Liverpool John Lennon Airport
Faster. Easier. Friendlier.

Environment

Summary Noise Action Plan

Environmental Noise (England) Regulations 2006 (as amended)

Environment Team – July 2024

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1.0 Introduction

1.1 Context

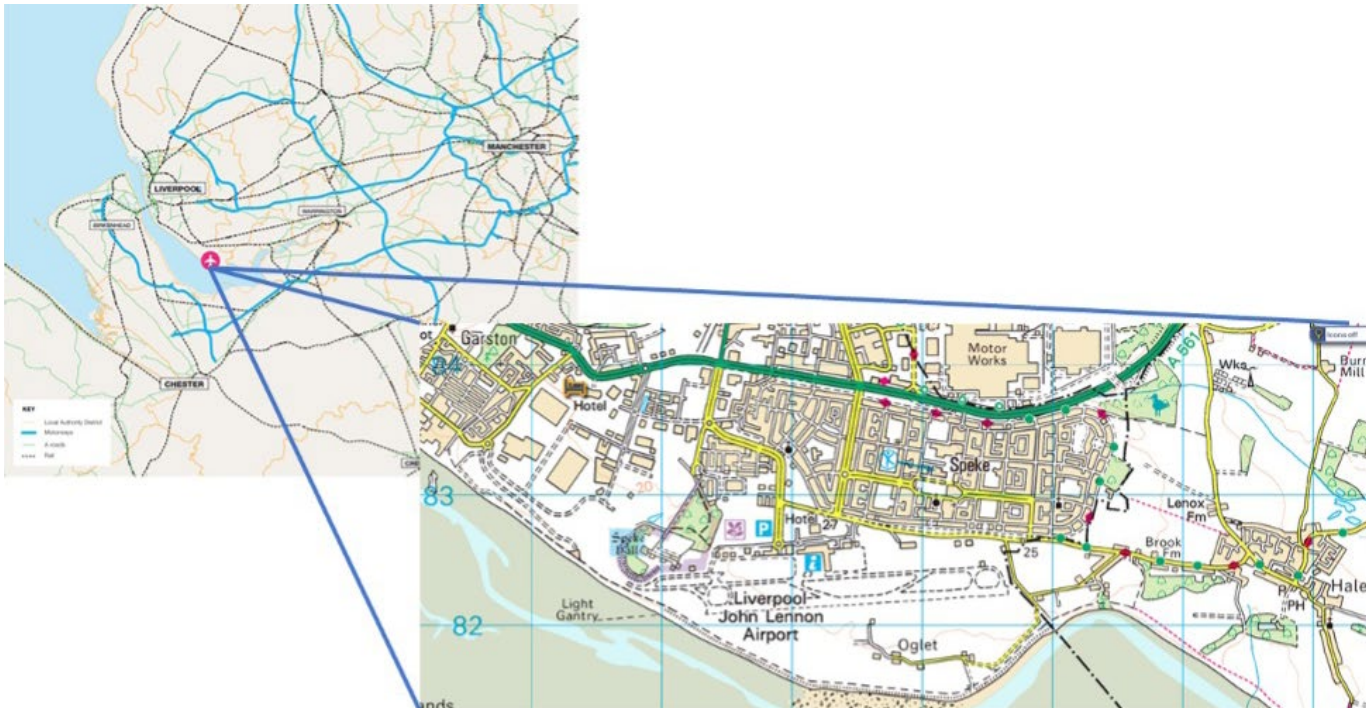
Noise Action Plans are a legal requirement under Directive 2002/49/EC relating to the Assessment and Management of Environmental Noise. The requirements of the Directive were transposed from the European Commission Directive 2002/49/EC into the Environmental Noise Regulations (England) 2006 (as amended), which also includes a requirement for Airports to produce Strategic Noise Maps. Once produced, the Strategic Noise Maps and Noise Action Plan must be reviewed every five years, or following a major development, affecting the noise situation. Liverpool Airport Limited, as operator of LJLA, is the competent authority for airport aviation noise.

1.2 Airport Location & Ownership

Liverpool John Lennon Airport is located 6 nautical miles to the southeast of Liverpool City Centre on the northern banks of the Mersey Estuary. The airport's neighbours include the residential communities of Speke to the north and Hale Village to the east, within the Borough of Halton. To the northwest, LJLA borders Liverpool International Business Park on the old northern airfield, and the grounds of Speke Hall which is a National Trust property with a significant number of visitors. Further to the north are the communities of Garston and Allerton. To the south, between the runway and the estuary, is agricultural land known as the Oglet containing the operational Air Traffic Control Tower and radar installation.

The airport is owned by Ancala Partners (47.5%), The Peel Group (47.5%) and Liverpool City Council (5%).

Figure 1: The location of Liverpool John Lennon Airport



1.3 Airport Facts

The operational site of LJLA extends to around 207 ha (511 acres). The runway and its associated taxiway is aligned east-west across the southern part of the site.

The current runway (09/27) is 2,285m long and 46m wide. The main aircraft stands provide capacity for 28 aircraft and are situated towards the north western part of the site with a separate facility for General Aviation aircraft to the north eastern part of the site. CAA statistics show that in 2021, the year of the noise modelling LJLA had a total of 32,904 aircraft movements aircraft movements, of which 13,404 were air transport movements (commercial aircraft) and small number of military movements and served approximately 1.17 million passengers. This is a 52% reduction in aircraft movements compared to 2016 when the Airport had 67,896 aircraft movements.

2.0 Strategic Noise Mapping

2.1 2021 Mapping

LJLA instructed Bickerdike Allen Partners (BAP) as independent aviation acoustic experts to undertake the Strategic Noise Mapping for LJLA as outlined in Statutory Instrument 2006 No. 2238 The Environmental Noise (England) Regulations 2006. The year used for the mapping was 2021, which was impacted by the Covid-19 pandemic travel restrictions.

2.2 Publication of the Maps

The LJLA maps were published by Defra along with those from 18 other UK Airports. These were submitted by the respective airports and have been amalgamated by Defra with similar noise maps for road and rail noise to give an overall picture of the noise impact from transport sources. These can be reviewed on the Defra website (http://www.extrium.co.uk/noiseviewer.html).

2.3 Population and Dwelling Exposure Statistics Tables

The maps were presented as noise contours, and were assessed for a number of noise parameters relating to the average noise level in decibels over specific periods of time. The estimated total area, number of people and dwellings exposed above various noise levels from the strategic mapping of noise from aircraft using this airport are shown in the tables 1 to 6. The dwelling and population counts have been provided by Defra, and have been rounded the number of dwellings to the nearest 50, whilst the population has been rounded to the nearest 100.

Table 1 Area of Aircraft Noise Contour (km2)

Noise Level (dB)	Area of Aircraft Noise Contours (km2)				
	L_{den}	L_{night}	$L_{Aeq,16hr}$	L_{day}	$L_{evening}$
≥ 48		5.2			
≥ 51		2.7			
≥ 54		1.4	5.7	6.2	4.2
≥ 55	7.3				
≥ 57		0.8	3.1	3.3	2.2
≥ 60	2.5	0.5	1.7	1.8	1.2
≥ 63		0.3	1.0	1.0	0.7
≥ 65	1.0				
≥ 66		0.2	0.6	0.7	0.4
≥ 69			0.4	0.4	0.3
≥ 70	0.4				
≥ 75	0.2				

Table 2 Estimated total number of people and dwellings above various noise levels, L_{den}

Noise Level dB	Number of Dwellings	Number of People
≥ 55	950	2100
≥ 60	<50	<100
≥ 65	0	0
≥ 70	0	0
≥ 75	0	0
≥ 55	950	2100

Table 3 Estimated total number of people and dwellings above various noise levels, L_{day}

Noise Level dB	Number of Dwellings	Number of People
≥ 54	700	1500
≥ 57	<50	<100
≥ 60	<50	<100
≥ 63	0	0
≥ 66	0	0
≥ 69	0	0

Table 4 Estimated total number of people and dwellings above various noise levels, $L_{evening}$

Noise Level dB	Number of Dwellings	Number of People
≥ 54	≥ 54	≥ 54
≥ 57	≥ 57	≥ 57
≥ 60	≥ 60	≥ 60
≥ 63	≥ 63	≥ 63
≥ 66	≥ 66	≥ 66
≥ 69	≥ 69	≥ 69

Table 5 Estimated total number of people and dwellings above various noise levels, $L_{Aeq, 16h}$

Noise Level dB	Number of Dwellings	Number of People
≥ 54	≥ 54	≥ 54
≥ 57	≥ 57	≥ 57
≥ 60	≥ 60	≥ 60
≥ 63	≥ 63	≥ 63
≥ 66	≥ 66	≥ 66
≥ 69	≥ 69	≥ 69

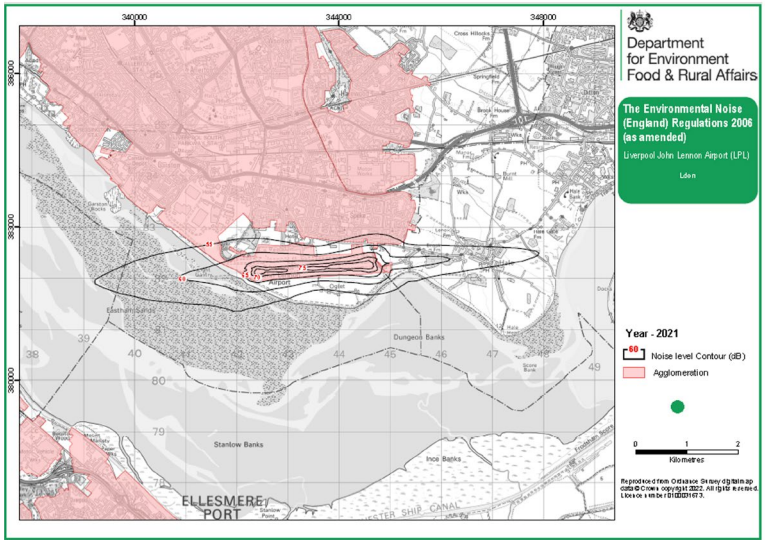
Table 6 Estimated total number of people and dwellings above various noise levels, L_{night}

Noise Level dB	Number of Dwellings	Number of People
≥ 48	350	800
≥ 51	<50	<100
≥ 54	<50	<100
≥ 57	0	0
≥ 60	0	0
≥ 63	0	0
≥ 66	0	0

Figure 1 is an example of the strategic noise maps for LJLA showing the noise contour map for L_{den} which is the L_{Aeq} over 24 hours, but with the evening (19:00 to 23:00 hours) values weighted by the addition of 5 dB(A) and the night (23:00 to 07:00 hours) values weighted by the addition of 10 dB(A).

Figure 2 Map showing L_{den} Noise Contours for Liverpool John Lennon Airport

Data Source: Airport Noise Action Planning Data Pack 2023 Liverpool Airport (EGGP) Date: January 2023



3.0 Consultation

3.1 Noise Monitoring Sub Committee Consultation

The Noise Action Plan for LJLA was presented to the Noise Monitoring Sub Committee of the Airport Consultative Committee in 2023/24 before submission to Defra. LJLA has taken into consideration comments received from the Noise Monitoring Sub Committee and Airport Consultative Committee to amend the Noise Action Plan.

The Noise Action Plan once adopted by Defra will be published on the Liverpool Airport website. All future views, both positive and negative will continue to be taken into consideration along with current national and local policy, social and economic benefits in order to come to a balanced view on how to take the Noise Action Plan forward. The consultation does not end once the Noise Action Plan is adopted, if practical new policies can be introduced between the revisions of the NAP.

4.0 Managing the Noise at LJLA

4.1 Chapter 3 & 4

The aviation industry has an unparalleled record of successful innovation over the past 40 years. Improvements in aircraft technology and design have resulted in a reduction of an aircraft's noise of greater than 20 dB. All commercial aircraft currently operating in the UK and EU must comply with the ICAO Chapter 3 noise standard. From 2006, all newly designed or manufactured aircraft must comply with the tighter Chapter 4 standard, which represents a 10 dB reduction on measurements for Chapter 3 aircraft. As older noisier aircraft are phased out of use and replaced by modern, quieter aircraft, this will bring further noise improvements for each individual aircraft movement.

4.2 The Rules of the Air

All civil aircraft must fly within the guidelines of the Air Navigation Orders (ANO) and the Rules of the Air Regulations (RoA) which are the responsibility of the Civil Aviation Authority's Aviation Regulation Enforcement team. The RoA are diverse, complex and the vast majority are not related to noise impacts of aircraft. The section most relevant is that which relates to low flying aircraft. Rule 5 – in the RoA gives the indications of the expected minimum height restrictions placed upon aircraft operators:

Except when necessary for take-off or landing, or except by permission from the competent authority, a VFR flight shall not be flown:

- Over the congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 300 m (1000 ft) above the highest obstacle within a radius of 600 m from the aircraft;
- Elsewhere than as specified above, at a height less than 150 m (500 ft) above the ground or water, or 150 m (500 ft) above the highest obstacle within a radius of 150 m (500 ft) from the aircraft.

4.3 The UK AIP Instructions

The UK AIP is the official source of information on the UK's airspace and airports. The AIP is made up of three parts: General, En-Route and Aerodromes. LJLA has its own AIP with detailed charts and data. Part of the textual data is Noise Abatement Procedures. These Noise Abatement Procedures are shown below in italic text. Some slight changes have been made to the text to help ease of reading.

4.3.1 UK AIP Text

4.3.1.1 Least Disturbance

Every operator of aircraft using the aerodrome shall ensure at all times that aircraft are operated in a manner calculated to cause the least disturbance practicable in LPL Controlled Airspace.

4.3.1.2 Inbound Aircraft

Inbound aircraft, other than light aircraft flying under VFR or Special VFR, shall maintain a height of at least 2000 ft. above aerodrome level until cleared to descend for landing. Aircraft approaching without assistance from ILS or radar shall follow a descent path which will not result in its being at any time lower than the approach path which would be followed by aircraft using the ILS glide path, and it is recommended that aircraft join final approach at not less than 3 nm.

4.3.1.3 Runway 27 Departures

After take-off all aircraft of more than 5700 kgs (12,500 lbs) MTWA shall climb straight ahead at maximum rate to 1000 ft aal before turning.

4.3.1.4 Runway 09 Departures

Between 2300 and 0700 (winter) 2200 and 0600 (summer), Runway 09 will only be available for take-off when overriding operational considerations necessitate its use, e.g. performance requirements. After take-off the initial turn onto outbound heading shall be commenced as soon as practicable, but not below 500 ft aal and not before passing the end of the runway.

4.3.1.5 All Departures

After completion of the initial turn onto outbound heading, all turbo-jet powered aircraft shall reduce power for noise abatement purposes so as to maintain a rate of climb of at least 500 ft per minute at power settings which will ensure progressively decreasing noise levels at points on the ground under the flight path.

4.3.1.6 Definition of the Summer Period

Summer for the purpose of this report is the period of British Summer Time whist winter is the period between the end of British Summer Time in one year and the start of British Summer Time in the next.

4.3.1.7 Continuous Descent Approach

Turbo-fan and turbo-prop aircraft are expected to apply continuous descent, low power; low drag approach techniques where practical to do so. Subject to ATC instructions, inbound aircraft are to maintain as high an altitude as practical and adopt a low power, low drag, continuous descent approach profile. ATC will provide estimated track distance to touchdown to allow pilots to descend at a rate they judge best suited to achieve continuous descent without using more power or drag than necessary. The object will be to join the glide path at the appropriate height for the distance without level flight.

4.3.1.8 Approach Speed

To facilitate these techniques aircraft should be flown no faster than 250 kt from the Speed Limiting Points and below FL100 with a 250-210 kt during the intermediate approach phase. Thereafter speed should be managed to achieve a continuous descent using as little power or drag as possible. ATC may impose speed control if required to manage separation between aircraft.

4.3.1.9 Reverse Thrust

To minimise disturbance in areas adjacent to the aerodrome, Flights Crew shall avoid the use of reverse thrust after landing unless necessary for the safe operation of the aircraft, especially between 23:00 and 06:00 (local time).

4.4 Quota Count

As part of its Section 106 Planning Agreement with Liverpool City Council LJLA also manages a Night Quota Count System (QCS). Each type of aircraft is given a separate 'Quota Count' value for landing and take-off, based upon the noise levels measured at the time when that aircraft type was first certified. There are seven QC categories and these double with each increase of 3 decibels. Aircraft are assigned Quota Counts (QC) for arrival and departure.

4.4.1 Recording of Quota Count
LJLA monitors and records all quota count points accrued by aircraft movements in the quota period. The annual limit of quota points is 18,000 per annum. The Night Quota Period is from 2330 hours to 0600 hours and is based on the historical Quota Count system developed for the designated London airports. The LJLA Night Quota period is different from the END night period which is 23:00 to 07:00.

4.4.1.1 Military Aircraft
Military aircraft which regularly visit LJLA are exempt from the Quota Count Scheme.

4.4.2 Aircraft movement restrictions
A further element of the Quota Count Scheme is the restriction on movements of aircraft with QCS of QC/8 and QC/16. The restrictions are as follows:

- Between 2300-2330, aircraft with quota count of QC/8 and QC/16 must not be scheduled to take-off or land;
- Between 2330-0600, aircraft with quota count of QC/8 and QC/16 must not take-off or be scheduled to land;
- Between 0600-0700, aircraft with quota count of QC/16 must not take-off or be scheduled to land.

4.5 Engine Testing

Aircraft engine testing is subject to the approval of the Airport Authority and shall only be permitted between the hours of 0700 and 2300 (local). Outside these hours, engine testing will not be permitted other than in exceptional operational circumstances. Engine test for main apron aircraft above 50% must be undertaken at "Yankee" to maximise the distance from the communities of Speke and Hale Heath.

4.6 Preferred runway

LJLA has one runway that can be used in two directions, i.e. the aircraft can approach from the east and depart towards the west (Runway 27) or diametrically opposed (Runway 09). The orientation of runway use is selected by Air Traffic Control (ATC) primarily based on wind speed and direction at the Airport to ensure safe, stable operations of aircraft as they approach or depart. When possible the preferred runway (Runway 27) is used for departing aircraft to minimise noise impact. When aircraft depart towards the west on Runway 27, there is advantage for natural noise mitigation as there are no properties within the first 5.8 kilometres of the aircraft flight, because of the large expanse of the Mersey tidal estuary.

4.7 Noise Monitoring Sub Committee

LJLA has a Noise Monitoring Sub Committee with membership of professional officers, elected members, Airport representatives and community groups, the main role of which is to:

- Be a technical sub-committee of the LJLA Consultative Committee to advise on noise matters.
- Meet when required (but at least quarterly).
- To consider issues related to the Airport's noise impact on the local environs and communities.

The members of the sub-committee are there encourage improvements and question, as well as being a vehicle for two way communication. The group does not have executive powers.

4.8 Airport Noise and Operations Management System (ANOMS)

The Airport Noise and Operations Management System (ANOMS) enables LJLA to report accurately the altitude, position, aircraft type and noise generated by each aircraft movement. The ANOMS system collects information from three main sources being Noise data from the Noise Monitoring Terminals (NMT) at Hale, Eastham and the Portable NMT, Secondary Surveillance Radar (SSR) from NATS at Manchester Airport and the Airport's Operation Database (Hive) provides information about the aircraft using LJLA such as the aircraft type, airline, origin or destination which can be correlated with the track data to make the information easier to interpret.

4.9 Standard Instrument Departure routes (SIDs)

LJLA recognises that a balance of social and environmental benefits is gained by concentrating aircraft along the least possible number of routes. The practice of concentrating departures along a limited number of routes is consistent with airspace management best practice. The overriding need is to ensure the safe separation of aircraft which is assisted by concentrating air traffic along a limited number of routes. Departing aircraft from LJLA, with the general exception of General Aviation (GA) aircraft fly the Noise Preferred Routes (NPR) which are a swathe up to 1.5 km either side of the nominal centre line of the Standard Instrument Departure routes (SIDs) up to an altitude of 3000 feet.

4.10 Sound Insulation Grant Scheme (SIGS)

LJLA operates a SIGS for eligible properties determined on noise exposure criteria:

- Within a day-time 63 dB L_{Aeq}, t=16hrs hours noise exposure contour from airborne aircraft noise, or
- Within a night-time 59 dB L_{Aeq}, t=8hrs noise exposure contour from airborne noise reducing to 55 dB in the future subject to further growth and development.
- The SIGS grant is an 80% contribution with the airport company expense capped at £3000 per property for glazing and ventilation, £400 for loft insulation and £135 for blinds.

4.11 Complaints recording and investigations

LJLA takes all complaints about environmental noise seriously. The Environment Team is responsible for responding to enquires and complaints received from the local community, regulatory authorities, interest groups or other organisations. An enquiry or complaint can be made by telephone, letter, facsimile, email or the complaint form on the website.
Every noise complaint received by LJLA is investigated using a range of information sources, but primarily the Airport Noise & Operations Management System (ANOMS). All the noise complaints received by LJLA are collated and reported by the Environmental Team to the Noise Monitoring Sub Committee and Airport Executive Team on a quarterly basis.

5.0 Potential Future Mitigation Measures

5.1.1 Maintain and Improve

LJLA in conjunction with other competent authorities will continue to maintain and seek to improve its noise abatement procedures where practical and safe to do so. The tables in the next section "Actions Liverpool John Lennon Airport will take" set out the future mitigation measures.

Table 7 Actions Liverpool John Lennon Airport are proposing to undertake

Action	Type of Impact	Performance Indicator
Airline fleet improvements	Arrivals Departures	Average aircraft noise movement reduction to be reported against 2021 levels.
Night-time QC4 phase out between 2024 & 2027/8	Arrivals Departures	Average aircraft noise movement reduction to be reported for 2021 levels.
SIGS enhancement	Arrivals Departures	Increase the level of grant available for eligible properties – the qualification will remain the same 63 dB(A) daytime and 59 dB(A) night-time by 2025.
Formal Annual Workshop with airlines	Arrivals Departures	Introduction of a scheme to phase out QC4 aircraft movements at night with exception of emergencies/humanitarian aid, significant sporting and cultural events by 2027/28.
Continue to be part of Sustainable Aviation Partners and seek to develop Best Practise to minimise noise impact and investigate implementation options at LJLA.	Arrivals Departures	Individual aircraft noise reduction at LJLA and other airports.
Continue to recognise that a balance of social and environmental benefits is gained by concentrating aircraft along the least possible number of routes (SIDS).	Arrivals Departures	Review national guidance with ATCS every 2 years and co-operate with other local airports and NATS as part of a larger regional review in the future to further enhance performance.
Maintain a quota count system and record all quota count points accrued by aircraft movement in the quota period.	Arrivals Departures	The annual limit of quota points 18,000 per annum. The Airport Company will report its quota usage in an annual report to the NMSC.
Work with Operations Planners to ensure where practical the noisiest aircraft are not scheduled to arrive or depart in the night quota period.	Arrivals Departures	Using Hive/Targit reports a monthly search will be carried out to find any aircraft which contravened these restrictions and investigate the reason why.
Continue to ensure that Runway 27 is the preferred runway of choice.	Arrivals Departures	Monitor runway use and report annually to the NMSC.
Ensure that the Airport Noise & Operations Management System (ANOMS) is maintained and calibrated for credibility.	Arrivals Departures Over Flights	The Airport will ensure regular checks are maintained to ensure the data provided is as accurate as possible. Annual calibration of the system will also be carried out by the manufacturer.

Action	Type of Impact	Performance Indicator
Encourage the avoidance in the use of reverse thrust at night. The part of the Liverpool agglomeration touched by the noise contours is an area of Speke. These areas lie parallel to the runway and as such are rarely directly over flown. A proportion of the disturbance that is caused to these areas will be from ground noise such as reverse thrust on landing.	Arrivals Ground Noise	To minimise disturbance in areas adjacent to the aerodrome, LJLA will encourage pilots to avoid the use of reverse thrust after landing, consistent with safe operation of the aircraft, especially between 23:00 and 06:00 (local time).
Continue to ensure every operator of aircraft using the aerodrome operates in a manner which causes the least disturbance practicable in areas surrounding the aerodrome.	Arrivals Departures Ground Noise	Review the UK AIP every year to ensure it has relevance to any development at the airport and report to the NMSC. Report this to the Airlines through the Flight Safety Committee quarterly.
In the future if any households fall within the airports 69db L_{Aeq} noise contour, LJLA will, in line with Government policy, offer a relocation assistance scheme	Arrivals Departures Ground Noise	No Households currently lie in the 69db Leq,t=16hours noise contour; the airport will continue to review its noise mapping every 2 years.
Increase the altitude of aircraft arriving on a transition between the hold and the base leg for the final approach	Arriving Noise	ACP delivery in 2028, with an increase in altitude of aircraft profile before joining the base leg for runway 27.
Monitor all aircraft engine testing which shall only be permitted between the hours of 0700 and 2300 (local).	Ground Noise	Records will be kept of the engine tests and the times of these tests will be monitored. Outside these hours engine testing will not be permitted other than in exceptional operational circumstances. The number and power of the test will be reported to the NMSC.
Continue to engage with the Noise Monitoring Sub Committee (NMSC).	Community Responsibility	The NMSC will meet 4 times per year and will have leading role in the development of the Noise Action Plan. The Airport will ensure that at every meeting a Noise Log of all complaints received prior to the meeting is presented for scrutiny and consideration.
Monitor as far as practical any complaints regarding aircraft outside of the Airport's immediate boundary to ensure they operate within the Rules of the Air Regulations.	Community Responsibly	Working with the ATSP and using the NM&TKS ensure aircraft are over the heights specified in the Rules of the Air Regulations when not arriving or departing the airport. Any infringements will be investigated and reported to the CAA as the regulator.
Continue to offer an answer phone number; email address & web form for complaints and enquiries services for aircraft noise and other environmental enquires.	Community Responsibly	Number of complaints received will be recorded and presented to the NMSC. Complainants will receive an appropriate response attempting to answer the enquiry with factual objective information.
LJLA will do all that is reasonably practical to safeguard any quiet areas identified from exposure to aircraft noise due to the operations of LJLA if this does not compromise the safe and efficient operation of the aerodrome.	Community Responsibly	Regulation through END, and directions and guidance provided by Defra and DfT.
LJLA will benchmark our noise mitigation and compensation measures with other comparable airports in 2025.	Community Responsibly	Table showing the ranks of the comparable airport will be produced within an appropriate noise report to the NMSC.

Action	Type of Impact	Performance Indicator
Continue to log all complaints relating to aircraft operations and publish the statistics annually.	Community Responsibly	All complaints will be logged and presented into the NMSC and published statistically in the Annual Noise Report on the LJLA website.
Seek to respond to 100% of all complaints and enquiries within 14 working days.	Community Responsibly	As part of the Report we will show the percentage of complaints responded to within the 14 days.
Continue to engage with the Local Planning Authorities to ensure awareness of aircraft operations is considered in the development of sensitive land use.	Land Use Planning	Maintain the interactions with the Local Planning Authorities and have a seminar for Local Authority Planners and Environmental Professionals to enhance noise and safeguarding understanding.

6.0 Noise Action Plan Review

The Strategic Noise Maps should be produced every 5 years for all agglomerations near all major roads which have more than 6 million vehicle passages a year, major railways which have more than 60,000 train passages per year and major airports with more than 50,000 annual aircraft movements. The Noise Action Plan will be reviewed at regular intervals (at least every 5 years) and revised if necessary, for example when a new development affects the existing noise levels.

7.0 Conclusions

LJLA has prepared this Noise Action Plan as required under the Environmental Noise (England) Regulations 2006 (SI 2006/2238). This Noise Action Plan is produced based on the results of noise mapping for the Airport based on 2021 aircraft movements as required by Defra. The main purpose of the Noise Action Plan is to establish the noise impact of the airport, and to consider whether the current noise control measures are sufficient to adequately protect the local community, particularly those worst affected. An assessment of LJLA's noise impact has been carried out based on:

- Relevant guidance and legislation.
- The current noise impact of operations at LJLA shown by the results of the END Strategic Noise Maps.
- The significant noise control measures already in place at the Airport.

The assessment has found that the environmental noise impact of existing operations at the airport, based on both the noise contours, subject to the implementation of the measures described in the Noise Management Section of this summary are acceptable.