Community Noise Report Caddington April – July 2019





Introduction

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

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

The noise monitor was located in Caddington between 26th April and 2nd July 2019.

The monitor's location was within the main easterly arrival corridor approximately 165m north of the route's centreline at an altitude of 528 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 39% Easterly and 61% Westerly. The 5 year average for this time of year is 42% Easterly vs 58% Westerly which demonstrates that residents in the area would have experienced decreased movements.

5,578 aircraft arrived on the Runway 08 Easterly arrival route whilst the monitor was located in Caddington.



Runway Usage

Daily Movements During Monitoring Period

The chart below shows the number of daily arrivals that passed the noise monitor. Due to the location of Caddington, all flights that landed on our Runway 08 whilst on easterly would have flown passed the monitor. During the monitoring period there were 28 days of Westerly 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 arrivals during the monitoring period. During the peak periods, local residents of Caddington may notice more aircraft. Peak periods were at 0700-0800, 1200-1400, 1700-1900 and 2200-2359.

During the night period of 23:00 – 06:00 there was an average of 29 arrivals compared to 29 for the previous year, showing there is no increase or decrease of 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 1.5km either side of the noise monitor. The chart below shows that 86% of flights were between 1,000-1,499 feet and most flights flew at around 154 metres south of the noise monitor, lined up towards Runway 08 at its final approach phrase. The average altitude of aircraft in this area was 1,473 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 Caddington the Noise Monitoring Terminal collected results for 5,333 aircraft. However, 245 aircraft did not register noise events as they were either too high or too quiet; or miscellaneous reasons such as go-arounds. 27 results were excluded for weather reasons as outlined above, which left 5,306 noise results to analyse which are shown in the next few pages.



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	54	80.1
A319	832	76.6
A320	1,704	75.8
A20N (A320 Neo)	213	74.7
A321	601	75.3
A21N (A321 Neo)	56	77.2
B738	626	77.2
C56X (Cessna Citation)	93	72.4
GLEX (Global Express)	167	70.3

The average noise in Caddington is 75.1 dB, based on a sample size of 5,306. 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 newer A320 NEO produced less noise than the A320 CEO. Although our other noise study found that the A321 NEO aircraft created significantly less noise than the A321 CEO on departures but this Caddington noise study found that the A321 NEO produced more noise (1.9 dB by average) than the A321 CEO on arrivals. That is due to the higher landing weight of the aircraft which means higher flap angle is needed to maintain a safe approach speed. That in turn increase the aerodynamic noise. From our Quarterly Report Q2 2019, the A321 NEO accounted for 1% of all air transport movements. The A306 was the noisiest aircraft type at Caddington during the monitoring period.



*The noise results shown in the analysis are only for those aircraft types that recorded more than 70 events per aircraft. (A306 & A321 Neo included for comparison)

Conclusion

- time period, and therefore residents would have experienced less noise during this period than in recent years.
- ulletthis.
- ullet77.2 dB respectively.
- ulletthe aerodynamic noise. At London Luton Airport, this aircraft type accounted for 1% of all air transport movements in Q2 2019.
- ulletwill typically be 945 feet above ground level in this area.
- ulletalso saw 14% of aircraft achieve altitudes between 1,500-1,999 feet.

During the monitoring period, the airport was using easterly operations for 39% of the time, this is less than the 5 year average of this

The main aircraft types operating at the airport are A320 & A319 therefore the aircraft flying in the vicinity of Caddington are in line with

5.1% of the noise events recorded were created by easyJet A320 NEO & A321 NEO aircraft, registering average noise events of 74.7 dB and

The newer A320 NEO aircraft was 1.1dB quieter than the A320 CEO aircraft on arrivals in Caddington. On the other hand, this Cardington noise study shows that the arrivals of A321 NEO aircraft created more noise than the A321 CEO aircraft, average by 1.9 dB, due to the higher landing weight of the aircraft which means higher flap angle is needed to maintain a safe approach speed. That in turn increase

The average altitude of aircraft in the area is 1,473 feet above sea level, and as Caddington is already 528 feet above sea level, aircraft

Above Caddington aircraft are typically between 1,000-1,499 feet, during the monitoring period this accounted for 86% of all aircraft. We



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 follow the arrival route from the direction of Caddington.

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 3km 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