

**Consultation questions and responses for the 2022 Annual Monitoring Report and the
2024-2029 Noise Action Plan**

AMR

1. Section 3, Aircraft Movements, Table 1

The % increase value for the 'Other' line is incorrect. It should be -17%

You are correct thanks for flagging, we got the percentage calculation the wrong way round. We will change to -17%

2. Section 3, Aircraft Movements, Table 2

The 'Grand Total' aircraft movements of 65,706 does not match that reported in Table 1 (65,678)

As stated in the document The difference between totals in Table 2 and Table 1 is due to the availability of data when breaking down to the aircraft type level.

3. Table 2 shows aircraft types. The report indicates that 40 percent of movements were by the modernised quieter aircraft, the A320neo and the Boeing 737 Max. These are commercial aircraft owned by the larger airlines. How many of the smaller airlines and non-commercial movements used modernised quieter aircraft type in 2022? These figure should be included in the AMR.

Commercial aircraft is the only aircraft we classify as modernised aircraft. Smaller airlines and non-commercial movements are generally quiet aircraft and exempt from the quota on aircraft noise. As they are exempt and classified as Quota Count Zero, there is no other way to demonstrate a reduction in their quota, so we do not include them.

4. Why was there such a large increase in positioning flights in 2022? The total number for 2022 was 818. This is over two per day throughout the year.

The increase from 2021 was due to returning to pre-covid flight levels. There was also significant disruption across Europe in 2022 post Covid, which impacted airspace and led to generally higher levels of displaced aircraft and operational disruption.

5. Section 10, Noise Contours, para

The change in assessment software is noted. Has any sensitivity or validation of the new software been performed to determine that the same assessments (using the same input data) give the same answers?

We have not yet carried out a specific comparison, however we would not expect a significant change in results for the same inputs as the underlying calculation methodology is the same. The main changes affecting noise were the addition of a small number of aircraft types to the built-in software library.

We expect that next year the methodology would be brought into line with the 12mppa environmental statement, and we will assess the changes at that point.

- 6. Section 11, Night Noise Quota Usage, general. Please can you confirm that when compiling the quota count that this takes account of the fact that aircraft may have a different quota count for arrivals and departures.**

The Quota Count can be different between arrivals than departures, so yes, this is factored. The aircraft will use more power to take off and generate more noise, compared to landing.

- 7. Section 11, Night Noise Quota Usage, general**

It is noted that the quota count is evaluated according to the Section 106 conditions 36 to 39 set on the 16th February 2011. Now that planning permission has been granted for 12mppa, should this not be evaluated to the new Section 106 quota count conditions?

The 12mppa permission has been granted, but at present, it has not been implemented. On implementation, yes, the 12mppa quota counts (as per condition 16) will be applied. It is expected that the 12mppa quota counts will be used for the 2023 AMR.

- 8. Further to the question at the last ACC, how can residents verify the air movements for the summer season which was 2998 when the limit for that period was 3000, other than by accepting that they are sent to North Somerset Council? It is very convenient to be to be just two movements below the limit! It is also far higher than the 2019 figure of 2933.**

We manage air transport movements very carefully. The data is captured by National Air Transport Services (NATS) an independent verifier, licenced by the CAA to accurately record the time of each arrival and departure of all air transport movements for Bristol Airport and it is this data that is shared with North Somerset Council.

In preparation for each flight season (summer and winter) Bristol Airport will identify and declare its operating constraints. These will include the planning constraints on aircraft movements and nighttime movements, as well as other constraints such as the physical capacity of the terminal building which will affect the number of flights that can operate during a specific time period. This information will then be declared to Airport Coordination Limited (ACL) who are an independent slot coordination company which coordinates flights for 72 airports across the globe. ACL managed the slots for the nighttime operations at Bristol Airport during the summer season under the 10mppa consent. Our intention is to become a fully slot coordinated airport. The application is pending. This would mean that ACL would manage slots at Bristol throughout the whole year.

ACL, as the independent coordinator, designate a slot for each aircraft movement within the set constraints. ACL then monitor and manage the process ensuring airlines comply. Strict controls are kept on aircraft movements throughout the year. In the unlikely event of a potential breach occurring, ACL will thoroughly investigate and has a number of options available, including financial sanctions and withdrawal of slots. Therefore, we are confident

that with the introduction of full slot coordination, strict controls are in place to ensure we operate within our constraints.

- 9. Bristol Airport will be hosting test flights of the electric Vertical Take Off and Landing aircraft (eVTOL) in the near future as given in the AMR. Can the management team consult with the ACC and parishes on where these flights are to occur? Will they be on existing flight paths or will new flights be paths created? No information has been shown in the AMR. The AMR should detail the certification they have been given, for example, are they going to be considered as helicopters, commercial aircraft or general aviation. Will the test flights be recorded in the AMR 2023 and counted within the air transport movements?**

It is essentially too early in the process to answer, with any confidence. The project is to establish the potential of eVTOL which only started in earnest in the last year. The licensing and classification of this type of aircraft will be determined by the CAA. We will share more information as work progresses and as information is available

- 10. The runway usage split changed in 2022, the Easterly 09 runway changed from an average of 24 percent to 33 per cent. Did this lead to an increase in noise complaints from residents receiving departure noise?**

The total number of complaints in 2021 was 159, in 2022: 405. In 2019 (baseline year): 393. This increase is not indicative of the runway changes, but due to returning to pre-covid flight levels.

- 11. It is understandable that the Utilities & Energy Management sections are incomplete due to Covid. It would still be helpful to provide the comparison of 2022 to 2019 of scope 1 and 2 passenger emissions as in the 2019 AMR as in Figure 8 and where Table 2 shows the carbon footprint of activities such as red diesel.**

We will be publishing our sustainability strategy by the end of this year and will articulate our carbon footprint in more detail. We are currently in the process of applying for level 4 Airport Carbon Accreditation Standard and are working through the relevant calculations.

Going forward, we will use our annual Emissions and Climate Change Action Plan progress report to update on our carbon footprint progress.

- 12. Airline emissions are scope 3 and Bristol Airport facilitates aircraft movements. Can the emissions from these movements by aircraft type be included in the report each year in order to view the emissions from airlines? This would help incentivise airlines to purchase modernised quieter planes and sustainable aviation fuel. It could also be an action in the new NAP 2029.**

Scope 3 emissions are the hardest to measure and we are committed to understanding the entirety of our footprint. As an airport, this is not an easy task. We have been working with an accredited provider to ensure our footprint is independently calculated and verified and

aligned to the GHG protocol. Data science tools and operational data are continuing to evolve, giving a more accurate picture of scope 3 emissions and it is the airline's responsibility to accurately record airline emissions.

Going forward, we will use our annual Emissions and Climate Change Action Plan progress report to update on our carbon footprint progress.

13. The contents of the AMR exclude any section on biodiversity and land management. Can the AMR for 2023 include a section in order to see that conditions 20 and 25 are achieved and maintained. The Woodland Management Plan shown under application 23/P/1039/AOC details a timetable of work to be undertaken on the Replacement Land, known as Lulsgate Wood which is required to protect the Greater and Lesser Horseshoe Bats, a protected species which commences in 2023.

Yes. We will need to report on the progress of the Biodiversity Mitigation and Management Plan (which includes the Lulsgate Woodland Management Plan). The intention is to include this in future AMRs.

Noise Action Plan

1) The NAP 2019 to 2024 does not include an action to reduce the number of positioning aircraft movements. Will the new NAP to 2029 include this action? Are the emissions from positioning flights included in this report?

We do not have direct control over the number of positioning flights, as this is an operational requirement for airlines to limit disruption to their services. However, we are keen to work with our airlines to reduce positioning flights in the future but need to understand how any targets could realistically be achieved given that this is not within our gift.

The Secretary of State for Transport has approved Bristol Airport's application to become a 'Level 3 fully coordinated' airport, coming into force in summer 2024. This applies slots procedures to Bristol Airport's arrivals and departures throughout the year. Currently Bristol Airport only operates slots at night during the summer season. An airport slot is permission to use the airport infrastructure (runway, terminal, apron, gates, etc.). These are necessary to operate an air service at an airport on a specific date and time for the purpose of landing or take-off.

As set out by the Department for Transport, slots ensure airport operations remain within set capacity limits; ensure airport operations remain within environmental obligations, including night flight and noise limits; and will not increase the airport's capacity, as slot coordination is the administrative process for making use of an airport's capacity.

This means that airlines will have a number of slots allocated to them so it will be in their interest to minimise the amount of positioning flights to focus on passenger movements. This will therefore help reduce positioning flights over time, but not eliminate them.

Positioning flights are already recorded within the AMR. We have now recorded this as an extra action within "Movement Reporting" to ensure we continue to include this information so that it is available to review in the AMR.

2) Section 2.3, General Requirements, para 1. How have 'quiet areas' been evaluated to conclude that none are in the region of the airport?

The airport does not evaluate quiet areas. Under the Environmental Noise Directive eligible local authorities may nominate spaces for identification as a "quiet area in an agglomeration" for approval by DEFRA. At the time of writing no quiet areas have been designated within agglomerations affected by any of the Bristol Airport. DEFRA will advise that they will inform any airport concerned if this situation changes before finalisation of their Action Plan.

3) Section 2.3, General Requirements, BP 3. Is a webtag approach used for determining the direct and indirect costs?

The Webtag approach has not been used to determine indirect and direct costs associated with the NAP.

4) Section 4.1, Noise and Regulation. What chapter aircraft use Bristol Airport? What is the breakdown between the different chapters?

Chapter 3, 4 and 14 aircraft use Bristol Airport. The breakdown between the different chapters is not reported for the purposes of strategic noise mapping. We are actively working to reduce the number of Chapter 3 aircraft operating at the Airport by incentivising newer aircraft including the A320 Neo and B737 Max. Exploring the breakdown of operations by aircraft Chapter is a good suggestion and one which we will consider implementing in the future.

5) Section 4.2, National Regulations, Policy and Guidance, Aviation Policy Framework (2013), para starting "The APF expects" ..

The statement is made that there are "no properties at Bristol Airport exposed to these noise levels" (of 69dB LAeq,16h). How many noise sensitive buildings are exposed to levels of noise of 63dB LAeq,16h or more?

There is a difference in information when considering strategic noise maps which are annual averages and average summer contours. Dwelling counts are provided by DEFRA based on noise mapping data to annual END specifications. The END data is reproduced below. There are no dwellings exposed to levels of 63 dB LAeq,16h or more.

Table 4: Estimated total number of people and dwellings above various noise levels, $L_{Aeq, 16h}$

Noise Level (dB)	Number of Dwellings	Number of People
≥ 54	300	700
≥ 57	100	100
≥ 60	<50	<100
≥ 63	0	0
≥ 66	0	0
≥ 69	0	0

"In addition to the above annual noise contours data on summer daytime contours is published within the AMR. This information will continue to be published.

6) Section 4.2, National Regulations, Policy and Guidance, Aviation Policy Framework (2013), para starting "The APF currently"

As stated, the onset of significant community annoyance is acknowledged by the Government as 54dB LAeq,16h. It is noted in the Annual Monitoring Report 2022 that the noise climate recorded at all three permanent noise monitors is in excess of this level for at least all of 2022. Please can you add a statement acknowledging this fact to this paragraph.

The estimated total number of people and dwellings above various noise levels is provided in the NAP in Table 3. This includes the number of dwellings and people exposed to noise levels in excess of 54 dB LAeq,16h. When comparing 2022 16hr Leq dB(A) to data from 2018 and 2019 the noise climate for 4 out of the 36 compared months was higher in 2022 than in 2019. This shows the positive impact of the growing percentage of Neos and Max's operating from the airport. We hope to see noise climates falling in the future as fleets are modernised further.

Table 7: Noise climate

Month	Congresbury		Littleton Hill		Felton	
	2019	2018	2019	2018	2019	2018
	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)
January	61.5	62.4	55.8	59.5	59.9	61.1
February	60.0	60.4	57.0	55.7	60.7	60.1
March	59.5	59.6	60.4	57.1	61.4	60.2
April	63.2	60.2	57.3	56.3	60.9	60.9
May	59.6	58.9	56.3	55.9	60.6	60.8
June	59.7	59.5	57.2	56.2	61.2	61.7
July	58.0	58.3	56.1	55.8	60.9	60.5
August	58.6	60.7	57.2	56.4	61.4	61.0
September	58.8	62.2	57.4	57.4	61.7	61.2
October	59.8	64.4	57.6	57.8	61.2	60.8
November	59.4	60.1	55.2	56.3	60.2	59.5
December	59.2	59.0	57.6	57.3	60.9	60.5

7) Section 4.2, National Regulations, Local Planning Framework, North Somerset Local Plan 2038, BP 4: Change "agreed o surface" to "agreed surface"

This is a typo which has been changed.

**8) Section 4.2, National Regulations, Local Planning Framework, Bristol Airport, BP 2
How do the summer average contours and the annual average contours compare? How do they compare to the measured noise environment from the permanent noise monitors?**

Annual summer contours are normally larger than annual average "strategic" noise contours produced for the END. Bristol adopted the larger summer averages for the purpose of Noise Insulation Scheme eligibility and regular reporting. Noise data from the permanent noise monitors is used by Bickerdike Allen Partners LLP to validate the noise contours which are produced.

**9) Section 4.2, National Regulations, Local Planning Framework, Bristol Airport, BP 6
Where is the airline performance league table reported? What are the penalties for breach of noise limits and incentives for the use of quieter aircraft?**

We are currently conducting research into modernising and updating league tables, with the view to publish in future AMRs. Incentives are classified as sensitive data to both the Airport and airlines so it is something we cannot comment on.

Our noise limits are set out in our fees and charges. The noise monitoring points are located 6.5km from the start of roll for runways 09 and 27. Aircraft will be subject to a surcharge of £750 for the first 3dB exceeded, plus an extra £1,250 for each 3dB above the following limits:

88 dB (A) (103 PNdB) 06:00 - 23:29 hrs (local)

83 dB (A) (96 PNdB) 23:30 - 05:59 hrs (local)

10) Section 4.2, National Regulations, Local Planning Framework, Ground Noise Management Strategy, para 2

Bearing in mind that at the time of writing it is nearly August 2023, when will the 2023 GNMS new permanent ground noise monitor be installed and where?

The 12mppa planning permission S106 agreement requires us to submit a Ground Noise Management Strategy (GNMS) to the Council (for approval) within six months of commencing the 12mppa development. The 12mppa development has not yet commenced. However, we have commissioned our consultant (Bikerdike Allen Partners) to start preparing a GNMS (along with a Noise Control Scheme – also a requirement of the S106). We are targeting to share a draft GNMS with the Council early in the new year. This GNMS will include proposed operational and procedural controls on the ground running of aircraft designed to reduce noise. It will also include a proposed location for the installation of a new permanent ground noise monitor, the location of which also needs to be agreed with the Council. The date of installation is not yet confirmed, but the location and date will be a matter for BAL and NSC to agree through the GNMS.

11) Section 5.2.5, Night Flying, para 1
Please update the section number.

We believe that this is already correct.

12) Section 5.2.5, Night Flying, para 4

What are the QC for the night flights used to generate the night noise contour maps? How do they compare to the actual QC per night? BAP

The strategic noise contour maps have been produced using a log of the actual aircraft movements during the calendar year 2021. Details of the QC counts are also available within the AMR.

13) Section 5.4, Arrangements for Monitoring Aircraft Noise, general

What calibration is carried out on the three permanent noise monitors (soon to be four with the addition of the ground noise monitor) and the portable monitor? What training is provided to the operators of this equipment? Who does the independent recording and collation of the noise monitor data?

Data from our noise monitors is collated by Envirosuite. They convert this data onto our Noise and Track Keeping Software, ANOMS, for data analysis. Envirosuite is a well-known and respected company specialising in environmental monitoring since 1990. Several airports use their ANOMS system to record and collate data, including the MAG group and London Gatwick.

The calibration of BRS monitors monitored is by Envirosuite and is carried out by professional engineers annually who are subcontracted by Envirosuite, who are the manufacturers of the equipment. They use a calibrated source noise / reference device as these are class 1 microphones and undertake this activity directly on site at each location.

Noise consultants Bickerdike Allen Partners LLP (BAP) use the noise monitoring data in relation to contour validation work. BAP have over 60 years of experience in assessing sound levels and have suitable training to process data from all NMT systems.

The airport does have a mobile noise monitor which is calibrated yearly alongside the three static monitors. However, we are currently using BAP to carry out noise monitoring for residents and are therefore using their equipment at this time.

14) Section 5.4, Arrangements for Monitoring Aircraft Noise, end of section
I think it would be useful to repeat here the new Section 106 requirement for periodic correlation / validation of the noise contour maps using the noise monitor data.

The NAP refers to the A38 Diversion S106 Agreement. We believe this question is referring to Planning Condition 15 of the 12mppa Decision:

Condition 15: The area enclosed by the 63, 60, 57, 54 and 51 dB(A) Leq 16hr (07:00 hours to 23:00 hours) noise contours and the 55 and 40 dB LAeq,8hr summer night-time noise contour (23:00 hours to 07:00 hours) for the forthcoming year (from 1 January to 31 December each year) shall be reported to the Local Planning Authority annually within the Annual Operations Monitoring Report. The same report shall include comparison of the predicted noise levels at the Noise Monitoring Terminals based on the forecast noise contours for the previous year with the 92-day averaged summer measured noise levels at the NMTs.

15) Section 6.1 Contour Methodology, para 1
The aircraft departure and arrival tracks demonstrate variability in aircraft movements. How are these included in the current modelling methodology? If not already included, a sensitivity analysis would determine the influence.

For arrivals, aircraft typically follow the extended centreline of the runway very closely in the vicinity of the airport, and therefore no dispersion is assumed. For departures, as aircraft do not follow precisely the routes they are assigned to, the AEDT software was used to generate a mean track for each of the eight initially distinct routes (four per runway) and these mean tracks were then dispersed as described below.

The dispersion model has the common assumption that there are seven "dispersed" tracks associated with each departure route; these comprise the mean track of each route and three sub-tracks either side. The allocation of movements adopted for the 2021 contours to each track is as follows:

- 28.2 % departures along the mean track;

- 22.2 % departures along each of the two sub-tracks either side of the main track offset by a distance of 0.71 standard deviations;
- 10.6 % departures along each of the two sub-tracks either side of the main track offset by a distance of 1.43 standard deviations.
- 3.1 % departures along each of the two sub-tracks either side of the main track offset by a distance of 2.14 standard deviations

A previous study at Bristol Airport reviewed the actual departure routes to confirm that those modelled matched what aircraft are doing in practice. The standard deviations used in the dispersion model have been determined by BAP from this analysis."

16) Section 6.1 Contour Methodology, BP 8

How are quiet areas identified? Why is it limited to only agglomerations?

The airport does not evaluate quiet areas. Under the Environmental Noise Directive eligible local authorities may nominate spaces for identification as a "quiet area in an agglomeration" for approval by DEFRA" It is limited to agglomerations (towns/cities) by law. The intent under the END is to these spaces should be quiet or relatively quiet, and generate significant benefits (in terms of health, wellbeing, and quality of life) for the communities they serve because of their quietness. Candidate spaces might include areas within city parks, urban squares that provide a tranquil oasis, and public gardens (this list is not exhaustive).

17) Section 6.1 Contour Methodology, Tables 3 to 6

Delete "2017" from titles?

This has now been changed.

18) Section 6.2 2021

Compared to 2016 & 2011 noise mapping analysis, para 3

Point noted, however, what is the similar comparison over time? i.e. the comparable 92 day summer period contour maps or the annual average contour maps?

The NAP is required to assess noise levels strategically every five years. Planning conditions and new actions now require annual contouring work. This is a new action and will provide more detailed information using the summer contours.

19) The NAP mentions the number of destinations but fails to state the average number of flights there were in the summer months or winter months. Please can this be provided for the pre pandemic year of 2019 and the predicted year of 2029? This is necessary for residents to understand the NAP.

We report actual summer and winter period flight movements in the AMR. Data from recent years can be found in this report. We are currently unable to provide data on future flights as it is commercially sensitive.

20)The DfT state that 2021 data for the strategic noise maps is not representative of the true noise environment and encourages airports to consider alternative data. What alternative data was considered to the 2021 strategic maps published by the airport and why has this not been included?

In terms of strategic 12 month annual contours, the 2016 data is alternative data that can be considered. The END maps for 2021 are representative. However, they are representative of an anomalous period in aviation activity. Annual contours published in the AMR will provide more information. Please refer to the "contour reporting" action.

21) Action Plan, Completed Action 1

How big is the vehicle fleet? i.e. what proportion of the fleet is 16 vehicles? Are the new EV vehicles only being introduced when an existing ICE vehicle has reached its end of life?

Bristol airport is currently reviewing its fleet list and adopting a phased approach to electrification as part of our net zero programme. This phased approach includes Replacing EVs when existing ICE vehicles reach end of life. Further information on our progress can be found in Bristol Airport's Emissions and Climate Change Action Plan.

22) Action Plan, Completed Action 3

What are the timescales for the introduction of the GNM plan? Has the GNM plan been completed? If not, is this a new action?

Please see response to Question 10 above regarding the Ground Noise Management Plan.

23) Action Plan, In-progress Action 3

What is the current blend of aircraft? What has been assumed for the noise contour map analyses?

The AMR reports the blend of aircraft using the Airport. The noise contour maps use actual movement and aircraft type data provided.

24) Action Plan, In-progress Action 4

When will the review be reported? (noting the original action was for this to be reported in the annual operations report for 2021)

This will be reported on in the 2023 AMR.

25) Action Plan, In-progress Action 7

What level of reduction was achieved in 2020? Or even 2019 if the data for 2020 is not suitable due to the pandemic?

Bristol Airport is a founder member of Sustainable Aviation, a group of companies across the aviation sector that are working together to improve the sector's environmental performance.

The Advisory Council for Aeronautics Research in Europe (ACARE) provides strategic, technical, and institutional guidance to the European Commission, Member States and its stakeholders. In their 2001 document 'A Vision for 2020', ACARE set numerous goals for the sector, including "a reduction in perceived noise to one half of current average levels." The newest aircraft on the market have, on average, a noise footprint that is 30-50% that of the aircraft they are replacing thanks to new engine and airframe design and technology. Additional reductions in noise are delivered through Continuous Descent Approaches and other operational changes.

ACARE have published goals to 2050, which include operational improvements and noise abatement procedures to reduce the perceived noise emission of flying aircraft by 65% per operation relative to the 2000 baseline. Bristol Airport will update this target in the final Noise Action Plan to reflect that the UK has left the European Union and to be in line with Sustainable Aviation's forthcoming updated noise action plan.

26) Action Plan, In-progress Action 9

What are the future objectives after 2023?

We will seek to maintain target at present. It is an internal KPI but difficult to exceed the current objective due to a handful of limiting factors including technology, weather causing disruption to CDAs and smaller aircraft which can't implement CDAs.

27) Action Plan, In-progress Action 13

What are the changes compared to the current procedures?

This will be discussed with residents during the 2024 consultation.

28) Action Plan, In-progress Action 20

How many portable monitors are there? (note that Section 5.4 implies there is only one) When were they last calibrated? What training do the operators receive? How are the assessment outputs reported?

The Airport currently possess one mobile noise monitor which is currently not in use. The mobile monitor is also calibrated on an annual basis alongside the static monitors. The noise consultant group, Bickerdike Allen Partners, undertake mobile noise monitoring for the Airport. The number of properties that receive mobile noise monitoring varies on a yearly basis. BAP calibrate monitors on a yearly basis and have over 60 years of experience in assessing sound levels and have suitable training to process data from all NMT systems.

29) Action Plan, New Actions, general

The majority of these new actions have no timescales associated with them, e.g the Revised noise control scheme (NCS) has no target date for implementation.

It is dependent on when we initiate 12mpaa. We will update following this and update in 2024 AMR, where appropriate.

30) Action Plan, New Action 12

This data would be more useful provided on a rolling basis (so for any 12m period) to align with the contour limit actions above.

At present we will continue to report this information annually as we cannot currently accommodate this suggestion. This is something we could consider in future years.

31) Action Plan, New Action, last one

Within 12 months of what date will the scheme be implemented?

A revised Noise Control Scheme (NSC) shall be submitted to the Council (for approval) within 6 months of the Commencement of the 12mppa development. The revised NCS shall be implemented within 12 months of the Commencement of the 12mppa development.