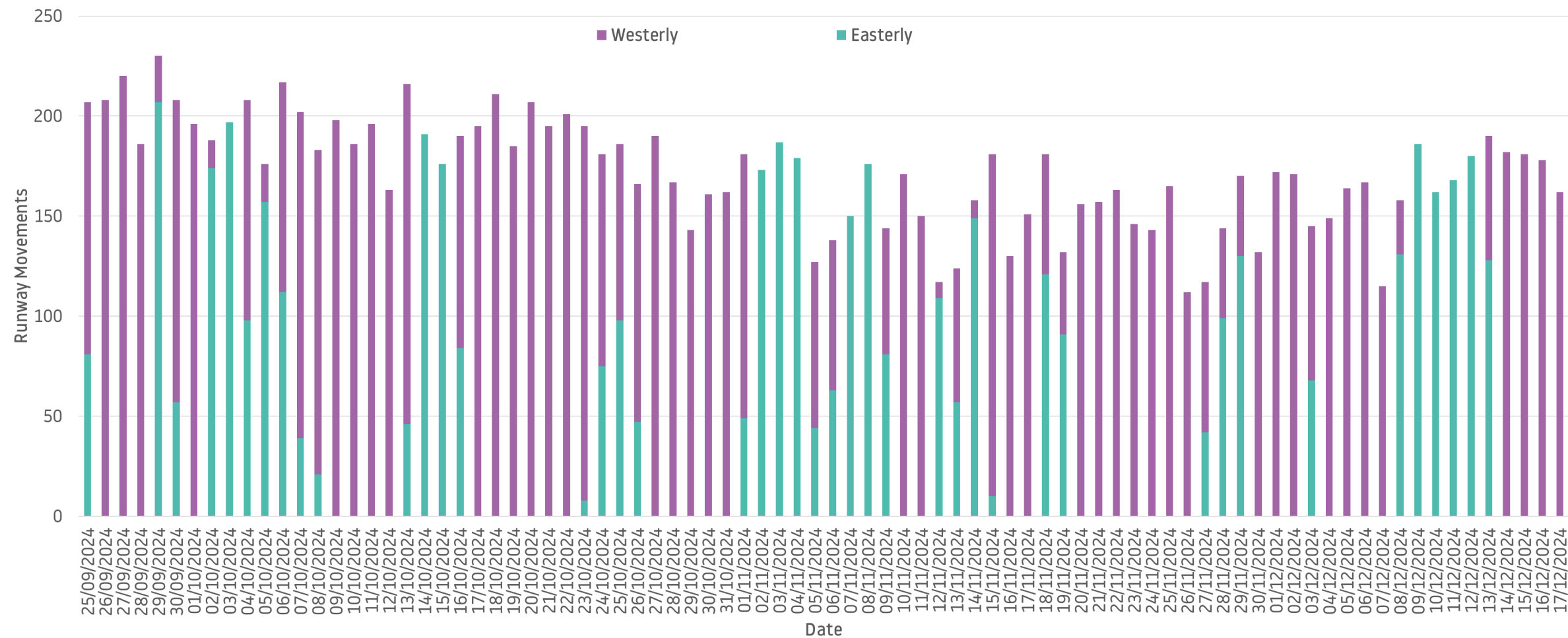
There are two operating directions at LLA. The operating direction depends on the wind direction as aircraft are required to take off and land into the wind for aircraft performance and safety reasons. These are known as easterly operations and westerly operations and can change the aircraft tracks nearby 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 37% Easterly and 63% Westerly. The 5-year average for this time of year is 26% easterly vs 74% westerly.



Daily Movements during monitoring period

The chart below shows the number of daily easterly and westerly arrivals that passed over the noise monitor. Due to the location, all flights that landed on our easterly and westerly runways would have flown above the noise monitor terminal. The graph shows the westerly arrivals (purple) as well as easterly arrivals (green).



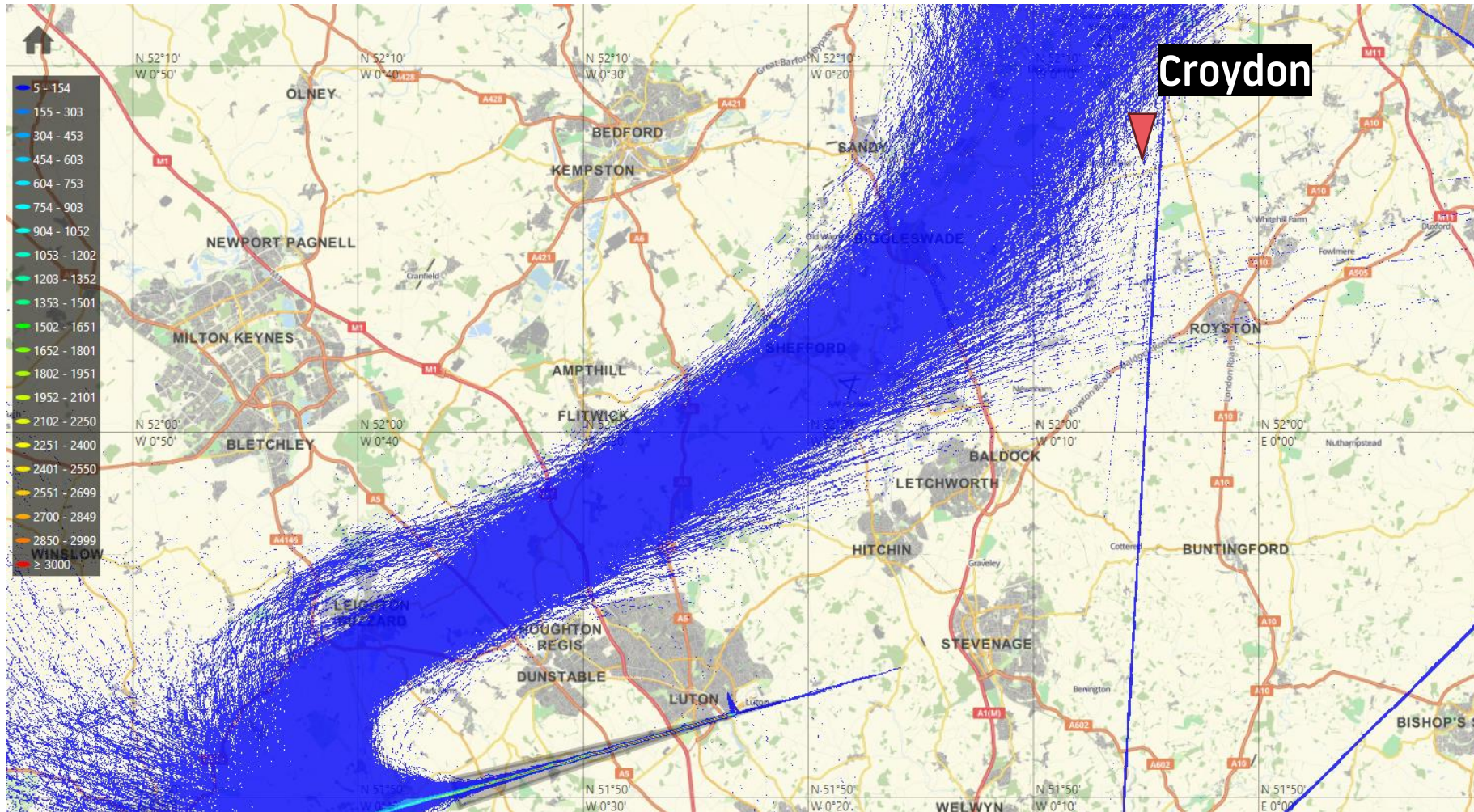
Operations during monitoring period

The graph below represents the average aircraft movement by hours during the monitoring period. Depending on the operating direction on the day, residents in Croydon may experience different flight patterns. During the peak periods, residents of Croydon may notice more frequent aircraft movements. In general, the morning peak starts at 7am on the days of arrival operations and more noticeable as the dwellings at this location are under the arrival's flightpath. During the night period of 23:00 – 06:59 in the monitoring period, there were an average of 40 arrivals.



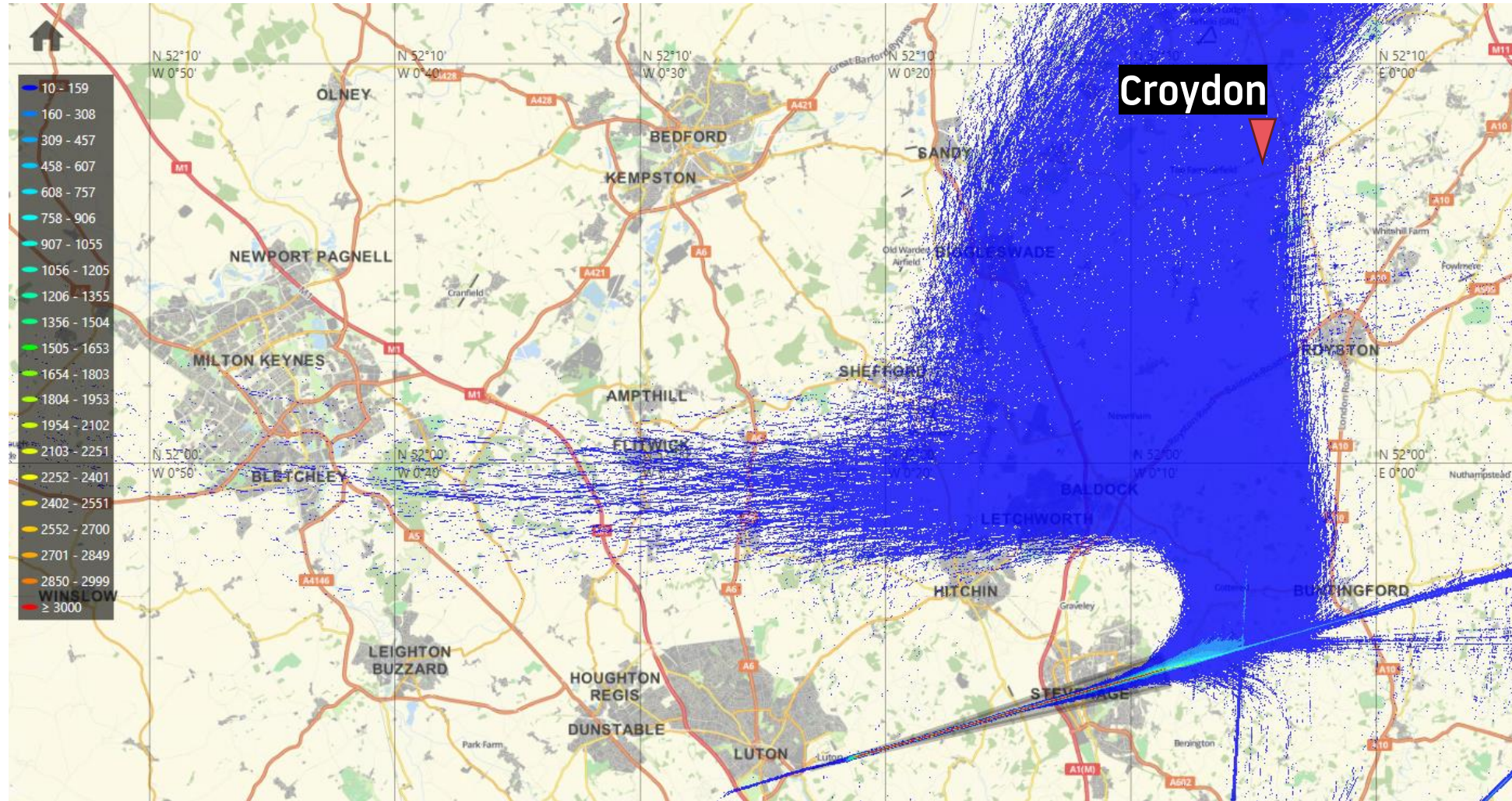
Aircraft Tracks

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 Croydon. This map shows the path of easterly arrivals.



Aircraft Tracks

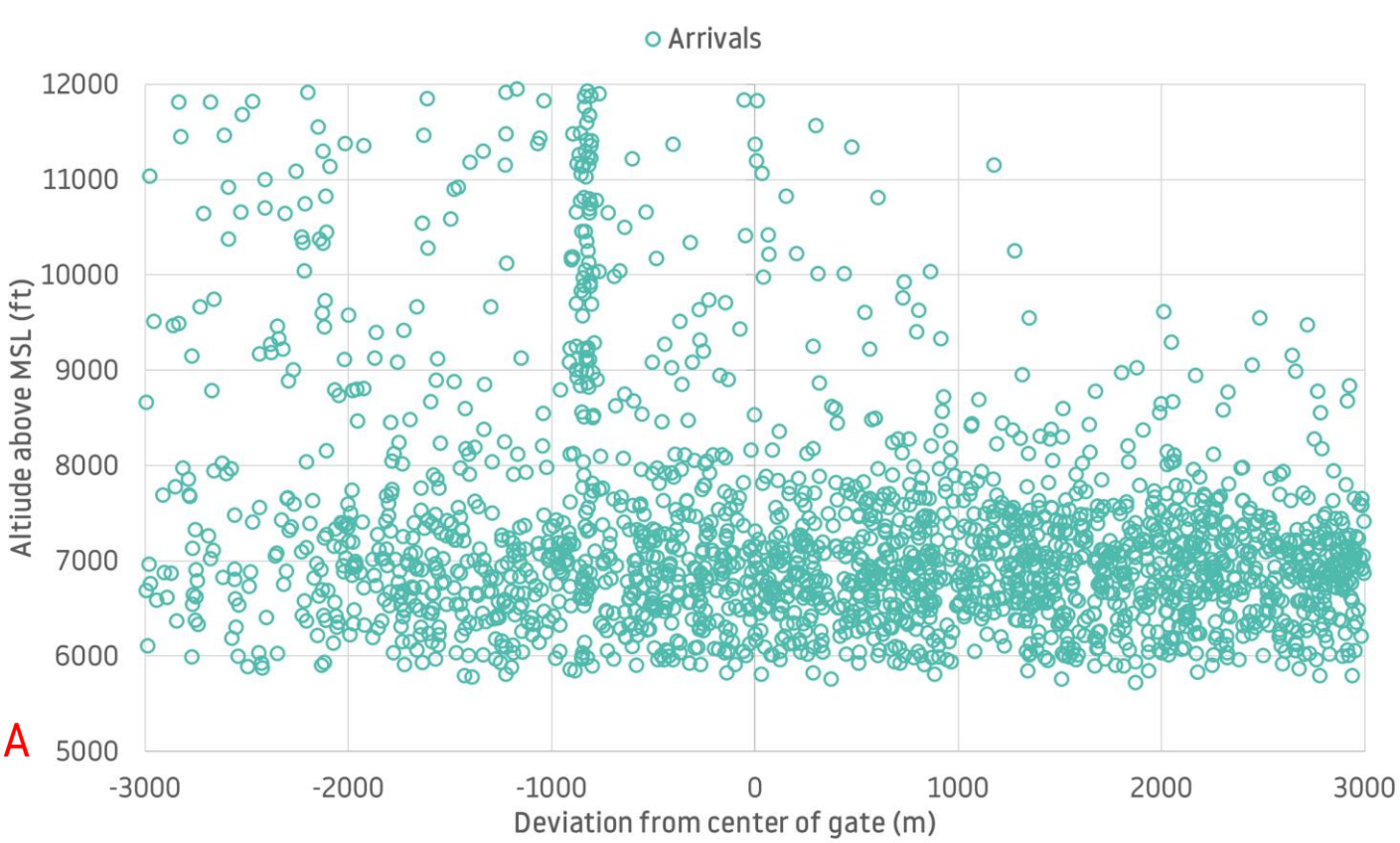
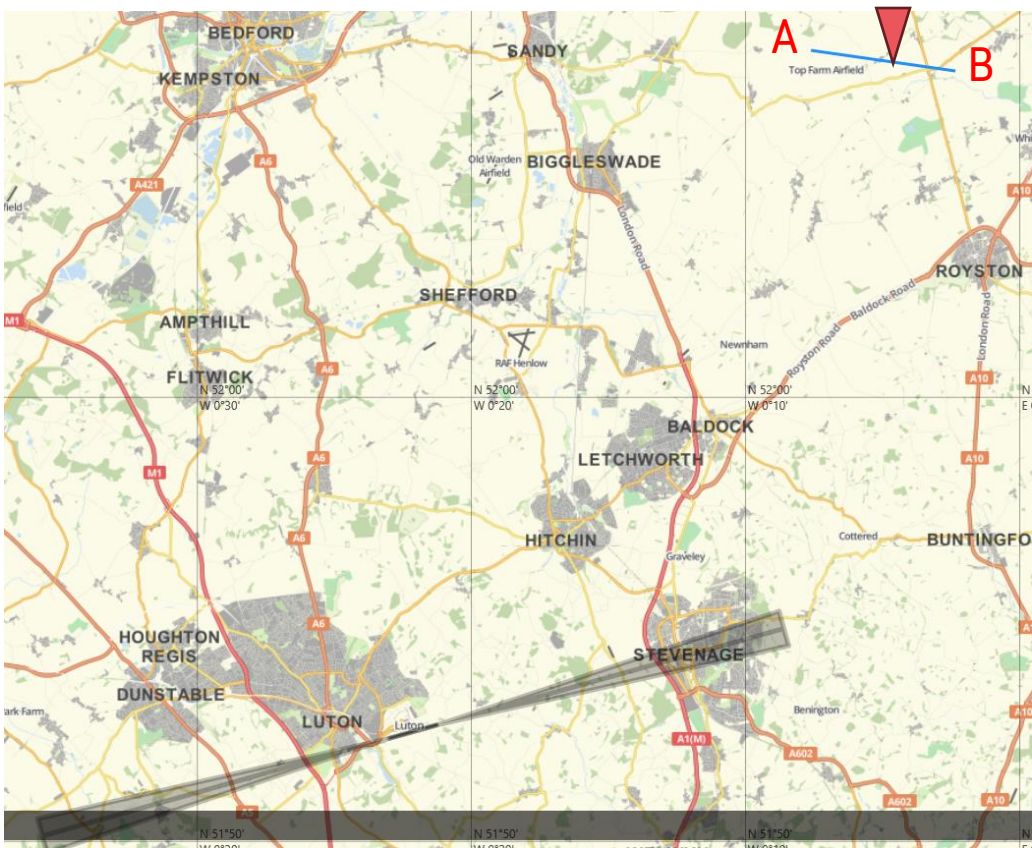
The heat map below shows the representative flight tracks that passed near the noise monitor terminals during the monitoring period. The red pinpoint indicates the location of the noise monitor in Croydon. This map shows the path of westerly arrivals.



Altitude Gate Analysis

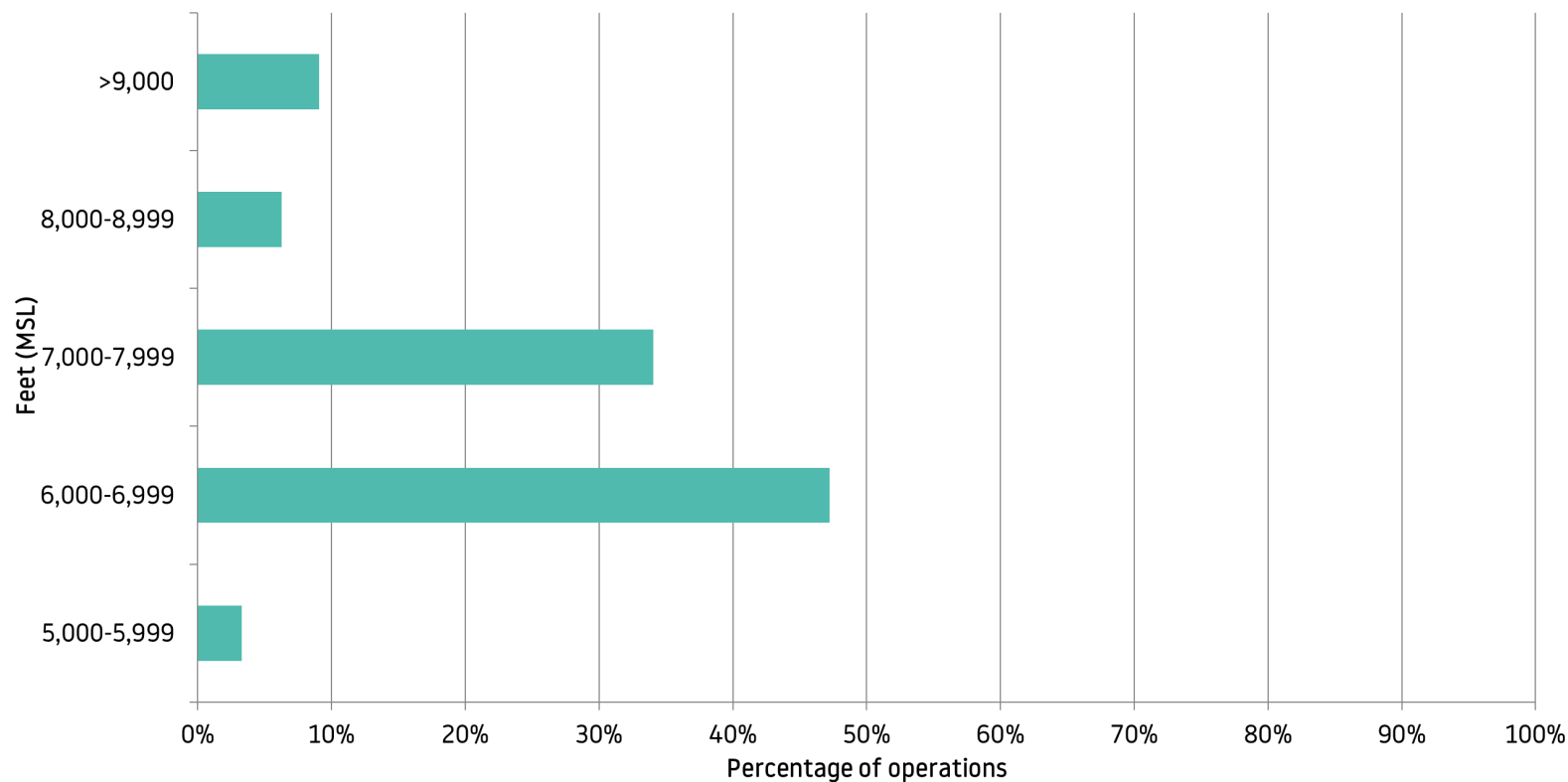
The altitude analysis for Croydon, shows the vertical and lateral dispersion of aircraft 3km either side of the noise monitor. The map below shows the 6km gate (blue line, top right of picture) which is drawn perpendicular to the NPR from northwest to southeast and it gathered information of every aircraft 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 Croydon will see aircraft flying near Croydon on the days of easterly and westerly operations for arrival aircraft.

Croydon



Altitude Gate Analysis – Arrivals

The average altitude of aircraft was 7,346 feet AMSL (7,174 feet AGL) when they reach above the noise monitor at Croydon. 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	13	7,190
A319	213	7,306
A320 CEO	374	7,329
A320 NEO (A20N)	264	7,352
A321 CEO	102	7,083
A321 NEO (A21N)	530	7,042
B737-800 NG (B738)	148	7,556
B737 Max 8 (B38M)	119	7,567
Global Express (GLEX)	46	7,367
Cessna 560X (C56X)	21	7,663
All	1,830	7,346

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 Croydon, the noise monitoring terminal collected 151 readings. During the period, there were 14,472 arrivals.

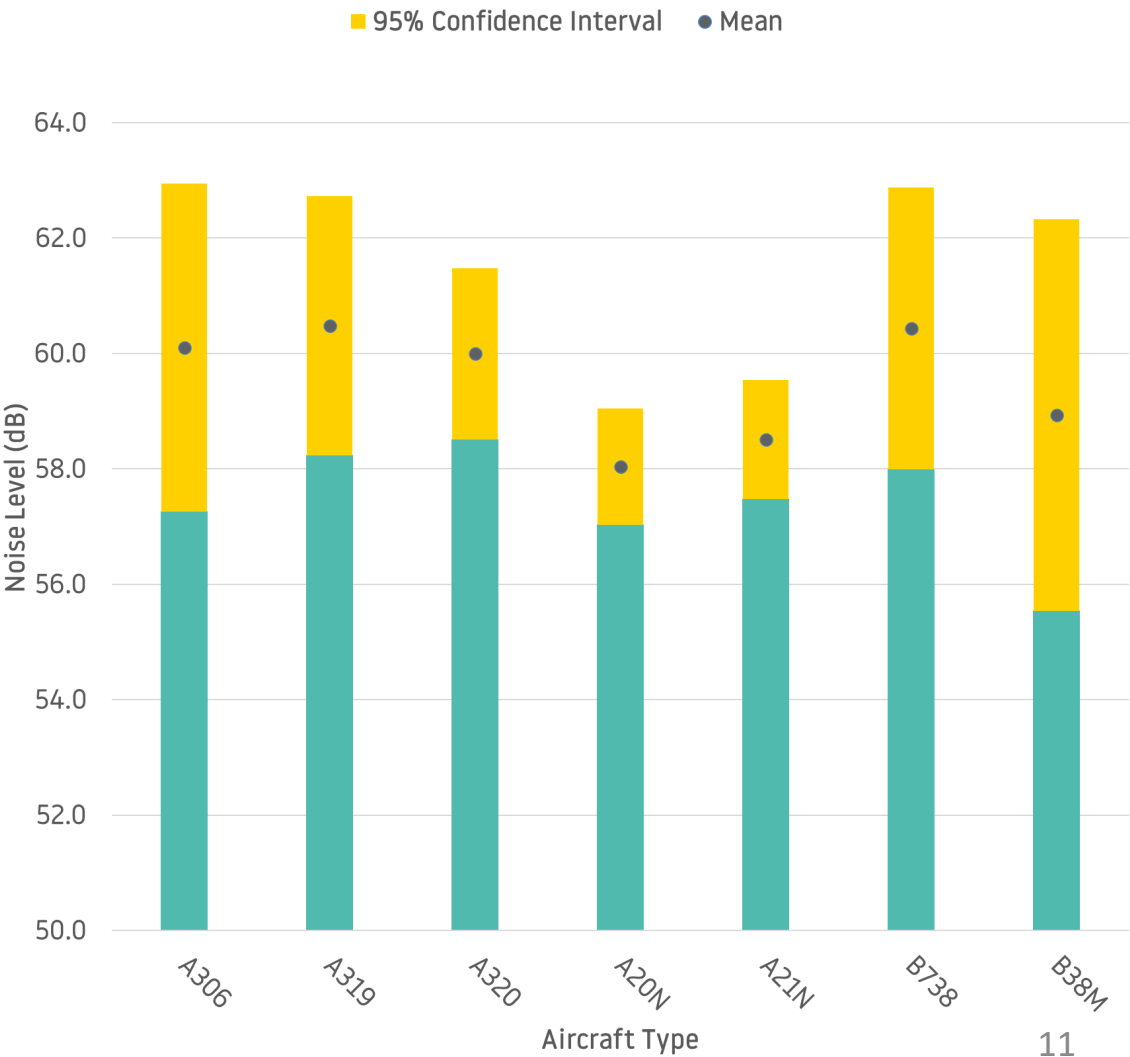
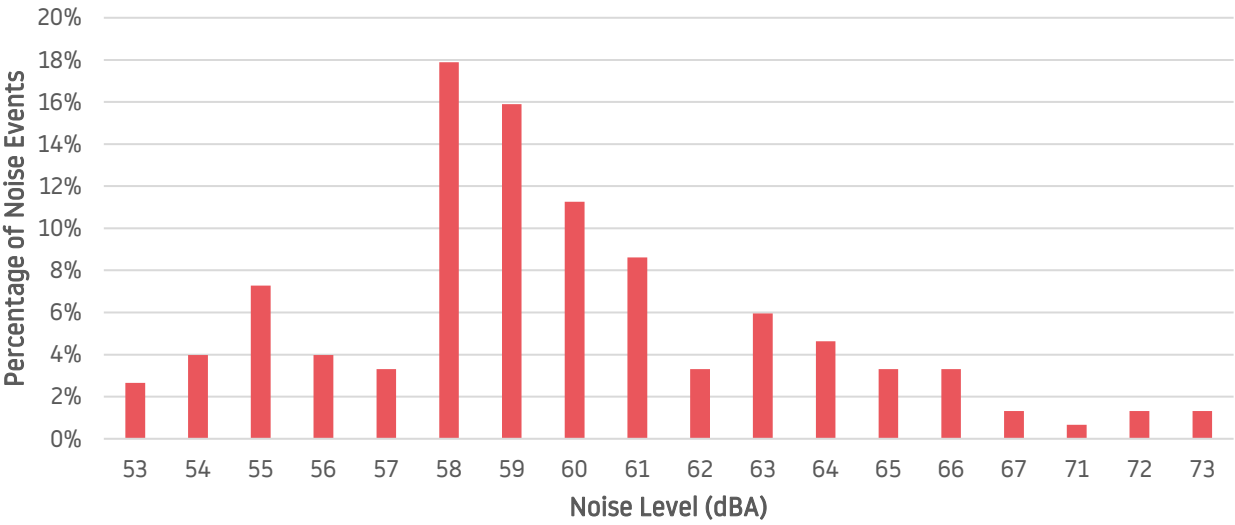
It is noteworthy that the noise monitor may not be able to record every aircraft noise event if the aircraft noise level is below ambient background noise or aircraft following a different route and not through the gate selected. Therefore, there may be a difference between the number of actual air transport 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 3,003 recordings were excluded from the analysis for the above reasons.

Noise Results – 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)
A306	3	60.3
A319	14	60.5
A320 CEO	21	60.0
A320 NEO (A20N)	26	58.0
A321 CEO	0	0
A321 NEO (A21N)	38	58.4
B737-800 NG (B738)	15	60.5
B737 Max 8 (B38M)	9	58.8
All	127	60.2



*The noise results shown in the analysis are only for those aircraft types that are most common.

Noise Results - Summary

- The average departure noise in Croydon was 60.2dB, based on a sample size of 127.
- From the results, Croydon’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 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 57% 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	60.0dB	A320N (A20N)	58.0dB (-2.0dB)
A321	N/A	A321N (A21N)	58.4dB (+0.0dB)
B738	60.5dB	B737 MAX8 (B38M)	58.8dB (-1.7dB)

Conclusion

- A mobile noise monitor was installed at a residential property on High street from the 25th September to 17th December 2024.
- For Croydon, it specifically related to arrivals. During the monitoring period, the airport operated in the direction of easterly and westerly for 34% and 66% 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 A321 NEO (A21N) which produced an average noise of 58.4dB for arrivals.
- 57% of the noise events recorded in Croydon were created by the newer generation aircraft, A320 NEO, A321 NEO and B737 Max 8. The A320 NEO registered average departing noise of 58.0dB, 2.0dB lower than A320 CEOs.
- During the monitoring period, 74 aircraft were investigated as part of the Noise and Track violation scheme. Of these, 21 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.

