



Birmingham is the UK's 7th largest airport and an economic powerhouse, contributing millions of pounds to the Midlands economy every year. However, these benefits have to be balanced against the Airport's impact on nearby communities. Focussing on Curdworth, this guide aims to explain operational procedures at Birmingham and how they affect your neighbourhood.

The Basics: where do aircraft fly and why?

Controlled Airspace

Curdworth lies within Controlled Airspace for Birmingham Airport. Controlled Airspace is under the jurisdiction of Air Traffic Control (ATC) to ensure the safety of aircraft operating in and out of the Airport. All aircraft operating within Controlled Airspace are under control of ATC and while the majority of movements follow the well-established procedures we will describe here, there are occasions when ATC will route aircraft away from the usual flight paths. So, while residents will become familiar with the 'normal' routes aircraft follow, there are occasions when they may be seen in locations where they do not normally appear. This does not mean that they have 'broken the rules' or are flying 'illegally'. On occasion, aircraft may be seen *anywhere* within controlled airspace, though the Airport, the airlines and ATC all work closely together to make sure that these occasions are kept to an absolute minimum. See page four of this guide for more information.

The Runway

Birmingham Airport has one runway, which aircraft use in either of two directions, known as Runway 15 and Runway 33. The numbers refer to the runway's heading, in degrees. Runway 15 is aligned on a heading of 150°, approximately South southeast, while Runway 33 lies on a heading of 330°, or North northwest.

The runway only operates in one direction at any one time.



It is meteorological conditions – primarily the direction of the wind – which determines the direction in which the runway is used because, where possible, aircraft will usually take off and land heading into the wind. Given that aircraft arriving on to Runway 15 (R15) follow a course which takes them some seven kilometres west of the village, Curdworth residents will usually only experience aircraft on departure from Birmingham —see the next section for more details.

We sometimes get asked why aircraft take off to the north more often than to the south, when the prevailing south-westerly winds would suggest that R15 should be in use more than Runway 33 (R33). However, wind direction is not the only factor determining the direction in which the runway is used. The strength of the wind is also taken into consideration and where winds are below five knots, we operate our 'Preferential Runway' policy. This ensures that ATC will generally direct arrivals onto R33 to minimise the risk of wake vortex strikes. Wake vortices are rotating columns of air generated by arriving aircraft as they pass through the air. In calm conditions they can cause damage to roofs. Although vortex strikes are rare, the Preferential Runway policy minimises the risk to the large number of properties immediately to the north of the airport by directing arrivals onto R33, where there are very few properties at risk. Taken together, wind direction and the Preferential Runway policy explain why Curdworth experiences departures for 60% of the time.

What happens when aircraft are taking off from Birmingham?

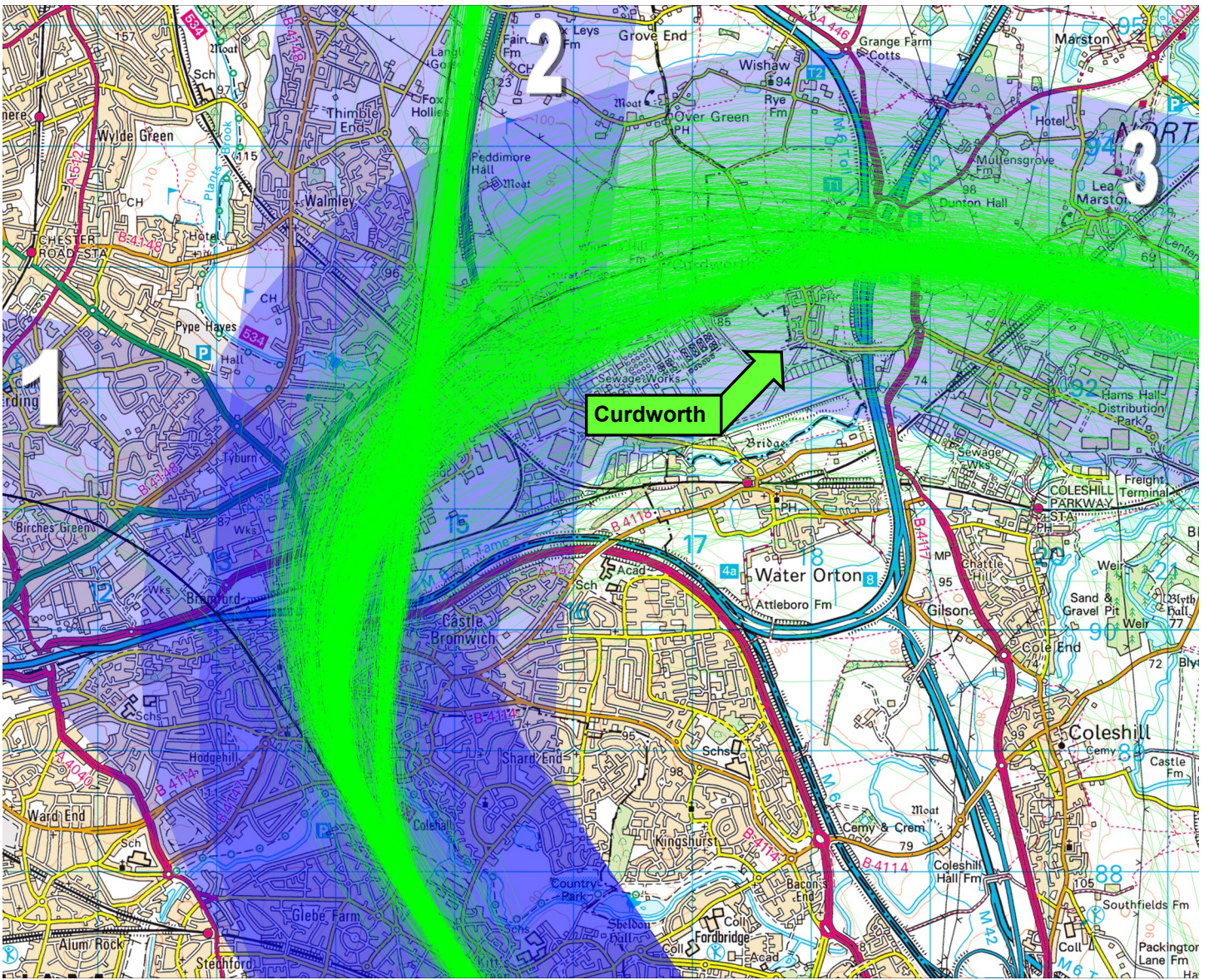
When R33 is in operation, departing aircraft take off to the north. They are required to follow a Standard Instrument Departure (SID) route — a set of instructions programmed into the aircraft's Flight Management System which ensure it follows a pre-determined, automated route. SIDs are intended to strike a balance between the need to avoid obstacles, to ensure noise abatement and to manage the aircraft's interaction with the wider airspace once beyond the immediate locality of the airport.

As many residents will recall, we were required to change the routes for aircraft departing from R33 as a result of a UK airspace modernisation project introducing changes in the technology used to navigate aircraft. These changes were designed to deliver a more efficient airspace system for the UK. A public consultation, which included Curdworth and surrounding areas, took place during 2017-2018. The new flight paths came into operation in May 2019 and aircraft now depart using one of three routes:

- 1) A small number of departures turn left, taking the so-called MOSUN route. MOSUN is a non-standard departure route used by aircraft flying to destinations such as southern Ireland, Portugal and the Canaries. It is used to provide a more direct routing to these destinations and there are restrictions on when MOSUN can be used.
- 2) Around 26% of Runway 33 departures continue on a northerly track towards destinations in Scotland and Ireland. The amount of traffic on this route has doubled since the new procedures were introduced in May 2019, when an existing flightpath to the north-west was closed. Again, as this routing takes aircraft around 3kms west of the village, it does not directly impact Curdworth.
- 3) The majority of Runway 33 departures - around 66% - take off heading north before turning right, to head south for destinations in Europe, the Middle East and South Asia. It is aircraft taking this route which directly impact Curdworth.

SIDs are shown as lines on maps but, recognising that aircraft fly in three dimensions, they actually operate within a corridor, known as a Noise Preferential Route (NPR), of which the SID forms the centreline. Departing aircraft are required to remain within the NPR until they have climbed to a height of 3,000 feet. How quickly an aircraft will achieve 3,000 feet varies considerably and is influenced by its type, destination (and hence fuel load), how many passengers are on board, how much cargo it is carrying and the weather conditions at the time. Once they have achieved this height, aircraft may be routed outside the NPR by ATC onward to their destination. In reality, very few aircraft depart from the NPR until they have passed Curdworth.

The image - taken from our ANOMS system (see page 4) - shows Curdworth in relation to the NPR's (in blue), the SID centrelines (in black—clearly visible on the MOSUN routing but obscured by aircraft tracks on the other two routes) and the tracks of individual aircraft (in green) operating during July and August 2020.



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During the consultation on the proposals to introduce new SIDs for departures from R33, our original proposal saw the centreline of the NPR located over the centre of Curdworth. As a result of representations from Curdworth, we redesigned the SID to shift the centreline further north, to the vicinity of Junction 9 of the M42. However, we made it clear that the change represented a distance of only around 1km and that aircraft would still overfly Curdworth. Our consultation document also made clear that *'this route would continue to produce some degree of dispersion and that aircraft tracks would not be as concentrated as they are likely to be on, for example, the new TRENT flightpath'* (i.e. number 2 above). Within these parameters, aircraft are today performing as presented in the consultation and as expected.

Some Curdworth residents have also asked why the proposed route was not moved even further north, away from the village. However, we discounted this course of action because it would have resulted in the number of properties lying within the NPR being greater than the route which we were proposing and which became effective in May 2019. This may seem counter-intuitive given that a more northerly route involves flying over open countryside, but it must be remembered that we had to consider the early stages of the route, which overflies densely populated parts of east Birmingham.

You can see the full details of this in the consultation documentation, which is still available on our web site at: <https://www.birminghamairport.co.uk/media/4474/final-document-extended-deadline.pdf>

Night Flying

Some residents believe that Birmingham Airport closes at night, or that night flying is banned. Neither is true. Birmingham is a 24-hour operation and has been for many years. However, there is widespread recognition that night flying is one of the main impacts that Airports have on local communities and it is an issue that we take very seriously. In fact, we have one of the most stringent Night Flying Policies of any UK airport, with an annual limit on night movements, a ban on the noisiest aircraft operating during the night period and a night noise limit of 83dB (A). If a departing aircraft registers a noise level above this at our noise monitors, then the airline is surcharged an amount equivalent to a full runway charge. All funds from night noise violations are placed into the Community Trust Fund, which makes grants to small, community based organisations in areas affected by our operations, including Curdworth. You can find out more about the Community Trust Fund on the Airport's Website at: birminghamairport.co.uk/about-us/community-and-environment/community-investment/

Weather

As we have seen, weather — in particular wind direction— is the main factor that determines the direction that the runway at Birmingham is used and therefore whether or not Curdworth is affected by aircraft activity on any given day. However, there are other weather-related factors that can have an impact. Something that we notice is that there will often be a spike in complaints when changes in runway direction are implemented after a prolonged period of settled weather. Sometimes the runway is used in the same direction for period of days, even weeks. When the weather shifts and the runway direction is reversed, some residents become very aware of aircraft and believe we have changed flight paths. In Curdworth, this usually occurs after R15 has been in use or some time, followed by a change to R33, which feeds the more noticeable departures which overfly the vicinity. In reality, there has been no change in flight paths, just a reversion to operating procedures that have not been used for some time.

Bad weather may also be the cause of aircraft deviating from the usual flight paths. ATC sometimes receive requests from pilots to take a non-standard route shortly after taking off to avoid thunderstorms, which can cause severe turbulence. Often the storm cell involved may be some miles away from Curdworth and its presence is not apparent to anyone on the ground in the village. Although relatively uncommon, these 'weather avoidance' procedures may mean you sometimes see aircraft where you are not used to seeing them.

Keeping track

We operate a sophisticated system known as ANOMS – the Airport Noise and Operations Monitoring System. ANOMS uses radar data to record details of the height, speed and position of every aircraft operating into and out of Birmingham. ANOMS allows us to record and replay actual tracks over the ground and when matched against noise data from our six community noise monitors, we have a set of highly accurate data with which we measure the impact of aircraft activity.

One example of how we use ANOMS is to record Track-Keeping Performance, which refers to the ability of aircraft to fly within the NPRs until they reach the required altitude of 3,000 feet. Each NPR is monitored and analysed by the system and any aircraft leaving the NPR below the required altitude is recorded as 'off track'. We can use this information to work with the airlines to improve track-keeping and we report our statistics through the Airport Consultative Committee and Solihull Metropolitan Borough Council, which monitors the Airports compliance with its Section 106 Planning Agreement with the Council. We also use ANOMS to investigate individual complaints, where it provides us with the accurate information we need to discuss residents concerns in more detail.

And finally....

We hope you find this guide to how airport operations affect Curdworth useful. We hope too that it has answered some of the questions you may have had. If not, the Sustainability Team is always happy to discuss your individual concerns. You can contact us by completing the form on our web site at: <https://www.birminghamairport.co.uk/community-complaint>

