

**Aberdeen International
Airport**



Noise Action Plan

2018-2023

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Foreword by Roger Hunt Chief HR & Development Director

Aberdeen International Airport has been at the heart of this region for more than 80 years.

We provide an essential service to a host of different industries and sectors, whilst our share of the leisure market continues to grow. Our facilities are always improving in line with our capital programme and we work every day on improving the customer experience.

Operating such an important national asset comes with responsibilities, and in talking to our neighbouring communities and other stakeholders, I know that airport related noise is an important issue for many people. Managing noise effects is an integral part of how we grow the airport responsibly in a manner which balances the positive economic and social benefits of the airport and some of the more negative effects such as noise.

That is why we have introduced a comprehensive package of noise related measures over a number of years. In this Noise Action Plan we are proposing a number of additional noise related measures. I want this plan to build upon this success and continue our progress. Managing noise will only be achieved by effective partnerships, and I am confident that this updated Noise Action Plan provides a firm foundation to move forward.

Executive Summary

This document sets out Aberdeen Airport's Noise Action Plan which aims to manage and, where practical, reduce the adverse effects of aviation related noise. The preparation of a Noise Action Plan is a requirement of the European Union (EU) Environmental Noise Directive 2002/49/EU and The Environmental Noise (Scotland) Regulations 2006. Aberdeen Airport has produced this Noise Action Plan to update and replace the 2013-2018 Noise Action Plan. The Noise Action Plan will be the subject of a six-week public consultation and, once finalised following engagement with stakeholders and communities, will operate from 2018-2023.

This plan covers noise created by airside operations, aircraft approaching to and departing from the airport, taxiing aircraft and engine testing carried out within the airport perimeter. The regulation of aircraft noise is relatively complex with a number of decision-making bodies. A summary of the policy and regulatory framework is provided in Section 4 to explain matters that we are directly responsible for and those matters that are out with our direct control and which we can therefore only influence.

We recognise that noise from aircraft operations can be an important issue for local communities. Minimising and mitigating the adverse effects of noise is an integral part of how we operate and grow the airport responsibly. Importantly, the assessment of aviation noise and adverse effects has recently been subject to significant changes in UK Government policy and we have taken this into account in our Noise Action Plan.

The airport has developed a package of measures over a number of years designed to minimise and mitigate the total adverse effects of noise. In updating our Noise Action Plan we are using the opportunity to take into account the latest research and policy on adverse effects of aviation noise.



“We recognise that noise from aircraft operations can be an important issue for local communities. Minimising and mitigating the adverse effects of noise is an integral part of how we operate and grow the airport responsibly.”

Noise Action Purpose

3.1 Purpose

The purpose of the Noise Action Plan is to set out our plan to manage, and where practical, reduce the adverse effects of aviation noise. This Noise Action Plan is an update to the 2013-2018 Noise Action Plan and, following a 6 week public consultation and engagement with stakeholders and communities, will operate from 2018-2023.

At Aberdeen International Airport we recognise that aircraft noise can be an important issue for local communities. Although aircraft noise cannot be eliminated, it can be managed responsibly. We support the Air Navigation Guidance objective to limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise. This means balancing the positive social and economic benefits of Aberdeen Airport with any adverse effects on local communities.

This Noise Action Plan therefore sets out our plan to manage and, where practical, reduce the adverse effects of aircraft related noise. It builds upon years of progress in developing mitigation measures in consultation with our neighbours and stakeholders.

3.2 Scope

This Noise Action Plan complies with the European Union (EU) Environmental Noise Directive 2002/49/EU (END) and associated UK government regulations. The airport operator (Aberdeen International Airport Limited) is deemed the competent authority for preparing the Noise Action Plan. Guidance from UK government states that Noise Action Plans should be designed to manage noise issues and effects arising from aircraft departing from and arriving at the airport, including noise reduction if necessary.

Though other noise sources (such as 'ground noise' from airport activities) are not required to be included, the guidance suggests that this should not preclude their inclusion.

Our Noise Action Plan therefore also covers aircraft taxiing to and from stands and engine testing carried out within the airport perimeter.

3.3 Airport Description

Aberdeen International Airport is the gateway to Europe's energy capital and the world's busiest heliport. Confidence is returning to the region and we have clear vision for the future, and the confidence to realise it.

The airport serves approximately 3.1 million passengers every year and offers flights to over 40 destinations. The airport is the world's busiest commercial heliport, supporting the North Sea oil and gas industry to serve around 400,000 helicopter passengers every year. The airport is operational 24 hours a day, 365 days per year for fixed wing flights. Helicopters are allowed to operate from 0600 to 2230 hours.

With almost 3,400 jobs supported by the airport across the north-east, Aberdeen International Airport is a vital economic driver for the region, contributing more than £110 million a year to the local economy.

The airport is located approximately seven miles north west of Aberdeen city centre. It is bounded to the north and south by open farmland, to the west by Kirkhill Industrial Estate and to the east by the village of Dyce. The airport is the north east of Scotland's principal transport gateway and it performs a critical function in Aberdeen's role as Europe's energy capital. Indeed, supporting this thriving industry has turned Aberdeen into the busiest commercial heliport in Europe. The history of Aberdeen airport dates from 1934, when land at Dyce was acquired for the development of a public aerodrome.

"Aberdeen International Airport is the gateway to Europe's energy capital and the world's busiest heliport. Confidence is returning to the region and we have clear vision for the future, and the confidence to realise it."

During the Second World War the airport was primarily used as a military air base. Oil-related helicopter movements commenced in 1967 and the current main terminal and associated facilities were completed in 1977. The airport is redeveloping its main terminal building, extending its square meterage by 50%. The redevelopment is a rolling three year programme starting in 2016, anticipated to complete June 2019.

3.4 Consultation

The launch of this noise action plan will be followed by a public consultation. The final version of the Noise Action Plan will be published by the end of 2018 and incorporate a record of consultation responses and how Aberdeen Airport has

taken these into consideration. If you would like to take part in the consultation, you can do so by writing to:

Noise Action Plan Consultation
Aberdeen International Airport Ltd
Dyce,
Aberdeen
AB21 7DU

Or by email to:
ABZnap@aiaairport.com

The public consultation will last for a total of six weeks

For details of the consultation, please see www.aberdeenairport.com/about-us/community-matters/noise/



Noise Action Framework

The management of aircraft noise relies heavily on National and International initiatives and regulation imposed by:

- The International Civil Aviation Organization (ICAO);
- The European Union;
- The UK Government;
- The Scottish Government;
- Local authorities; and
- Aberdeen International Airport itself.

4.1 The icao and the 'balanced approach'

The International Civil Aviation Organisation (ICAO) is a specialised agency of the United Nations, created to promote the safe and orderly development of international civil aviation throughout the world. It sets standards and regulations necessary for aviation safety, security, efficiency and regularity, as well as for aviation environmental protection. After a Standard is adopted it is put into effect by each ICAO member state in its own territories.

ICAO recognises that aircraft noise is the most significant cause of adverse community reaction related to the operation and expansion of airports and it requires all of its member states to adhere to an

approach to managing aircraft noise known as the 'Balanced Approach'. The Balanced Approach aims to address noise management in an environmentally responsive and economically responsible way, and encompasses four principal elements:

- 1 reduction of noise at source;**
- 2 land-use planning and management;**
- 3 noise abatement operational procedures; and**
- 4 operating restrictions on aircraft.**

Our Noise Action Plan embraces the Balanced Approach and the plan outlined in Section 8 adopts this format. Aircraft operating in member states must conform to these standards, which are known as 'Chapters'. The Chapters set maximum acceptable noise levels for different aircraft under specific test conditions. Chapter 2 aircraft have been banned from the EU since 1st April 2002, unless they are granted specific exemptions.

The vast majority of civil aircraft now operating therefore fall within Chapters 3 and 4, i.e. they have a smaller noise footprint than the previous Chapter 2 aircraft. All new aircraft manufactured from 2006 onwards must meet the requirements of Chapter 4. From 2017, a new

noise standard with increased stringency (Chapter 14) is in force for high-weight aircraft with the new standard becoming effective for low weight aircraft from 2020.

4.2 European Union

There are several European Union directives and regulations that apply to the regulation of aircraft noise.

- EC Directive 92/14/EEC banned Chapter 2 aircraft from landing in the EU from 1st April 2002.
- EC Directive 2002/30 introduced discretionary powers to restrict the operation of marginally compliant Chapter 3 aircraft, provided circumstances support this measure. The directive also requires the adoption of the ICAO Balanced Approach to Noise Management and the publication of an environmental noise objective for the airport.
- EC Directive 2002/49 (known as the 'Environmental Noise Directive') requires member states to publish noise maps and noise management action plans for major airports (more than 50,000 movements a year) every 5 years.

The four principal elements



1 reduction of noise at source



2 land-use planning and management



3 noise abatement operational procedures



4 operating restrictions on aircraft

- Regulation (EU) No.598/2014 of the European Parliament and of the Council of 16 April 2014 on the establishment of rules and procedures with regard to the introduction of noise related operating restrictions at union airports within a Balanced Approach and repealing Directive 2002/30/EC.

4.3 UK Government

The UK Government plays an important role in setting policy for aviation noise management. The Civil Aviation Acts of 1982 and 2006 granted the UK Government and its airports the power to

introduce mitigation and noise control measures. The 2013 Aviation Policy Framework (APF) set out the challenges of noise control at airports, and noted the Government's recognition of the Balanced Approach principle of aircraft noise management. More recently, the UK Government has published, and consulted on, its Airspace Policy (AP) framework. The Government's consultation response on the AP provides an update to the some of the policies on aviation noise outlined in the APF and should be viewed as current Government policy. The Government has also published the Air Navigation Guidance 2017 which provides guidance to the

CAA on its environmental objectives when carrying out its air navigation functions, and to the CAA and wider industry on airspace and noise management. Importantly the AP sets out a range of new proposals that the Government will implement that are relevant to the Noise Action Plan:

- Changes to aviation noise compensation policy;
- The creation of an Independent Commission on Civil Aviation Noise (ICCAN); and
- New metrics and appraisal guidance to assess noise impacts and their impacts on health and quality of life.

“a pragmatic approach to the location of new development within the vicinity of existing noise generating uses to ensure that quality of life is not unreasonably affected and that new development continues to support sustainable economic growth.”

4.3.1 Changes to aviation noise compensation policy

The Government has proposed a number of changes to aviation noise compensation policy in order to improve fairness and transparency. We support these proposals and have taken them into account in the development of our Noise Insulation Scheme.

4.3.2 The independent commission on civil aviation noise

The Government has proposed the creation of an Independent Commission on Civil Aviation Noise (ICCAN). ICCAN will be responsible for creating, compiling and disseminating best practice to the aviation industry on the management of civil aviation noise and will be responsible for advising government in this area. We support these proposals and will carefully consider any best practice guidance published by ICCAN that is relevant to Aberdeen International Airport.

4.3.3 New metrics and appraisal guidance for assessing noise impacts

Long term exposure to environmental noise such as road, rail and aircraft noise can lead to impacts on health and quality of life. This is recognised and addressed in noise policy which aims to avoid, mitigate and minimise the adverse impacts of noise in health, in the context of sustainable development.

Thresholds for noise assessment are defined in current government policy in terms of the Lowest Observable Adverse Effect Level (LOAEL). The LOAEL is the level above which adverse effects on health and quality of life can be detected. Current policy proposes a Lowest Observable Adverse Effect Level (LOAEL) of 51 dBLAeq,16hr based on the most recent large-scale research study in the UK on aircraft noise (Survey of Noise Attitudes 2014: Aviation, SoNA).

4.4 Scottish government

The Environmental Noise (Scotland) Regulations 2006 transpose and implement the Environmental Noise Directive (2002/49/EC). The Planning Advice Note 1/2001: Planning and Noise provides advice on the role of the planning system in helping to prevent and limit the adverse effects of noise, including “a pragmatic approach to the location of new development within the vicinity of existing noise generating uses to ensure that quality of life is not unreasonably affected and that new development continues to support sustainable economic growth”.

Aircraft Noise and Its Effects

5.1 Introduction to aircraft noise

Broadly speaking, aircraft noise can be categorised in two parts: air noise and ground noise.

5.1.1 Aircraft 'air noise'

Air noise from aircraft is generally caused by air passing over the aircraft's airframe (fuselage, wings and underframe) and noise from the engines. When air passes over the airframe it causes friction and turbulence which results in noise. Engine noise is created by the sound of the engine's moving parts and by the sound of air being expelled from the engines at high speeds. The degree of noise generated varies according to aircraft type and size. Aircraft manufactured today are generally much quieter than they have been in the past and the ICAO set increasingly stringent certification standards for aircraft noise emissions. As a result, the aircraft fleet at Aberdeen International Airport are becoming increasingly quieter.

5.1.2 Aircraft 'ground noise'

Ground noise is any noise produced by aircraft whilst on the ground and is often related to the following activities:

- Aircraft travelling (taxiing) between the runway and stands (where

- they park), including holding;
- Aircraft at their stands with their auxiliary power units (APU) running; and

- Engine testing. Ground noise impacts tend to be limited to those areas closest to the airfield where they can be more prominent relative to air noise.

Engine testing is an essential part of airport operations. Engines need to be tested for safety reasons, and engine running forms part of the maintenance programme for aircraft. We understand that this noise can cause disturbance to residents closest to the airfield and therefore we adopt measures to reduce the impact on the community. We do not allow engine testing during the night, unless required due to exceptional circumstances.

5.2 Measuring and assessing aircraft noise

Measuring sound and describing its impacts or effects is an inherently complex process. Some individuals find noise more disruptive than others. Any attempt to define and measure sound, particularly as a single number, therefore has limitations, and cannot fully capture the spectrum of personal experiences of noise. However, seeking to

quantify sound is essential to managing the noise challenge. There is not a single metric that meets all needs for assessing, quantifying or communicating noise effects and there is a need to use a number of different metrics. For example, some metrics are better correlated with health effects, whilst other metrics can be more useful for communicating and understanding impacts, or for use in performance management monitoring. The key metrics used in the Noise Action Plan are summarised below.

5.2.1 The $LA_{eq,t}$ (equivalent continuous sound level) metric

There are a range of metrics which are used to describe sound and inform policy relating to aircraft, rail and construction noise. The most common international measure of noise is the LA_{eq} , meaning 'equivalent continuous sound level'. This is a measurement of the total sound energy over a period of time. It is easiest to think of this as an average, but important to note that all the sound energy in the time period is captured by this metric. In the UK, daytime aircraft noise is typically measured by calculating the equivalent continuous sound level in decibels (dB) over 16 hours (07:00 to 23:00) to give a single daily figure ($LA_{eq,16hr}$).

air noise

Aircraft noise can be categorised in two parts...

ground noise



Night-time aircraft noise is most typically measured over an 8 hour night period (23:00 to 07:00). The average noise exposure is commonly calculated for the 92 day summer period from June 16th to September 5th. The summer day period is used because people are more likely to have their windows open or be outdoors, and because aviation activity is generally at its most intense during the summer periods. Separate assessment for day and night recognises that daytime and

night-time noise can lead to quite different effects (principally daytime annoyance and night-time sleep disturbance) and thus it is better to define and measure daytime and night-time noise separately.

5.2.2 The L_{den} (day evening night equivalent sound level) metric

The day evening night equivalent sound level (L_{den}) noise metric is a 24 hour noise metric that applies a 5 dB(A) penalty to noise during the

evening (19:00 to 23:00) and a 10 dB(A) penalty to noise during the night (23:00 to 07:00), reflecting relatively higher sensitivity to noise during these periods. L_{den} is frequently used to quantify aircraft noise in Europe as it was adopted as a common environmental noise indicator for the European Union in the Environmental Noise Directive (2002/49/EC) for road, rail and industrial sources as well as aircraft noise. It is typically calculated over a full calendar year.

Noise Management at Aberdeen International Airport

Aberdeen International Airport has been an integral part of the social and economic welfare of Aberdeen and the north east of Scotland for over 40 years and in the heart of the region for more than 80 years, providing vital connectivity for people, goods and services; as a business it supports in excess of 3,400 jobs. As well as the benefits provided by the airport, we also recognise that aircraft noise can be an important issue for local communities. Although the noise generated by the airport cannot be eliminated, it can be managed responsibly.

We support the UK Government's objective to minimise and where possible reduce the number of people affected by aircraft noise, where it is sustainable to do so. This means balancing the positive social and economic benefits of Aberdeen International Airport with any adverse effects on local communities.

This Noise Action Plan therefore sets out our plan to manage and, where practical, reduce the adverse effects of airport related noise. It builds upon years of progress in developing mitigation measures in consultation with our neighbours and stakeholders. Importantly, this Noise Action Plan introduces some significant updates and additions to our current mitigation measures, in

line with the latest developments in policy and research relating to noise and health.

6.1 Aircraft technology

Modern aircraft are now significantly quieter than the first generation of jet aircraft, and the ICAO are setting progressively tighter noise certification standards for new aircraft.

6.2 Quieter operating procedures

We have worked with airlines and our Air Navigation Services Provider to develop and implement a number of operating procedures which are designed to reduce noise impacts. Arriving aircraft are encouraged to adopt Continuous Descent Operations (CDO) which involve aircraft maintaining a steady state of approach, rather than the more conventional stepped approach which involves prolonged periods of level flight. CDO reduces noise as it requires less engine thrust and keeps aircraft higher for longer.

On the ground, we restrict when engine test runs can be carried out (they are not permitted during night-time hours, 22:30-06:00, except in exceptional circumstances). The location of test runs is also controlled, and specific locations have been identified to minimise

noise effects. We are also considering installing Fixed Electrical Ground Power (FEGP) systems at many aircraft parking stands to minimise the need for the use of noisier Auxiliary Power Units (APUs).

As well as the benefits provided by the airport, we also recognise that aircraft noise can be an important issue for local communities. Although the noise generated by the airport cannot be eliminated, it can be managed responsibly. We support the UK Government's objective to minimise and where possible reduce the number of people affected by aircraft noise, where it is sustainable to do so.

We engage directly with local planning authorities to ensure awareness of aircraft operations is considered in the development of sensitive land uses. We contribute to local development plans and monitor planning applications within the vicinity of Aberdeen International Airport. We also actively contribute to improving aircraft noise information in local planning policy and seek to influence policy where appropriate.

AIA in numbers

80yrs **3400+**

More than 80 years, providing vital connectivity for people

The airport supports in excess of 3,400 jobs.

6.3 Noise insulation and land-use planning

We engage directly with local planning authorities to ensure awareness of aircraft operations is considered in the development of sensitive land uses. We contribute to local development plans and monitor planning applications within the vicinity of Aberdeen International Airport. We also actively contribute to improving aircraft noise information in local planning policy and seek to influence policy where appropriate.

We currently operate a noise insulation scheme for residential properties within the 66dBLeq, 16h contour area. The Government's current aviation policy is set out in the Aviation Policy Framework (APF). The policies set out within the Consultation Response on UK Airspace Policy provide a recent update to some of the policies on aviation noise contained within the APF, and is considered to represent the current government policy.

The policy now requires financial assistance to be offered towards the noise insulation of residential properties in the 63dBLeq, 16h noise contour or above. Therefore, we are proposing to update our noise insulation scheme to reflect these recent changes in aviation policy, see Section 8 for further details.

6.4 Operating restrictions

The ICAO Balanced Approach and EU Regulation 598 require us to consider all other aspects of the Balanced Approach (reduction of noise at source; land-use planning and management; and noise abatement operational procedures), before implementing any operating restrictions. This ensures that the range of possible mitigation measures is considered in a consistent way with a view to addressing noise impacts in the most cost-effective way.

6.5 Working with local communities

We operate a dedicated noise complaints site www.aberdeenaairport.com/about-us/community-matters/noise/ through which we log all complaints and seek to respond to 95% of complaints and enquiries within five working days. We publish our performance against this target at the Airport Consultative Committee.

The Aberdeen Airport Community Fund places priority on funding projects linked to education, the environment and economic regeneration – areas for which local people tell us they most value trust support. Through our grants we aim:

- To create learning opportunities for young people and so raise their aspirations
- To break down barriers to employment through skills development
- To help protect the environment
- To support airport staff active in the community.

Results of Noise Mapping

The tables below show the results of the 2016 noise mapping for Aberdeen International Airport. Maps showing the noise contours can also be found in Appendix A.

2016 L_{den} contours – estimated areas, populations and households

L_{den} , dB(A)	Area (km ²)	Population	Households
> 55	17.7	16,150	7,300
> 60	5.8	2,950	1,400
> 65	2.1	200	100
> 70	0.8	0	0
> 75	0.3	0	0

2016 annual day $L_{Aeq,16hr}$ contours – estimated areas, populations and households

$L_{Aeq,16hr}$, dB(A)	Area (km ²)	Population	Households
> 55	> 13.0*	> 10,000*	> 4,450*
> 60	4.2	1,250	650
> 65	1.5	50	< 50
> 70	0.6	0	0
> 75	0.3	0	0

*NB: the 55 dB(A) contour does not close so a definitive figure cannot be given.

2016 L_{night} contours – estimated areas, populations and households

L_{night} , dB(A)	Area (km ²)	Population	Households
> 50	7.1	4,700	2,200
> 55	2.6	500	250
> 60	1.0	< 50	< 50
> 65	0.4	0	0
> 70	0.2	0	0


Noise Action Plan at Aberdeen International Airport

Action	Performance Indicators	Timescale	Approximate number of people
Reduction of noise at source			
We will develop, publish and implement a policy prioritising airlines operating Chapter 4 and Chapter 14 aircraft when introducing new business to Aberdeen.	Percentage of Chapter 4 aircraft movements.	Targets will be set for the proportion of Ch4 and Ch14 to be operating by specified dates. The targets and timescales will be defined following consultation with airlines.	n/a
We will work with the airlines through our airline consultation process to review the landing fee differential to incentivise the use of quieter aircraft.	Completion of annual review.	Annual review.	n/a
We will work with other helicopter operating airports to understand and share best practice, to provide learning opportunities for noise reduction at the airport.	Minutes of meetings and action list.	Annual review.	16,150
We will investigate the option of installing Fixed Electrical Ground Power (FEGP) to reduce noise and air quality impacts.	Successful evaluation of data and implementation of FEGP.	2019	

Action	Performance Indicators	Timescale	Approximate number of people
Land-use planning and management			
We will engage directly with local planning authorities to ensure awareness of aircraft operations is considered in the development of sensitive land uses. We will continue to contribute to local development plans and monitor planning applications within the vicinity of Aberdeen International Airport.	Number of planning applications reviewed and number of responses issued to local planning authorities.	Ongoing	n/a
We will develop and implement an updated Noise Insulation Policy to mitigate noise for residents most affected by aircraft noise in line with UK Airspace Policy.	Number of properties exposed to noise within the 63dB LAeq, 16h contour.	Noise Compensation Policy to be developed and completed within 12 months.	Residential properties within the 63dB LAeq, 16h contour.
We will review helicopter noise routes and flying procedures to maximise the reduction and impact of noise on residential properties.	Reduced noise complaints.	2020	Communities within close proximity to the airport.
We will actively contribute to improving aircraft noise information in local planning policy and seek to influence policy where appropriate. We will encourage the use of good acoustic design to avoid and minimise adverse impacts arising from the development of new noise sensitive buildings and encourage the adoption of the principles advocated by the Professional Practice Guidance: Planning & Noise – New Residential Development.	Number of new development plans reviewed and number of responses issued to local planning authorities.	Ongoing	n/a

Action	Performance Indicators	Timescale	Approximate number of people
Noise abatement operational procedures			
We will promote adherence to the Arrivals Code of Practice (ACOP) and in particular the achievement of Continuous Descent Approaches (CDA) and Continuous Climb Departure and (CCD) where possible through forums such as Flight Ops Safety Committee and other communication events.	Percentage of approaching flights achieving CDA. Report to FLOPSC and airlines on their % achievement.	Ongoing	n/a
Continue to engage with our aviation partners through FLOPSC to seek to improve adherence to noise standards.	Tracked updates.	Ongoing	
We will continue to encourage aircraft operators to plan maintenance schedules to avoid the need for ground running of engines at night. We will continue to enforce our policy that runs should not last longer than 45 minutes. We will investigate any complaints received from ground running activity and revisit our policies if appropriate.	Number, location & duration of engine runs.	Ongoing	Communities within close proximity to the airport.
We will review the current locations utilised for the ground running of aircraft to reduce noise impact on local communities.	Reduced noise complaints.	2020	Communities within close proximity to the airport.
We will review our operational procedures enhance our noise management systems including the effectiveness of east side protocols ensuring aircraft safety is considered always.	Tracking of procedures and changes.	Ongoing	

Action	Performance Indicators	Timescale	Approximate number of people
Operating restrictions			
Our Noise Action Plan is consistent with the ICAO Balanced Approach and EU Regulation 598, which requires operating restrictions to be considered only after other measures of the Balanced Approach have been exhausted and only where it is cost effective to do so. We will continually review the effectiveness of our mitigation measures in the context of the balanced approach to ensure that mitigation is considered in a consistent way with a view to addressing noise impacts in the most cost-effective way.	Tracking of Noise Action Plan and mitigation measures.	Ongoing	n/a
Working with local communities			
We will discuss noise issues and report on our progress against the Noise Action Plan under a standing agenda item of the Consultative Committee.	Number of meetings.	Ongoing	n/a
We will carefully consider any best practice guidance published by ICCAN on information and communication requirements.	Number of best practice guidance publications reviewed.	Ongoing	n/a
We will continue to operate a dedicated online noise complaint system. We will log all complaints, seek to respond to 95% of complaints and enquiries within 5 working days and publish our performance at the Airport Consultative Committee and community newsletter.	Number of complaints received. Statistics published quarterly and in community newsletter.	Ongoing	n/a
We will look to establishing a local noise group with helicopter companies group and parties interested in progressing noise issues.	Establishment of forum and number of meetings.	Ongoing	n/a



“We will continually review the effectiveness of our mitigation measures in the context of the balanced approach to ensure that mitigation is considered in a consistent way with a view to addressing noise impacts in the most cost-effective way.”

Evaluating Implementation

Our 3 avenues to report our progress



Regularly on our website



Monthly in our Managing Responsibly Governance Group meetings



Annually report against performance to the Airport Consultative Committee

In order to evaluate the effectiveness and delivery of the Noise Action Plan, we have established performance indicators, timescales and targets where appropriate and committed to reporting on our progress through various avenues:

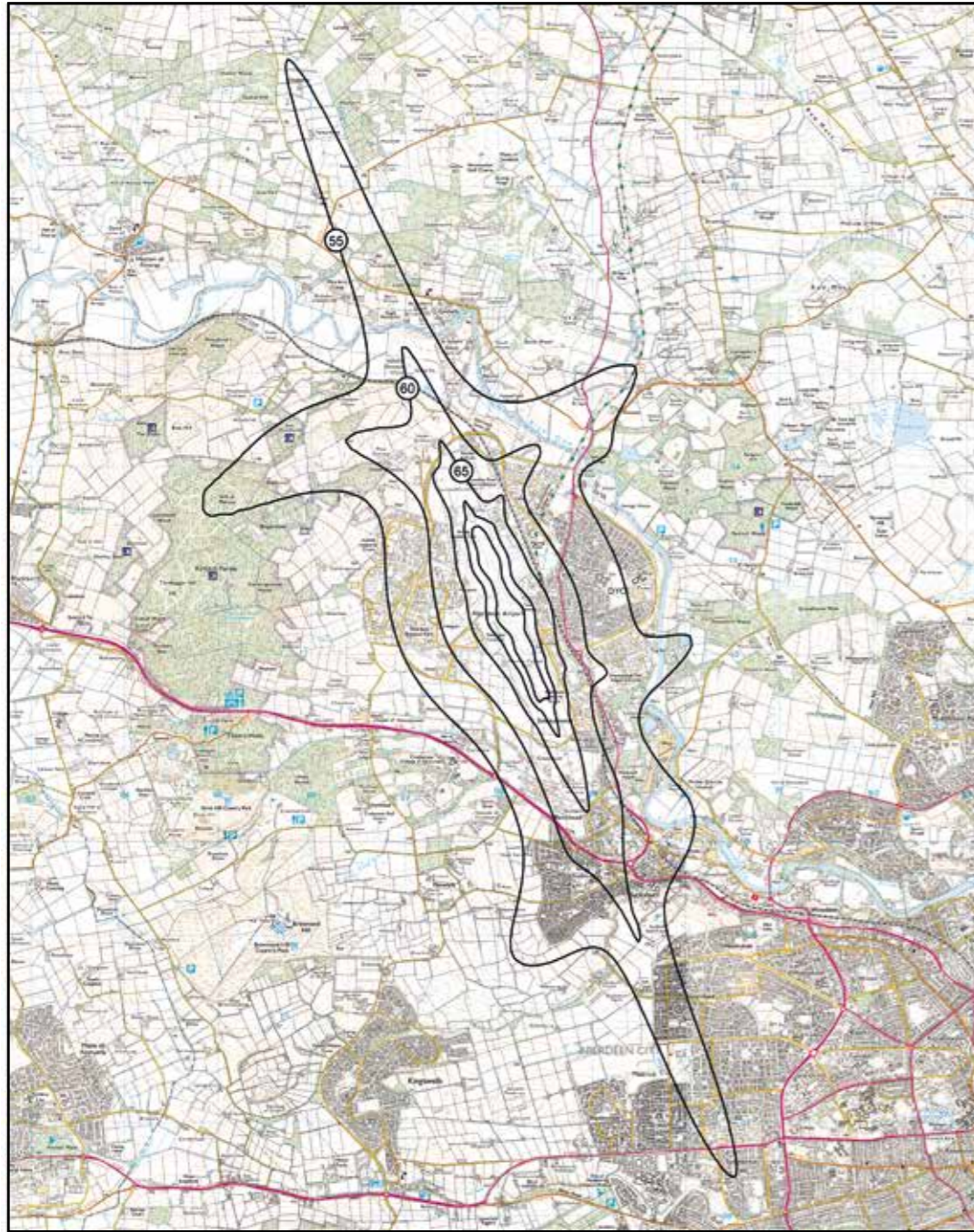
- Regularly on our website;
- Monthly in our Managing Responsibly Governance Group meetings; and
- Annually report against performance to the Airport Consultative Committee.

We will monitor against our established performance indicators to track progress against each area of focus to ensure that the work we are undertaking is resulting in the most efficient benefit in terms of managing noise impacts.

Our performance against these indicators will be regularly internally reviewed through our Managing Responsibly System. During the five year period of this action plan we may need to add or amend the range of performance indicators to respond to developments which enable us to better manage noise impacts.

Appendix A Noise Contour Maps

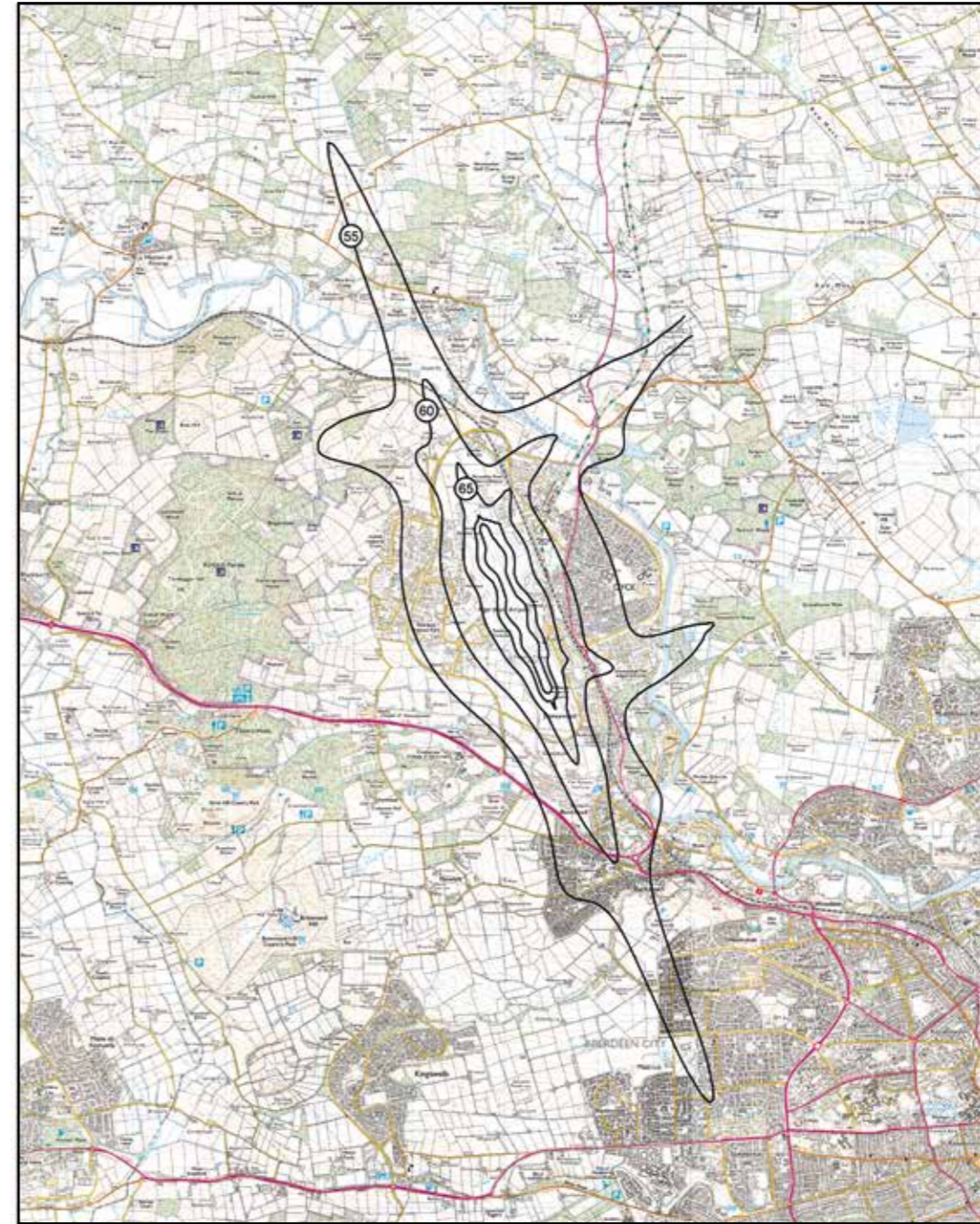
Map 1: 2016 Lden 55-75dB(A) Fixed-wing 52% S/48% N, Helicopters 65% S/35% N



ABERDEEN INTERNATIONAL AIRPORT
2016 L_{den} 55-75 dB(A) Noise Contours (Fixed-Wing + Helicopters)
 Actual Modal Splits: Fixed-Wing 52% S / 48% N, Helicopters 65% S / 35% N

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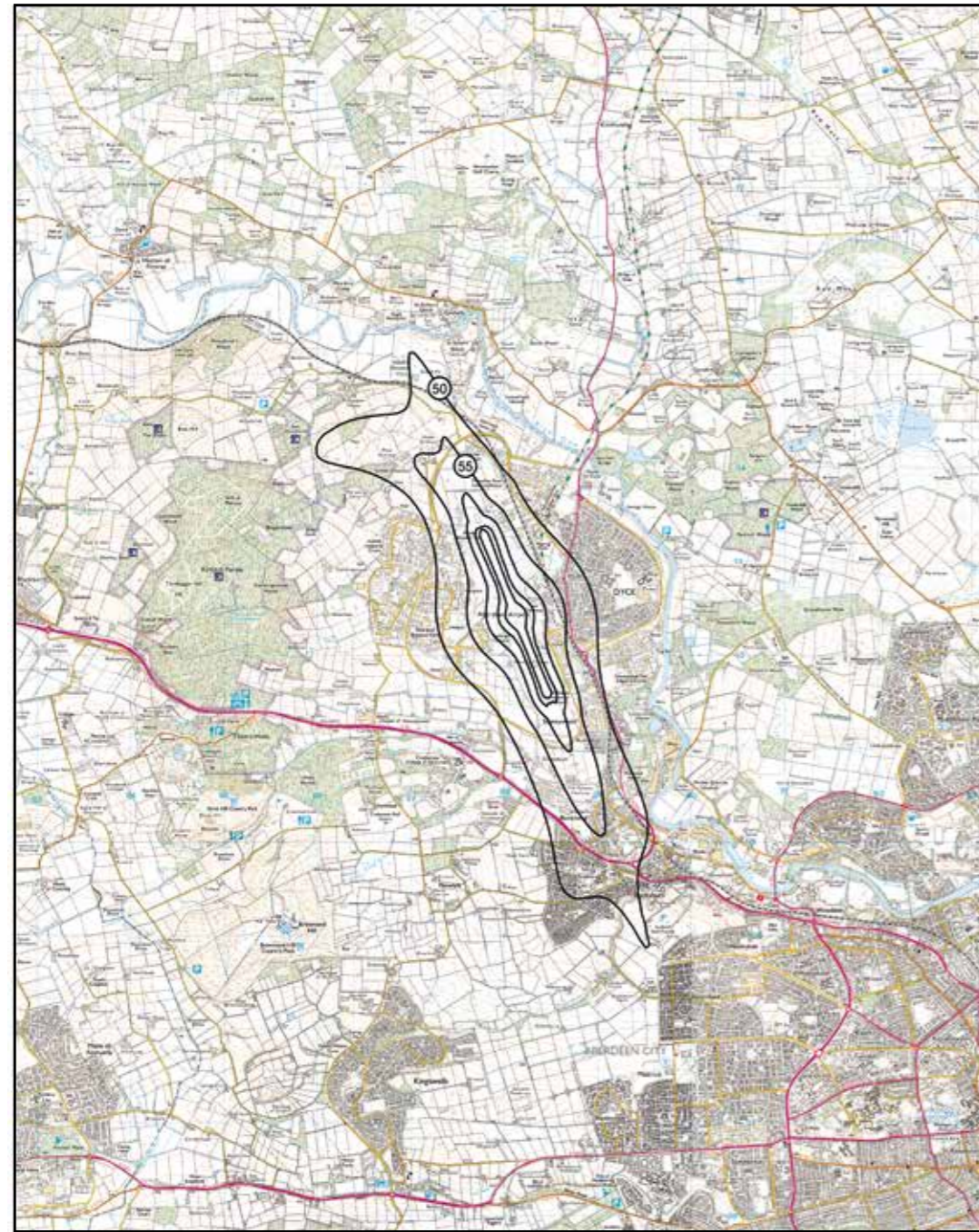
Map 2: 2016 LAeq 55-75dB(A) Fixed-wing 52% S/48% N, Helicopters 64% S/36% N



ABERDEEN INTERNATIONAL AIRPORT
2016 Annual Day L_{Aeq,16hr} 55-75 dB(A) Noise Contours (Fixed-Wing + Helicopters)
 Actual Modal Splits: Fixed-Wing 52% S / 48% N, Helicopters 64% S / 36% N

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Map 3: 2016 L_{night} 55-75dB(A) Fixed-wing 49% S/51% N, Helicopters 73% S/27% N



ABERDEEN INTERNATIONAL AIRPORT
2016 L_{night} 50-70 dB(A) Noise Contours (Fixed-Wing + Helicopters)
 Actual Modal Splits: Fixed-Wing 49% S / 51% N, Helicopters 73% S / 27% N

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Appendix B

Financial Information: Annual Running Costs



Type	Description	Approximate Cost
Staff Costs	Communications Team, Environment Team, Airside Team, Planning Team, Safeguarding Team	£50,000
Equipment Costs	Equipment costs Noise Monitor maintenance Noise monitoring	£25,000

Appendix C Glossary

aal	above aerodrome level
ACP	Airspace Control Procedure
AIP	Aeronautical Information Publication
ACARE	Advisory Council for Aeronautical Research in Europe
ACOP	Arrivals Code of Practice
ANASE	Attitudes to Noise from Aviation Sources in England
ANCON	The UK civil aircraft noise contour model produced and maintained by ERCD.
ANCON 2	Aircraft Noise Contour Model version 2
ANIS	Aircraft Noise Index Study
ANMAC	Aircraft Noise Monitoring Advisory Committee. The committee is chaired by the Department for Transport and comprises, among others, representatives of the airlines, Heathrow, Gatwick and Stansted airports and airport consultative committees.
ANOMS	Airport Noise Operations Monitoring System
APU	Auxiliary Power Unit. A power unit located on the aircraft.
ATC	Air Traffic Control
ATM	Air Transport Movement
ATWP	Air Transport White Paper
CAA	Civil Aviation Authority
CDA	Continuous Descent Approach
dB(A)	A unit of sound pressure level, adjusted in accordance with the A weighting scale, which takes into account the increased sensitivity of the human ear at some frequencies.
Decibel (dB)	The decibel (dB) is a logarithmic unit of measurement that expresses the magnitude of a physical quantity relative to a specified or implied reference level. Its logarithmic nature allows very large or very small ratios to be represented by a convenient number. Being a ratio, it is a dimensionless unit. Decibels are used for a wide variety of measurements including acoustics, and for audible sound A-weighted decibels (dBA) are commonly used.
DCOP	Departure Code of Practice
DEFRA	Department for Environment Food and Rural Affairs (UK Government).
DfT	Department for Transport (UK Government).
DORA	Directorate of Operational Research and Analysis
ECAC	European Civil Aviation Conference
ERCD	Environmental Research and Consultancy Department of the Civil Aviation Authority.
EHO	Environmental Health Officer
FEGP	Fixed Electrical Ground Power
FEU	Flight Evaluation Unit
GNC	Ground Noise Committee
GPU	Ground Power Unit
HTM	Health Technical Memorandum
ICAO	International Civil Aviation Organization.
ILS	Instrument Landing System.
IMC	Instrument Meteorological Conditions
INM	Integrated Noise Model
LA1	A-weighted sound level exceeded for 1% of the time
LA90	A-weighted sound level exceeded for 90% of the time
LAeq,16h	The A-weighted average sound level over the 16 hour period of 0700–2300
LAeq,T	The notional A-weighted equivalent continuous sound level which, if it occurred over the same time period, would give the same noise level as the actual varying sound level. The T denotes the time period over which the average is taken, for example LAeq,8h is the equivalent continuous noise level over an 8 hour period.

LAfmax	Maximum A-weighted sound level, fast response
LA5max	Maximum A-weighted sound level, slow response
Lday	The A-weighted average sound level over the 12 hour day period of 0700-1900 hours.
Lden	The day, evening, night level, Lden is a logarithmic composite of the Lday, Levening, and Lnight levels but with 5 dB(A) being added to the Levening value and 10 dB(A) being added to the Lnight value.
Leq	Equivalent sound level of aircraft noise in dBA, often called equivalent continuous sound level. For conventional historical contours this is based on the daily average movements that take place in the 16 hour period (0700-2300 LT) during the 92 day period 16 June to 15 September inclusive.
Levening	The A-weighted average sound level over the 4 hour evening period of 1900-2300 hours.
LPA	Local Planning Authority
Lnight	The A-weighted average sound level over the 8 hour night period of 2300-0700 hours.
LQnight	Equivalent continuous A-weighted sound level computed over the period 2330-0600
NATS	Formerly known as National Air Traffic Services Ltd. NATS is licensed to provide en-route air traffic control for the UK and the Eastern part of the North Atlantic, and also provides air traffic control services at several major UK airports, including Heathrow, Gatwick and Stansted.
nm	Nautical mile
NNI	Noise and Number Index. The noise exposure measure that preceded Leq.
Noise Bands	Areas with similar noise exposure in 5 dB(A) ranges according to the key shown with the maps.
Noise Contour	Map contour line indicating noise exposure in dB for the area that it encloses.
NPR	Noise Preferential Route.
NR	Noise Rating
NTK	Noise and Track Keeping monitoring system. The NTK system associates radar data from air traffic control radar with related data from both fixed (permanent) and mobile noise monitors at prescribed positions on the ground.
PATMs	Passenger Air Transport Movements
PNdB	Perceived Noise Level, measured in PNdB. Its measurement involves analyses of the frequency spectra of noise events as well as the maximum level.
PPG	Planning Policy Guidance
P-RNAV	Precision Area Navigation
QC	Quota Count - the basis of the London airports' Night Restrictions regime.
QFE	Atmospheric pressure at aerodrome level (or at runway threshold) (i.e. the altimeter reads zero feet on the ground).
QFH	Altimeter sub scale setting to obtain airfield elevation when on the ground (i.e. the altimeter reads the aircrafts altitude Above Mean Sea Level).
RANCH	Road traffic and Aircraft Noise exposure and Children's cognition and Health.
SAE	Society of Automotive Engineers
SEL	Sound Exposure Level. The level generated by a single aircraft at the monitoring point. Takes account of the duration of the sound as well as its intensity. This is normalised to a 1 second burst of sound allowing comparison between different events of different durations.
SID	Standard Instrument Departure route
SOR	Start-of-roll: The position on a runway where aircraft commence their take-off runs.
SoS	Secretary of State
SSSI	Site of Special Scientific Interest
Sustainable Aviation	A UK aviation industry initiative aiming to set out a long term strategy for the industry to address its sustainability issues.
VMC	Visual Meteorological Conditions

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