

## TAG Response to CAP 1887

The following responses are made on behalf of Teddington Action Group (TAG)

### *Questions 1-7 – who you are etc*

This response to CAP 1887 is submitted by Stephen Clark MA(Cantab), David Gilbert BSc, PhD, MBA, Joan McIntyre and Neil Spurrier BA(Hons) Solicitor on behalf of Teddington Action Group (TAG). TAG is a founder member of Heathrow Community Noise Forum; its members have presented to the Transport Select Committee and the All-Party Parliamentary Group on Heathrow and are on ICCAN's stakeholder board for its review of SoNA.

The following questions (8-11) all have response boxes

*Question 8. CAP 1887 details the proposed criteria to be used to inform whether to accept the Airspace Change Masterplan, which is being created by the Airspace Change Organising Group (ACOG), an impartial team in NERL. Do you have any general comments you would like to share on the proposed criteria for assessing and accepting the Airspace Change Masterplan?*

We understand the desirability of making best use of new technologies and in particular the safety and efficiency benefits these could potentially bring. However, fundamentally for a range of reasons (set out in this submission) the master plan design of future airspace and the evaluation process is not based on reliable foundations. On this basis the current consultation on the proposed criteria for assessing and accepting the Airspace Change Masterplan should be suspended or withdrawn, until the necessary policy framework and evidence base has been established.

This conclusion has been reached for the following reasons:

1. The Government was elected in December 2019 with a commitment to rebalance the national economy away from London and the South East. There is now a very different context for establishing Future Airspace Strategies in UK. Having regard to this, it will be necessary to reassess the overall aviation strategy in the context of national economic policy, something which in any event (even before this significant shift in national economic strategy) was not done either by the Airports Commission or within the ANPS. Previous iterations of aviation strategy are now obsolete and will need comprehensive review in the light of the new national policy agenda.
2. This is particularly important having regard to climate change considerations and the commitment of the UK Government to international legally binding carbon limits. It is clear there is very limited spare aviation capacity that can be shared around nationally and FASI needs to be established within this constraint. As the national aviation strategy and in particular the Airspace Change Masterplan (as referred to in CAP 1887) has the ANPS as a centre piece (which the Court of Appeal found to be unlawful as the Secretary of State had not considered the UK's climate change

obligations), it follows that it too must be potentially challengeable in the courts. This is a natural consequence of the February 2020 Court of Appeal decision on the ANPS, which the Government has stated it will not appeal. FASI needs to be based on a foundation of working within realistic national overall carbon limits for aviation. The UK now needs to establish its airspace masterplan priorities in line with national economic needs, and crucially within the constraints of overall carbon limitations. The CAA has given no evidence or suggestions of how this is going to be done.

3. Further, the presumption that Heathrow will expand which underpins CAP 1887 makes it appear that a third runway is a 'done deal'. This is far from the case. The CAA's consultation document is based on a prejudgement of the outcome of the DCO enquiry, thereby breaching natural justice and the 'Gunning Principles' in relation to both CAP 1887 and the outcome of the DCO itself.
4. The Transport Select Committee made 25 recommendations in relation to the ANPS and (in securing Parliamentary approval) the Government gave commitments to review many of these in detail at the DCO stage. The Government's legal team followed the same line of argument to avoid qualitative consideration of the shortcomings of the ANPS at the judicial review proceedings. At the court hearings the judges made it clear they would limit their decision to a strict and narrow interpretation of legal issues, on the basis that the robustness of the qualitative evidence would be considered fully at the DCO stage. Whilst the final wording of the ANPS may state it has primacy at DCO (potentially intending to limit the scope of the enquiry), this is in conflict with commitments given in Parliament and by the Government's legal team to the courts.
5. In relation to the DCO, Appendix A to this submission sets out a TAG paper on air quality and climate change. The flaws in the noise case used for the ANPS are highlighted in the next section of this response. There are also major unresolved issues about whether Heathrow can (or should) be allowed to recover its 'Early Costs' (through passenger fees) which have been the subject of a recent consultation (CAP1871). It is now evident that Heathrow's third runway is not running to programme – and in all probability, budget. This is especially the case as the Government has given a commitment that Heathrow expansion will be entirely privately financed and there is no agreement concerning the enormous disparity between Heathrow and TfL (and other infrastructure providers) in relation to paying for surface access costs (the provision of this infrastructure being integral to the sustainability and carbon assumptions made in the ANPS). The difference of opinion on cost liability is reputed to be between £1bn (Heathrow) and £15bn (TfL). These gaps are unbridgeable.
6. The Covid-19 crisis is also likely to have a very significant impact on future demand for aviation in the UK for years to come and there will need to be a new economic plan for recovery. It is inappropriate to set up a decision-making framework within the context of a constrained masterplan before the position has stabilised (both nationally and internationally). Until trading projections, economic recovery and growth plans, environmental constraints and aviation demand have been

comprehensively reviewed, it is premature to develop an airspace masterplan strategy or the criteria for assessing or accepting changes associated with this.

7. Finally, the Masterplan strategy referred to in CAP 1887 does not reflect changes in the aviation model, which is moving away from the hub and spoke concept (on which the Masterplan approach is predicated) towards new plane types which can efficiently fly short, medium and long distances on a point to point basis. In order to optimise economic benefits - and reflect consumer preferences - a more dispersed approach is required and competition between airports is preferable to domination of the UK market by Heathrow, creating in effect a private sector monopoly.
8. For these reasons, and because CAP 1887 refers repeatedly to Heathrow expansion and the ANPS, which upon the present judgement of the Courts are unlawful, it is self-evident that the envisaged masterplan – and the airspace change processes associated with it (including criteria for assessment and acceptance) – now require fundamental review.

*Question 9. Are the proposed criteria detailed in CAP 1887 the right criteria to enable acceptance?*

*(Required)*

*About right*

*Minor modifications needed*

*Significant modifications needed* **X**

*Don't know*

*Question 10. Chapter 3 of CAP 1887 details the policy considerations that are relevant to the Airspace Change Masterplan. Are there examples of where further policy may be required to guide trade-off decisions?*

*(Required)*

*Yes* **X**

*No*

*Don't know*

1. Crucially, neither the DfT nor the CAA have access to the necessary evidence base to assess health and quality of life impacts of a significant restructuring of UK airspace. For this reason, there is no realistic, reliable or objective basis for evaluating the 'trade offs' referred to in CAP 1887. The CAA is perceived as being an integral part of the aviation industry with a key remit to expand traffic movements. It does not have the necessary independence, objectivity or expertise to make impartial decisions on trade-offs that impact public health.
2. Further – and in terms of whether the general public is even aware of the issues CAP 1887 seeks to consult on - unless communities have actually experienced the radical changes in noise environment which Airspace Modernisation necessarily entails, such as concentration, new flight paths and/or significant changes in the use of existing flight paths (with increased intensity of overflight), they will have no idea of the significant changes in living conditions they are going to be subject to. Those who experienced Heathrow's PBN departure trials in 2014 will never forget how their lives were made intolerable over that summer by changing the use of established routes and concentrating them. This trial had to be abandoned early in the face of enormous public protests. The impacts are documented in Anderson Acoustic's 2015 trials report commissioned by Heathrow. Anderson were unable to explain the impacts through the use of average metrics LAeq, which was the primary metric used by the CAA in assessing the ANPS, and which the webTAG cost benefit tool is based on. The impacts of the trials were also felt at far, far lower levels of noise than levels considered by the CAA as being significant and lowest observable thresholds. The impact of these trials heightened the sensitivity of those impacted and this raised awareness has not gone away six years on; the complaints continue.
3. Given the knowledge that the CAA must have had, as the Government's aviation noise experts, about the 2014 Heathrow departure trials and legal action at Gatwick, it is astonishing that the CAA's 2014 SoNA survey didn't look below 51 dB, the government's LOAEL level. Likewise, the CAA did not address the change effect which international acoustic experts agree makes circa 6-9 dBLAeq difference to public annoyance. There is not a question about the existence of the change effect (recognised by both ICAO and Public Health England); the only area for discussion is exactly the level of impact and whether or not it will reduce over time. Given this background there is no confidence within communities in the CAA's ability to discern impacts or quantify the effects of significant change on physical and mental health as part of any trade off process. Trust in authorities (in this case the CAA, Heathrow and the DfT) is accepted as a significant non-acoustic factor (see subsequent section). If non-acoustic factors such as the change effect and trust are not fully understood the Government should act responsibly and follow the precautionary principle – especially as the airspace changes envisaged in CAP 1887 represent the most fundamental change in the use of UK airspace ever – and probably in the world.

The Government is likely to face mass protest if these issues are not understood and addressed before major airspace changes are permitted.

4. The Independent Commission of Civil Aviation noise (ICCAN) was established in 2019 and despite initial DfT opposition it included a review of SoNA 14 in its first year's workplan. ICCAN's overview study concluded that a new survey was necessary. The DfT now apparently welcomes ICCAN's review and has agreed its recommendation for a fundamental review. Until this work has been undertaken and key government departments such as Health, PHE and DEFRA have impartially considered the implications there is no way of measuring or considering the impact of the very major changes in the use of airspace envisaged in the current consultation.
5. It is worth highlighting what the CAA and the DfT should already know about the introduction of significant changes to the use of existing flight paths (but ignored when SoNA 14 was adopted as the basis of establishing aviation noise policies). The slide below has been presented to Heathrow's Community Noise Forum (HCNF) and has not been contested by the airport or industry representatives.

## The local evidence applicable to Heathrow

- Heathrow's PBN trials led to mass protest and opposition
- This led to the early abandonment of the trials
- Communities were in uproar a long way below the DfT's 51 dBL<sub>aeq</sub> LOAEL level
- Change in the noise environment had a major effect
- Average noise metrics were not able to explain the level of reaction



6. The slide below (also presented to the HCNF) sets out what Heathrow stated in a response to a European consultation on the introduction of new technologies in 2016:

## What Heathrow said in 2016 about PBN

- The social impact of PBN trials in the UK has been enormous
- No environmental assessment of noise impacts has been undertaken

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comment by: *Heathrow Airport Limited*

Whilst Heathrow Airport Limited fully supports airspace modernisation, this document does not support current UK CAA guidance and is not in line with current UK airspace projects such as LAMP. The time scale suggested here is unrealistic and could jeopardise these projects. In addition, as subsequent comments highlight, we have the following concerns:

- The Social Impact of PBN trials in the UK has been enormous, therefore this should be considered and not dismissed in one sentence.
- There does not appear to be an environmental assessment of this proposed change in terms of noise.
- The Benefit section takes no account of the cost of airspace consultation which results in an incomplete assessment.
- Mixed conventional and PBN operations are not supported by the UK CAA.

Consequently, this NPA is not supported by Heathrow Airport Limited.

*Noted.*

[easa.europa.eu/sites/default/files/dfu/CRD%202015-01\\_0.pdf](https://easa.europa.eu/sites/default/files/dfu/CRD%202015-01_0.pdf)

7. More recently ICAO's 2019 white paper on aviation noise impacts (never referred to or mentioned at the HCNF by the CAA or Heathrow) makes specific reference to change, non-acoustic factors and the appropriateness of judging changes in regard to average Laeq and Lden noise metrics (our comments are marked in red on the second slide).



## Aviation Noise Impacts White Paper

### State of the Science 2019: Aviation Noise Impacts

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\*This White Paper represents a summary of the scientific literature review undertaken by researchers and internationally recognised experts. It does not represent a consensus view of ICAO.

## Change

### 2.3 Generalized versus local exposure-response relationships

While exposure-response relationships have been recommended for assessing the expected annoyance response in a certain noise situation, they are not applicable to assess the effects of a change in the noise climate. Existing survey results reveal a higher annoyance response in situations with a high rate of change, for instance, where a new runway is opened.<sup>10,11,12</sup> Such heightened annoyance response seems to prevail.

Since airports and communities may differ greatly with respect to acoustic and non-acoustic variables, local exposure-response relationships, if available, may be preferred for predicting annoyance and describing the noise situation with desired accuracy. Still, generalized exposure-response relationships are desirable to allow assessment across communities and to establish recommended limit values for levels of aircraft noise.

If changes are taking place some allowance needs to be made in the assessment

WebTAG has to include change

SoNA is not local and even Communities around an airport Differ in character

- 
8. The serious adverse impacts of trying to introduce radical changes to flight paths, involving highly concentrated PBN routes are already clear from international experience, particularly in the US. No one in the UK aviation industry has addressed this experience. Consideration of the impact of introducing PBN had been promised by Heathrow as part of its DCO application but, based on the draft report we have seen (so far it has not been presented in final form to the HCNF), the document ignores outcomes – instead it only covers very high-level governance processes applicable in other countries.
  9. The introduction of PBN, aka Next Gen in the US, has effectively stalled due to its impacts and US politicians have raised very serious concerns. Please see Appendix B for the link to the report and the politicians' response. It is difficult to understand how the DfT and the CAA can be contemplating the introduction of new concentrated routes without assessing and addressing US and other international experience. This evidence, which has not been addressed by the DfT or the CAA, is extremely relevant to the consideration for assessing or accepting airspace changes and the Masterplan.
  10. Given the CAA's lack of knowledge of key impacts of aviation's environmental impacts, it is impossible for it to make judgements on 'trade-offs' in relation to airspace change proposals. Regarding noise relevant information won't be available at the earliest until ICCAN has completed the review of SoNA, and the results assessed by the Department of Health, Public Health England and DEFRA.

11. All work on the Masterplan and the processes associated with airspace changes should now be suspended until this work has been done and the outcome consulted on.

## **Appendix A;**

### **DCO Risks - TAG assessment of latest evidence in relation to air quality and carbon limits**

#### **Air Quality**

The effects of aircraft (as opposed to land vehicles going to and from the airport) are not assessed properly by Heathrow, the CAA or the DfT. A huge problem and illegal levels of air pollution are being disguised. Heathrow state in their DCO Consultation that

“Aircraft flying into and out of the airport do not have a significant effect on air quality in the local area. This is because aircraft are so high that emissions are dispersed before reaching on the ground”<sup>1</sup>

That is manifestly untrue.

Hudda et al in 2014<sup>2</sup> found that emissions blew downwind from airborne approaching and departing aircraft so that there was detected at least a 2-fold increase in particulate concentrations over baseline concentrations during most hours of the day, in an area of about 60 km<sup>2</sup> that extended to 16 km downwind, and a 4 to 5-fold increase to 8–10 km downwind. The synopsis of the report stated that

“These results suggest that airport emissions are a major source of particulate matter concentration in Los Angeles that are of the same general magnitude as the entire urban freeway network. They also indicate that the air quality impact areas of major airports may have been seriously underestimated”.

Particulates, which are tiny particles of soot emitted from the combustion process, have been found to be particularly harmful to humans. The Hudda study also showed elevated levels of NO<sub>2</sub> downwind from aircraft as well, contradicting evidence of our Department of Transport

Keuken et al in 2015<sup>3</sup> took measurements at Adamse Bos, located 7 km from Schiphol, Amsterdam, and in 2012 at Cabauw, a regional background site 40 km south of Schiphol. Particulate concentrations increased during periods in which the wind direction was from Schiphol: at Cabauw by 20% and at Adamse Bos by a factor of three, from 14,100 (other wind directions) to 42,000 cm<sup>3</sup> between 06.00 and 23.00. The size distribution of Schiphol-related particulate number concentration was dominated by ultrafine particles, ranging from 10 to 20 nano metres

Riley et al in 2016<sup>4</sup> found a similar situation at Hartfield Jackson airport Atlanta.

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<sup>1</sup> Heathrow Expansion Consultation PEIR Non-Technical Summary page 28

<sup>2</sup> Hudda 2014 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215878/>

<sup>3</sup> Keuken 2015 <https://www.sciencedirect.com/science/article/abs/pii/S1352231015000175?via%3Dihub>

<sup>4</sup> Riley 2016 <https://www.sciencedirect.com/science/article/abs/pii/S135223101630348X>



Hudda<sup>5</sup> in 2018 did another study at Boston finding that jet engine exhaust is a significant source of ultrafine particles, and aviation-related emissions can adversely impact air quality over large areas surrounding airports.

In 2019 Zhou et al<sup>6</sup> in China did a study finding that civil aircraft emissions during landing and [take-off](#) are important [air pollutant](#) sources, but have been given insufficient attention in China.

In 2019 Austin et al<sup>7</sup> from Washington state university led a study which found that communities underneath and downwind of jets landing at Sea-Tac Airport at Seattle are exposed to a type of ultrafine particle pollution that is distinctly associated with aircraft

In June 2019 Roy Harrison<sup>8</sup> from Birmingham University led a study of air quality in London scanning particulate sizes in London and found an elevation in nucleation mode particles associated with winds from the west which was concluded to result from emissions from London Heathrow Airport, despite a distance of 22 km from the central London sites

In 2019 Kings College London<sup>9</sup> published a report on ultrafine particles being blown downwind from 4 international airports including London, finding particulates being blown in significant quantities from Heathrow into central London

The specialist air quality unit of DEFRA recognises the risk of particulates from aircraft saying in their 2018 report to DEFRA that

“at a location such as Heathrow Airport, where aircraft tend to approach the airport from the east (flying over the London conurbation), there is potential for considerable exposure to UFP [ultrafine particles] from aircraft”.<sup>10</sup>

Heathrow themselves “monitor” air quality around Heathrow (but not further into London). They have four sites; Harlington, Bath Road (LHR2), Longford and Oaks Road. They are all directly to the north or the south of the runways – none are underneath a flight path. The last annual published results are for year-end 2018; they show PM 2.5s at an annual mean of less than 10 micrograms per cubic metre. However, look at the hourly maxima and the level goes up to over 60 micrograms and with Harlington to over 76 micrograms per cubic metre<sup>11</sup>. While expecting hourly maxima to be greater, this level of difference gives a serious indication of the prevailing wind blowing particulates well away from the receptors with only a temporary change of wind blowing them over the receptors when the wind changes. If the receptors were put underneath the flight path, the annual mean results would most likely be very much increased – to an annual mean probably well over 20 micrograms, the permitted amount under the EU Regulation 2008/50 and way above the WHO recommended limit of 10 micrograms. The EU Regulation 2008/50 also provides that there must be a target year on year reduction of PM2.5s. At a level of 20 micrograms per cubic metre the target yearly reduction is 20%. Any operations or alterations that lead to an increase in PM2.5s are unlawful, therefore. At present neither Heathrow, the CAA nor the DfT nor any other government department have tested for emissions under the flight paths of aircraft landing or departing from Heathrow. This is an extraordinary state of affairs.

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<sup>5</sup> Hudda 2018 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5822220/#!po=0.746269>

<sup>6</sup> Zhou in 2019 <https://www.sciencedirect.com/science/article/pii/S0269749119306797>

<sup>7</sup> Washington state university 2019 <https://deohs.washington.edu/mov-up>

<sup>8</sup> Roy Harrison, Birmingham University 2019 <https://www.atmos-chem-phys.net/19/39/2019/>

<sup>9</sup> KCL report on ultrafine particles 4 cities including London

<https://www.sciencedirect.com/science/article/pii/S016041201931832X?via%3DiHub>

<sup>10</sup> DEFRA Ultrafine Particles (UFP) in the UK [https://uk-air.defra.gov.uk/library/reports.php?report\\_id=968](https://uk-air.defra.gov.uk/library/reports.php?report_id=968)

<sup>11</sup> Heathrow Airwatch section 4.1 2018 Annual report

[http://www.heathrowairwatch.org.uk/documents/Heathrow\\_2018\\_Annual\\_Report\\_Final.html](http://www.heathrowairwatch.org.uk/documents/Heathrow_2018_Annual_Report_Final.html)

The devastating effects of fine particulates in the air are all too easy to see from the research carried out. Fine particulates alone kill some 29,000 people in the UK per year<sup>12</sup>. Research at Queen Mary's University<sup>13</sup> has found that particulates have been present in the placentas of expectant mothers and effect the unborn foetus, thus passing on the effects to the next generation. The University of Bern investigated the effect of exhaust particles from aircraft turbine engines on human lung cells<sup>14</sup> stating

"As a result, scientific research of the particulate matter from air traffic is important for the development of environmental standards in the aviation sector. When inhaled, these nanoparticles -- like those from other combustion sources - efficiently deposit in the airways.....if the inhaled particles manage to overcome these defence mechanisms, due to their structure or physico-chemical properties, there is a danger for irreparable damage to the lung tissue."

Far from pollution of the air with fine particulates improving, it is reported that Public Health England recorded the fraction of mortality in London due to particulates actually rose from 6.4% to 6.5% from 2016 to 2017 and from 5.6% to 6.4% from 2015 to 2016<sup>15</sup>. Ranzani<sup>16</sup> et al have reported that ambient fine particulate matter air pollution was associated with low bone mineral content and bone mineral density. This is likely to be transferred from one generation to the next where pregnant mothers are exposed to particulates. Professor Mina Gaga, President of the European Respiratory Society has said:

"This new research suggests a possible mechanism of how babies are affected by pollution while being theoretically protected in the womb. This should raise awareness amongst clinicians and the public regarding the harmful effects of air pollution in pregnant women. We need stricter policies for cleaner air to reduce the impact of pollution on health worldwide because we are already seeing a new population of young adults with health issues."<sup>17</sup>

It is abundantly clear, we suggest, that neither Heathrow, the CAA, nor the Department of Transport have even scratched the surface of researching the health effects of expanded Heathrow operations. This not only includes a third runway but includes any airspace change that will lead to an increase in the number of flights in and out of the airport. Some Londoners – and not just those close by - will be given a death sentence by Heathrow expansion.

### **Climate Change**

The Committee on Climate Change and others have written much on the requirements to reduce the combustion of fossil fuels in order to reduce the emission of greenhouse gases, the most notable one being carbon dioxide (CO<sub>2</sub>).

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<sup>12</sup> Royal College of Physicians Every breath we take: the lifelong impact of air pollution <https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>  
And also the Committee on Medical Effects of Air Pollution (COMEAP) [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/304641/COMEAP\\_mortality\\_effects\\_of\\_long\\_term\\_exposure.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/304641/COMEAP_mortality_effects_of_long_term_exposure.pdf)

<sup>13</sup> Research of Queen Mary's University Hospital <https://www.qmul.ac.uk/media/news/2018/smd/first-evidence-that-soot-from-polluted-air-may-be-reaching-placenta.html>

<sup>14</sup> University of Bern <https://www.sciencedaily.com/releases/2019/05/190516114627.htm>

<sup>15</sup> Report of Public Health England in the Evening Standard <https://www.standard.co.uk/news/london/death-risk-from-londons-toxic-air-sees-utterly-horrifying-rise-for-second-year-running-a4167216.html>

<sup>16</sup> Ranzani <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2758211>

<sup>17</sup> See Research of Queen Mary's University

Heathrow claims that it will be “carbon neutral” by 2050 but then in the small print we realise that the statement excludes all aircraft operations. Airlines are sufficiently worried to say that they will be carbon neutral by 2050<sup>18</sup>.

However, this depends on substantial offsetting, which is something that the Committee on Climate Change (“CCC”) have specifically advised against<sup>19</sup>. Lord Deben, the chair of the CCC has specifically advised the Government on behalf of the CCC that expansion of Heathrow leaves very little room for expansion of any other airport<sup>20</sup>. The problems of offsetting have been recited many times before by many people. There is no guarantee that the program of capture (e.g. tree planting) will be completed. The carbon capture may well be required for other activities (e.g. offsetting emissions generated for power supplies). The carbon capture occurs over some 30 to 50 years whereas the emissions from aviation occur in one flight. The plants, peat bogs, trees might become damaged (they could burn down or die or be cut down). In the event that they are damaged, they become carbon emitters causing more damage as they emit the carbon that they have captured over the years.

No assessment of how Heathrow operations compare to national aviation emissions, either expanded or not, has been made, notwithstanding that Parliament has declared a state of climate change emergency. In support of its stance in the DCO consultation, Heathrow stated that it had followed advice from the Committee on Climate Change (“CCC”) given in 2017. That advice is way out of date, and the current advice is contained in the CCC Net Zero Report of May 2019. Following that the CCC has reported to Parliament and advised on aviation (footnotes 19 and 20).

The projected CO<sub>2</sub> emissions, stated in the Heathrow Consultation Chapter 9 PEIR Volume 1<sup>21</sup>, for departing Heathrow planes are 20 MtCO<sub>2</sub> in 2021 and by 2050, having peaked at over 25 MtCO<sub>2</sub> per year in intermediate years. Current Total Air Traffic Movements (ATMs) throughout the year in the UK are 2,500,000 approx. Heathrow ATMs per year (now) are 480,000. Therefore, Heathrow’s proportion of ATMs of the whole nation is 19.05%.

The Committee on Climate Change agreed that the previous target 80% reduction overall required aviation CO<sub>2</sub> emissions to be 37.5 MtCO<sub>2</sub> by 2050 (which is 100% of the 2005 total). The proportion of Heathrow CO<sub>2</sub> emissions to the target by 2050 was therefore  $20\text{MtCO}_2 \div 37.5\text{MtCO}_2 = 53.33\%$  of the total CO<sub>2</sub> UK aviation emissions budget. 53.33% is considerably more than 19.05%. Therefore, Heathrow already (before expansion) has very substantially more than its share of the CO<sub>2</sub> budget – indeed it will have over half of the budget even though it currently has less than one quarter of the UK air traffic movements. Although Heathrow has more long-haul flights departing, so needs an extra proportion of the CO<sub>2</sub> budget, no calculations have been given on what that proportion should be or how it is justified in the light of ATMs of other airports (which also have declared expansion plans). We do know from the report of the Department for Transport entitled “Beyond the Horizon” of June 2018 that predicted CO<sub>2</sub> is likely to be 40.8 MtCO<sub>2</sub> in 2050 having peaked at 43.4 MtCO<sub>2</sub> in 2030. Thus, aviation, with Heathrow expansion, will

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<sup>18</sup> See for example the report in the Guardian of the 4<sup>th</sup> February 2020 at

<https://www.theguardian.com/business/2020/feb/04/uk-air-industry-sets-zero-carbon-target-despite-70-more-flights>

<sup>19</sup> CCC report to Parliament 2019 at page 65 <https://www.theccc.org.uk/publication/reducing-uk-emissions-2019-progress-report-to-parliament/>

<sup>20</sup> Letter Lord Deben to Grant Shapps <https://www.theccc.org.uk/publication/letter-international-aviation-and-shipping/>

<sup>21</sup> See Graphic 9.7 on page 9.52 of PEIR 9 <https://aec.heathrowconsultation.com/wp-content/uploads/sites/5/2019/06/11-Volume-1-PEIR-Chapter-9-Carbon-and-greenhouse-gases.pdf>

fail even on an 80% reduction over 1990 values – never mind a 100% reduction (or the effects of any non CO<sub>2</sub> greenhouse gases). Any reduction from 40.8 MtCO<sub>2</sub> in 2050 is highly speculative.

CORSIA will not be an acceptable off-set. Firstly, mitigation (apart from carbon trading) will yield nothing like the required off-set. Trading, by getting poor nations to sell carbon credits and restrict their economic growth will not be acceptable in the long term. The CCC has specifically said that this practice should be banned and the Government (against the advice of the CCC) has stated that it will only be permitted temporarily.

Off-setting by carbon capture, such as peat bogs and tree planting, should be available for industry and activities as a whole. It cannot be monopolised by just one industry such as aviation, which already enjoys more climate change and tax concessions or exemptions than any other industry. Off-setting also has its own very serious credibility problems. Off-set an aircraft journey with tree planting or bog creation, and the carbon capture takes 30 years to complete versus the 10 or so hours air travel journey. More carbon emitting journeys get made before the carbon capture operates and it goes on. Disturb the peat bog, burn down the trees or wood in the next 30 years (even dead branches converted into pellets for eco-friendly biomass boilers emit CO<sub>2</sub>), and the carbon capture operations become carbon emitters. Off-setting is highly speculative and most likely will not produce the intended off-setting at all.

Aviation causes particular damage by contribution to climate change. Not only are there the traditional greenhouse gases like CO<sub>2</sub>, but other gases when emitted at high altitude, cause a greenhouse effect and contribute to the warming of the planet. One of the most notable is water, which exists in the jet engine exhaust. Condensation occurs and droplets form to act as magnifying glasses for the heat. Water vapour disperses relatively rapidly and certainly more quickly than CO<sub>2</sub>, but it is continually replenished from jet engine exhausts. The estimate is that the non-CO<sub>2</sub> emissions from aircraft double the greenhouse effect of aircraft over just CO<sub>2</sub> alone<sup>22</sup>.

Electric aircraft are not expected to become operational to any great extent until well after 2050 – after the date by which we need to become net zero. Heathrow Airport through its director of sustainability, Mr Matt Gorman, supported a paper entitled “The Flight to Net Zero” published by Green Alliance<sup>23</sup> in which they state that “Notably, reducing the number of flights is the only way to address the significant non-CO<sub>2</sub> climate impacts of aviation, such as contrail formation and NO<sub>x</sub> emissions. These are estimated to cause as much atmospheric heating as the CO<sub>2</sub> emissions, and are not currently accounted for” [page 19]. The CCC have specifically advised that offsetting will not be possible<sup>24</sup> and yet the industry still pretends that it can go on without change and expand.

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<sup>22</sup> For example see Carbon Brief article at <https://www.carbonbrief.org/explainer-challenge-tackling-aviations-non-co2-emissions>

<sup>23</sup> [https://green-alliance.org.uk/The\\_flight\\_to\\_net\\_zero.php](https://green-alliance.org.uk/The_flight_to_net_zero.php)

<sup>24</sup> See e.g. the July 2019 Committee on Climate Change report to Parliament at page 65 in which it is stated that

“In May 2019, the Committee recommended that the UK set a net-zero greenhouse gas emissions target for 2050. The Government and Parliament accepted this advice and on 27 June 2019 the target became law. Consistent with the Committee’s advice, the Government were clear that net-zero emissions must be reached across the whole economy (including emissions from international aviation and shipping) and that the aim is to achieve the target entirely through action in the UK without recourse to international credits (or “offsets”)”. Reference to the evidence of the Government being clear that net zero include aviation is made in Hansard at <https://hansard.parliament.uk/commons/2019-06-12/debates/A348AE4C-8957-42C8-8180->

Quite simply, it can't.

## **Appendix B; DCO Risks**

### **Impact of highly concentrated PBN flight paths - US experience**

Link to US Government Office Report on NextGen (PBN)

<https://www.oig.dot.gov/sites/default/files/FAA%20Metroplex%20Program%20Final%20Report%5E08-27-19.pdf>

Letter from US Congressmen and Senators to the FAA dated 20 December 2019

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[0F59E597E3EA/NetZeroEmissionsTarget](#)

Greg Clark supporting the words of Rebecca Long Bailey “Achieving net zero before 2050 is necessary and affordable, and there is no need to rely on international offsets, which—let us be honest—does look like cheating.”



## Congress of the United States

Washington, DC 20510

December 20, 2019

Hon. Stephen M. Dickson  
Administrator  
Federal Aviation Administration  
800 Independence Avenue SW  
Washington, DC 20591-0004

Dear Administrator Dickson:

We are writing on behalf of hundreds of thousands of Americans who continue to suffer the effects of the FAA's NextGen program.

As you know, since its introduction of Metroplexes in 2010, the FAA has concentrated flight paths over neighborhoods, schools, and national monuments in order to make the airspace more efficient. This heavy air traffic produces constant noise and particulate matter that has yet to be deemed safe by the FAA or any other government agency. The noise created by the frequency of flights – in some areas beginning before 6:00 a.m. and continuing every few minutes until midnight or later – has had a devastating impact on residents' quality of life. The FAA has yet to make any significant changes to the disruptive flight paths. In fact, communities, cities and states around the country, including in and around the District of Columbia, Phoenix, Boston, San Francisco, Los Angeles, Seattle, Denver, New York, and the State of Maryland, have taken legal action as a result of the FAA's failure to adequately address community concerns.

A report by the U.S. Department of Transportation's Office of Inspector General dated August 27, 2019 entitled *FAA Has Made Progress in Implementing Its Metroplex Program, but Benefits for Airspace Users Have Fallen Short of Expectations* raises serious questions about the efficacy of the FAA's NextGen program. Among these concerns are limited estimates of annual benefits, inaccurate information published by the FAA about the advantages of Performance Based Navigation, and inadequate documented evidence to measure progress.

According to the section of the report entitled "Metroplex Benefits to Airspace Users Have Fallen Well Short of Predictions, and There Is No Consensus on Actual Benefits Achieved," the FAA estimates that NextGen implementation has saved airlines only \$31.1 million annually, which is roughly half of its initial minimum estimate. Of the seven completed Metroplex locations, only one achieved fuel savings benefit expectations. Even more concerning, the FAA published conflicting information about these savings on its website. For example --

"[The] FAA has posted the benefits estimate of \$2.0 million from the design team for Northern California rather than the negative \$7.7 million benefits, even though this is a completed site...Unclearly or inaccurately reporting Metroplex benefits limits Congress and the Department's ability to assess the progress of the program for purposes of providing and allocating funds, and industry stakeholders may not be able to rely on FAA reported benefits to effectively plan for the investments required to equip aircraft operating in the NAS [National Airspace System]."

The FAA claims that other operational benefits such as increased safety have also been achieved, but, according to the report, this claim remains unsubstantiated because the "FAA has not established a process to measure or track these additional operational benefits because it states these benefits are difficult to quantify." It is also important to note that the FAA has yet to quantify the harm to health and property that the NextGen program has created for residents and wildlife living beneath concentrated flight paths.

We are concerned that the NextGen program has failed to meet the bare minimum standards for success. Currently, the FAA continues to introduce and implement concentrated flight procedures with Performance Based Navigation throughout the country. The FAA boasts profits for airlines, shipping companies, and other industry stakeholders<sup>[1]</sup>, but the burden of noise, health risks, and declining property values falls on the backs of hard-working Americans. We urge the FAA to fast-track the development of new flight paths in all Metroplexes and at other airports with NextGen procedures that will significantly disperse air traffic and raise aircraft altitudes.

We would appreciate your review of the enclosed report and a detailed timeline of your plan to implement procedures that will mitigate harm to the communities we represent. We look forward to your prompt response.

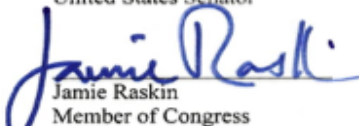
Sincerely,

  
Chris Van Hollen  
United States Senator

  
Kamala D. Harris  
United States Senator

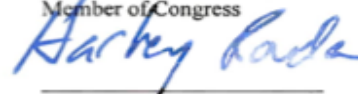
  
Benjamin L. Cardin  
United States Senator

  
Edward J. Markey  
United States Senator

  
Jamie Raskin  
Member of Congress

  
C.A. Dutch Ruppersberger  
Member of Congress

  
Member of Congress  
Eleanor Holmes Norton

  
Harley Rouda  
Member of Congress

  
Stephen F. Lynch  
Member of Congress

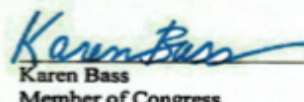
  
Raul Ruiz, M.D.  
Member of Congress

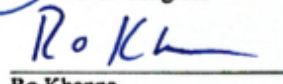
<sup>[1]</sup> Federal Aviation Administration. Fact Sheet – NextGen. (November 26, 2019).  
[https://www.faa.gov/news/fact\\_sheets/news\\_story.cfm?newsId=24434](https://www.faa.gov/news/fact_sheets/news_story.cfm?newsId=24434)

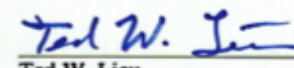
  
Kathleen M. Rice  
Member of Congress

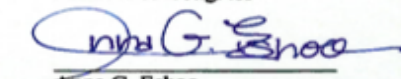
  
Adam Smith  
Member of Congress

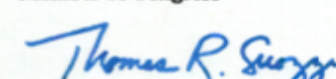
  
Jackie Speier  
Member of Congress

  
Karen Bass  
Member of Congress

  
Ro Khanna  
Member of Congress

  
Ted W. Lieu  
Member of Congress

  
Anna G. Eshoo  
Member of Congress

  
Thomas R. Suozzi  
Member of Congress

*Question 11 Chapter 4 of CAP 1887 details the engagement expectations for the Airspace Change Organising Group (ACOG) to undertake. Do you have any comments on the engagement we are asking ACOG to undertake?*

No further comment.