UK Civil Aviation Authority

Airspace Information: transparency about airspace use and aircraft movements

CAP1618

Published by the Civil Aviation Authority, October 2023

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First edition published December 2017

Second edition published October 2023 (Effective January 2024)

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The latest version of this document is available in electronic format at: www.caa.co.uk

Contents

Revision history

1. CAP 1618 was originally titled ‘Airspace Design: Unusual aerial activities published in the UK AIP’. It contained a table listing changes to the Aeronautical Information Publication related to unusual aerial activities, aerial sporting or activities of a dangerous nature which did not require regulatory oversight from an airspace design perspective.

2. Following a review of the airspace change process, we decided to incorporate the original contents of CAP 1618 within an updated version (V5) of CAP 1616, Airspace Change Process.

3. The review also led to the separation of the parts contained in CAP 1616, and it was decided that Part 3: Airspace information: transparency about airspace use and aircraft movements would be published as CAP 1618.

4. The content of this publication is that which was presented in previous versions of CAP 1616. Minor amendments have been made to remove references to the Independent Commission on Civil Aviation Noise (ICCAN) and update references to the Air Navigation Directions.

5. The CAA is committed to undertaking periodic reviews of this publication at appropriate intervals, taking into account feedback and developments in government policies.

Chapter 1

Airspace Information

Introduction

1.1 The Air Navigation Guidance 2017 creates expectations for the aviation industry in relation to transparency about its ongoing operations[1]. These are split into:

- requirements to highlight and explain aircraft operational changes retrospectively through the production of information
- proactive expectations to make information available relating to aircraft movements.

1.2 This section sets out the CAA's guidance for airports and air navigation service providers, which is required of us by government to help industry bodies meet government expectations.

1.3 Although the two types of information are separated within both the Air Navigation Guidance 2017 and this section, in practice making all information available proactively may best serve stakeholder interests if airports are gathering it.

Aircraft operational changes affecting the use of airspace

1.4 By direction 17(1) of the Air Navigation Directions 2023, the CAA is required to prepare and publish guidance on transparency and engagement for operational changes to airspace usage by aircraft which might affect the noise impact on people.

1.5 This section contains the CAA's best-practice guidance for the type of information to be published, how it may be made available, at what frequency, and how airports should engage their communities about such information.

1.6 Below, we list events that might change the distribution of aircraft and/or the noise they make. Rather than asking an airport or air navigation service provider to list such events, we have set out the types of information they should publish that would reveal the noise impact of such events. This will give communities living near airports the information most relevant to them, namely, whether the way in which aircraft are flying has changed, and whether noise has changed as a result.

[1] Section 5 of the ANG gives specific navigational guidance.

1.7 Factors which may lead to a change of noise impact could include changes to flight destinations; aircraft types used by airlines; meteorological conditions; air traffic control practices or slot transfers or sales.

1.8 These types of change, by nature, are not subject to the formal processes that relate to airspace changes. The CAA has no direct regulatory role in respect of them (although it does have environmental information duties under section 84 of the Civil Aviation Act 2012).

1.9 This means these factors are all out of the CAA's control. At times, they are also out of government, air traffic control, airline and airport control.

1.10 However, as such changes may impact on noise on the ground, there is a need for airports to ensure that their local communities have sufficient information to understand the nature and causes of these types of change. The CAA therefore acts in an advisory capacity, seeking to influence the industry's behaviour regarding such changes through the issuance of this guidance.

1.11 Some of the factors that might lead to changes to noise impact are set out below.

Operational factors influencing noise impacts

Departure route and destination choice

1.12 Most airports have set departure routes that aircraft use. Aircraft are usually sent along departure routes in line with their ultimate destination. This stops aircraft having to travel further than they need and, importantly for safety, minimises aircraft cutting across each other in the air. In reducing the distance flown by going on the most direct route aircraft reduce the amount of fuel burned and carbon emitted. It also means that if there are changes in destinations served by an airport, aircraft may begin to use different departure routes.

1.13 Airlines may begin to fly to new destinations from an airport, changing departure routes and noise impact, for a number of reasons:

- they may operate to different destinations in summer and winter
- a new airline might start flying at an airport, operating to new destinations
- new destinations might become popular over time
- new aircraft types might make destinations that were previously not able to be reached possible.

Aircraft type

1.14 Generally, newer aircraft are quieter than older ones – and in almost every area replacing older aircraft will cut overall noise impact. However, in certain limited circumstances the way new aircraft are operated might increase noise for some. If older aircraft start operating from an airport, noise may increase. This may happen if a new airline starts flying from an airport using older aircraft; or if an

existing airline increases their flights using older aircraft instead of their usual aircraft.

1.15 Another way changes to aircraft type may impact on noise is if larger aircraft begin to operate from an airport. While allowing more passengers to travel, larger aircraft tend to be noisier than smaller ones. Again, there are a variety of reasons larger aircraft may start using an airport − such as airlines flying more people to the same destination or new airlines offering new destinations.

Airline procedures

1.16 Noise impact can be affected by how aircraft are flown, either generally as part of an airline's preferred practice or tactically depending on conditions on the day.

1.17 The way an aircraft operates has a big impact on the noise it makes. When its wheels are down, it is significantly noisier, so if an airline or a pilot decides to lower its wheels earlier, that noise will impact more people. International guidance specifies that an aircraft must be configured for landing (i.e. have its wheels down and slowed to landing speed) no later than five miles from the end of the runway. However, there is no outer limit − so some airlines have procedures that tell pilots to be ready for landing earlier than this. If a new airline starts operating at an airport, it may have a different policy that could change the noise levels caused by landing aircraft.

1.18 Unlike landing, where standard rules apply, every aircraft has a series of options as to how they take-off, called Noise Abatement Departure Procedures. There is usually no single one that is best environmentally, as each procedure affects noise, local air quality and carbon dioxide emissions differently. To reduce complexity and protect safety, airlines are only allowed to adopt two different procedures for each type of aircraft they use, wherever they fly. As noise impact is highly dependent on where people live around an airport, a procedure that cuts noise at one airport may not do so at another − but airlines are not allowed to have different procedures for every single airport they use. An airline changing its adopted Noise Abatement Departure Procedures is likely to change noise on the ground.

1.19 Noise impact can also be affected by decisions made by air traffic control about how aircraft should be flown within agreed routes or airspace, depending on the conditions of the day, such as the number of aircraft in the area.

Meteorological factors influencing noise impacts

Wind

1.20 For safety purposes, aircraft need to take-off and land into the wind. Because of this, the way the wind is blowing affects the direction of aircraft travel. The UK experiences westerly and south-westerly winds around 70% of the time, so

aircraft mostly land travelling from the east, and take-off towards the west. Wind direction at an airport may change on a daily basis, and therefore the direction of arriving and departing aircraft on any particular day will reflect that.

Jet stream

1.21 The Atlantic jet stream is a current of fast-moving air that runs between America and Europe. Its position moves further north or south over time. Flights to North America need to avoid the jet stream as flying into the 200mph headwind would slow them down and lead to significantly more fuel being used. Because of this, when the jet stream changes its position, aircraft may be sent on different departure routes to avoid it, changing the places they fly over and their noise impact.

Temperature, pressure & humidity

1.22 Atmospheric conditions have several impacts on aircraft performance. In warmer air (which is less dense), aircraft need to fly faster during take-off, and in high temperatures engines cannot generate as much power and consequently tend to climb more slowly. The spread of noise is also affected by temperature and humidity. The wind is not a significant factor on how aircraft noise spreads, but it can require aircraft to adjust power to stick to their flightpath, which may cause noise levels to vary on windy days.

Guidance on making information available

1.23 Given that the factors mentioned above could lead to changes to the noise effects experienced by communities around airports, it is important that airports and/or the air navigation service providers engaged by them are aware of the principal operational or other factors which could cause them. In order to identify when changes occur, this data will need to be collected and assessed. When changes are identified, airports should be transparent about them with communities.

1.24 When a change is identified, information about it should be made available, in an accessible form which a layperson can understand, to help to provide context as to why the noise effects they are experiencing may be changing.

1.25 The Air Navigation Guidance 2017 is clear that information should only be provided when a change has been identified. However, where information is gathered by airports, making it available to communities proactively may help build relationships and trust.

1.26 The CAA expects airports to have developed effective relationships with their local communities, and understand their information requirements. This may consist of simply providing updates to representative groups, airport consultative committees, local forums and other community groups about operational and

other changes as required; or may require a more regular and formal update process, depending on the significance and frequency of such changes. Airports should keep this under review alongside their local communities on an ongoing basis.

1.27 Some airports currently offer flight-tracking information to provide communities with a degree of transparency and certainty over traffic patterns. Where an airport is not currently offering such services and the guidance in this section suggests that it should be providing airspace information, the airport should consider whether it is appropriate to adopt such technologies. In doing so it should engage with local communities to ensure their views are considered when making this decision.

1.28 The CAA does not expect to engage directly with communities relating to such changes. However, where we are made aware that issues have been raised that are not being effectively managed locally and there is a breakdown in trust, we will assess whether it is appropriate to publicly challenge airports to improve engagement and ensure that clear, useful information is being provided to communities. In these circumstances the CAA may also recommend that the airport concerned appoint a facilitator to help build bridges. Where it is clear that an airport is withholding information, we may exercise our powers to obtain information and make it available.

1.29 Where the guidance in this section suggests that an airport should be providing airspace information, engagement with communities should also include communicating and discussing the potential to mitigate the adverse impacts of these changes where possible. As potential mitigations may be complex and have impacts that exceed the impact of the change itself, and reversing a change which has occurred over time may cause greater disturbance to communities, the focus here should be on exploring the options for mitigating the change through two-way engagement. Where adverse impacts are significant, and dialogue is not proving effective, use of a third-party facilitator may help to develop mutually acceptable ways forward.

1.30 The text below give some guidance on the types of information from which the public may benefit and which could help to show the results of changes listed above. The data could potentially be set out by month, operational season (summer and winter), or in some cases year, depending on the data set and local appetite for information. Information that helps people to plan (such as runway utilisation forecasts) should be made available more frequently.

Types of information the public may benefit from

Clearer contact information

1.31 Many changes to the patterns of operations from an airport are beyond the control of airports, so to be able to express their views effectively, people need to be able to understand complex airport operations or isolate the source of issues. Information relating to how airlines operate, at what times, and to where, can help residents work out where to focus their attention to understand why the operational changes described in this section may be occurring, and what if anything may be done to reduce their local impacts.

1.32 This could involve providing a list of the airlines that operate at an airport. Where the situation is more complex, or where issues already occur, airports should consider going further and setting out how each airline uses the airport, as detailed further below.

Route networks by airlines

1.33 Building on simply providing contact information, by showing people where airlines operate to, alongside route information, and timetable data, local people can begin to develop a more complete picture of:

- what is causing noise
- where they should direct more detailed enquiries or engagement to try to influence operation practices

1.34 Static information about routes and operators is often already available from many airports – albeit rarely with a focus on noise impact on residents. Where information is available, simply ensuring communities are aware of it is helpful. The more data that is provided, the more complex the web application that is likely to need to be developed to support it. As such, airports may only consider this necessary if their operations are complex, or controversial. Local people may provide feedback to help operators understand their desires.

Slot transfers

1.35 Linked to the above, when one airline transfers airports slots to another, there may be a change of operator procedures, aircraft types and destinations as a consequence, so information about them may be appropriate.

1.36 As slot transfers are likely to occur at clearly defined points, and operations may change immediately, airports should consider making available information about them, with as much detail as they are able to provide, as often as possible.

Historic comparisons of route networks flown

1.37 Where route networks are changing, for instance as a result of new airlines operating, or a shift in an airline's business model at an airport, it can have a noise impact. For instance, if an airline operating at an airport principally serving southern European destinations begins to operate a number of services to north America, new areas in the UK are likely to be overflown. This can be explained with information about how route networks have changed over time.

1.38 Given route networks develop organically, and often change little and often, certainly during summer and winter seasons, airports should consider how often it is appropriate to provide comparative data. One option would be to provide static pictorial representations on a seasonal or annual basis to allow comparison. Data tables of flight numbers to certain areas could also allow comparison. In more complex situations, evolving route networks could be shown as videos to allow comparison between past and present.

Regular depictions of how accurately aircraft are flying on flight-paths

1.39 Over time, as technology has improved, aircraft have become more able to operate along the published departure routes. This can mean that swathes of departing aircraft become more concentrated over time along a centreline. Providing this data about centrelines and distribution of traffic around them in conjunction with the information suggested above can help people to understand whether it is new aircraft causing noise or existing aircraft flying existing routes more precisely.

1.40 In order to be useful, this information is likely to need to be fluid and displayed visually, providing viewers with the ability to review routes over time. Track-keeping systems may offer this ability.

Aircraft types

1.41 The aircraft type utilised by airlines can affect noise impacts, sometimes considerably.

1.42 Aircraft type adoption is only likely to have a significant impact on noise where it changes considerably. As such, annual summaries of changes may be the most appropriate vehicle for communicating this information. How useful it would be to provide the data in a more disaggregated way (for example, for the airport as a whole, for each airline, or for each route) is likely to depend on local circumstances.

League tables of airline operational performance

1.43 How airlines operate can play a large part in the noise impact of flights. For instance, track-keeping, aircraft utilisation, and operational procedures like continuous descent can all have significant impacts on noise. Some airports

make such information available already, and it can both serve as an incentive for airlines to improve their operational performance, provide communities with information to engage airlines directly, or trigger airlines to explain their performance proactively.

1.44 Some airports already make available aggregated results or league tables to rate operational performance. The amount of detail provided is a trade off between simplicity for non-expert audiences, and providing communities and their representatives with enough information to effectively engage airlines and third parties to enhance performance.

Historic data on weather conditions (such as prevalent wind percentage by year; hours of weather-related disruptions)

1.45 Weather can have major impacts on noise experienced on the ground, directly and indirectly. For instance, a change in prevalent winds over the summer months, when people tend to be more exposed to aircraft noise, can lead to people feeling as though an airport has significantly changed its operations, as it is using the runway in the opposite direction to usual.

1.46 Weather-related disruption can lead to more aircraft flying outside of usual operating hours. As our climate changes, these impacts may become greater – at a minimum it seems certain that they will change over time. Providing comparative data on a regular basis (annual, seasonal or monthly) can help residents see how events outside of all parties' control can impact on noise. However, airports should also be mindful of the necessity to consider the impact of weather-related disruption on communities, and not assume that simply because they cannot control the weather, they are always unable to control its impact on their operations.

1.47 This information can be made available relatively simply by providing comparative annual data in the form of tables or charts. What data is most appropriate will depend on the airport's situation (for instance, airports in low-lying or coastal areas may find providing information about fog-related closures helpful; airports with significant population disparity between the two sides of their runway may find that prevalent wind information is useful to help locals understand why one end of the runway is used for take-offs or landings more frequently).

Runway utilisation

1.48 Where an airport has multiple runways, information on which runway is in use at a given time can help residents understand noise impacts. In particular, if an airport is aware that runway utilisation is planned to change (for instance if a main runway is under maintenance), proactively communicating that information can help local people plan. Although this differs from the general approach of

communicating about changes retrospectively, proactive knowledge is far more useful for residents here.

1.49 Historic operational information can be made available via website pages, but live information or forecasts may be better communicated via social media channels.

Data on operations outside of normal operating hours

1.50 Many airports already make available information on operations outside of usual hours. Given that night noise and unexpected noise can have a greater impact on communities, providing them with information on when it occurs, and ideally, what caused it, can help them to understand why they have been disturbed, and what, if anything, may be done about it.

1.51 There are a variety of ways this could be made available. As well as providing static information online for people to review, social media and mobile phone communication could be used to provide registered users with live information as conditions impact on operations.

Relevant changes made to airlines Standard Operational Procedures

1.52 Airline Standard Operational Procedures set out how airline's pilots will undertake operational practices. Each airline may have different Standard Operational Procedures relating to arrivals and departures, and changes to them could cause consequential noise impacts.

1.53 Airports may not have access to the operating manuals of every airline that operates there, and are unlikely to know when a change is made to such a manual. As such, transparency relating to manuals would rest on the airport working with its airline customers to either encourage them to be more transparent when they make changes, or to inform the airport so they can make a judgement on its potential noise impact.

Existing constraints on airline operations

1.54 Many airports will have a series of existing constraints or limitations on airline operations (for instance opening hours; movement caps; type restrictions or noise quota counts), imposed either voluntarily, as a result of conditions within a permission granted by a local authority, or as a result of government policy. Communicating these to local residents may help to contextualise what is possible and not possible within an airport's operating environment, and what is already in place to protect residents from noise.

1.55 Operating constraints are likely to be quite static, and a simple website page is likely to be sufficient to provide interested stakeholders with the relevant information. The context relating to such restrictions can be provided in regular meetings and forums.

Other operational changes

1.56 Standard Instrument Departure truncations: these changes reduce the time an aircraft spends on a Standard Instrument Departure, without changing their track over the ground, but potentially changing their height in some instances.

1.57 Enhanced Time-based Separation: this can be used in strong winds to maintain a given landing rate, and therefore could change the rate of aircraft travelling overhead at a given time. The impact on the ground will depend on how frequently the tactic is adopted, and communication of its utilisation should bear this in mind.

1.58 These types of change are complex operational changes which may have an impact on noise, or may cause knock-on noise effects. Airports should ensure that they are aware when such changes occur and are conscious of potential impacts perceived on the ground. Airports should assess the most appropriate way to inform communities about them on a case-by-case basis, ensuring that the principle that a lay audience can understand the issue transparently is at the forefront of their thinking.

1.59 Airports should also consider the usefulness of an annual report covering those changes that have been identified during the course of the year. This may not supplant provision of information about those changes, particularly for significant ones, but could provide communities a useful summary and comparison with previous years.

1.60 Where airports publish noise action plans, they should consider whether the provision of information described in this section would be a useful addition, and if appropriate, details of any historic or planned mitigation activity.

1.61 As set out for some of the information types above, forecast and live operational data can also help people to plan, so airports should consider letting people know how weather and operational factors may impact on noise on a forward-looking basis. This could include forecast runway utilisation or prevalent winds. Once again, modern communication technology could allow interested parties to ‘subscribe’ to services that provide them with information about forecast weather and operational approaches that may impact on noise (for the avoidance of doubt, the CAA would not expect to see airports charging residents for this type of information).

Expectations for transparency on aircraft movements

1.62 Alongside the above recommendations relating to changes to the operational use of airspace, the Air Navigation Guidance 2017 also sets requirements for

airports and air navigation service providers to proactively engage with local communities to inform them on relevant air operations.[2]

1.63 The Department for Transport advises that this information should, where practicable, cover the tracks flown by aircraft, the numbers of flights, and altitude data.

1.64 Not every airport will have access to this information, and the Air Navigation Guidance 2017 is clear that the Government expects this requirement to be treated proportionately.

1.65 Alongside their air navigation service providers, airports should consider their local circumstances, before engaging with their local communities or their representatives about what information would be considered useful, and how it is best made available.

1.66 In the majority of cases where information is made available, doing so via the internet will meet the requirements of the widest numbers of stakeholders. As a general presumption, where information is made available via other channels (for instance presentations to consultative committees, or information provided in libraries or other public buildings), it should also be available online. Airports should work with their communities to understand how information provided online can be distributed to make it available to a wider audience where appropriate.

1.67 If the CAA is made aware of instances where it is clear that an airport is withholding information, we may exercise our powers to obtain information and make it available.

[2] Expectations for transparency on aircraft movements, paragraphs 4.12 to 4.14.