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PLANE JUSTICE – ETHICAL PRINCIPLES FOR AIRSPACE DESIGN

A. Introduction

In the management of airspace there is something of an inevitable tension between commercial aviation interests and what we would call the ethical interests of people on the ground. We are not suggesting for a moment that commercial stakeholders in aviation cannot conduct themselves ethically. We do apprehend however that it falls in particular to community noise groups (and to local councils which also exhibit a strong ethical sense in most cases), to input an ethical dimension into the balancing of these two spheres of interest.

Before we address the questions posed by Gatwick in the FASI-South consultation on design principle development, we therefore feel the need to explain our thinking on the principle of **pre-knowledge**, which informs a great deal of our reasoning on the management of airspace and airspace change.

B. The ethical framework of pre-knowledge

We mean by pre-knowledge, the fact a would-be householder can see and hear for themselves whether aircraft are flying overhead, or whether they are not, and make home life decisions accordingly. The householder can normally choose to move under that stream of aircraft, or choose not to.

Those already overflown:
If a householder chooses to move under that stream of aircraft, they literally 'buy into' that situation, and that decision has consequences, the pros and cons of which we suggest are as follows:-

(i) The householder accepts the level of aircraft noise and the frequency of aircraft (ATMs) present when they moved in (including whether they are overflown by one, or more, routes)
(ii) They should expect a realistic level of organic growth in ATMs over time, in a similar way that people would normally expect levels of road traffic to increase over time. *But at the same time it is also reasonable that they should expect all feasible steps to be taken to mitigate the noise that affects them, short of overflying new communities.*
(iii) They may well have reaped a monetary benefit in securing their home, in terms of it being valued lower because of the overflight.
(iv) Because of their pre-knowledge of the overflight, they are far less prone to what researchers call the non-acoustic effects of aircraft noise (the psychological but very real effects suffered by the 'not previously overflown' which are borne out of the anxiety and stress of loss, unfairness and sense of hopelessness felt by those who find a flight path has been introduced or moved over them).

Those who were not overflown:

The situation of the above householders with pre-knowledge, must be compared and contrasted with householders who find themselves overflown by an airspace change where they were not overflown before. For these people there are also consequences, but unlike households with pre-knowledge, the consequences are only negative:-

a) They find their home life, lifestyle, and the enjoyment of their home, disrupted. Sleep patterns may be disturbed by unfamiliar interruptions, and previous enjoyment of any outside space degraded.
b) In addition to the physical impact of unfamiliar aircraft noise, they are likely to suffer also from the non-acoustic effects of noise (see B(iv), page 1 above) [1]. This may be further exacerbated by the monetary effect of the overflight (see below).
c) The physical and psychological impacts of new aircraft noise may be intensified still further where they live in a non-urban area of low ambient noise.
d) They will have secured their home at 'full market value' because it was not overflown, and may well now find its value depressed by dint of the overflight, thereby suffering a monetary 'double whammy'.
e) For many people their retirement plans may be linked to the value of their home, leading to yet further stress and anxiety.

C. A policy blind spot?

We apologise to those reading this, if a lot of this seems blindingly obvious. But for the founders of Plane Justice after departure Route 4 was moved in 2016, one of the greatest shocks was the realisation that for some of the decision makers engaged in airspace change, this way of thinking seemed far from self-evident.

In particular, some decision makers seemed oblivious or indifferent to there being any particularly special significance attaching to people who are or would be newly overflown: To these decision makers as it seemed to us, there were really only 'populations', to be calculated and weighed in the balance, and if perhaps e.g. a population of 5,000 could be replaced by a population of 2,000 by shifting a route then that might be considered a good result, and the fact the 5,000 population had always been overflown while the 2,000 population had not, didn't seem to matter very much.

This seemed all the stranger, because an overarching Government policy principle of long-standing is **"to limit and, where possible, reduce the number of people in the UK significantly affected by adverse impacts from aircraft noise"**

We have sometimes heard it said this principle is open to widely varying interpretation, but for the founders of Plane Justice its meaning was clear from the first time of reading:-

[1] More research is needed into these non-acoustic effects of noise, but it could be that the psychological stress and anxiety they generate is at least equal if not more damaging to health than the direct acoustic effects of noise.

"to limit": It seems entirely clear to us this is an instruction to limit the spread of aircraft noise by taking every feasible step possible to avoid the overflight of new communities

"and, where possible, reduce the number of people in the UK significantly affected….": This is a direction to take every feasible opportunity to reduce noise for communities already overflown (for example by altering vertical profiles and incentivising quieter aircraft) so that it ceases to be 'significant' whilst doing everything possible to avoid breaching the first instruction "to limit".

D. The implications of this ethical framework for airspace planning

To our way of thinking, adopting this ethical framework based on pre-knowledge then has a number of implications, as airspace planners and decision makers go about the task of planning or modernising airspace below 7,000 feet:-

1. **New overflight:** Airspace planners' and decision makers' first concern should be to do everything in their power to avoid overflying new communities, whether large or small, unless or until it becomes unavoidable after all other feasible avenues have been explored[2].
2. **Relative population sizes:** The fact an already overflown community is large or small should not weigh in the balance – an already overflown community of 10,000 has 'bought into' the overflight just as much as an already overflown community of 1,000.
3. **Overflight by more than one route:** The fact a community is already overflown by more than one route does nothing to alter the fact this community 'bought into' that situation. Airspace planners faced with a community in this position should therefore only posit the idea that one or more routes could be removed from that community or their impact lessened ***if this can be accomplished without overflying new communities*** *(large or small)*.
4. **Outlying communities:** Communities located more than 1.5 kilometres from the curtilage of the airport and which are already overflown should expect a realistic level of organic growth over time in the frequency of aircraft (i.e. ATMs), in a similar way that people would normally expect levels of terrestrial road traffic to increase over time. We consider a realistic level of organic growth in ATMs over time to be 20%, and that anything above this would amount to a step-change in ATM growth (see D7(a) below, page 4). ***But it is also paramount that such communities should expect all feasible steps to be taken to mitigate the noise that affects them, short of overflying new communities.***
5. **Communities in the airport's vicinity:** Those living 'in the vicinity' to the airport (which we regard as being within 1.5 kilometres of the curtilage of the airport) have a special degree of pre-knowledge borne of the fact the airport's operations for them are an inescapable presence. We submit this is not the same as you move further away, where someone living

[2] In any case where new overflight is utterly unavoidable, compensation must be payable for loss of amenity, health impacts and any diminution of property value (on the same basis as applies to the construction of new terrestrial highways under the Land Compensation Act). It is not a case of newly overflown households choosing compensation – what they want is for their life choice to be respected and not to be overflown. But if they are to be subjected to overflight that they didn't buy into, then compensation must follow.
We apprehend the subject of compensation is beyond the scope of this present consultation, but Government should put in place the necessary amending legislation where any new overflight were to be contemplated.

for example 5 kilometres from the airport who is not overflown could be capable of going about their daily life with little or no perception of the airport's existence or proximity.

Those living in the airport's vicinity as described, have 'bought into' the airport's operations at close quarters. It is also very likely they will have secured their home at a value which took account of this. It is our view that those living within 1.5 kilometres of the curtilage of the airport have bought into a higher expectation of organic growth of the airport's operations than those living further away. ***Again however, it is also right and reasonable that very local communities should expect all feasible steps to be taken to mitigate the noise from the airport's operations, short of overflying new communities.***

6. **The baseline growth year:** Paragraph 4 above immediately begs the question over what time period is it reasonable that these levels of organic growth in ATMs should be expected? We take the view that the time period should take 2012 as the baseline. This marks the time before the airport, NATS and the CAA embarked on a whole series of ill-starred airspace changes which chronically disturbed the equilibrium in the communities around Gatwick and led to the creation of a large number of new community noise groups. This is borne out by the fact MPs whose constituencies are in the Gatwick catchment area had no significant correspondence about Gatwick flightpaths in their 'postbags' up to 2012, with a step change thereafter.
7. There are two important consequences that we believe should flow from taking 2012 as the baseline for ATM growth:-
    a) **Overflown communities experiencing a step-change in ATMs:** On average, overflown communities more than 1.5 kilometres from the curtilage of the airport have experienced something like an 18% increase in ATMs (using published figures) between 2012 and 2018, so that we are already approaching the 20% threshold we have suggested in paragraph 4 (page 3), above which those overflown communities will be experiencing a step-change in ATM frequency.

    Where projected ATM growth over those overflown communities exceeds 20%, ways should be found to mitigate the effects of this increase in frequency of overflight. If as a last resort however, the overflight of new communities is contemplated to help mitigate this, ***only any <u>excess</u> of ATMs over and above the 20% should be moved over any new community, with compensation payable*** *(see footnote 1 above).*

    b) <u>In modernising airspace routes in and out of Gatwick below 7,000 feet, airspace planners and decision makers should take where the aircraft were actually flying in 2012 as their baseline starting point for any design.</u>

8. **Concentration of routes:** The introduction of PBN technology at the airport after 2012 caused routes to be concentrated over a narrower lateral path than had been the case previously when flying RNAV coded overlays of conventional routes. This was the cause of a

great deal of the outcry that occurred in communities around Gatwick in the ensuing years. Though the concentration of routes is still less unjust than moving a route over new people (because a concentrated route is overflying people who were overflown before, albeit with greater frequency), it is nonetheless an ethically invidious approach to take, when measures are available to at least partially offset the concentration effect.

We believe two such measures should be incorporated, *in every instance*, into the FASI South project:-

a. RNAV1 technology should be used in all cases rather than RNP, because the latter tends to concentrate flight paths more than RNAV1.
b. Some emulation of the dispersion experienced when flying RNAV1 coded overlays should be designed-in. This can be accomplished by taking each RNAV1 route design and developing two or three marginally different route designs around its nominal track, which could be designated to be flown by different aircraft types or airlines through agreement between stakeholders[3].

9. **NPRs:** Lastly but very importantly, airspace planners and policymakers seeking to deal with the principle of pre-knowledge may look in the direction of NPRs in relation to departures. **However we contend that NPRs provide no credible answer to the ethical dilemmas posed by airspace management.**
   NPRs provide a false sense of public pre-knowledge for airspace planners and policy makers, creating the danger of a misplaced sense of entitlement to overfly new communities which fall within an NPR monitoring swathe but who are not currently overflown. They further create an ethical divide in the treatment of communities affected by arrivals, and those affected by departures, which is itself ethically undesirable.
   The vast majority of the general public remain unaware of NPRs, far less what they are meant to signify. It would appear from our experience that most conveyancers and estate agents also remain unaware, unless perhaps they practice in very close proximity indeed to an airport or are aviation specialists (and bearing in mind that when people are moving to the locality of an airport they are more likely to use a conveyancer in the area they are moving from). Even that rare member of the public who may be aware they live in an NPR but isn't overflown – perhaps seeing planes flying half a kilometre or more to the side of them - may very well assume 'this is what it means' to live within an NPR corridor.

   We think NPRs pay lip service to ethical principle and are an anachronism used by only a handful of countries. ***We see FASI as providing a unique opportunity to dispense with NPRs and maintain the focus where it ethically should be – on where the aircraft are actually flying.***

[3] To be clear, we are here not talking about what are often described as 'multiple routes or multiple pathways'. What we envisage would be for example Route 1A, 1B & 1C where the lateral distance between the nominal tracks of each sub-route design would be something like 0.3 kilometres.

E. How FASI-South could conceivably prove a game changer

We can envisage 2 potential features of the FASI/LAMP2 project encompassing all relevant airports, which could dramatically reduce the geographical area within which the principles enunciated above would need to be applied:-

- **Vertical profile**

  If departures could rapidly climb to between 7,000 & 10,000 feet after take-off, then the above principles would only need apply to the area immediately around the airport that was flown over until this altitude is reached.

  Similarly with arrivals, the area around the airport where the above principles would need to be applied might be smaller, if aircraft could remain in the 7,000 -10,000 ft altitude zone for longer until they were closer to the airport.

- **Lateral profile**

  If departures could take off and immediately or almost immediately set a course toward their destination, then a form of natural dispersion might thereby be introduced which might eliminate or partially eliminate the need to apply the above principles.

  Similarly if arrivals as a result of airspace modernisation could approach from a multiplicity of directions governed by their point of departure and join the final runway approach much later, then again this might eliminate or partially eliminate the need for the above principles to be applied.

However it would be necessary to examine detailed modelling and quantitative analysis to determine whether - and to what extent - the above design features (Vertical profile / Lateral profile) could justify moderation of the principles in Section D above.