Community Noise Report Hitchin March – May 2022







Introduction

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

The purpose of the monitoring programme is to understand the typical noise levels created in the local community. For Hitchin, it specifically related to the easterly OLNEY departure. The Noise Preferential Route (NPR) is shown on the map.

The noise monitor was located at a residential property on Bedford Road in Hitchin, approximately 2,900m northeast of the easterly Olney route's centreline (at its closest point), at an altitude of 226 feet above sea level. The red star on the map shows the noise monitor location.

The noise monitor in Hitchin was in place between 10th March and 5th May 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 60% easterly and 40% westerly. The yearly average is around 30% easterly and 70% westerly due to the prevailing wind from the west in England.

There were 889 aircraft which departed on the easterly Olney route whilst the noise monitor was located in Hitchin.



Runway Usage



Daily Movements

The chart below shows the number of daily westerly and easterly departures at LLA. Due to the location of Hitchin, most flights that departed on the easterly Olney route would have flown near the monitor. In Quarter 2 of 2022, only 4.6% of all departures flew the easterly Olney route. These were mostly Scottish, Irish and transatlantic flights.





Operations

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

During the night period of 23:00 – 06:00 in the monitoring period, there was an average of six easterly departures. However, most of these departures do not use the Olney route that fly near Hitchin.





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 Hitchin. For Hitchin, it specifically related to the easterly OLNEY departure. Once the aircraft reached above 3,000ft (4,000ft during the night time period 2300-0659), aircraft could be vectored for more direct routing by air traffic controllers.





Altitude Gate Analysis

The altitude gate analysis for Hitchin 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 NPR (at its closest point) from southwest to northeast and will gather 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. The easterly Olney Match noise preferential route (NPR) is labelled and displayed by the shaded area. Departing aircraft must remain within the NPR until reaching release altitude of 3,000ft during the day time period and 4,000ft during night time period. Due to the close proximity of Hitchin to the departure route, local residents may see aircraft flying above them.



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Altitude Gate Analysis

The bar chart shows the altitude spread when aircraft reach the noise monitor in Hitchin. For easterly departures, the average altitude of aircraft in this area was 5,339 feet above sea level (ASL) (5,113 feet above ground level [AGL]). It shows the majority of the flights departed on easterly Olney route were above 4,000 feet ASL which is above the ceiling altitude of the NPR. Flights could then be routed outside the NPR by air traffic controllers.



Perecentage of Operations



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 Hitchin, the noise monitoring terminal collected readings from 273 easterly Olney departing aircraft. During the period, there were total of 889 easterly Olney 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. 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.

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Noise Results

During the monitoring period, noise recording samples were gathered from the most popular aircraft types at London Luton Airport*. The summary of the results on easterly (Olney) departing aircraft noise is shown on this page and the following page. Due to the nature of the Olney route and LLA's serving destinations, there were only few main aircraft types that fly the Olney route.

Aircraft Type	Number of movements	Average Noise (dl
A319	64	64.2
A320	66	65.4
B738	100	64.9



*The noise results shown in the analysis are only for those aircraft types that recorded more than 50 events per aircraft.



Summary

- \bullet 34% of the time.
- ulletdepending on the destination.
- ulletnear Hitchin and all aircraft were within the NPR when aircraft were below 3,000ft.
- ulletaverage sound level of 64.2dB, 65.4dB and 64.9dB respectively on the days of easterly operation.
- During the monitoring period, no Olney departing aircraft was fined as part of the Noise and Track violation scheme. \bullet
- the LLA website https://www.london-luton.co.uk/corporate/community/noise.

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Aircraft taking off from LLA are required to follow specific flight paths called Noise Preferential Routes (NPRs), unless directed otherwise by air traffic control. The NPR release altitude is 3,000ft and 4,000ft during the day and night period. All jet aircraft must stay within the NPR when flying below the release altitude. Above this altitude, aircraft could be given a more direct route from air traffic controllers,

The average altitude of easterly departing aircraft in Hitchin is 5,339 feet above sea level (ASL), and as Hitchin is already approximately 226 feet ASL, aircraft will typically be 5,113 feet above ground level (AGL) in this area. Most aircraft were above 4,000ft when reaching

The main aircraft types that flew on the Olney route above Hitchin were the Airbus A319, A320 and Boeing B738 which produced an

• LLA published other monitoring reports on a regular basis. These reports can be viewed and downloaded from the LLA Noise webpage on

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 Olney departure route in the direction of Hitchin, depending on the flight destination.

Standard Instrument Departure (SID): Published route that an aircraft must follow on departure.

Noise Preferential Route: 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.

Gate Analysis: A 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.

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



Source: iosh.co.uk