LONDON LUTON AIRPORT

A11060-N35-DR

08 July 2019

SECTION 73 – Analysis of Differences between Actual and Forecast Contours

1.0 INTRODUCTION

London Luton Airport Operations Limited (LLAOL) are making a Section 73 application to Luton Borough Council (LBC) to vary Condition 10 of application reference 15/00950/VARCON. Condition 10 introduced a limit of 19.4 km^2 on the area of the 57 dB $L_{Aeq,16h}$ summer daytime noise contour and a limit of 37.2 km^2 on the area of the 48 dB $L_{Aeq,8h}$ summer night time noise contour.

The application seeks a temporary relaxation in these limits. The proposed limits are based on a 1 dB relaxation in both the current daytime and night time limits. This results in a 57 dB $L_{Aeq,16h}$ summer daytime noise contour area of 23.4 km^2 and a 48 dB $L_{Aeq,8h}$ night time contour area of 44.1 km^2.

Bickerdike Allen Partners LLP (BAP) produced air noise contours which were included in the Environmental Statement (ES) prepared to accompany the application. The forecast contours were smaller than the proposed limits, and in the case of the daytime were slightly smaller than the current limit. This note sets our why the limits being applied for are greater than what is forecast.

2.0 HISTORICAL VARIATION

It is generally accepted that forecast noise contours represent a best estimate of future noise based on the information available at the time. Many factors can lead to differences between actual and forecast contours for a given year. These include changes in the noise level of aircraft since the forecast, unanticipated changes to operating procedures or differences between the actual and forecast number of movements or fleet mix.

Each year LLAOL publish in their Annual Monitoring Report (AMR) forecast contours for the year ahead as well as actual contours for the previous year. The areas of the key summer daytime and night time contours for the last 4 years are presented in Table 1 below.

Year	57 dB $L_{Aeq,16h}$ Summer Daytime Contour Area, km^2		48 dB $L_{Aeq,8h}$ Summer Night Time Contour Area, km^2	
	Actual	Forecast	Actual	Forecast
2015	17.2	16.5	35.3	36.6
2016	19.2	18.8	36.5	36.3
2017	19.0	20.7	38.7	40.2
2018	19.4	19.4	40.2	39.6

Table 1: Comparison of actual and forecast contour areas

As shown in the table above the forecast contour areas have generally been fairly close to the actual contours, and where there are differences there have been both over and under predictions. In some cases the magnitude of the differences have been relatively significant, such as in 2017 where the difference between the actual and forecast daytime contours was 1.7 km^2 and at night the difference was 1.5 km^2.

3.0 NOISE CONTOURS

Since the ES was submitted new contours have been produced based on the latest forecasts. The areas of the 2019 contours presented in the ES are compared to the latest 2019 contours in Table 2 below.

Noise Contour	Contour Area, km^2	
	2019 ES	2019 Latest
57 dB $L_{Aeq,16h}$ Daytime	18.8	21.3
48 dB $L_{Aeq,8h}$ Night Time	42.7	37.1

Table 2: Comparison of 2019 ES and latest forecast contour areas

The latest 2019 contours differ from those presented in the ES, with the daytime contours being larger and the night time contours being smaller. Part of the reason for this difference is the airport's action plan. Due to when they were originally produced, the 2019 ES contours do not take account of the action plan restrictions, whereas the latest 2019 contours do allow for them. The action plan is expected to result in some flights moving from the night time into the daytime.

4.0 DISCUSSION

There is an inherent uncertainty in forecast contours for a number of reasons. Comparing actual and forecast contours at LLA since 2015 finds that although generally small, the differences have been as high as 1.7 km^2.

When deciding on what limits to apply for, a key factor was ensuring that any proposed limits would not be subsequently exceeded. In order to achieve this LLAOL have allowed for some buffer above what is forecast to occur, although they do not intend to use it.

Two sets of forecast 2019 contours have been produced with somewhat different areas, underlining the inherent variability of forecasts contours. The largest forecast daytime and night time contour areas are 21.3 km^2 and 42.7 km^2 respectively. Allowing for the 1.7 km^2 historical variation between forecast and daytime contour areas would therefore result in contour areas similar to the proposed contour area limits of 23.4 km^2 and 44.1 km^2 for the daytime and night time respectively.

Duncan Rogers
for Bickerdike Allen Partners

David Charles
Partner