THE TRADE-OFFS OF NOISE

Those living in the vicinity of airports may not have too many worries about how safe are they on the approach path, but will probably be concerned about noise. Managing flight paths to minimise noise is never easy, and involves trade-offs and compromises, as **John Stewart** describes.

Flight paths are evolving at airports across the world as aviation moves from ground-based to satellite-based technology and aircraft fly with more precision. The changes have big implications for air traffic controllers, airlines, airports and local communities. They have the potential to benefit all parties but new flight paths must be introduced thoughtfully – and that will involve trade-offs.

There are a number of ways in which safe and efficient flight paths can be introduced. Many of the American airports have, in my view, got it wrong. Concentrated flight paths that resulted in focused noise and all day flying over particular communities, some of them new communities, were introduced with minimal consultation. It is little wonder that public complaints soared and legal challenges followed.

However, it doesn't need to be this way. Heathrow Airport is trying to do it differently by engaging their neighbours early. Last year it started its airspace change consultation. It is planning the biggest changes to its flight paths since the airport opened in 1946. This should happen whether it finally gets permission for a third runway or it remains a two-runway airport, subject to regulatory approval. It is designing the changes on the basis that a third runway will be built although that is unlikely to be confirmed until after a planning inquiry expected to take place in 2020/1.

In its first round of consultation last year Heathrow distributed leaflets to over two million households and staged around 40 public exhibitions asking for views on the principles that should inform its flight path design. Three basic questions were asked: is the priority to overfly the least number of people (i.e., all day flying on concentrated flight paths) or to give each community as much respite as possible through the use of rotating multiple routes or to avoid new areas.

Most respondents wanted new areas to be avoided followed closely by the respite option, with concentrated all day flying a distant third. Heathrow set about drawing up plans to avoid new areas if possible but where flight paths must pass over the local communities, the need for respite was prioritised for new flight paths. The consultation on these 'design' envelopes took place in the first quarter of 2019 with consultation on the proposed final flight paths expected in 2021.

The process involves all stakeholders. Heathrow has employed experienced air traffic controllers to ensure that at

every stage its proposals are realistic. It is working with NATS – which is co-ordinating the airspace changes in London and the South-East – to make sure its flight paths fit in with surrounding airports. It has brought the airlines on board, as well as local communities.

I chair HACAN (Heathrow Association for the Control of Aircraft Noise), the long-established organisation which gives a voice to residents under the Heathrow flight paths. For several years, we have been working constructively with the airport on the future flight paths, and in particular how meaningful respite can be delivered to local residents.

The way to manage the number of over-flights is to provide respite – a daily, predicable break from the noise – for as many communities as possible.

For airports like Heathrow that are close to urban areas, flight paths are inevitably going to fly over a sizeable number of people. I have been doing this job for nearly 20 years and I think the critical lesson I've learnt is this: most people are not interested in the number of runways their airport has or the total number of planes using it. Their concern is the number flying over their community on any one day.

The way to manage the number of over-flights is to provide respite – a daily, predicable break from the noise – for as many communities as possible. Performance-based navigation (PBN), with its narrow, precision flight paths, is an ideal tool to do this.

PBN brings acknowledged benefits to the aviation industry in terms of efficiency, resilience and reduction in fuel costs as well as a cut in CO2 per plane emissions. But it also has the potential to benefit local communities.

For that potential to be realised, a number of things need to happen.

Communities need to be involved at the earliest possible stage, as Heathrow did when asking for views on the design principles. It is unlikely to work if an airport simply draws up detailed flight paths (even if options are provided) and then asks the community for its view on a nearly finished product. Communities need to be involved at an earlier stage.

Engagement is challenging. It is challenging for air traffic controllers, airports, and pilots, all of whom may instinctively rather resent these 'amateur' community people getting involved in flight path design. And it is also challenging for many local communities. Some of them distrust the aviation industry. Some, if truth be told, are happier just shouting at the industry rather engaging with the issues. But real engagement, if more challenging, can also be more productive.

However, PBN routes also need to be designed with communities in mind. I don't mean that community concerns should top everything else. But community interests should be integral to the design. Multiple routes to provide respite for example, should be included even if they might not be the first choice for the airport or air traffic control.

The aviation industry is a growing industry. Even with quieter planes coming on stream, if PBN routes are poorly designed both laterally and vertically, the implementation of those routes will result in more complaints from affected communities. In addition, focused traffic on those routes may also mean their health will suffer (little or no research has been carried out into the health impacts of living with all day flying under a PBN route).

However, an alternative approach is possible through community engagement. Well-designed, well co-ordinated and well communicated PBN routes can work for pilots, air traffic controllers, airports and local communities. It will involve trade-offs. But it is a prize worth having.

John Stewart chairs HACAN, the organisation which gives a voice to residents under the Heathrow flight paths.