



Appeal by: Bristol Airport Limited

Appeal Reference: APP/D0121/W/20/3259234

North Somerset Council Application Reference: 18/P/5118/OUT

**Summary proof of evidence of
Dr Mark Broomfield BA DPhil MIAQM
Air Quality**

Reference: NSC/W3/3

Ricardo Energy and Environment



Ricardo
Energy & Environment

Summary Proof of Evidence of Dr Mark Broomfield on behalf of North Somerset Council: Air Quality

Section 78 Town and Country Planning Act 1990 Appeal by Bristol Airport Ltd against the refusal of application 18/P/5118/OUT for the development of Bristol Airport to accommodate 12 million passengers per annum

PINS Appeal ref APP/D0121/W/20/3259234

Report ref. ED14606100 for North Somerset Council

Customer:

North Somerset Council

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Contact:

Dr Mark Broomfield
Ricardo Energy & Environment
Bright Building, Manchester Science Park,
Manchester, M15 6GZ, United Kingdom

t: +44 (0) 1235 75 3493
e: mark.broomfield@ricardo.com

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and OHSAS18001

Author:

Dr Mark Broomfield

Date:

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Name and qualifications

1. My name is David Mark Broomfield. I am an Associate Director with Ricardo Energy and Environment (Ricardo), a trading name of Ricardo-AEA Ltd. I have 29 years' experience as an air quality and odour specialist. I have a BA in Natural Sciences from the University of Cambridge, and a PhD in atmospheric chemistry from the University of York. I am a member of the Institute of Air Quality Management.

Scope of evidence

2. On 11 December 2018, Bristol Airport Ltd (BAL) submitted to North Somerset Council (NSC) application Ref: 18/P/5118/OUT for planning permission for a development at Bristol Airport to enable a throughput of 12 million terminal passengers in any 12 month calendar period. On 19 March 2020, NSC issued a Decision Notice refusing planning permission for the proposed development on five grounds. Reason no.2 referred specifically to the effects of the proposed development on air quality.
3. My evidence sets out the matters of concern regarding air quality and related impacts, to which I believe a decision maker needs to give consideration and weight when determining this appeal. They relate directly to Reason No.2, and are also relevant to Reasons No.1 and No.5. In particular, my evidence examines whether the proposed development would contribute to improving the health and well being of the local population

The proposed development and air quality

4. The main air quality issues associated with airport operations and expansion are due to increased in emissions from road vehicles accessing the airport, aircraft landing and taking off from the airport, and infrastructure at the airport such as airside vehicles and combustion plant. Also, construction activities and changes to road layouts could potentially have adverse effects. The air pollutants of potential concern are oxides of nitrogen (NOx), fine particulate matter (PM₁₀ and PM_{2.5}) and ultrafine particles (UFP).
5. The proposed development would increase airport emissions of NOx in 2030 by 20%. Similarly, the proposed development would increase airport emissions of PM_{2.5} by 17%.

Policy context

6. **International environmental policy** is based on the principle that emissions of air pollutants should be avoided where possible, prevented if they cannot be avoided, and where they cannot be prevented for controls to be imposed to reduce emissions as far as possible. This is particularly important for PM_{2.5}.
7. **National air quality policy** sets standards for air quality, and includes a commitment to significantly tighten the current air quality objective for PM_{2.5}. It is important that a large-scale and long-term project should take the commitment to a tightening of air quality policy at a

national level into account. Compliance with these standards is an important factor to be taken into account in assessing the air quality impacts of a development, but does not provide a complete assessment of the potential impacts of the proposed development because of the effects on health which occur even when levels of airborne pollutants comply with the current national air quality standards.

8. **National aviation policy** requires airports to deliver improvements in air quality, where possible. It is not enough simply to avoid exceeding air quality standards. Airports should be seeking to demonstrate ongoing improvements in air quality by providing innovative solutions and incentives against ambitious targets.
9. **National planning policy** is that development should, wherever possible, help to improve local environmental air quality conditions. Opportunities to improve air quality or mitigate impacts should be identified. The test for whether a development can be viewed as delivering improvements in air quality is to compare the future situation if the proposed development goes ahead with the future situation if it does not go ahead.
10. **The North Somerset Vision** includes a shared priority of "*Improving health and wellbeing*" (page 2) and emphasises the importance of reducing traffic pollution.
11. **North Somerset Core Strategy CS26** requires a Health Impact Assessment to be carried out. This should identify the potential health gains that could result from new development, and ensure that it delivers improved health and well-being, consistent with national aviation and planning policy. Policies CS3 and CS23 require environmental issues to be resolved to an acceptable and satisfactory level.

Air quality effects of the proposed development

12. The proposed development is forecast to result in a worsening of air quality due to increases in nitrogen dioxide and PM_{2.5} levels. These forecasts are subject to uncertainty (for example, because of the timing of development and the aircraft fleet composition): as a result, impacts in practice may be greater than those forecast in the application. Because nitrogen dioxide and PM_{2.5} have effects on health at levels within the current air quality standards, the forecast increase in levels of these pollutants at almost every location considered in the Environmental Statement would have an adverse effect on health. While it is not possible to quantify the precise extent of these increased risks, the development would result in an increase in risks to health, contrary to the requirements of national aviation policy, national planning policy, and the Core Strategy.
13. The proposed development would also be likely to result in an increase in exposure to UFP. This increase would be expected to result in associated increased risks to health which would be at least partly additional to the risks posed by PM_{2.5}. It is currently not possible to quantify these increased risks. This combination of an unknown, unquantifiable risk with potentially

serious effects on health which lies outside the control of those affected has many of the features of a risk that would give rise to a high level of concern or fear among members of the public. Again, this increased risk to health would be contrary to national and local policy.

14. The assessment does not consider whether the combined effects of factors such as increased air pollution and noise could result in an impact which is greater than the individual effects. There remains the potential for inter-related effects on the health of the local population due to the proposed development, contrary to the Core Strategy.

Mitigation measures

15. A number of mitigation measures potentially relevant to the impact of the proposed development on air quality were included in the application. While these measures would be welcome, the relevant issue is whether these measures would be effective in delivering an improvement in air quality. I have categorised the proposed measures as follows:

Table 1: Categorisation of proposed mitigation measures

Category	Measures
1. Would deliver a quantifiable improvement in air quality	No measures would achieve this objective.
2. Would deliver an improvement in air quality which cannot be quantified and/or is not guaranteed	Airport surface access strategy Staff travel plan
3. Would deliver an improvement in air quality which is likely to be so small as to be insignificant	Ultra-low emission strategy
4. Would not deliver an improvement in air quality	Air quality action plan Airport Environmental and Amenity Improvement Fund
5. Would deliver a worsening in air quality	Car parking provision and increase in flights
6. Not possible to evaluate effect on air quality	Highway improvements

16. I conclude that the measures set out in the planning application would have a variable and unquantifiable effect on air quality, which may in some respects be adverse. These measures could not be considered to comprise “*innovative solutions and incentives against ambitious*

targets.” The measures proposed to date do not engage with the requirement to identify and deliver improvements in air quality.

17. Additional or alternative measures are available which would enable the airport to improve air quality. Such measures could be designed and evaluated so as to deliver an improvement in air quality rather than a worsening of air quality, consistent with policy requirements. I suggest that the following measures should be considered to comprise a programme of innovative solutions and incentives against ambitious targets for this proposed development.

- (a) A substantial increase in the proportion of passengers accessing the airport by public transport.
- (b) Ensure that transport initiatives deliver air quality improvements
- (c) Consider and implement a Low Emission Zone
- (d) Increase electric vehicle charging points for taxis
- (e) Increase EV charging points and enhance the Workplace Travel Plan
- (f) Increase EV charging points for passengers ahead of wider market trends.
- (g) Improve the management of emissions from movement of aircraft
- (h) Reduce take-off thrust settings
- (i) Implement emission-related charging for aircraft
- (j) Provide electrical power supplies to all aircraft stands
- (k) Surface vehicle emission tests and improve performance where necessary
- (l) Minimum emissions standards for ground handling equipment
- (m) Increase alternative fuelled vehicles at the airport
- (n) Minimise emissions from heat, power and cooling plant
- (o) Identify opportunities to reduce the air quality impact of point sources.

Conclusions

18. The proposed development would result in increases in air pollution. These increases would present increased risks to health.
19. The mitigation proposals proposed by the Appellant as part of the planning application do not meet the policy requirements to improve air quality and do not consider the range of the opportunities available to reduce emissions. None of the proposed measures would deliver a quantifiable improvement in air quality. Instead, the proposed measures deliver improvements which are unquantifiable, not guaranteed, negligible or ineffective.

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20. I have set out a range of measures that could be viewed as more ambitious, and which would assist in working towards delivering an improvement in air quality. However, because BAL has not been ambitious in its approach to delivering improvements in air quality and has not provided a carefully evaluated programme of ambitious targets and innovative solutions, the benefit of these proposals remains unassessed and unquantified.
 21. I conclude that national and local policy requires new airport development to deliver an improvement in air quality, and an improvement in the health and wellbeing of the local population wherever possible. This is to be achieved by the adoption of ambitious targets and innovative solutions. The proposed development does not achieve these policy objectives.
 22. The proposed development will not contribute to improving the health and well-being of the local population. Rather, it will result in an increase in emissions of air pollutants and consequential increased risk to health. This would be contrary to Policy CS3, CS23 and CS26 of the Core Strategy, contrary to the National Planning Policy Framework, and contrary to national policy for airport development.



Ricardo
Energy & Environment

The Gemini Building
Fermi Avenue
Harwell
Didcot
Oxfordshire
OX11 0QR
United Kingdom

t: +44 (0)1235 753000
e: enquiry@ricardo.com

ee.ricardo.com