NOISE ACTION PLAN 2019-2023

manchesterairport.co.uk

MAG Manchester Airport

CONTENTS


MAG
Manchester
Airport
Emirates
الإمارات

FOREWORD

Manchester Airport is the UK's global gateway in the North, competing strongly with the world's most significant economic powerhouses and delivering employment, investment and growth in the North.

However, we understand that alongside these benefits are the impacts on local communities from aircraft noise. We recognise that for some people who live near the airport, noise is, and always will be, an important issue.

The policy for managing noise, together with the framework and guidelines, are set at a national and international government level but it is also Manchester Airport's responsibility to control noise locally around the Airport. Many legally binding targets, obligations and limits are set by the planning conditions associated with our second runway and also by a voluntary but legally binding agreement under S106 of the Town and Country Planning Act 1990.

Under European law (Environmental Noise Directive (2002/49/EC)), Manchester Airport is required to publish a Noise Action Plan every five years. This – our latest plan – was adopted by the Secretary of State in 2019 and will run until 2023.

In finalising this Noise Action Plan, we have worked with our Consultative Committee, Environmental Health Officers from the surrounding local authorities, local councils and community representatives, airlines and NATS (our air traffic control service provider).

The plan is reflective of feedback from those as well as others who took the time to respond to our consultation.

Our Noise Action Plan pulls together policies ranging from restricting the use of the noisiest aircraft at night through to offering a sound insulation grant scheme. It also shows how we have performed in relation to our previous commitments to managing noise.

In it, we set out how Manchester Airport will manage and mitigate the impacts of aircraft noise over the next five years to 'limit and reduce where possible the number of people affected by noise, as a result of the airport's activities. What can be achieved in this regard will evolve over time but we are committed to continuing to work with and listen to our neighbours affected by noise.

We take the issue of noise impact seriously and are proud of how we manage and control this. In our plan, we have committed to undertaking a review of our noise related indicators and baselines and our Night Noise Policy, to ensure that they remain appropriate and relevant. We have also committed to the further development of our noise monitoring systems and the future expansion of our network of noise monitors.

We recognise that, for some people who live near the airport, noise is, and always will be, an important issue. We will continue to listen to and work with our neighbours and aim to make sure that we continue to keep the number of people affected by noise to a minimum.

ANDREW COWAN
Chief Executive Officer, Manchester Airport

1. NOISE ACTION PLAN

WHAT IS A NOISE ACTION PLAN?

A Noise Action Plan is a five-year plan to manage issues of aircraft noise at the airport. It is a key part of delivering broader UK Government noise objectives to limit and, where possible, reduce the number of people in the UK significantly affected by aircraft noise.

Noise Action Plans are a legal requirement under European Union Directive 2002/49/EC relating to the Assessment and Management of Environmental Noise. This Directive is commonly referred to as the Environmental Noise Directive or END[1]. The requirements of the END are transposed by the UK Government in the Environmental Noise (England) Regulations 2006[2] as amended ("the Regulations").

WHO IS THE 'COMPETENT AUTHORITY'?

Under the Environmental Noise (England) Regulations 2006 the competent authority for non-designated[3] major airports is the airport operator. Consequently, Manchester Airport is the competent authority for this Noise Action Plan.

WHO IS REQUIRED TO PRODUCE A NOISE ACTION PLAN?

The requirements for producing Noise Action Plans are specified in the Environmental Noise (England) Regulations 2006 and apply to four areas:

- Agglomerations, including large towns or cities, with more than 100,000 people and a population density equal to or greater than 500 people per square kilometre;
- Roads with over 3 million vehicle movements a year;
- Railways which have more than 30,000 train movements per year;
- Civil airports which have more than 50,000 movements per year (a movement being a take-off or a landing), excluding those purely for training purposes on light aircraft.

WHAT ARE THE BROAD AIMS OF A NOISE ACTION PLAN?

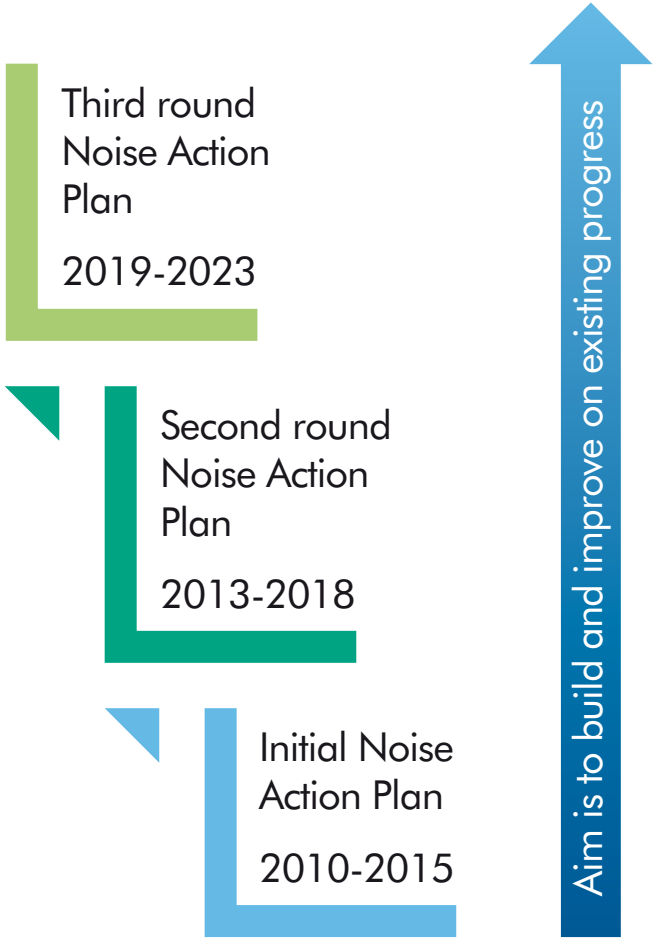
The primary aim of airport Noise Action Plans is to limit and where possible reduce the number of people significantly affected by aircraft noise. To do this, it needs to consider the potential for noise disturbance to communities living near the airport and explore how this can be better managed in the future. This will include consideration of anticipated growth at the airport and potential benefits of new aircraft technology and operating procedures, as well as noise controls where necessary. The plan needs to be developed in consultation with those affected by the noise. Some specific aims are:

- to quantify the current number of people and dwellings exposed to noise levels of 55dB L_{den} or more and 50dB L_{night} or more.
- to identify noise problems and situations that need to be improved
- to consider the noise effects of any current noise reduction measures or future projects
- to consider any new evidence regarding the effects of noise disturbance on people
- to consider any new government regulations or polices relating to aircraft noise or operations
- to consult with local communities, business partners and authorities on new and continued actions to manage noise disturbance
- to collectively agree a new Noise Action Plan and review its effectiveness over the period of the plan

REVIEW PERIOD

The Noise Action Plans operate in five-year cycles. The aim is for each subsequent Noise Action Plan to build and improve on existing progress to manage the effects of aircraft noise on people. This is the third time that a Noise Action Plan has been produced for Manchester Airport and it is based upon Noise Maps prepared by the Department for Environment, Food and Rural Affairs (DEFRA) showing the situation at the airport in 2016.

Following consultation with local stakeholders during 2018, this new plan was submitted for formal adoption by the DEFRA Secretary of State and published in February 2019.



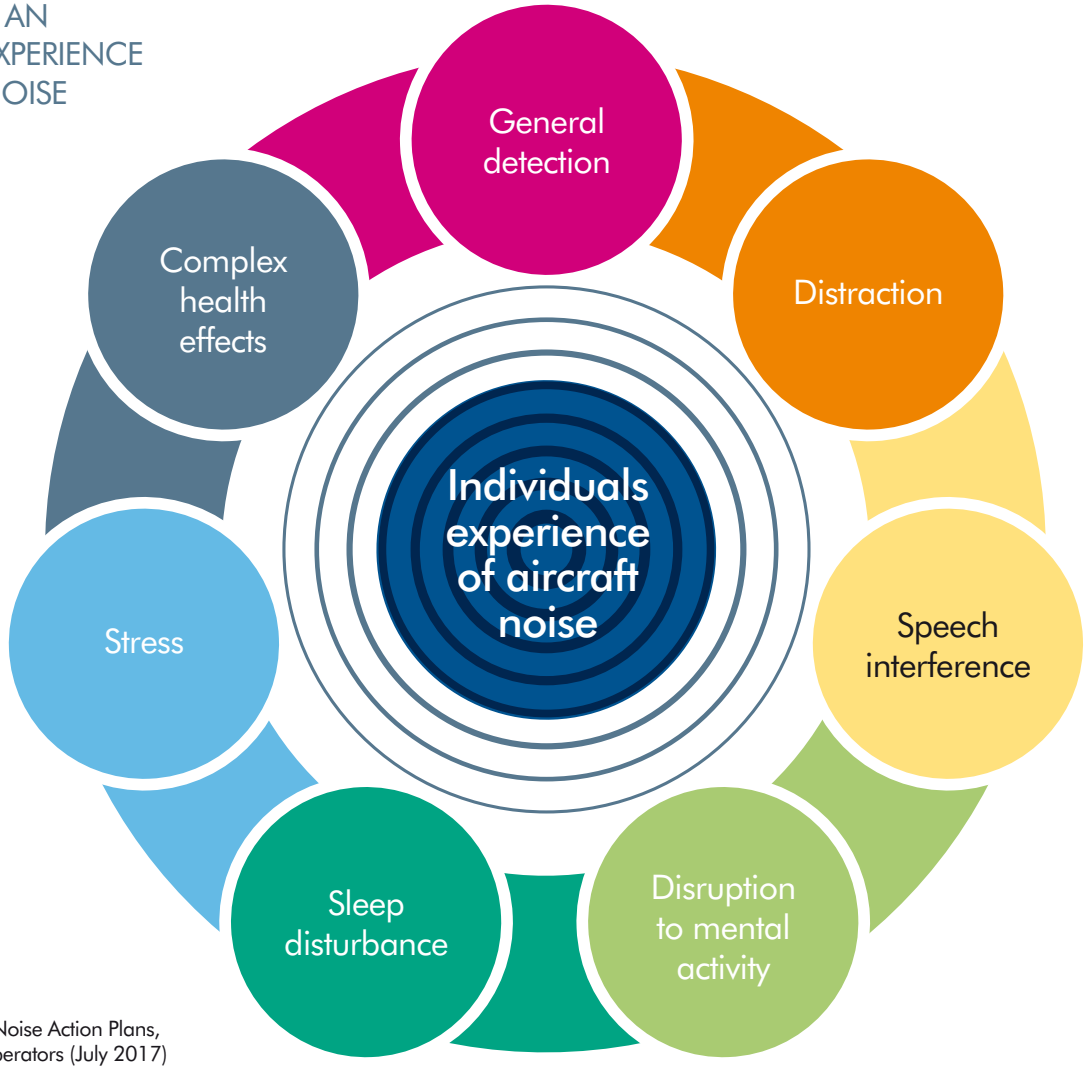
[1] See http://ec.europa.eu/environment/noise/directive_en.htm
[2] See http://www.legislation.gov.uk/uksi/2006/2238/contents/made
[3] "non-designated" when used in relation to an airport means not designated under section 80 for the purposes of section 78 of the Civil Aviation Act 1982

2. PUBLIC CONSULTATION

PURPOSE OF THE CONSULTATION

The objective of the consultation on the Noise Action Plan is to give people the opportunity to assess if the plan responsibly considers the effects of aircraft noise. There are many different effects of aircraft noise, and individuals living around the airport experience each of them to different degrees. Current Government guidance has summarised these as shown.

RESPONSES TO AN INDIVIDUAL'S EXPERIENCE OF AIRCRAFT NOISE



Source: DEFRA Airport Noise Action Plans, Guidance for Airport Operators (July 2017)

The EU Environmental Noise Directive specifies that in preparing and reviewing Noise Action Plans:

- The public are consulted about proposals in the plan
- The public are given early and effective opportunities to participate in the preparation and review of the plan
- The results of public participation are taken into account
- The public are informed of the decisions that have been taken
- Reasonable time-frames are provided allowing sufficient time for public participation

APPROACH TO THIS PUBLIC CONSULTATION

Manchester Airport has a well-established community programme, good links with external stakeholders and we are familiar with undertaking public consultation on our strategic plans, including previous Noise Action Plans and the Sustainable Development Plan (SDP) ,which sets out the context for the growth of the airport, how to make the most of the opportunities, to face up to the challenges of environmental and community impacts and the actions we intend to take to address these. Details of consultations on previous version of the airports Noise Action Plan are provided in Appendix A.

It is important that we continue to seek feedback from our stakeholders to this latest plan. We therefore seek views and comments from the public. The public consultation process will include:

- Engagement and discussions with key stakeholders including airlines, regulators and the airport Consultative Committee during the drafting of the Noise Action Plan
- Communication with stakeholders when the draft Noise Action Plan is published for consultation
- Online public consultation to enable stakeholder comments to be made

- An offer of meetings and briefings with key local stakeholders including County Councils, District Councils, Parish Councils, Members of Parliament's and the airport Consultative Committee
- The use of existing community communication channels to promote the consultation on the draft Noise Action Plan
- Encouraging comments from a wide range of stakeholders across the areas around Manchester Airport
- Taking on board comments and including a response to consultation within the final version of the draft Noise Action Plan
- Notifying stakeholders and consultees when the final Noise Action Plan has been adopted and published

FORMAT

An electronic copy of the draft Noise Action Plan will be published on the Manchester Airport website with details on how individuals can respond.

Complimenting this, each formal consultee will receive a covering letter, with a link to a full draft document, which will be posted on the website.

Printed versions of the draft Noise Action Plan will be available for outreach events, and various meetings such as the Manchester Airport Consultative Committee, Manchester Airport Environmental Health Officers Consultative Group, Manchester Airport Operators Committee and Parish Council meetings.

FORMAL CONSULTEES

County Councils

- Cheshire East Council
- Cheshire West and Chester Council

District Councils

- Bolton Metropolitan Borough Council
- Bury Metropolitan Borough Council
- Manchester City Council
- Oldham Metropolitan Borough Council
- Rochdale Metropolitan Borough Council
- Salford City Council
- Stockport Metropolitan Borough Council
- Tameside Metropolitan Borough Council
- Trafford Metropolitan Borough Council

Parish Councils

- Alderley Edge Parish Council
- Ashley Parish Council
- Chelford Parish Council
- Chorley Parish Council
- Cranage Parish Council
- Goostrey Parish Council
- Great Warford Parish Council
- Handforth Parish Council
- Henbury Parish Council
- High Legh Parish Council
- Knutsford Town Council
- Little Warford Parish Council
- Lower Withington Parish Council
- Marton Parish Council
- Mere Parish Council
- Middlewich Town Council
- Millington Parish Council
- Mobberley Parish Council
- Mottram St Andrew Parish Council
- Nether Alderley Parish Council
- Ollerton with Marthall Parish Council
- Over Alderley Parish Council
- Peover Inferior Parish Council
- Peover Superior Parish Council
- Pickmere Parish Council
- Plumley with Toft and Bexton Parish Council
- Prestbury Parish Council
- Rostherne Parish Council
- Siddington Parish Council
- Snelson Parish Council
- Styal Parish Council
- Swettenham Parish Council
- Tabley Parish Council
- Wilmslow Town Council
- Allostock Parish Council
- Antrobus Parish Council
- Comberbach Parish Council
- Davenham Parish Council
- Great Budworth Parish Council
- Lach Dennis Parish Council
- Lostock Gralam Parish Council
- Marston Parish Council
- Northwich Town Council
- Wincham Parish Council
- Appleton Parish Council
- Lymm Parish Council
- Stretton Parish Council
- Dunham Massey Parish Council
- Warburton Parish Council

Manchester Airport Consultative Committee and the Technical Advisory Sub-Committee Manchester Airport Environmental Health Officers consultative group.

Members of Parliament

Ann Coffey MP – Stockport
Esther McVey MP – Tatton
Mike Kane MP – Wythenshawe and Sale East
Sir Graham Brady MP – Altrincham and Sale West
Mike Amesbury MP – Weaver Vale
Mary Robinson MP – Cheadle
Andrew Gwynne MP – Denton and Reddish
William Wragg MP – Hazel Grove

Mayor of Greater Manchester

Andy Burnham

PROGRESS SO FAR

The UK Government provided guidance information and a data pack for Manchester Airport in July 2017. This information has been used to support the development of this draft Noise Action Plan. Additionally, the airport has discussed the development of the draft plan and has sought views on aircraft noise from the Manchester Airport Consultative Committee, Technical Advisory Sub-committee. Finally, information has been gathered by Manchester Airport through our participation via MAG in Sustainable Aviation, a coalition of UK aviation. This includes information shared through Sustainable Aviation's noise group and the 2013 Noise Road-Map plus 2017 Progress Report[4]. We have sought to incorporate the data, information and views raised during these initial meetings in this draft Noise Action Plan.

[4] See http://www.sustainableaviation.co.uk/ for more information

3. THE AIRPORT

Our long-term objective is to limit and reduce, where possible, the number of people affected by noise as a result of the airport's operation and development.

Manchester Airport is the third busiest airport in the UK and the largest outside the south-east. The airport has three passenger terminals, a cargo centre and aircraft maintenance area. It is one of only two airports in the country to have two full-length runways.

The airport is currently engaged in a £1bn transformation programme, centred around the development of Terminal 2 to become the primary terminal facility, and the provision of additional terminal and airfield capacity.

Flights operate to and from Manchester Airport 24-hours a day. The airport is approximately 10 miles south-west of Manchester city centre and covers an area of 800 hectares.

The airport is surrounded by suburban housing to the east. The districts of Wythenshawe, Heald Green, Cheadle, Cheadle Hulme and Gatley are the closest.

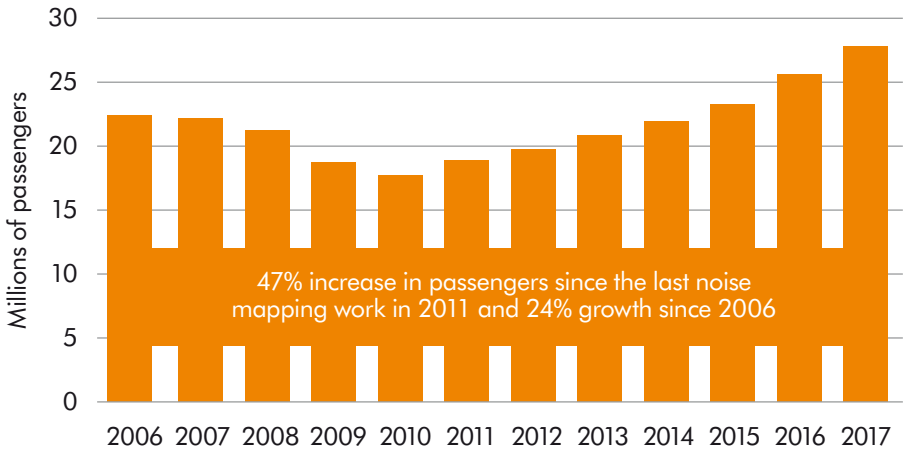
To the west of the airport there is mainly lightly-populated countryside, characterised by farming. The villages of Mobberley and Ashley, and the town of Knutsford, have the largest populations in the area.

To the south lies the village of Styal and the Quarry Bank Mill and Styal Estate (owned by the National Trust). The site is a popular recreational and educational resource, receiving around 0.25 million visitors each year. The M56 motorway skirts the airport boundary, with Hale and Hale Barns to the north. To the south are the towns of Wilmslow and Alderley Edge.

In 2017, the airport handled around 28 million passengers travelling on almost 204,000 flights.

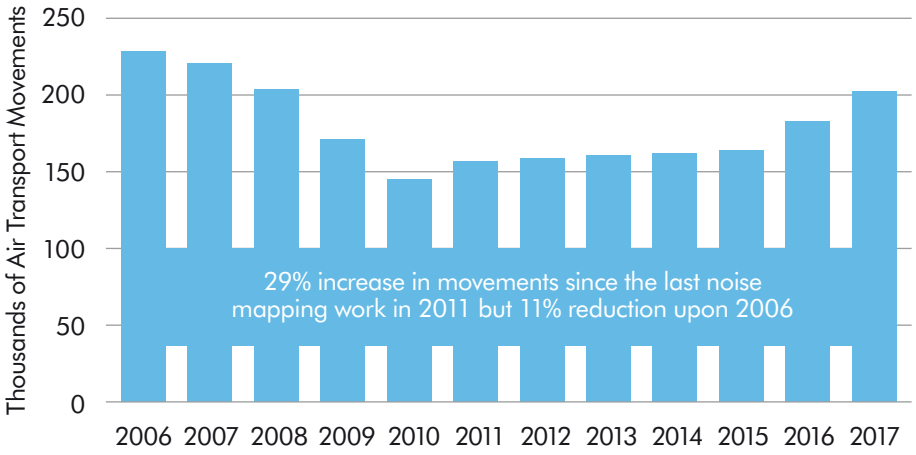
ANNUAL PASSENGER NUMBERS AT MANCHESTER AIRPORT

Source: United Kingdom Civil Aviation Authority



ANNUAL AIR TRANSPORT MOVEMENTS AT MANCHESTER AIRPORT

Source: United Kingdom Civil Aviation Authority



TODAY MANCHESTER AIRPORT IS:

- the 3rd busiest passenger airport in the UK, in 2017 handling 27.8 million passengers
- the airport offers more than 200 destinations, served by over 70 airlines
- on-site employment in the order of 23,000 people with a further 19,000 jobs in the wider region supported by airport operations and a direct GVA contribution to the UK economy of £1.4 billion.
- the only airport in the UK, to have both two full-length runways and significant spare capacity.

The airport is in a strategic location in the centre of the UK with direct access to the national motorway and rail system. This is a major benefit to our passenger and cargo customers. It is estimated that there are over 22 million people that live within a two-hour travel time of Manchester Airport. The airport's scale, location and the strength of its catchment area, provide significant opportunities for its future growth and development at the heart of the UK's aviation capacity.

The world-wide recession and the severe downturn in the UK economy temporarily changed the pace of growth at Manchester Airport. Although passenger traffic reached 22 million in 2006, the impact of the recession led to a sharp fall in passenger numbers. However, traffic growth has returned with a steady increase in activity over the past ten years. The airport has now passed its pre-recession levels, with 27.8 million passengers in 2017.

The UK's need and desire to travel shows no signs of abating and the Greater Manchester economy is expanding as part of the wider 'Northern Powerhouse'. This major initiative is aimed at stimulating growth across all the northern cities, with Manchester as the principal air gateway. Forecasts prepared by the Department for Transport and the Airports Commission show that Manchester could achieve a passenger throughput of up to 55 million passengers per year, if its two runways are used to their full potential.

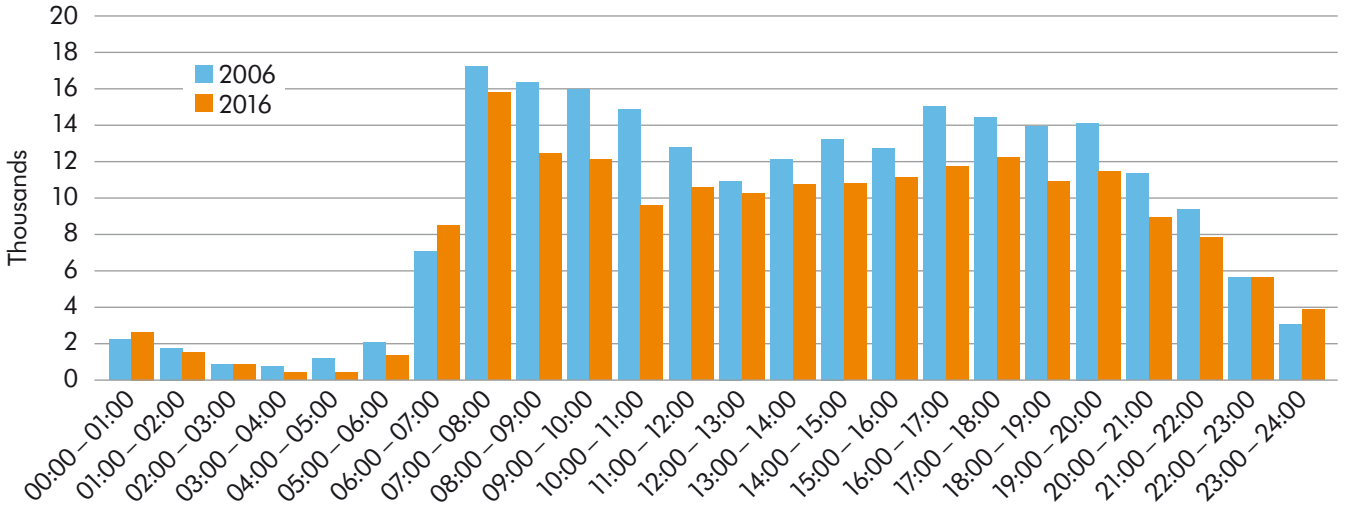
SOURCES OF NOISE

Noise is primarily generated by aircraft as they arrive, depart and move around the airport. Other sources of noise at the airport come from activities involved in getting the passengers and cargo to and from the aircraft, from aircraft maintenance and engine tests, from construction activities at the airport and from vehicles coming to and from the airport.

Managing these current noise effects and those arising from future growth this a key focus for the airport. Our aim is to '…limit and reduce where possible, the number of people affected by noise as a result of the airport's operation and development'. We are committed to minimising the number of people affected by aircraft noise by routinely reviewing our noise-related targets and policies. We will also continue to support local communities affected by our work by further developing our community-relations programme and improvements to our mitigation schemes.

We will continue to measure our performance against other airports and to contribute to the sustainable development of the air transport industry at a national, regional and local level. We will also support and contribute to the noise-related commitments contained within the UK's Aviation Policy Framework and emerging national aviation policy.

ANNUAL AIRCRAFT MOVEMENTS BY HOUR



MAG Manchester Airport

"Our long-term objective is to limit and reduce, where possible, the number of people affected by noise."

4. NOISE MAPPING

WHAT ARE NOISE MAPS?

In the same way that geographical maps use contours to distinguish between high ground and low ground, Noise Maps use contours to identify those areas that are relatively louder or quieter.

Although Noise Maps can be used to provide information on noise levels and the number of people affected, their main purpose is to help authorities produce Noise Action Plans designed to manage noise and reduce noise levels where appropriate.

HOW WERE THE MAPS MADE?

Our noise contour maps have been produced by the Civil Aviation Authority, who maintain the UK's civil aircraft noise model known as ANCON. ANCON is a computer model that takes account of things such as the number and types of aircraft departing and landing, where the aircraft are flying, and the time of day or night, to estimate the noise on the ground around an airport. They were provided to the airport in an 'Action Planning Data Pack'. The contents of the Action Planning Data Pack were developed under the terms of the Environmental Noise (England) Regulations 2006 (as amended). This update includes the details of the 2016 data pack and maps.

These contours and associated data are designed to provide a description of the current noise impact of the airport on its surroundings and how it has changed since the publication of the last Noise Action Plan.

ARE THE NOISE MAPS DIFFERENT FROM THE NOISE CONTOUR MAPPING SEEN PREVIOUSLY?

If you compare the Noise Maps with the noise contour maps previously produced for us or other UK airports, you may notice some significant differences. The Noise Maps in this document have been prepared specifically to help us produce our Noise Action Plan. Noise contour maps are produced using aircraft movements for an average summer's day (mid-June to mid-September), and it has been custom to produce separate maps for only the 16-hour day (07:00 to 23:00) and 8-hour night (23:00 to 07:00). The contours are presented in terms of the 'A-weighted equivalent continuous noise level' (L_{Aeq}). The A-weighting is designed to represent the human ear's response to sound.

Under the Environmental Noise (England) Regulations 2006, as amended, noise mapping is carried out every five years using the L_{den} noise contour – most recently in 2016 – for an annual average day (January to December) for each of the following periods.

- L_{day} – the level in the day, 07:00 to 19:00
- $L_{evening}$ – the level in the evening, 19:00 to 23:00
- L_{night} – the level at night, 23:00 to 07:00
- L_{den} – the level over 24-hours

The L_{den} figures are produced by combining those for L_{day}, $L_{evening}$ and L_{night}. To take account of the fact that noise is more disturbing at night-time, before the L_{day}, $L_{evening}$ and L_{night} values are combined to produce the L_{den} level, a weighting of 5dB is added to the evening values and 10dB is added to the night values.

Because of these differences, the two sets of contours are not directly comparable.

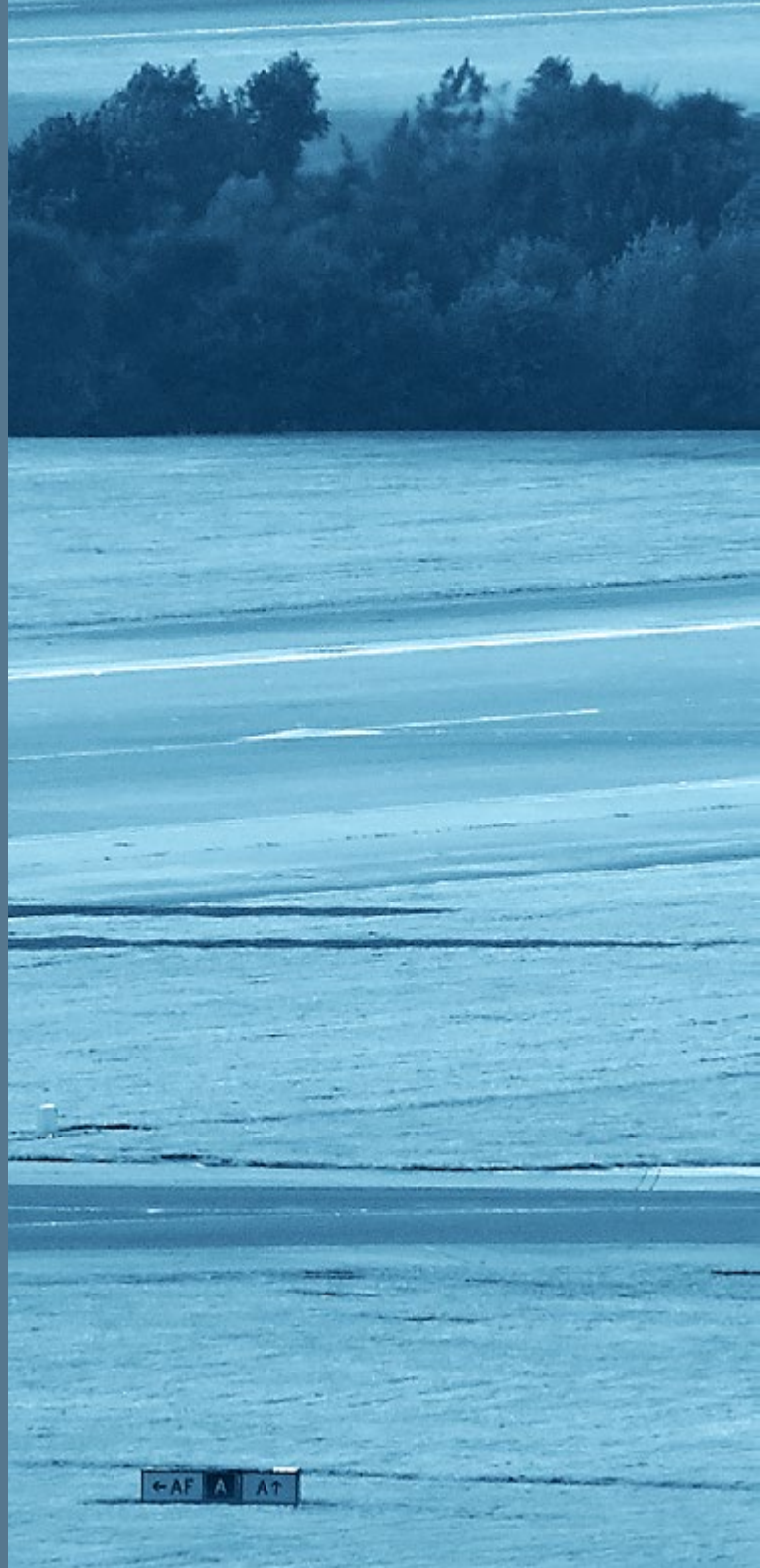
We recognise that people respond differently to noise, and this makes it difficult to quantify the relationship between noise and annoyance. However, for the purposes of this Noise Action Plan, aircraft noise is considered to be affecting places near the airport if the noise mapping has indicated an L_{den} value of 55dB or more or an L_{night} value of 50dB or more. As a priority, aviation policy requires that we should consider any further measures which we could take in areas which Noise Maps show homes exposed to more than 69dB L_{Aeq} from 07:00 to 23:00. The 2016 Noise Maps showed that there were fewer than 50 properties within this contour.

[5] For more information on the noise standards agreed by the ICAO balanced approach see – https://www.icao.int/environmental-protection/Pages/noise.aspx

5. NOISE MAPPING RESULTS

SUMMARY RESULTS

The chart opposite sets out the changes to the estimated number of people affected by noise, from the Defra noise mapping results. The chart shows the result for the noise levels for each noise metric in 2016, compared to previous years.



The population estimates show that over the course of the last ten years, there has been a reduction in the number of people subject to significant levels of daytime noise. By way of illustration the number of people within the 54dB $L_{Aeq\ 16\text{-}hour}$ contour has fallen by 4,700 to 62,800.

Over the same period, despite a small reduction in the size of the 51dB Lnight contour, the number of people subject to this significant level of noise at night, has increased by 1,300.

Please see page 74 for a glossary of terms used in this chapter.

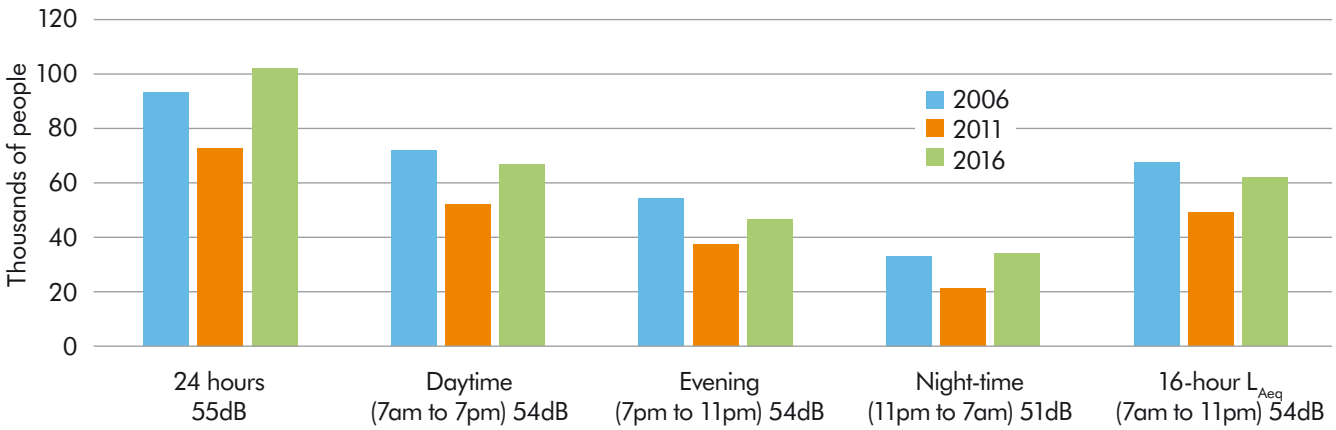
Despite significant growth in passenger numbers between 2006 and 2016, the data indicates noise impacts have remained broadly unchanged.

Using the latest government noise indicator (54dB $L_{Aeq\ 16\text{-}hour}$), the results show a small reduction in the number of people affected by aircraft operations over the same ten-year period.

Using the night noise level that informs the airport's agreed night-time noise limit (60dB L_{Aeq}) the results show that since 2006, there has been a small reduction in the number of people affected

During the evening, mapping results indicate fewer people are now affected by aircraft noise above 54dB than in 2006.

DEFRA NOISE MAPPING – NUMBER OF PEOPLE ABOVE VARIOUS NOISE LEVELS



The nature of each noise metric contour has been briefly summarised below and full details of the changes are provided in Appendix C. In considering the results it is important to recognise that as well as the number and type of aircraft operations, how the weather changes the runway use also affects the shape and therefore area of the noise contours. For this reason, the airport has interpreted the results as being unchanged compared to previous years if the results indicate a change in the number of people of 100 or fewer.

WEIGHTED 24-HOUR CONTOUR (L_{den})

The 55dB L_{den} contour has reduced in size by over four square kilometres since 2006. Despite this reduction, the total number of people living within the contour has grown by 8,300. This is largely due to changes in population and an unusually high proportion of easterly operations, resulting in a slight change in the shape of the contour. A map of the contour is shown in Appendix C.

The 55dB L_{den} contour extends over 15 kilometres to the north-east of the airport, beyond Stockport, as far as the Hyde and Denton area. To the south-west, the contour extends approximately six kilometres from the airport and includes north and central Knutsford and the village of Mobberley. To the south, the northerly edge of Styal village is included.

The 60dB L_{den} contour extends as far as central Stockport to the north-east, and takes in parts of Cheadle, Cheadle Hulme, Heald Green and south Wythenshawe. To the south and west of the airport, the contour takes in the Shaw Heath area in Knutsford and parts of west Mobberley.

The 65dB L_{den} contour extends into areas of south Cheadle, Cheadle Hulme and Heald Green at its north-eastern tip. To the south-west, the contour includes mainly rural areas to the north of Mobberley village and south of Mobberley railway station. Other than to the north-east of the airport,

where it extends as far as the more northerly parts of Heald Green, the 70dB L_{den} contour largely follows the boundary of the operational areas of the airport.

The innermost 75dB L_{den} contour remains almost entirely within the airfield perimeter, just crossing into the Moss Nook area. The number of houses and people within the contour area and how this has changed over the last 10 years is shown in Appendix C.

NIGHT-TIME CONTOUR (L_{night})

Of the L_{night} contours, the outermost 48dB contour extends as far as the westerly edge of Knutsford. To the east, the contour extends as far as Bredbury and Stockport. The 51dB L_{night} contour reaches as far as Stockport to the east and to the west, it takes in the mainly rural areas north of Knutsford and Mobberley village.

The 54dB L_{night} contour extends as far as the Shaw Heath area of Knutsford to the west and as far as Cheadle to the east. Much of the length of the 57dB L_{night} contour follows the boundary of the operational area of the airport, but stretches out as far as the edge of Mobberley to the west and the Heald Green, Cheadle Hulme border to the east.

The 63dB L_{night} and 66dB L_{night} contours remain almost entirely within the airport boundary, just crossing into the Moss Nook area.

POPULATION ESTIMATES

We have sent our Noise Maps to Defra, who have estimated the population and number of homes exposed to noise above the various levels. Defra have rounded the number of homes to the nearest 50, except when there are fewer than 50, in which case the total has been shown as 'Fewer than 50'.

Defra have rounded the number of people to the nearest 100, except when the population is less than 100, in which case the total number of people has been shown as 'Fewer than 100'.

Defra worked out the number of homes and the associated population using 2015 Ordnance Survey AddressBase and Topography layer and information from the Office of National Statistics mid-year population estimates, June 2015, taking account of buildings that contain more than one home, such as apartment blocks.

> "Over the last ten years, there has been a reduction in the number of people subject to significant levels of daytime noise."

6. LAWS AND POLICY

There are four main tiers of regulation which govern aircraft noise in the UK: international, European, national and local. This diagram summarises the tiers of aircraft noise regulation affecting operations at airports.

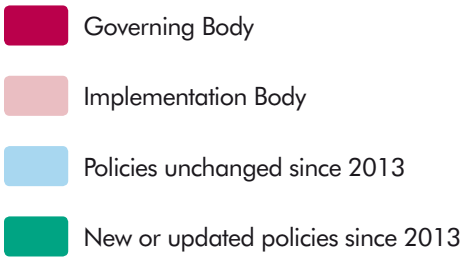
INTERNATIONAL

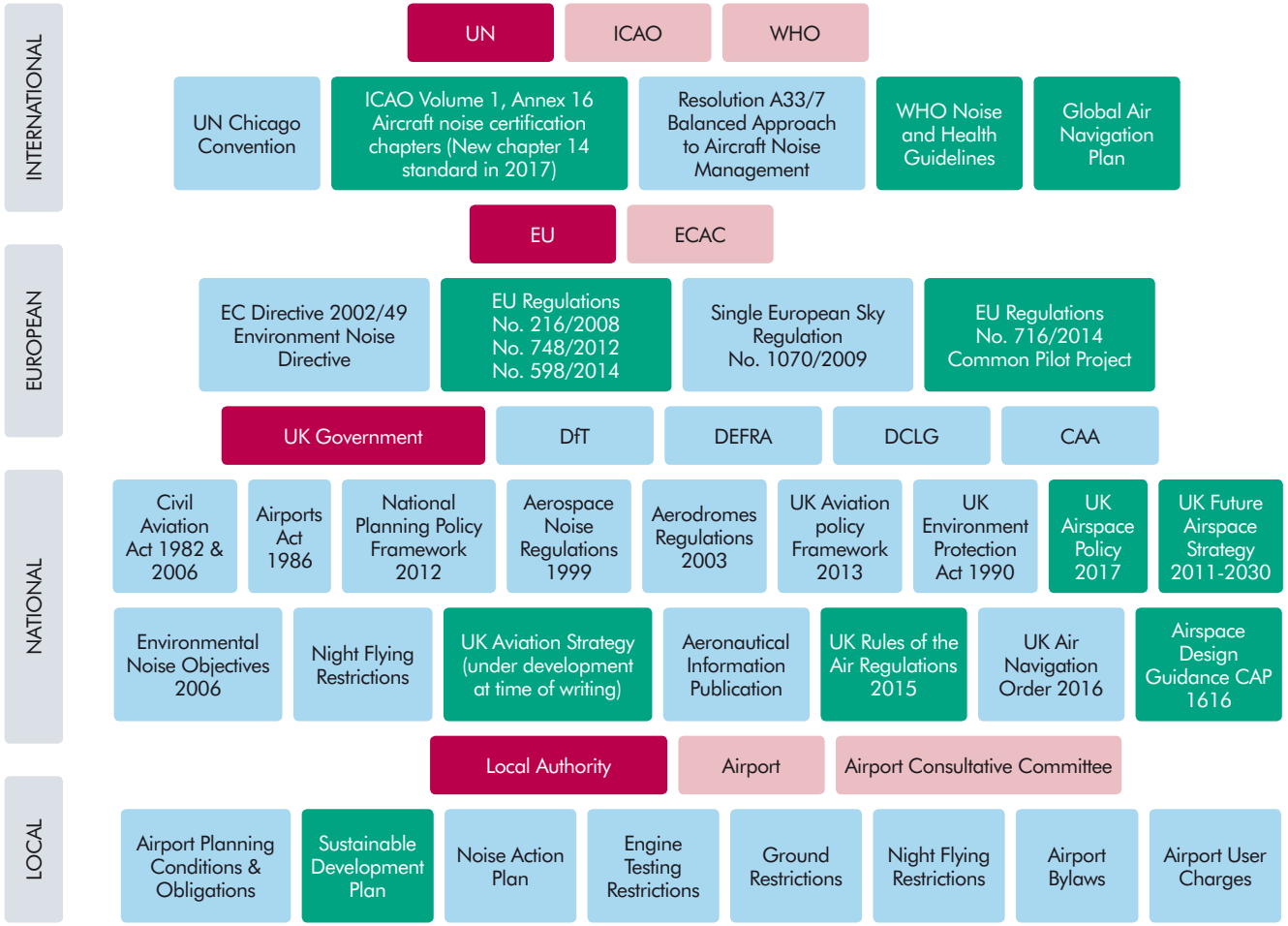
As aviation activities occur across the globe, many policies to address the effect of aircraft noise have been developed at an international level.

International Civil Aviation Organisation (ICAO) Aircraft Noise Policy

The International Civil Aviation Organisation, (ICAO), is a specialised agency of the United Nations, created with the signing in Chicago, on 7 December 1944, of the Convention on International Civil Aviation. It aims to develop the principles and techniques of international civil air navigation and foster the planning and development of international air transport.

They established a balanced approach for managing aircraft noise with four priorities[5].





[5] For more information on the noise standards agreed by the ICAO balanced approach see – https://www.icao.int/environmental-protection/Pages/noise.aspx

One of ICAO's main activities is the establishment of international standards, recommended practices and procedures regarding the technical fields of aviation, including aircraft noise. After a standard is adopted, it is put into effect by each ICAO member state in its country.

To reduce noise at source ICAO has set progressively tighter certification standards for noise emissions from civil aircraft, known as chapters. The chapters set maximum acceptable noise levels for different aircraft during landing and take-off. For example, aircraft falling within Chapter 2 have been banned from operating within the EU since 1st April 2002, unless they are granted specific exemptions. Most civil aircraft, currently operating, fall within Chapters 3 and 4, which are quieter than the previous Chapter 2 aircraft.

All new aircraft manufactured from 31st December 2017 onwards must now meet the requirements of Chapter 14. The standard for Chapter 14 has been set at a 7dB cumulative margin below that of Chapter 4. Further details regarding these standards can be found at **www.icao.int/environmental-protection/Pages/noise.aspx**

As these new aircraft are brought into service by the airlines, and the older ones phased out, the ICAO standards have consistently reduced the noise each new aircraft type makes, since it started in the early 1970's.

1. Reduction of noise at source

- Develop and introduce quieter aircraft – sets lower noise limits on new aircraft, currently known as 'Chapters". Chapter 14 is the most recent
- Modify current aircraft to make them quieter

2. Land use planning and management

- Controlling how land can be used and managed to discourage or prevent building of new housing and noise sensitive facilities (for example schools and hospitals) in noisy areas near the airport

3. Noise abatement operational procedures

- Quieter descents
- Quieter climb outs
- Alternative routes to and from the airport

4. Operating restrictions

- Set restrictions on aircraft operations if the earlier measures can not meet agreed noise limits (for example, night restrictions or gradually withdrawing the noisier types of aircraft)

[5] For more information on the noise standards agreed by the ICAO balanced approach see – https://www.icao.int/environmental-protection/Pages/noise.aspx

Global Air Navigation Plan[6]

The ICAO Global Air Navigation Plan (GANP) is an overarching framework that includes key civil aviation policy principles to assist ICAO Regions, sub regions and States with increasing capacity and improving efficiency of the global air traffic management system.

World Health Organisation Noise and Health Guidelines[7]

The World Health Organisation published night noise guidelines for Europe in 2009. Theses collated research into the health effects of noise disturbance at night, including from aircraft and made recommendations to governments on managing night noise levels. At the time of writing this plan, these guidelines are under review.

The main elements of the 'balanced approach' were incorporated into UK law as part of the Aerodrome (Noise Restrictions) (Rules and Procedures) Regulations 2003 and the principles are followed in the development of this Noise Action Plan

EUROPEAN

The European Union (EU), through the European Civil Aviation Conference (ECAC), has issued various directives relating to the management and control of aircraft noise standards. Member States apply the requirements of the directives by incorporating them into national legislation.

The relevant directive and regulations for aircraft noise management are:

Environmental Noise Directive (2002/49/EC)

The Environmental Noise Directive has two main aims.

- To define a common approach to avoiding, preventing or reducing the harmful effects, including annoyance, of being exposed to environmental noise.
- To provide a basis for developing community measures to reduce noise from major sources, particularly road and rail vehicles and networks, aircraft, outdoor equipment, industry, and mobile machinery.

This is the over-arching directive that created the specification for how to produce this Noise Action Plan.

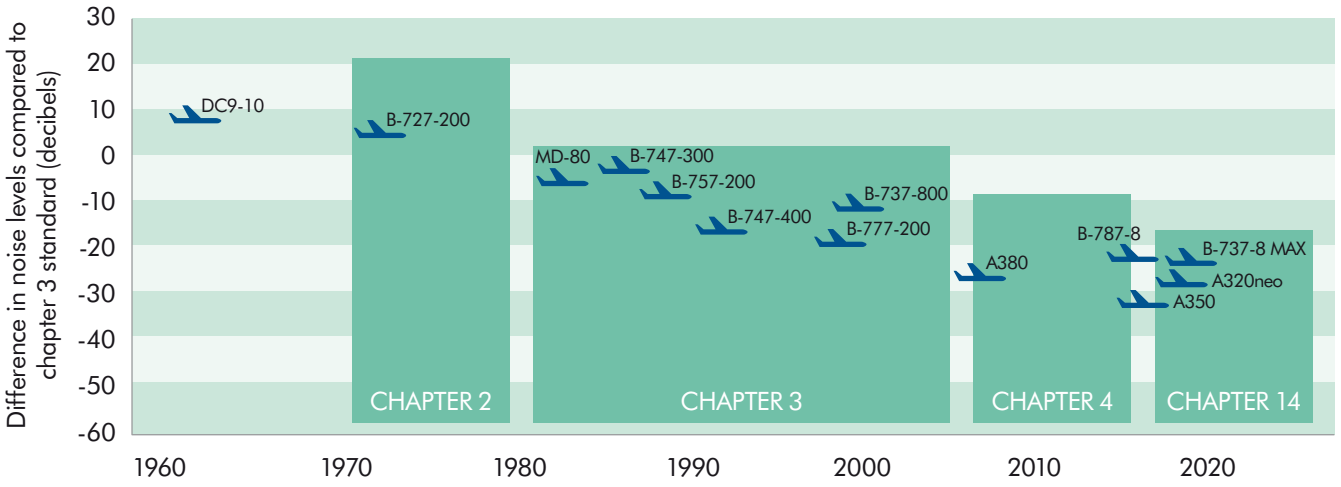
EU Regulation No. 598/2014

This has replaced EC Directive 2002/30 and EU Directive 2006/93/EC. The regulation covers the establishment of rules and procedures relating to the introduction of noise-related operating restrictions at Union airports within a Balanced Approach.

Single European Sky Regulation[8]

Currently the average flight in Europe is 49 km longer than the direct flight. Since the 1990's the European Union has been working to improve the efficiency of air traffic management systems across Europe through the Single European Sky programme. This is now aligned with the ICAO Global Air Navigation Plan.

DOWNWARD TREND IN THE NOISE CERTIFICATION OF AIRCRAFT



Source: Data gathered from ICAO noise database – http://noisedb.stac.aviation-civile.gouv.fr/

[6] See https://www.icao.int/airnavigation/Pages/GANP-Resources.aspx
[7] See http://www.euro.who.int/en/health-topics/environment-and-health/noise
[8] See https://ec.europa.eu/transport/modes/air/single_european_sky_en

NATIONAL

The UK Government published its current Aviation Policy Framework (APF) in March 2013[9]. This set the Government's overall noise objective to:

'…**limit and where possible reduce the number of people in the UK significantly affected by aircraft noise**.'

This policy is now being reviewed through an Aviation Strategy consultation which is expected to be complete in 2019. This new strategy will set the strategic objective for UK aviation and its sustainable development. During the review of Airspace Policy in 2017, the Government stated a broader overall policy on aircraft noise as:

'…to limit and, where possible, reduce the number of people in the UK significantly affected by aircraft noise as part of a policy of sharing benefits of noise reduction with industry in support of sustainable development. Consistent with the Noise Policy Statement for England, our objectives in implementing this policy are to:

- limit and, where possible, reduce the number of people in the UK significantly affected by the adverse impacts from aircraft noise;
- ensure that the aviation sector makes a significant and cost-effective contribution towards reducing global emissions; and
- minimise local air quality emissions and, in particular, ensure that the UK complies with its international obligations on air quality.

At the time of producing this Noise Action Plan, the airport has taken both Government objectives into consideration. Further relevant UK legislation for aircraft noise is detailed opposite:

The Environment Protection Act 1990

Section 79(6) of the Environmental Protection Act 1990, as amended, specifically exempts aircraft noise from the general noise nuisance controls which exist under that legislation.

The Civil Aviation Acts 1982 and 2006

The 1982 Act gave the UK government powers to introduce noise controls to limit or mitigate the effect of noise and vibration from aircraft landing or taking off at designated

airports, defined as Heathrow, Gatwick and Stansted. These powers were widened by the 2006 Act, which permits any airport authority to establish a 'noise control scheme' which may limit the numbers or types of aircraft that can be used in any given period. It also gives airport authorities the power to introduce charges and penalties designed to encourage the use of quieter or less-polluting aircraft.

Airports Act 1986

This Act gives the Secretary of State powers to limit the number of occasions on which aircraft may land or take off at an airport and schemes to allocate airport capacity.

The Environmental Noise (England) Regulations 2006 (as amended)

These regulations turn EU directive 2002/49 (Environment Noise Directive) into UK law. The regulations state that for the purpose of producing Noise Maps at 'non-designated airports' (including Manchester), the airport operator is considered to be the competent authority. The plans must;

- be drawn up for places near the airport that fall within the 55dB L_{den} contour or the 50dB L_{night} contour on Noise Maps;
- be designed to manage noise levels and effects, including reducing noise if necessary; and
- aim to protect quiet areas in agglomerations against an increase in noise.

Once prepared and adopted, the Noise Action Plans must be reviewed and, if necessary, revised, at least every five years and whenever a major development occurs affecting the noise situation.

The Air Navigation Order 2016

This overarching law defines requirements for certifying aircraft, regulations for how pilots must operate aircraft in the UK and rules for how air traffic control must be arranged and managed. It was last reviewed and updated in 2016[10].

The Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003

These regulations turn EU Directive 2002/30 into UK law. They apply to major airport operators with over 50,000 civil jet aircraft movements a year and reflect the adoption of the ICAO balanced approach to managing aircraft noise. Additionally, the regulations define procedures which airports should follow when considering operating restrictions based on aircraft noise.

Aeroplane Noise Regulations 1999

These regulations define the noise certificate requirements for both propeller and jet aeroplanes registered in the UK. It ensures that no aircraft can land or take off in the UK without a valid noise certificate. The regulations are based on the noise certification standards and limits issued by ICAO, (e.g. Chapter 3 and 4 aircraft). They also provide a list of aircraft that are exempt from the ICAO noise certification.

Aircraft Night Noise Regulations

These regulations set maximum night noise and aircraft movement limits for the three London Airports (Gatwick,

[9] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/153776/aviation-policy-framework.pdf
[10] See http://www.caa.co.uk/Blog-Posts/The-revised-Air-Navigation-Order/

Heathrow and Stansted). The present regime of Night Flying restrictions was reviewed in 2017[11] and set until October 2022.

The Government environmental objective was reviewed and updated to 'limit or reduce the number of people significantly affected by aircraft noise at night, including through encouraging the use of quieter aircraft, while maintaining the existing benefits of night flights'.

The Government will measure the achievement against this objective by:

- The area of, and number of people in, the 48dB L_{Aeq} 6.5-hour night contour,
- Sleep disturbance impacts associated with night flights, assessed using WebTAG methodologies[12],
- The average noise of an aircraft (as measured by the average noise Quota Count per aircraft movement over the course of a season),
- The number of aircraft movements in the night quota period

The regulations also established a new aircraft noise category known as a Quota Count[13] (QC) 0.125 category to capture the bulk of aircraft which are currently exempt. The new QC0.125 category will be introduced from October 2018 for aircraft movements generating noise from 81 to 83.9 EPNdB[14]. Aircraft quieter than this will continue to count towards the airports' movement limits but remain QC0.

Airspace Policy

The policy for how UK airspace is designed and how aircraft operate within it was reviewed in 2017[15] to establish a framework for how UK airspace can be improved to cope with predicted future growth in aviation whilst addressing noise, emissions and flight delay issues. During the consultation the Government focussed on the need for an airspace framework which ensured a greater focus on industry and communities working together to find ways to manage noise impacts. To support this the Government implemented a range of proposals including:

- **A new Secretary of State Call in Power** on airspace changes of national importance, providing high level direction and a democratic back-stop on the most significant airspace change decisions;
- **Important changes to aviation noise compensation policy**, to improve fairness and transparency. This includes bringing compensation policy for airspace changes in line with policy on changes to aviation infrastructure and considering locally agreed compensation for increased overflight due to an airspace change;
- **The creation of a Gross Value Added (GVA)** is the measure of the value of goods and services produced in an area, industry or sector of an economy
- **ICCAN** – The body will help ensure that the noise impacts of airspace changes are properly considered and give communities a greater stake in noise management. ICCAN will be set up as a new non-departmental public body of the Department for Transport.
- **A new requirement for options analysis in airspace change**, to enable communities to engage with a transparent airspace change process and ensure options such as multiple routes are considered.
- **New metrics and appraisal guidance to assess noise impacts** and their impacts on health and quality of life. This will ensure noise impacts are considered much further away from airports than at present.

To support the delivery of this policy, the UK Civil Aviation Authority issued new guidance for changing UK airspace – CAP1616[16]. This came into effect in January 2018 and the principles are to ensure that it meets modern standards for regulatory decision-making, and is fair, transparent, consistent and proportionate. The process must be impartial, and evidence based and must take account of the needs and interests of all affected stakeholders. Seven stages are defined for carrying out an airspace change with a focus on early engagement with communities to exploring a range of possible options.

This new policy and guidance are designed to support the achievement of the UK Future Airspace Strategy 2011-2030, aligned to Single European Skies and the ICAO GNAP.

National Planning Policy Framework

The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how it expects those policies to be applied by local authorities. The framework says that when considering planning applications for developments that could be affected by noise and those which could generate noise, authorities should aim to do the following:

- prevent noise arising because of new developments having a major negative effect on people's health and quality of life;
- keep other negative effects which noise from new developments has on people's health and quality of life to a minimum;
- recognise that developments will often create some noise and a business, to grow, should not have unreasonable restrictions placed upon it because of changes in land use that have arisen since their business was established;

[11] See https://www.gov.uk/government/consultations/night-flight-restrictions-at-gatwick-heathrow-and-stansted
[12] As measured down to 45dB $L_{Aeq\ 6.5hr}$ using the Department for Transport's WebTAG methodology.
[13] There are eight categories of quota count. Each level is double the previous, representing an increase of 3 decibels.
[14] Effective perceived noise in decibels (EPNdB) is a measure of the relative loudness of an individual aircraft movement.
[15] See https://www.gov.uk/government/publications/uk-airspace-policy-a-framework-for-the-design-and-use-of-airspace
[16] See https://www.caa.co.uk/Commercial-industry/Airspace/Airspace-change/Airspace-Change/

– identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

This policy has simplified and replaced much more detailed guidance that was provided in previous national policy on planning and noise in Planning Policy Guidance Note. Sustainable Aviation continue to work closely with the Government to develop more detailed planning guidance for Local Authorities and we welcome this initiative.

Noise Research

In the Government's response on Airspace Policy they acknowledged the evidence from a 2014 Survey of Noise Attitudes[17] which showed that sensitivity to aircraft noise has increased, with the same percentage of people reporting to be highly annoyed at a level of 54dB $L_{Aeq\ 16\text{-}hour}$ as occurred at 57dB $L_{Aeq\ 16\text{-}hour}$ in the past. The research also showed that some adverse effects of annoyance can be seen to occur down to 51dB L_{Aeq}. In acknowledging this the Government stated they will adopt a risk based approach so that airspace decisions are made in line with the latest evidence and consistent with current guidance from the World Health Organisation. This will be include setting a lowest observed adverse effect level (LOAEL)[18] at 51dB $L_{Aeq\ 16\text{-}hour}$ for daytime, and 45dB $L_{Aeq\ 8\text{-}hour}$ at night. The Government expect that these metrics will ensure that the total adverse effects on people can be assessed and airspace options compared.

Further noise research is also expected to be carried out during the period of this Noise Action Plan to improve understanding of health and quality of life outcomes of aircraft noise and how this can be clearly evidences with frequency-based noise metrics and to better understand how aircraft noise effects on communities in rural and urban areas may vary.

Sustainable Aviation

Launched in 2005, Sustainable Aviation[19] is a long-term strategy for the UK aviation industry. It brings together airlines, airports, manufacturers and air traffic service providers. Its main aim is to make sure the industry can develop sustainably over the long term and we have signed up to the strategy and will continue to play our part in achieving its commitments, particularly those about controlling aircraft noise.

In 2013, Sustainable Aviation launched its' Noise Road-Map and has regularly reported on progress since. The Road-Map has been conceived around the four elements of the ICAO's 'balanced approach', adding communication and community engagement. The Road-Map looks at how the aviation industry can manage aircraft noise between now and 2050. It also acts as a toolkit for airports to introduce measures to reduce the effect of noise impact from aircraft operations.

LOCAL

Sustainable Development Plan 2016

Since 2003 the Government has required airport operators to produce master plans which set out their approach to developing the airport. Planning authorities will take these plans into account when preparing regional and local policies and making planning decisions. Our Sustainable Development Plan[20] is the master plan for Manchester and was reviewed and updated in 2016. It is supported by four detailed plans covering community, ground transport, land use and environment.

Our 2016 Environment Plan sets our aim to be a 'responsible steward' of the environment and a commitment to continually improve our environmental performance and minimise the environmental impact of our operations. This builds on our long term environmental programme for which Manchester Airport became one of the first airport in the United Kingdom to be independently certified to the international standard ISO14001:2015. The chapter on noise in the Environment Plan is consistent with and compliments the current 2013-2018 Noise Action Plan.

Planning policy

We work closely with local planning authorities when they are preparing their local development plans. This supports the balanced approach and helps to make sure that local planning policies are in line with guidance set out in the National Planning Policy Framework.

Such policies can be found in the Manchester, Stockport, Cheshire East and Trafford Local Plans.

Manchester City Council adopted its Core Strategy which made the following statement about noise in the context of growth at Manchester Airport; "All development proposed as part of the Airport expansion should seek to ensure that any environmental effects of development are assessed at the planning application stage to ensure that any impact is acceptable. It will be necessary to mitigate or compensate any negative effects. In particular, development should: 'inter alia' seek the maximum possible reductions in noise through compliance with the Manchester Airport Noise Action Plan and Manchester Airport Environment Plan."

Manchester and other neighbouring authorities support airport growth plans and include specific policies and criteria for managing developments that might be susceptible to noise.

Planning conditions

As a result of us getting planning permission for a second runway, a number of planning conditions were set. These included strengthening some of the existing noise controls at the time as well as introducing independent auditing and

[17] See http://publicapps.caa.co.uk/modalapplication.aspx?appid=11&mode=detail&id=7744
[18] This is the level above which adverse effects on health and quality of life can be detected
[19] See http://www.sustainableaviation.co.uk/
[20] See http://www.manchesterairport.co.uk/about-us/sustainable-development-plan/

annual reporting. We also entered into a legal agreement (under S106 of the Town and Country Planning Act 1990) that includes extra noise controls and reporting obligations. Each year we prepare a report, for Manchester City Council and Cheshire East Council, on our performance in meeting the planning conditions. We also prepare an annual S106 report for Cheshire East Council.

Planning applications

The noise contours prepared each year are given to local planning authorities to help them consider planning applications for developments. We monitor applications for developments in areas close to the airport and give the relevant local authority information on noise issues and sound insulation where appropriate.

Aeronautical Information Package (UK AIP)

This provides specific controls for managing aircraft noise at each UK airport, formed because of all the laws and policies discussed. These controls cover aspects such as Continuous Descent Approaches (CDAs), Preferred noise routes (PNR's), noise abatement procedures and night flight restrictions.

A copy of the UK AIP for Manchester Airport, detailing the noise abatement procedures can be found at **http://www.nats-uk.ead-it.com**

Manchester Airport Consultative Committee (MACC)

The Manchester Airport Consultative Committee (MACC) is made up of 32 members representing local authorities, community groups and user groups. It meets every three months to consider the airport's performance and any matters of concern. The committee has two sub-groups with the Technical Advisory Group (TAG) being the group which looks at the noise performance of the airport.

7. NOISE CONTROLS

At Manchester Airport we have a track record of developing policies and taking action to minimise our effect on the environment. We will continue to work closely with our airlines and our air traffic service provider (NATS), so that we can effectively influence behaviour and provide real and lasting benefit.

In the previous section we set out the national policy for aircraft noise. This policy has continued to evolve since the last Noise Action Plan.

In particular, the Government has introduced a new policy aim that seeks to ensure that local communities benefit from the introduction of more modern and quieter aircraft 'as part of a policy of sharing benefits of noise reduction with industry in support of sustainable development'.

Also, Government introduced a new night noise policy for the designated airports; 'to limit or reduce the number of people significantly affected by aircraft noise at night, including through encouraging the use of quieter aircraft, while maintaining the existing benefits of night flights'. Whilst it does not apply directly to Manchester Airport, this new policy is useful context for the airport's Noise Action Plan.

We welcome the current Government's review of aviation strategy and their further exploration of ways to improve the reporting and management of aircraft noise. When estimating where local communities are most likely to be 'significantly affected' by aircraft noise, policy is increasingly giving greater weight to the lower 54dB L_{Aeq} 16-hour contour, rather than the 57dB L_{Aeq} 16-hour contour, which has been used for many years. Given the range of different responses to aircraft noise, summarised on page 8, policy suggests that considering noise impact at this lower noise level should be part of a broader risk based approach.

These broader policy developments have informed the development of this plan.

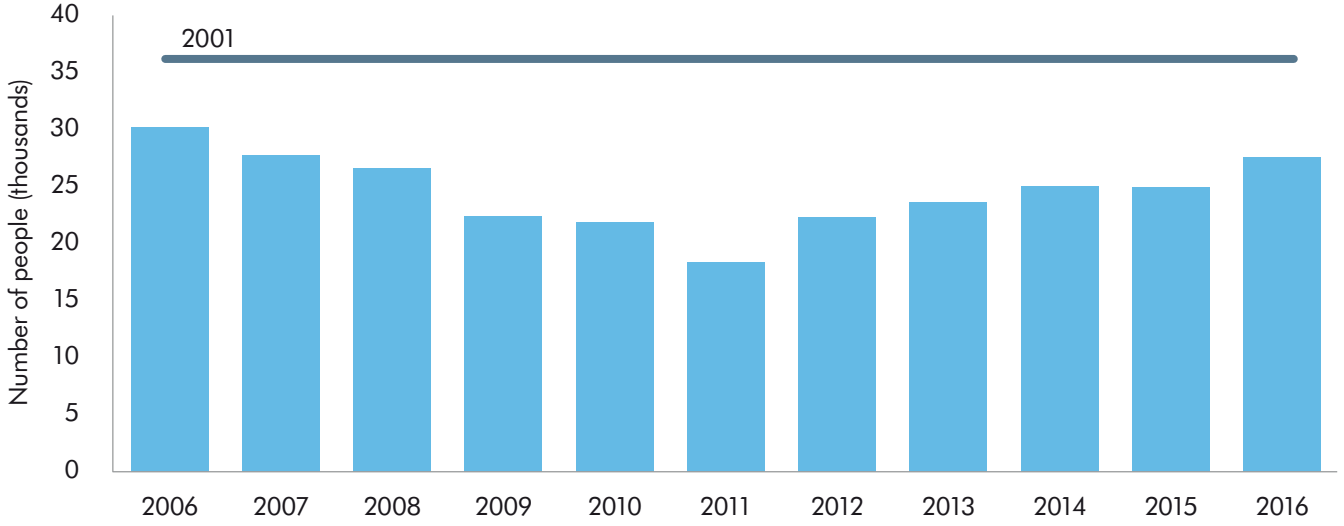
Our current noise controls include over 40 measures designed to reduce the effect that aircraft noise has on surrounding communities. Many of our noise control measures are judged against limits which are fixed by either the planning conditions set for the second runway or in a legal agreement made under S106 of the Town and Country Planning Act 1990, or are compared against performance in 2001, the year when the second runway opened.

We believe that our noise controls are working to meet the Government's aim to limit and where possible reduce the number of people in the UK significantly affected by aircraft noise. Our performance against individual targets is set out in the following pages. A simple way of illustrating this is to is to look at the number of people who live within the noise contour areas. For example, in 2006 there were 30,450 people living within the 57dB L_{Aeq} noise contour (average summer 24-hour period). Ten years later, in 2016, this number had fallen to 27,500 because the area of the 57dB L_{Aeq} noise contour had reduced, despite passenger numbers having increased from 22.1 million to 25.6 million over the same period.

Our environmental objectives are to:

- make sure that aircraft noise does not go above the levels recorded during 2001/2002 (the year the second runway opened);
- encourage the use of quieter aircraft; and
- meet any noise-reduction objectives that are introduced from time to time.

AVERAGE SUMMER 24-HOUR L_{Aeq} CONTOUR POPULATIONS



8. ARRIVING AIRCRAFT

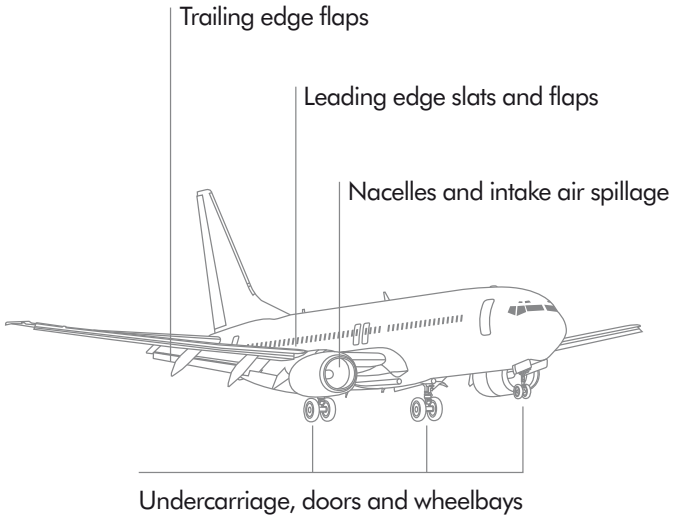
Unlike take-off, where the bulk of the noise is produced by the engines, when an aircraft is on approach, engine noise and ‘airframe’ contribute equally to the noise level.

Noise from arriving aircraft is mainly generated from how the air flows over the structure of the aeroplane. This is because the engines are normally operating at quite a low thrust setting. This noise increases the lower the aerplane is and the closer it gets to the airport. It also increases as the pilot lowers the landing gear and flaps, in readiness for landing.

We have produced an arrival routes information pack that explains how aircraft approach Manchester Airport. It also provides information about the number of aircraft arriving at the airport [21].

Low power/low drag is a technique designed to keep airframe noise on approach to a minimum by making sure that the landing flaps are extended and the aircraft's undercarriage is lowered as late as possible. This reduces drag and means that less engine power is needed to compensate for that drag. As a result, noise is reduced, both in terms of level and duration. All aircraft approaching Manchester Airport are expected to use low power/low-drag procedures.

SOURCE OF AIRCRAFT NOISE ON ARRIVAL



CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP1: low power/low drag	Aircraft approaching the airport are expected to keep noise disturbance to a minimum by using a low power/low drag procedure. We will continue to work with operators to improve compliance with the published low power, low drag procedure. This includes agreeing a metric which can be measured and reported. Working with our Collaborative Environmental Management group, this will include reviewing operating instructions following the outcome of the Sustainable Aviation 'Low Noise Arrival' work.	Modified

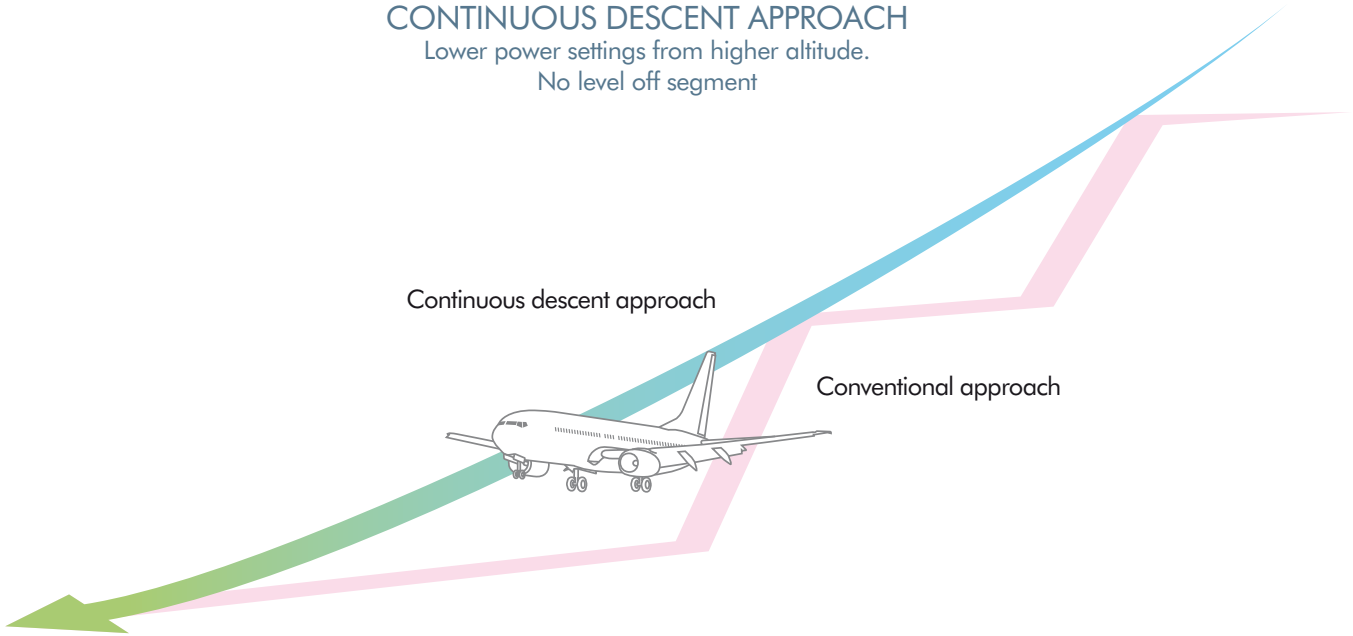
[21] http://www.manchesterairport.co.uk/community/living-near-the-airport/runway-data-sheet/

Continuous descent approach (CDA) is a technique designed to further reduce noise levels from landing aircraft.

Historically, aircraft land by reducing their altitude in a series of steps towards an airport. For each of these steps there needs to be a noisy burst of engine thrust to level out the aircraft after it has moved to a lower level. With CDA, air traffic controllers give pilots accurate information on the distance to touchdown so they can work out the best possible continuous rate of descent. This means that the aircraft stays as high as possible for longer and reduces the need for periods of engine thrust to keep the aircraft level.

Continuous descent approach has been shown to reduce noise, on the ground, from a landing aircraft by up to five decibels.

New arrival techniques such as steeper or slightly steeper approaches and 'low noise' arrival trials are beginning to be tested in UK airports. These present opportunities for Manchester Airport but may require changes to airspace around the airport to make them possible.



CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP2: continuous descent approach	All aircraft approaching the airport between 22:00 and 06:00 are expected to use continuous descent procedures. In line with commitments made in the Sustainable Aviation Noise Road-Map, we will work with our service partners to improve CDA at Manchester. We will extend the requirement for continuous descent approach procedures to be used to 24-hour. Our new target will be to achieve better than 90% 24-hour CDA use during the lifetime of this Noise Action Plan. We will review our continuous descent approach criteria, on the Sustainable Aviation 'low-noise arrival' study is complete.	Modified

As at most major airports, aircraft making their final approach into Manchester are guided by an instrument landing system (ILS).

The ILS gives precise information about the position of the aircraft in relation to the runway. Using ILS means that aircraft follow a very narrow approach path at an angle of 3°. We will continue to work with our Sustainable Aviation partners to evaluate the possible introduction of steeper approaches at UK airports including Manchester.

To reduce noise disturbance from aircraft using the ILS, aircraft must not descend below 2000 feet before joining the glide path.

If a pilot chooses to approach the airfield without help from ILS or radar (that is, to make a 'visual approach'), the aircraft must follow a descent path which will not result in it being lower than the approach path it would have followed using the ILS glide path.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP3 – ILS approach	Aircraft using the instrument landing system must not descend below 2000 feet before joining the glide path. We will maintain this commitment throughout the duration of this Noise Action Plan. We will also introduce periodic exception reporting, to monitor and where necessary, improve compliance.	Modified
NAP4 – visual approaches	Propeller aircraft whose maximum take-off weight is more than 5700 kg must not join the final approach at a distance of less than three nautical miles from the landing point or at a height of less than 1000 feet.	Retained

One of the ways to slow an aircraft down immediately after landing is by using 'reverse thrust'. This is where the thrust from the engines is directed forwards to produce a braking action. Although the brakes of modern aircraft are far more efficient than they once were, reverse thrust may still be needed and can cause a noise disturbance to communities close to the airfield. To try to keep the disturbance to a minimum, we discourage the use of reverse thrust, particularly at night.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP5 – reverse-thrust braking	To keep noise disturbance to a minimum in areas next to the airport, pilots should avoid using reverse thrust after landing.	Retained

9. ON THE GROUND

We have a number of regulations in place to reduce ground noise at the airport. These are published in the AIP and cover such things as the use of aircraft auxiliary power units and aircraft engine testing.

Emerging opportunities to reduce noise from aircraft ground operations are also being explored. Sustainable Aviation has a code of practice for reducing the environmental impacts of ground operations[22].

This promotes minimising the use of the APU in favour of ground based power and use of reduced engine aircraft taxi. Much of this work offers opportunities to reduce noise as well. At the time of writing the UK aviation industry is also exploring two areas which give opportunities to reduce ground noise.

- Working together to improve the aircraft turnaround. This is a collaborative piece of work, led by MAG, with airport, ground handling, airline and air traffic staff. The aim is to minimise the emissions and noise from aircraft turnarounds.
- Optimising ground taxi times. This is again collaborative work between the airport, airlines and air traffic staff to reduce delays, emissions and noise for aircraft whilst taxing to and from the runway.

Manchester Airport will continue to learn from best practice and work being carried out elsewhere. We will continue to collaborate with our local stakeholders to see how this can be best implemented.

Aircraft engines can produce huge amounts of thrust. Thrust is used to fly the aircraft in the air and to taxi the aircraft when it is on the ground. With all of an aircraft's engines running, even at very low power settings, the thrust produced is often more than enough to move the aircraft along the ground. Because of this 'surplus' of power, in the right conditions an engine can be turned off while the aircraft is taxiing to and from the runway. Many airlines already do this at Manchester, and this has benefits both to local noise and air quality. Through our work with our Sustainable Aviation partners and through our own Collaborative Environmental Management group, we will try to develop best practice for reduced-engine taxiing (that is, turning an engine off when taxiing).

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP6: reduced-engine taxiing	Through our work with our Sustainable Aviation partners and through our own stakeholder groups, we will try to develop a better understanding of the impediments to reduced engine taxiing at Manchester and assess, promote and monitor take-up. We will work with our Sustainable Aviation partners in reviewing the current Departure and Ground Operations Code of Practice which encourages the use of reduced-engine taxi where feasible. Where there is seen to be benefit, we will roll-out at Manchester.	Modified

[22] http://www.sustainableaviation.co.uk/wp-content/uploads/2015/09/Departures-Code-of-Practice-June-2012.pdf

For a period of time immediately before take-off and shortly after landing, an aircraft may still need electrical power to maintain on-board systems and provide ventilation to the cabin.

To maintain that power while the main engines are turned off, most modern jet aircraft are fitted with an auxiliary power unit (APU). The APU is a small engine. Like all engines, an APU can be noisy, affect air quality and contribute to climate change. An alternative to using APUs is to use fixed electrical ground power points (FEGPs). FEGPs provide mains electricity to power an aircraft's systems and are available on most of our aircraft stands.

We are continuing to upgrade our FEGPs to make sure they are compatible with the latest types of aircraft. Where we have completed this work, we intend to restrict the use of auxiliary power units.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP7: APU use	We will introduce restrictions on the non-essential use of auxiliary power units. We will work with our airlines and ground handling partners to increase the use of FEGP. Our approach will include requiring the use of FEGP where it is available.	Modified

Aircraft maintenance is an important part of the work that goes on at the airport. After maintenance work has been carried out, engines are often tested before the aircraft is used. To limit the effect the engine testing has on local residents, we have built a specially-designed engine-test bay.

Engine testing on the open airfield only takes place as an exception, when the direction of the wind prevents the use of the engine-test bay. Testing outside the bay is not allowed at night, and testing within the bay is strictly controlled during the night-time.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP8: Engine testing	All engine tests above idle power must commence in the engine test bay. Engine testing is not allowed outside the engine test bay between 22:00 and 06:00 on weekdays, and between 22:00 and 07:30 on Saturdays and Sundays. We will maintain this commitment throughout the duration of this Noise Action Plan. When it isn't possible to successfully complete an engine test within the engine test bay, either for operational or safety reasons. There are currently two designated locations on the open airfield where the test may be carried out. These were agreed some years ago and may no longer be ideal either from a noise impact or operational perspective. We will attempt to identify and consult upon additional/alternative engine test locations, on the airfield.	Modified


MAG
Manchester
Airport
"We have a number of regulations in place to reduce ground noise at the airport."
Emirates

10. DEPARTING AIRCRAFT

Although improved engine design has dramatically reduced the level of noise generated by aircraft immediately after take-off, noise on departure can still be a major source of disturbance to our neighbouring communities.

There are two main ways to reduce the level of departure noise heard by people near the airport.

- Direct the aircraft away from areas of population. To do this we operate a system of what are known as 'preferred noise routes' (PNRs) which are detailed in Appendix E. The number of flights following our PNRs has become a very important performance indicator for us. We routinely report performance against this indicator to airlines, air traffic control and our Independent Consultative Committee.
- Climb the aircraft as quickly as possible. Although, the ability to do this can be limited by how busy the airspace is around the departing aircraft.

Through working with our airlines and air traffic controllers, over many years we have increased the number of flights following PNRs. In 2016/17 just 4% of departures left our PNRs (that is, flew 'off track').

In recent years aircraft flight and navigation systems have become increasingly clever. In a similar way to today's cars, aircraft now make increased use of satellite information for navigation and have computers constantly monitoring and optimising the engines and flight controls. Air traffic control systems have also become increasingly clever with improve accuracy of radar information and automated communication with the aircraft. These developments have created many opportunities to improve aircraft departure routes and rates of climb. The most popular opportunities are;

- Performance based navigation (PBN) routes. These use precise satellite navigation points along a route for the aircraft navigation system to follow, significantly improving the accuracy of the route flown by all aircraft that use this system.
- Continuous climb departures. These are designed to enable aircraft to keep climbing after take-off until they reach their cruise altitude with an aim to make the aircraft higher, quicker and therefore quieter. Changes to the current airspace structure around the airport might be required to enable this to happen.
- Noise optimised aircraft departure. Some modern aircraft systems can now be designed to minimise the noise the aircraft makes at specific points along its departure route. These points can be areas of population or other noise sensitive.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP9: 'off-track' departures	We have an annual limit of no more than 5% off-track departures. We will work with our Collaborative Environmental Management group to reduce the number of 'off-track' departures. Opportunities now exist to raise the target and design Performance Based Navigation departure routes to enable even more accurate track keeping and the possibility to reduce the width of our PNR's. However, any such change would need to be delivered as a part of a formal Airspace Change Proposal.	Retained
NAP10: 'off-track' surcharge	We have a system of financial penalties for flights where airlines persistently fail to keep on the PNRs. We introduced those penalties after the Civil Aviation Act 2006 was published. The surcharges are as follows: During the day – £500 per failure During the night – £750 per failure From Winter 2019, we will link our surcharges to the Retail Price Index (RPI) and adjust them annually. We are pleased to be able to report that, to date, we have not had to charge any penalties. If we do have to charge any penalties in the future, we will donate the proceeds to the Manchester Airport Community Trust Fund (see NAP34).	Modified

Sometimes, for instance because of bad weather, air traffic control may cancel the need for an aircraft to follow a PNR. Such a departure is described as being 'non-standard'. We understand that because non-standard departures can result in aircraft flying over more densely populated areas, they can be particularly disturbing. For this reason, we keep the number of this type of departure to a minimum.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP11: non-standard departures	We have an annual limit of no more than 5% non-standard departures.	Retained

Departing aircraft normally take off into the wind. However, if there are clear benefits to departing in a particular direction, a limited amount of wind from behind may be acceptable. By specifying our preferred runway direction as westerly (that is, aircraft approaching to land from the east and taking off to the west) we can further reduce the number of departing aircraft flying over more densely populated areas to the north and east of the airport.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP12: preferred runway direction	Where conditions allow, we prefer aircraft to take off in a westerly direction.	Retained

In consultation with the airport's Environmental Health Officers Consultative Group and local stakeholders, we will continue to routinely review our runway usage to identify possible opportunities for using just one runway.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP13: using only one runway	The airport will do its best to keep the use of both runways at the same time to a minimum. Each year we will review opportunities to use just Runway 1, within operational and safety requirements.	Retained

The level of noise generated by each aircraft as it departs is measured at a number of fixed points around the airport. Beneath each PNR, noise monitors are positioned at a standard distance after take-off. The levels recorded at these points are used to set our noise performance indicators and policies.

To encourage departing aircraft to be flown in the quietest possible way, for flights that generate noise levels above published limits we issue the airline with a financial penalty known as a noise surcharge. The level of the noise surcharge depends on the level of the noise.

The maximum level of noise a departing aircraft is allowed to make depends on the time of day – the night-time limits are lower because we recognise that noise can bother people more at night. We donate any surcharges to the Manchester Airport Community Trust Fund (see NAP33).

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP14: departure noise surcharge	The penalty for going over the daytime maximum noise level of 90dB(A) is currently £750 plus £150 or each decibel above that level. Details of our night time departure noise surcharges can be found on page 48. We will review our daytime noise surcharge, in consultation with the Technical Advisory Group and the Environmental Health Officers Consultative Group. From Winter 2019, we will link the departure noise surcharge to the Retail Price Index (RPI) and adjust it annually.	Modified

Departure noise levels, recorded over a full summer or winter season, are ranked in descending order. An average of the 10% noisiest or 100 noisiest are used as an extra performance indicator, to support the more customary noise contours. We are committed to making sure that these levels stay lower than those recorded in 2001.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP15: 24-hour noisiest 10%	The average level of noise of the 10% noisiest departures will remain lower than that in 2001. We will continue to monitor performance against our limit and report the results to the Technical Advisory Group and the Environmental Health Officers Consultative Group.	Retained
NAP16: daytime noisiest 100	The average level of noise for the 100 noisiest departures between 07:00 and 23:00 will remain lower than that in 2001. We will continue to monitor performance against our limit and report the results to the Technical Advisory Group and the Environmental Health Officers Consultative Group.	Retained

Given that the mix of aircraft operating at the airport is constantly changing we will continue to develop our charging systems so that they respond to that change and continue to encourage the use of the quieter types of aircraft rather than older, noisier aircraft.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP17: noise related runway charge	We will review our noise-related charges, during the course of this Noise Action Plan.	Retained

In looking to the future, the potentially conflicting requirements relating to noise, local air quality and climate change make the approach adopted by the Sustainable Aviation initiative even more relevant. We will continue to play an active part in that group's work, Locally, through the Collaborative Environmental Management process, we will continue to work to identify and introduce more efficient departure procedures including the possibility of using 'precision departure procedures' (P-RNAV) and 'continuous climb departures' (CCD).

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP18: departures code of practice	We will look at the best practice guidance contained in the Sustainable Aviation Departures Code of Practice and continue to examine how this might be rolled-out at Manchester. We will report our performance in achieving this.	Retained

11. NIGHT NOISE

This section sets out Manchester Airport's policies for controlling night noise. Night-time noise can often be the most disturbing. So, it is important that our controls for night noise clearly demonstrate a balance between the economic and social benefits that the airport brings and the intrusion that noise at night causes.

We review our night noise policy every five years to make sure it continues to be relevant.

Our policies fall into five categories:

- Movement and points budget limits
- Noise penalties
- Engine testing
- Operational restrictions
- Monitoring and review

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP19: night noise policy	We review our night noise policy every five years to make sure it continues to be appropriate. However, because we believe that the next major night noise review should take place in parallel with the forthcoming airspace change proposal. in the interim, we intend to maintain our existing night noise policy for a further two years, commencing Winter 2018. The new policy will be consolidated within our revised Noise Action Plan.	Modified

Our night noise policy states that aircraft noise will not go above the levels that we recorded in 2001.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP20: night-time noise contour area	The area of the night-time 60dB L_{Aeq} noise contour will remain smaller than that in 2001. We will maintain this commitment throughout the duration of this Noise Action Plan.	Retained

L_{Aeq} represents the average sound level over a given period of time, in this case the eight hours between 23:00 and 07:00. However, often it can be a relatively small number of noisy aircraft which cause the most disturbance. So, we will also make sure that the average sound level of the 100 noisiest night-time departures remains below the level in 2001.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP21: night period noisiest 100	The average level of noise for the 100 noisiest departures between 23:00 and 07:00 will remain lower than that in 2001.	Retained
NAP22: night-time noisiest 100	The average level of noise of the noisiest 100 departures between 23:30 and 06:00 will remain lower than that in 2001.	Retained

We will continue to make sure that the surcharge we apply on aircraft going above our maximum night-time noise levels remains set at a lower noise level than that during the day. We will donate all money from these surcharges to the Manchester Airport Community Trust Fund.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP23: night noise surcharge	The noise level at which we apply a surcharge will continue to be lower during the night period (23:00 to 07:00). We will retain the existing night noise penalty levels throughout the duration of this Noise Action Plan. The penalty for going over the core night period's (23:30 to 06:00) noise level of 81dB(A) is £750 plus £150 for each decibel above that level. The penalty for going over the shoulder night-period's (23:00 to 23:30 and 06:00 to 07:00) noise level of 82dB(A) is £750 plus £150 for each decibel above that level. From Winter 2019, we will link the night noise surcharge to the Retail Price Index (RPI) and adjust it annually.	Modified

An essential part of our night-period noise controls is a system of classifying aircraft according to their 'quota count'. The system gives each aircraft a 'quota count' depending on the noise they generate on take-off and when landing (based on the noise levels measured at the time that aircraft was first introduced).

Following a 2017 review of the night flight restrictions at the designated airports – Heathrow, Gatwick and Stansted, a new QC0.125 category has been added to the quota-count system. There are therefore now eight categories of quota count and these double with each increase of three decibels.

In addition, flights by the quietest aircraft types (QC0) are no longer excluded from movement limits.

Aircraft are given a quota count (QC) as follows.

CERTIFIED NOISE LEVEL (DECIBELS)	QUOTA COUNT
More than 101.9	QC16
99 to 101.9	QC8
96 to 98.9	QC4
93 to 95.9	QC2
90 to 92.9	QC1
87 to 89.9	QC0.5
84 to 86.9	QC0.25
81 to 83.9	QC0.125
Less than 81	QC0

The limit we set on the total number of QC points for all aircraft taking off or landing between 23:30 and 06:00 depends on the season. In principle, for any season the total number of QC points allowed (the noise budget) could be used for a small number of noisy aircraft or a larger number of quieter aircraft.

Our seasonal QC point noise budgets are:

Summer 7000 points
Winter 3000 points

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP24: seasonal QC point noise budget	We will maintain our existing seasonal QC point noise budgets for a further five years, until the end of summer 2023. We will also adopt the revised government Quota Count scheme incorporating the new QC0.125 and QC0 categories. We will report usage of the seasonal QC point noise budget to the Consultative Committee.	Modified

We have also placed restrictions on the use of aircraft with higher quota counts. Aircraft with quota counts of QC8 or QC16 are not allowed to land or take off between 23:00 and 07:00. Also, aircraft that have a quota count of QC4 when taking off may not be scheduled to depart between 23:30 and 06:00.

However, there are a number of exceptions where QC8 and QC16 aircraft can be used, and where departures of aircraft with a quota count of QC4 can be scheduled.

These exceptions are as follows.

- Non-scheduled movements during emergency situations
- Non-scheduled movements because of major disruption to air traffic
- Non-scheduled movements where significant distress may be caused to humans and animals
- Relief flights where there is an urgent need
- Military and support aircraft at a time of war
- Aircraft of royal families and aircraft carrying heads of state

We report any departure or arrival that takes place as a result of these exceptions, to the Airport Consultative Committee. However, to date none of these exceptions have applied.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP25: ban on QC16 and QC8	Aircraft with a quota count of QC8 or QC16 must not take off or land between 23:00 and 07:00. We will extend this commitment for a further five years, until the end of summer 2023.	Retained
NAP26: ban on scheduling the take-off of aircraft with a quota count of QC4	Aircraft with a quota count of QC4 cannot be scheduled to take off between 23:30 and 06:00. We will extend this commitment for a further five years, until the end of summer 2023.	Retained

Quota counts give us a framework that encourages the increased use of quieter types of aircraft. However, we realise that there is also a need to limit the number of night flights in general. To work with the QC points budgets, we have set seasonal and overall limits for the number of night flights allowed up to the end of the 2017 summer season.

Our seasonal night flight limits are:

Summer **10150 flights**
Winter **3895 flights**

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP27: seasonal limit on night flights	We will maintain our existing seasonal night flight limits for a further five years, until the end of summer 2023. Going forward, previously QC exempt aircraft types will be counted against those limits. We will report the seasonal number of night flights to the Consultative Committee.	Retained

As part of the Second Runway Section 106 agreement, we must make sure that the number of flights which take place at night, remains proportionate to the number of flights throughout the day.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP28: night flight limit	No more than 7% of total flights can be scheduled to take off or land between 23:30 and 06:00.	Retained

Aircraft maintenance is an important part of the work that goes on at the airport. After maintenance work has been carried out, engines are often tested before the aircraft is used. To limit the effect the engine testing has on local residents, we have built a specially-designed engine-test bay.

Engine testing on the open airfield only takes place as an exception, when the direction of the wind prevents the use of the engine-test bay. Testing outside the bay is not allowed at night, and testing within the bay is strictly controlled during the night-time.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP29: engine testing at night	Engine testing is not allowed outside the engine test bay between 22:00 and 06:00 on weekdays, and between 22:00 and 07:00 on Saturdays and Sundays. The number of engine tests carried out at night will be limited to 20 in any year.	Retained

At night-time, when people are most sensitive to aircraft noise, we understand that aircraft that seem to be used outside the normal pattern can be a cause of concern. To help to reduce that, we have a ban on non-standard departures between 23:00 and 07:00, and do not allow visual approaches to the airfield between 23:00 and 06:00.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP30 – visual approaches at night	Visual approaches will not be permitted between 23:00 and 07:00.	Retained
NAP31 – non-standard departures at night	Non-standard departures will not normally be issued between 23:00 and 07:00.	Retained
NAP32 – use of Runway 2 at night	Runway 2 will not be used between 22:00 and 06:00, unless it is unsafe to use Runway 1, or Runway 1 is closed.	Retained
NAP33 – night-time contour area	We will report annually the area of the 60dB L_{Aeq}, 57dB L_{Aeq} and 48dB $L_{Aeq\ 8\text{-}hour}$ contours	Retained
NAP34 – night-time operations	We will manage the operations of the airport at night to ensure that neither the average noise level of the top 100 noisiest departures or the area of the 60dB L_{Aeq} contour is worse than recorded during 2001.	Retained

MAG Manchester Airport

"At night-time we have a ban on non-standard departures between 23:00 and 07:00."

12. MITIGATION AND COMPENSATION SCHEMES

Despite the application of the techniques and actions discussed so far, the airport accepts that there are areas around the airport still affected by aircraft noise. This is where the airport has developed a range of mitigation and compensation measures for the noise.

These cover a range of options from the installation of noise insulation for those buildings most affected by noise to funding support for local community projects.

At Manchester our Community Trust Fund[23] is designed to support projects across a wide area around the airport as shown. This area also covers most locations the airport currently receives noise complaints from as shown in Appendix F.

We have offered a sound insulation grant scheme since 1972. We continue to offer those living close to the airport a contribution towards the cost of insulating their home against aircraft noise. In 2012 we reviewed our sound insulation grant scheme to make sure that it continued to meet government requirements. A further review in 2017 introduced the option to allow householders to select their own supplier, or to choose the airport's preferred supplier.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP35: sound insulation grant scheme	We will continue to run a scheme that helps people with the cost of insulating their homes against the effects of aircraft noise. We will review the scheme every 5 years, to make sure that it remains appropriate and relevant. The next review will take place in 2022.	Retained

Some other buildings affected by noise (noise-sensitive buildings), such as schools and hospitals, may be able to get grants towards sound insulation.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP36: noise sensitive buildings	We will consider offering sound insulation to noise-sensitive buildings within the 63dB L_{Aeq} noise contour.	Retained

[23] For more information please visit our website – http://www.manchesterairport.co.uk/community/working-in-our-community/

The Government expects the mitigation schemes adopted by UK airports to continue to be strengthened by including a number of extra measures. Accordingly, for properties within the 69dB L_{Aeq}16-hour (daytime) noise contour, we offer a 'property relocation assistance scheme' that pays a significant proportion of the cost of moving to a new house. It is designed to help residents in the noisiest areas to move to a quieter area. Introduced in 2005, the scheme is available to approximately 200 properties, mainly in the Heald Green and Wythenshawe areas.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP37: home relocation assistance scheme	We will continue to help homeowners in the noisiest areas to move to a quieter area.	Retained

In line with government recommendations, we will continue to review properties suffering from high levels of noise (69dB L_{Aeq}), and if there has been a large increase in noise (3dB L_{Aeq}), consider offering to buy these properties.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP38: property purchase	We will continue to consider offering to buy properties suffering from the highest noise levels and a large increase in noise.	Retained

When an aircraft travels through the air it causes air turbulence behind it. This turbulence can lead to circulating currents of air known as vortexes. Most vortexes are broken up before they reach the ground, but sometimes –particularly in the final stages of landing– they can reach roof level, causing tiles to lift or slip. We have identified areas where damage is most likely to occur. When it is confirmed that vortexes have damaged a roof, we will arrange to repair the roof and give it a vortex-resistant roof covering. In some areas properties may be eligible for re-roofing.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP39: vortex damage repair scheme	We will continue to provide a vortex-damage repair scheme to repair roofs that have been damaged by vortexes caused by aircraft.	Retained

We will continue to donate all the money we raise as a result of our environmental penalties to the Manchester Airport Community Trust Fund. The fund is a registered charity. It awards grants to local groups to support community, social or environmental projects. The trust concentrates on the areas most affected by aircraft.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP40: community trust fund	We will donate all the money we raise as a result of our environmental penalties to the Manchester Airport Community Trust Fund. We will also continue to donate £100,000 to the fund, each year.	Retained

If you would like more information or would like to discuss any of the schemes in more detail please contact our Community Relations Team:

Telephone: **08000 967 967**
Email: **community.relations@manairport.co.uk**
Website: **manchesterairport.co.uk/community/**

13. MONITORING AND REPORTING

Over time our monitoring systems and the ways in which we use them have developed tremendously. As we review and develop our noise control policies, we also need to monitor and report on how effective our procedures are.

Our aircraft noise and track system monitors and reports on noise from aircraft, and checks and records the path of every aircraft within 30 kilometres of the airport, up to a height of 12,000 feet. It will, for instance, automatically tell us when aircraft have gone above noise limits, strayed from our preferred noise routes or not followed a continuous descent approach.

The results of our monitoring are independently checked and then reported to the Manchester Airport Consultative Committee (MACC). This helps the committee to monitor the effectiveness of our policies. Members of the Environmental Health Officers' Consultative Group also have access to noise information for monitoring purposes.

We will continue to develop our ability to monitor and report on aircraft noise and we are committed to improving the ways in which we share that information with others.

To give people a better understanding of how our flight paths work and so that they can be better informed about Manchester's operations, we will expand our Webtrak to include the 'Webtrak My Neighbourhood' facility. 'WebTrak My Neighbourhood' allows users to enter their location into the map-based website to see how aircraft movements change over time and how often particular flight paths are used.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP41: guaranteed access	We will continue to give the Manchester Airport Consultative Committee and Environmental Health Officers Consultative Group access to our monitoring systems.	Retained
NAP42: develop our monitoring system	We will continue to review and invest in our noise information systems, to ensure that they remain suitable, relevant and effective. We will expand 'Webtrak' to include the 'Webtrak My Neighbourhood' facility.	Modified

Our noise and track monitoring system also plays an important role in helping to guide our discussions with the local community. The system currently supports a network of 14 noise monitors. Since our 2013 – 2018 Noise Action Plan was published, three new monitoring locations have been established in Bowdon, Wythenshawe and Heald Green. We will continue to review the number and location of our noise monitors.

During the course of this Noise Action Plan, we will work with environmental health officers in areas further away from the airport to identify suitable locations for portable noise monitoring equipment. We will then report the results to the Environmental Health Officers Consultative Group, possibly with a view to extending our permanent network of monitors.

Many of our noise control measures are judged against limits which are fixed by either the planning conditions set for the second runway or in the S106 Agreement of the Town and Country Planning Act 1990, or are compared against performance in 2001.

Our main performance indicators, which we will report on each year throughout the period covered by this action plan will be:

- The area and population within the, 57dB L_{Aeq} and 60dB L_{Aeq} daytime noise contours (average summer day). In line with emerging guidance, we will also start to report the area and population within the 51dB L_{Aeq}, 54dB L_{Aeq} contours.
- The area and population contained within the 48dB L_{Aeq} and 60dB L_{Aeq} night-time noise contours (average summer day).

From 2020 onwards, we will publish predictive noise contours, based upon five-year and ten-year traffic forecasts.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP43: daytime noise contours	Each year we will report on the area and population contained within our daytime 60dB L_{Aeq} aircraft noise contour. The area of the daytime 60dB L_{Aeq} noise contour will remain smaller than that in 2001 – 25.6 square kilometres.	Retained
NAP44: night-time noise contour	Each year we will report on the area and population within our night-time 60dB L_{Aeq} aircraft noise contour. The area of the night- time 60dB L_{Aeq} noise contour will remain smaller than that in 2001 – 7.8 square kilometres.	Retained

We accept that L_{Aeq} or L_{den} noise contours are not easily understood by non-experts. To help people understand the noise climate around our airport, we will start to publish each year 'Number Above' contour maps showing the number of times aircraft noise was louder than a given level. We will also publish our first flight-path maps and introduce the 'Webtrak My Neighbourhood' facility. These will show the number of flights into and out of the airport and where they flew. They will allow people to see which areas are flown over and how frequently this could be expected to happen

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP45: extra metrics	We will continue to develop the ways in which we share noise related information with our local communities by: – introducing the online 'Webtrak My Neighbourhood' facility. – continuing to develop and update our suite of community information sheets. – publishing extra noise indicators including 'number above' contours and 'flight-path' maps.	Modified

We will continue to publish details of the location, number and nature of the noise-related complaints that we receive and we'll report them through the Airport Consultative Committee and the Environmental Health Officers Consultative Group. We will use this information to help us develop our policies on managing noise and communicating with local people.

Each month we will report levels of noise on take-off and the number of flights straying from our preferred noise routes through the Consultative Committee. We will work with the Consultative Committee and the Environmental Health Officers Consultative Group to make sure those reports remain appropriate and relevant.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP46: noise complaints	We will continue to regularly report on the complaints we receive and how effectively we respond to them We will report details of the noise complaints we receive to our Consultative Committee and Environmental Health Officer Consultative Group. These reports will also be made available on our website.	Retained
NAP47: average noise levels	Each month we will report the average noise levels on take-off, giving figures for 24-hours, daytime only and night-time only. We will continue to report average departure noise levels to our Consultative Committee. These reports will also be made available on our website.	Retained
NAP48: performance in following preferred noise routes	We will continue to routinely report on the level of take-offs keeping to our preferred noise routes.	Retained

Our stakeholders have told us that they would like us to report a single indicator of how well airlines comply with the measures we have introduced to minimise environmental impacts.

We will continue these discussions, through our Consultative Committee, to explore what this indicator might take account of. We will use this indicator in future reporting and to recognise the achievements of our airlines.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP49: environmental performance indicator	We will introduce a new indicator of the environmental performance of airlines operating at Manchester Airport. We will work with our stakeholders to agree what measures of aircraft environmental performance they find most valuable. Using these we will develop and publish a league table report, likely to consider topics such as compliance with noise mitigation measures and the environmental characteristics of the aircraft operating at Manchester. An annual award for the highest performing airline is also proposed. The effectiveness of this report will be reviewed prior to producing the next Noise Action Plan.	New
NAP50: low noise arrivals report	We will review the current continuous descent approach (CDA) reporting procedures in light of a Sustainable Aviation 2018 'Low Noise Arrivals' study. Implement changes where agreed and report progress.	New

14. EFFECTIVE COMMUNICATION

We try to be a good neighbour and we recognise our responsibilities to the local community.

We recognise the importance of carefully listening and discussing any noise concerns with our stakeholders. At Manchester Airport we have a long-term commitment to make a positive difference to the quality of life in our local community and we pride ourselves on being only one of 36 UK companies to have been awarded the Business in the Community 'Community Mark' excellence standard.

As well as being a good neighbour, we believe that supporting local and regional groups and charities is important to our long-term success.

In 2016 we published our Community Plan as part of our Sustainable Development Plan[24]. This sets out in detail where we intend to focus our Community Relations activity to support the future growth and development of the airport.

In addition to meeting publicly appointed representatives from parish councillors to members of Parliament, the airport holds regular community outreach events across the local area, conducts regular surveys to seek feedback on our community activities and publishes regular news on our work via the website and newsletters.

Where individuals are specifically annoyed by noise from airport operations we have invested in a dedicated noise complaint system where every complaint is recorded and investigated, with responses provided to the individual within 5 working days. This data is regularly shared with community representatives at the airport Consultative Committee Technical Advisory Group (TAG). This provides a valuable forum to explore noise concerns and discuss potential solutions.

For further information on any of this work please contact our Community Relations Team.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP51: Community Relations team	We will keep in touch with local people so that we can act on their comments and continue to respond to community concerns Our Community Strategy describes the various ways in which we keep in touch with our local communities and sets out how we will develop these over time[25]. We will continue to review and develop our Community Strategy.	Retrained
NAP52: outreach centres	We will continue to run our community outreach centres in communities around the airport. Alongside the regular outreach centre held at Knutsford library, we will provide at least 10 other outreach events each year. Every January we will publish our programme of outreach events for the coming year on our website.	Retained

We talk to our neighbours to share information and help us develop our polices. We regularly meet councillors from city, borough, town and parish councils. The councillors can pass on the concerns of residents and recommend ways for us to help the people they represent.

We will report details of our progress against the targets we have set ourselves. We will do this through regular meetings with local community representatives.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP53: community representatives	We will report details of our progress against the targets we have set ourselves. We will do this through regular meetings with local community representatives.	Retained

[24] For more information please visit http://www.manchesterairport.co.uk/about-us/sustainable-development-plan/
[25] You can find our Community Strategy 2018-2021at: http://www.manchesterairport.co.uk/community/working-in-our-community/

We believe that we can respond to many of the noise complaints that we receive by giving people a better insight into the way we work – what we do and why we do it. We are particularly proud of our record in making information about how we operate available to our local community and customers.

We have added to our online video resources with a new clip showing how we investigate complaints. We became the first UK airport to launch an iBook; called "A Flying Visit to Manchester Airport". The iBook describes the Airports' history and operations with a combination of film and text. There are some great 360 images from "behind the scenes" and other material that helps explain our operations and how the airport is run.

The 'Community' area on our website provides useful background information on many of the more common issues. It also lets people make a complaint online.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP54: complaints and enquiries	We will continue to offer a range of ways for people to make enquiries or complaints about aircraft noise.	Retained

For further information on any of this work please contact our Community Relations Team:

Community Relations Department
Olympic House
Manchester Airport
M90 1QX

Freephone: **0800 0 967 967**
Email: **community.relations@manairport.co.uk**
Website: **manchesterairport.co.uk/communitylinks**

In 2017 we responded to all complaints about aircraft noise within the timescale we set ourselves.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP55: responding to complaints	We respond to 95% of noise complaints within five working days.	Retained

Complaints about aircraft noise provide valuable information that helps us to work with airlines, air traffic control and pilots to keep disturbance to a minimum and encourage the highest standards of work. Each month we give our Airport Consultative Committee and Environmental Health Officers Consultative Group reports on the types of noise complaints we have received and where from.

CONTROL	ACTION	STATUS – NEW, RETAINED, MODIFIED
NAP56: Environmental Health Officers Consultative Group	We will continue to routinely work with local authorities, through the Environmental Health Officers Consultative Group, to develop and report on policies.	Retained

15. NOISE COMPLAINTS

Knowing people's concerns about the airport is important to us. By studying the complaints we receive, and gathering information from our surrounding communities, we believe that we have a good understanding of the noise issues that affect our neighbours.

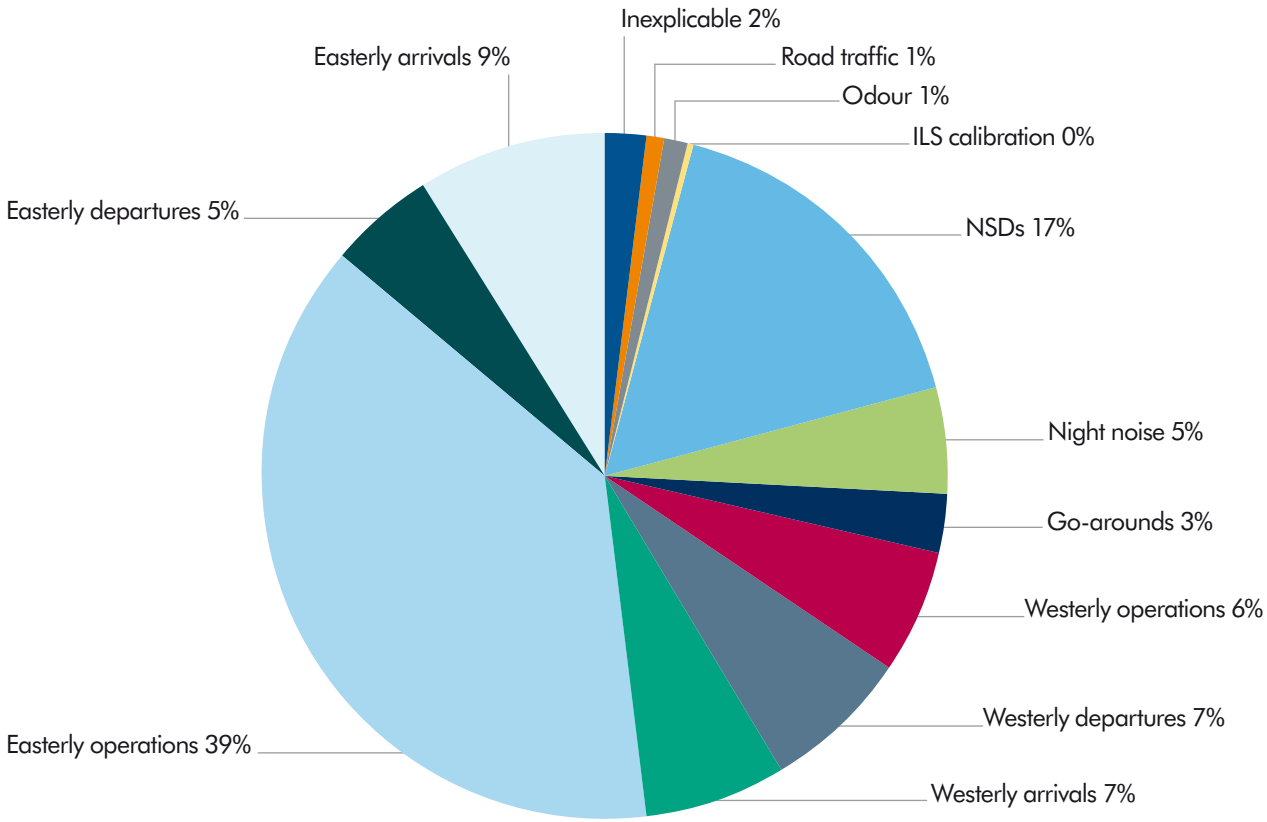
During 2017 our Community Relations team handled 622 complaints. In 2016 (the year that the information used to produce the Noise Maps was collected) a total of 864 complaints were made by 393 people. The number of complaints received from each person ranged from one to 185.

The total number of complaints we receive can easily be influenced by a small number of people. For instance, in 2017 three people registered almost 4000 complaints. For this reason, we have a procedure for handling persistent complainants. The procedure has been approved by our Consultative Committee and is available online at **manchesterairport.co.uk**. Complaints handled through this process are reported separately.

People are motivated to complain when they experience, or perceive there to have been, a change from what they regard as 'normal'. More people are affected when we change to 'easterly operations'. This happens during periods of easterly or north-easterly winds and means that aircraft land from the south-west over the towns of Northwich and Knutsford and take-off to the northeast over heavily populated areas of Greater Manchester; such as Stockport, Cheadle, Bramhall, Didsbury.

Over 50% of our complaints will simply be related to this change in the direction of traffic. Another 20% of complaints relate to 'non-standard' operations; such as departing aircraft that, for safety reasons, have been directed outside of the standard Preferred Noise Routes or arriving aircraft that have to 'go-around' as it would not have been safe for them to land on their first approach. The remaining 30% of complaints will relate to normal operations, that have caused disturbance.

CAUSE OF COMPLAINTS 2017



16. CONSULTATION RESPONSES

As recommended by the Government, we presented our revised draft Noise Action Plan to our Airport Consultative Committee. The Manchester Airport Consultative Committee (MACC) draws its membership from local authorities, councils, airport users and community groups. MACC is independently chaired and meets quarterly. We also discussed our proposed changes with our Environmental Health Officers' Consultative Group.

The draft Noise Action Plan was made available on line and we also wrote to the following organisations and individuals, setting out the purpose of the plan, the five-yearly review process and asking for review and comment.

Members of Parliament

- Ann Coffey MP
- Esther McVey MP
- Mike Kane MP
- Sir Graham Brady MP
- Mike Amesbury MP
- Mary Robinson MP
- Andrew Gwynne MP
- William Wragg MP

Council leaders and chief executives

- Leader of the Council
  Cheshire East Council
- Leader of the Council
  Cheshire West and Chester Council
- Leader of the Council
  Bolton Metropolitan Borough Council
- Leader of the Council
  Bury Metropolitan Borough Council
- Leader of the Council
  Oldham Council
- Leader of the Council
  Rochdale Metropolitan Borough Council
- City Mayor
  Salford City Council
- Leader of the Council
  Stockport Metropolitan Borough Council
- Leader of the Council
  Tameside Metropolitan Borough Council
- Leader of the Council
  Trafford Metropolitan Borough Council
- Leader of the Council
  Wigan Metropolitan Borough Council
- Leader of the Council
  Manchester City Council

Other government bodies

- Mayor of Greater Manchester
- Chief Executive, Greater Manchester Chamber of Commerce
- Chair of the Greater Manchester Local Enterprise Board
- Chief Executive, North West Business Leadership Team

County Councillors

- Cheshire East Council
- Cheshire West and Chester Council

District councillors

- Manchester City Council
- Stockport Metropolitan District Council
- Trafford Metropolitan District Council

Parish Councils

- Alderley Edge Parish Council
- Allostock Parish Council
- Antrobus Parish Council
- Appleton Parish Council
- Ashley Parish Council
- Chelford Parish Council
- Chorley Parish Council
- Comberbach Parish Council
- Cranage Parish Council
- Davenham Parish Council
- Dunham Massey Parish Council
- Goostrey Parish Council
- Great Budworth Parish Council
- Great Warford Parish Council
- Handforth Parish Council
- Henbury Parish Council
- High Legh Parish Council
- Knutsford Town Council
- Lach Dennis Parish Council
- Little Warford Parish Council
- Lostock Gralam Parish Council
- Lower Withington Parish Council
- Lymm Parish Council
- Marston Parish Council
- Marton Parish Council
- Mere Parish Council
- Middlewich Town Council
- Millington Parish Council
- Mobberley Parish Council
- Mottram St Andrew Parish Council
- Nether Alderley Parish Council
- Northwich Town Council
- Ollerton with Marthall Parish Council

- Over Alderley Parish Council
- Peover Inferior Parish Council
- Peover Superior Parish Council
- Pickmere Parish Council
- Plumley with Toft and Bexton Parish Council
- Prestbury Parish Council
- Ringway parish Council
- Ringway parish Council
- Rostherne Parish Council
- Siddington Parish Council
- Snelson Parish Council
- Stretton Parish Council
- Styal Parish Council
- Swettenham Parish Council
- Tabley Parish Council
- Twemlow Parish Council
- Warburton Parish Council
- Wilmslow Town Council
- Wincham Parish Council

Local authority officers

Environmental Health Officers

- Cheshire East Council
- Cheshire West and Chester Council
- Bury Metropolitan Borough Council
- Oldham Council
- Rochdale Metropolitan Borough Council
- Salford City Council
- Stockport Metropolitan Borough Council
- Tameside Metropolitan Borough Council
- Trafford Metropolitan Borough Council
- Manchester City Council

RESPONSES

Community Groups

- South-East Knutsford Residents Association (SERA)
- South Knutsford Residents Group (SKRG)

Parish Councils

- Great Budworth Parish Council
- Prestbury Parish Council

Town Councils

- Knutsford Town Council

District/Borough Councils

Environmental Health Officers

- Stockport Borough Council
- Manchester City Council
- Trafford Borough Council

County Councils

- Cheshire West and Chester Council
- Cheshire East Council

Other

- Mary Robinson MP
- Esther McVey MP

General Public

- Altrincham 1
- Mere 1
- Comberbach 2
- Cheadle 1
- Cheadle Hulme 1
- Bramhall 2
- Knutsford 1
- Tatton Estates 1
- Temple Group 1

SUMMARY OF RESPONSES

In reviewing the individual responses, we found similar comments or areas of overlap in comments on specific topics. We have split these into two sections, general comments about the draft plan and specific comments about proposed actions in the draft plan.

GENERAL COMMENTS

- Support for the draft NAP, believing it to provide clear and concise information and demonstrate a commitment to managing and improving the noise impact for local communities. In contrast, concern was expressed that the NAP proposals lacked ambition and failed to provide reassurance that the impact is truly understood.
- Suggestion that the airport has not met has met the requirements of the 2002 Environmental Noise Directive, because the draft Noise Action Plan fails to provide suitable analysis to assess the effects of noise on citizens and has not been aligned to address a required impact assessment.
- Various comments that baselines used in the plan are too numerous and potentially confusing. Specifically, concern that the retention of 2001 as a baseline for many of the noise management targets, was no longer

appropriate. Particularly, since this predated the END being amended into UK law, in 2006. Specific concerns were raised regarding the suitability of using 2006 data as a 2016 comparator. Suggesting that since the plan follows a five-year cycle, 2011 would have been a more appropriate comparison.

- Suggestion that the increase in the population affected, between 2011 and 2016 indicates that the current NAP has failed. The new draft NAP is simply more of the same. Explanation should be offered as to why the increase has happened.
- Concerns that the draft NAP was large and that the change in format makes it (deliberately) difficult to compare with previous plans and that the consultation process was flawed.
- Suggest that Manchester Airport commissions independent specialists to annually measure and report performance against its legislative and regulatory requirements
- A belief that the entire END process is flawed, since impact is based upon an annual average day and this doesn't truly reflect the impact of extended periods of easterly operations.
- Some concern was expressed that the omission of the word 'significantly' in the NAP long-term objective "to limit and reduce, where possible, the number of people affected by noise as a result of the airport's operation and development," is setting a standard more stringent than required by government and that this might, in turn hamper re-development of land around the airport.
- Various suggestions that the NAP fails to adequately address the impact of aircraft operations (including night noise) on health and well-being for citizens affected by the airport's operations.
- The recent prolonged spell of easterly operations, coincident with the consultation period, prompted several concerns that average annual metrics failed to take sufficient account of the noise impact during easterly operations.

ARRIVING AIRCRAFT

- Concern was expressed that the NAP fails to take sufficient account of recent aircraft noise research which shows that landing noise is at least as great, and sometimes greater, than noise on departure.
- Support was voiced for the extended 24-hour CDA requirement, as noise is now becoming a lot more noticeable in areas further away from the airport.
- Support was expressed for the ongoing development of the 'low-noise' arrival project, as it was considered that CDA is not always the most effective way of delivering a 'quieter landing'.

DEPARTING AIRCRAFT

- There was support for the introduction of PBN departure procedures, and the potential to concentrate flight tracks, potentially reducing the number of people impacted.
- Could the target for departure track adherence be increased?
- There was some support for possible re-alignment of certain PNRS, to better avoid centres of population. The limited use of the LISTO routes, when in westerly operations, was also questioned. Aircraft, leaving the PNR, having reached their release altitude, were seen as a potential cause of disturbance in areas outside the noise mapping areas of interest.
- Various suggestions that the departure noise and 'off-track' surcharges should be linked to RPI.
- Support was expressed for the continued use of just Runway 1, where ever possible. Where this is not possible, sensitive times of day (early morning), departures should be limited to aircraft which are QC2 or less.

NIGHT NOISE

- Seen as the major issue, over the period of this plan.
- The need for 24-hour operations was questioned. There should be no landings or take-offs between 23.30 and 05.30. Early morning flights were a particular concern.
- Various concerns were expressed that limiting the number of night flights to 7% of total movements is insufficient and that an absolute limit should also be put in place. Reduced charges at certain times in the early morning, were also challenged.
- Positive action should be taken to penalise the operation of noisier aircraft types at night. Scheduling restrictions on QC4 aircraft, should be extended to include QC2. Further that the operation of QC4 aircraft at night should be prohibited.
- Seasonal QC budgets should be reduced.
- Reduce the use of Runway 2, especially at night, as much as possible. This would include the removal of any pricing incentives
- Several comments that the night noise restrictions should be brought in line with those recently implemented at the London airports.

- Having a 'night period' (23.30 to 06.00) and a slightly different 'night-time' (23.00 to 07.00) is confusing.
- The reporting of night noise QC usage and movements was broadly welcomed.

MITIGATION

- Various suggestions that the provision of the Sound Insulation Grant Scheme should be extended (possibly to the 54dB contour) and that the grant should pay for double glazing for all, rather than secondary glazing.
- It may be useful to state in the NAP how many homes have benefited from the compensation schemes on offer over a given period and how much money has been spent on related works/what the works involve.

MONITORING

- Some support for the introduction of additional noise monitoring in areas more distant from the airport.

LAND USE PLANNING

- Some suggestion that It would be useful if the NAP could include more text on proposed new development in the area (that could be impacted by noise) and provide a weblink containing specific information for developers and their consultants. This is so that anything relevant is considered at the early design stage and included in submitted assessments/reports with planning applications.
- A request that the airport publish forecast noise contours, as this would further aid the planning process and help the public in making informed decisions about where to live.
- Concern that the draft plan is in tension with the National Planning Policy Framework, in so far as it appears to seek to prevent any noise sensitive development within the 54dB L_{Aeq},16-hour noise contour; whereas policy and guidance permit such development provided adequate mitigation is provided to avoid significant adverse effects and mitigate and minimise adverse effects.
- Concern that the draft NAP creates unnecessary risk to much needed housing development.
- The draft NAP comments on the 57dB L_{Aeq},16-hour contour refer to policy citing recent research suggesting that the same proportion of the population who were annoyed by aircraft noise in the 1980's are nowadays annoyed at 54 decibels (although the same research found that at 63 L_{Aeq},16-hour and above a smaller proportion were annoyed).
- The draft NAP also needs to explicitly recognise that policy establishes 51dB L_{Aeq},16-hour as the Lowest Observed Adverse Effect Level for aircraft noise and that in policy terms it not likely that significant and unacceptable effects occur before much higher values are reached e.g. 63 and 69dB L_{Aeq},16-hour.

OUR RESPONSE AND THE ACTIONS WE WILL TAKE

Many of our existing limits and targets have their origins in the planning conditions associated with our second runway, and through a voluntary but legally binding agreement under S106 of the Town and Country Planning Act 1990 and it is for this reason that some date back as far as 2001. We recognise that the age and sheer number and variety of these limits could lead to confusion and may sometimes make it difficult to understand and monitor our ongoing performance.

We therefore intend to carry out a review of all our noise related indicators and develop a revised suite of baselines, limits and targets. The review, informed by long-term traffic forecasts produced in support of our forthcoming airspace change proposal, will be undertaken working with our airport consultative committee and Environmental Health Officers from surrounding local authorities.

Any amendments or additions to our package of noise measures, will be included for formal adoption, at the time of our next Noise Action Plan review.

Many of those who responded thought that we should be introducing more stringent measures to control the effect of noise at night.

Comments received ranged from suggesting that the airport should close at night through to extending the period during which night-time restrictions apply. There was also some evidence that the extent of existing controls is being misunderstood.

We last reviewed our five-year night noise policy in 2011. The resulting policy, was subsequently extended for a further year (in 2017) to allow it to be revised at the same time as this Noise Action Plan.

We believe that the potential benefits afforded by airspace change and the associated introduction of new technologies and procedures, have an important role to play, in any major review of what is perhaps our most important noise control measure. We therefore believe that such a review should take place in parallel with our airspace change proposal. To enable this, we therefore intend to maintain our existing night noise policy for a further two years. The subsequent review will consider, but not be limited to, seasonal movement limits, QC point budgets and the night time scheduling of noisier aircraft types.

We look forward to maximising the benefits airspace change will provide, with the ambition to reduce the noise impacts of aircraft on communities living near the airport. Suggestions we have received through this consultation will be considered by us as part of future airspace change. We will engage with our communities again, as part of our airspace change process, to gather further ideas about how we can minimise the impacts of aircraft operations.

It is some time since our departure noise and 'off-track' surcharges were reviewed, and we accept that during that time, the financial penalty has remained unchanged. Therefore, from Winter 2019 we will link these surcharges to the Retail Price Index (RPI) and adjust them annually.

From 2019 we will extend our requirement for continuous descent approach to 24-hour. Our new target against this will be to achieve at least 90% CDA during the lifetime of this plan.

We accept that there could be significant potential benefit from the publication of regularly updated future aircraft noise contours for the airport. This would apply to local communities, planners and developers alike. From 2020 onwards, we will publish predictive noise contours, based upon both five-year and ten-year traffic forecasts.

Our noise monitoring system is made up of monitors which are mainly in areas immediately around the airport. A number of people have suggested that noise monitoring should be carried out in areas much further from the airport. We will work with environmental health officers in areas further away from the airport to identify suitable locations for portable noise monitoring equipment. We will then report the results to the Environmental Health Officers Consultative Group, possibly with a view to extending our permanent network of monitors.

Some concern was expressed that the area covered by our Sound Insulation Grant Scheme, should be revised. Current Government policy is that financial assistance towards the cost of insulation should be provided to people who experience a noise level of 63dB L_{Aeq},16-hour, or greater and that the full costs of insulation should be paid for people exposed to a noise level of 69dB L_{Aeq},16-hour, or greater. The scheme that we offer meets these requirements and therefore, whilst we will continue to talk to local stakeholders to ensure it remains subject to review, we do not intend to make any substantive changes at this time. We will ensure that any changes in the distribution of noise that arise due to changes in operations at the Airport, including airspace changes, are considered so that we may offer continue to offer support to those most impacted by aircraft noise. We recognise that there is growing evidence that aircraft noise poses a small but significant risk of some health effects. We are aware of a range of studies with different findings and that the evidence base is varied we look to government to consider the available evidence as it prepares its new aviation strategy, to inform our future actions. We will implement any new policy in full. Notwithstanding this, our work will be guided by our objective which is to limit and reduce, where possible, the number of people affected by noise as a result of the airport's activities.

Some respondents expressed serious concerns that the draft Noise Action Plan either fails to meet the requirements of the Environmental Noise Directive, or sets out policies that are more stringent and potentially more restrictive than currently required by the National Planning Policy Framework. We do not believe this to be the case and the approach that we have taken and our objectives are wholly consistent with current planning guidance and government policy.

17. CONCLUSION

This Noise Action Plan has been developed to meet the long term aims of Manchester Airport to limit and reduce where possible, the number of people affected by noise because of the airport's operation and development.

Under the regulations we must assess how effectively we are controlling the effect of noise arising from aircraft landing and taking off. The effect of our work has been presented in the form of noise maps, along with the number of people and homes experiencing a range of noise levels.

In 2006 – the year for which our first noise maps were produced – 22.1 million passengers travelled through Manchester Airport. By 2016, although passenger numbers had increased by almost 16% to 25.6 million, the size of the 55dB L_{den} contour had reduced from 68 square kilometres to 64 square kilometres. The size of the 50dB L_{night} contour, has remained broadly unchanged.

Over the same 10-year period, our environmental objective, to make sure that aircraft noise does not go above the levels recorded during 2001 shows a similar reduction, with the number of people living within the 24-hour 57dB L_{Aeq} contour having reduced from 30,450 in 2006, to 27,500.

It is clear that since our last Noise Action, there are a number of opportunities which have developed such as Performance Based Navigation and low noise arrivals. Both opportunities are expected to require changes to how the airspace around the airport is used and will therefore require detailed discussion with the communities likely to be affected by this.

Supporting these actions, we are committed to maintaining our well-established noise monitoring and reporting and our community relations programme.

As the airport continues to develop we are committed to continually reviewing our performance, to meet our noise objectives and to deliver many of the social and economic benefits to the region that are described and set out in our Sustainable Development Plan.

GLOSSARY OF TERMS

AIP	The UK Aeronautical Information Publication
ANOMS	Airport Noise Operations Monitoring System, Manchester Airport's specific NTK system (MANTIS)
APF	UK Aviation Policy Framework – Published in 2013 this is the current UK aviation policy
APU	Auxiliary Power Unit. A power unit located on the aircraft to provide power to essential systems whilst on the ground
ATC	Air Traffic Control
ATM	Air Transport Movement
CAA	UK Civil Aviation Authority
CCD/CCO	Continuous Climb Departure/Continuous Climb Operation – The same technique to climb aircraft continuously to reduce noise
CDA	Continuous Descent Approach
dB(A)	A unit of sound pressure level, adjusted in accordance with the A weighting scale, which considers 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
DEFRA	Department for Environment Food and Rural Affairs (UK Government)
DfT	Department for Transport (UK Government)
ECAC	European Civil Aviation Conference
END	EU Environment Noise Directive
EPNdB	Effective Perceived Noise measured in Decibels. Its measurement involves analyses of the frequency spectra of noise events as well as the maximum level
EU	European Union

GANP	ICAO Global Air Navigation Plan
GPU	Ground Power Unit
GVA	Gross value added is the measure of the value of goods and services produced in an area, industry or sector of an economy
ICAO	International Civil Aviation Organization
ICCAN	Independent Commission on Civil Aviation Noise
ILS	Instrument Landing System
LAeq 16-hour	The A-weighted average sound level over the 16-hour period of 07:00 to 23:00
Lday	The A-weighted average sound level over the 12-hour day period of 07:00 to 19:00
Lden	The day, evening, night level, Lden is a logarithmic composite of the Lday, Levening, and Lnight levels but with 5dB(A) being added to the Levening value and 10dB(A) being added to the Lnight value
Leq	Equivalent sound level of aircraft noise indB(A), often called equivalent continuous sound level.
Levening	The A-weighted average sound level over the 4-hour evening period of 19:00 to 23:00
Lmax	Maximum A-weighted sound level
Lnight	The A-weighted average sound level over the 8-hour night period of 23:00 to 07:00
LOAEL	Lowest observed adverse effect level (in this plan this relates to aircraft noise). This is the level above which adverse effects on health and quality of life can be detected
MACC	Manchester Airport Consultative Committee – the formal liaison body between Manchester Airport and our neighbouring communities
NAP	Noise Action Plan

NATS	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 provides air traffic control services at several major UK airports, including Manchester Airport.
Noise Contour	Map contour line indicating noise exposure indB for the area that it encloses.
NPSE	Noise Policy Statement England
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.
PBN	Performance based navigation – A technique using satellite navigation information to improve the accuracy of aircraft flight paths
PNR Preferential Noise Route	Preferential Noise Route
QC	Quota Count – In 1993 a new Quota Count system was introduced based on aircraft noise certification data. Each aircraft type is classified and awarded a quota count (QC) value depending on the amount of noise it generated under controlled certification conditions. The quieter the aircraft the smaller the QC value.
RNAV/PRNAV	Area Navigation/Precision Area Navigation using GPS coordinates
SDP	Manchester Airport Sustainable Development Plan
SID	Standard Instrument Departure route
SIG(S)	Sound Insulation Grant (Scheme)
SOAEL	The Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.
SoS	UK Secretary of State
Sustainable Aviation	A UK aviation industry initiative aiming to set out a long-term strategy for the industry to address its sustainability issues.
TAG	The Technical Advisory Group sub-committee of the Manchester Airport Consultative Committee

Designed and produced by threesixtymedia.net June 2018

manchesterairport.co.uk