Annual Monitoring Report 2023

Bristol Airport

Contents

Section 1	**CEO Foreword**	**1**
Section 2	**2023 Summary and Key Year Highlights**	**2**
Section 3	**Environment and Sustainability**	**3**
	3.1 Bristol Airport Emissions and Climate Change Action Plan	3
	Our targets	3
	2023 Performance	4
	Carbon footprint	4
	Airport Carbon Accreditation	4
	3.2 Air Quality	5
	Our targets	6
	2023 Performance - ECCAP Progress	6
	Air quality monitoring	7
	3.3 Integrated Landscape Biodiversity Mitigation and Management Plan	7
	3.4 Ground Water Management	**9**
Section 4	**Our Operations**	**11**
	4.1 Passenger Numbers	11
	4.2 Air Transport Movements	12
	4.3 Runway Usage	14
	4.4 Night Noise Quota Usage	14
	4.5 Noise Contours	17
	4.6 Noise Monitoring	19
	Departure Noise Levels	20
	4.7 Noise Climate	21
	4.8 Environmental Complaints	21
	4.9 Flight Routings	24

	4.10 Ground Noise Management	24
	Fixed electrical ground power	24
	Ground running of aircraft engines	24
	Aircraft auxiliary power units	25
Section 5	**Community**	**27**
	5.1 Community Fund	27
	5.2 Employment	30
Section 6	**Surface Access**	**32**
	User Statistics	33
Section 7	**Development**	**35**
	7.1 Multi-Storey Carpark 2 and Public Transport Interchange	36
	7.2 Solar Farm	36
	7.3 Air Traffic Control Tower	36
Appendix A	**Emissions and Climate Change Action Plan**	**38**
	Fixed Assets	39
	Aircraft and Airfield Operations	44
	Surface Access	51
Appendix B	**Air Quality Monitoring Results 2023**	**57**
Appendix C	2023 Actual Summer Daytime Noise Contours	60
	2023 Actual Summer Night Noise Contours	61
	2024 Forecast Summer Daytime Noise Contours	62
	2024 Forecast Summer Night Noise Contours	63
	Noise Preferential Routes	64
Appendix D	**Noise Action Plan**	**65**
Appendix E	**Noise Preferential Routes**	**80**

CEO Foreword

1

Welcome to the 2023 Annual Monitoring Report (AMR). This brings together the key data and reports from the Airport's operation during 2023 and highlights the action the Airport is taking towards our new sustainability targets.

We've been publishing our AMR for over 15 years as part of our ongoing commitment to be transparent. This report covers a wide range of data from 2023, our first full year without international Covid travel restrictions since 2019.

Bristol Airport is here to connect the people and communities of our region to new places, new experiences, and to enable visitors from all over the world to experience this wonderful region for themselves.

We're committed to doing this in a responsible way. This includes creating a great place for people to work, mitigating our environmental impacts and emissions, and supporting our region to thrive socially and economically.

The strong bounce-back in demand for travel continued, with 9.8million passengers using Bristol Airport in 2023. We recovered faster from the pandemic than any other major UK airport and have continued to see strong growth in passenger numbers, with travellers to and from Bristol Airport up over 10% in 2023 compared to 2019.

This made 2023 the busiest year in our history. More people than ever saw the benefits of flying from our region's gateway airport and we welcomed in visitors from all over the UK and Europe.

Working with our airlines and 50+ business partners on-site, we've been able to create new jobs, building up our position as the area's largest private sector employer. In 2023, our whole site was independently accredited as becoming a Real Living Wage employer, meaning all of the jobs at the Airport pay at least the Real Living Wage. We want to use our status as a major employer to provide employment opportunities, including to those living in more deprived communities.

I was incredibly proud to launch our new Sustainability Strategy at the end of 2023. This builds on our existing work and everything we've learned to be even more ambitious, with goals to achieve net zero airport operations by 2030, support the development of zero emissions flight, protect and enhance the local environment, and support our region to thrive. This includes what we believe is a UK aviation first, a new interim carbon target to cut our operational emissions by 73% by 2027, compared to 2019 levels.

The Sustainability Strategy sets a clear benchmark for all to see and to which we can report our progress. This was also independently recognised by Bristol Airport becoming the first UK regional airport to reach Level 4+ in the Airport Carbon Accreditation Scheme, the only institutionally endorsed carbon management certification standard for airports.

Taking advantage of our location in one of the world's leading aerospace clusters, we continue to work with partners including Airbus, Rolls Royce, GKN Aerospace, and easyJet to accelerate the delivery of zero emissions flight and develop hydrogen infrastructure in the South West.

The prlanning and legal process concluded in 2023 and will aloow the Airport to serve up to 12 million passengers per annum. Work got underway on our new £64m Public Transport Interchange and car park, which will transform the passenger experience when it is completed in summer 2025. We are building one of the largest bus/coach interchanges in the region and that will enable us to improve public transport links. Ahead of this, our existing bus routes saw exceptionally strong passenger growth.

It has been a year of significant progress at Bristol Airport. We're responding to the strong demand for travel by investing in the future of the Airport, making palpable progress in decarbonising our operations, and setting new and more ambitious targets for the future.

Dave Lees
Chief Executive Officer

2

2023 Summary and Key Year Highlights

- Almost 9.8million passengers travelled through the Airport – our busiest ever year
- Passenger numbers were up more than 10% compared to 2019, the last full pre-pandemic year
- We launched our new Sustainability Strategy, providing a benchmark for our future progress.
- Bristol Airport became the first UK regional airport to reach Level 4+ in the ACI's independent carbon accreditation scheme
- Passenger numbers on our A1 Airport Flyer service to central Bristol doubled compared to the previous year. Numbers rapidly increased on our A3 Weston Flyer service, with half of journeys undertaken for free by staff
- New through-ticketing was introduced to connect our A3 Weston Flyer bus service with a new stop at Worle Railway Station
- We constructed a 2.8 acre solar farm, moving us towards our target of producing 25% of our energy use through on-site renewables by 2025. The remainder of our energy is renewable energy purchased through the grid
- The Hydrogen In Aviation Alliance launched, a new partnership of aerospace companies, easyJet, Orsted, and Bristol Airport – working together to deliver zero emissions flight
- Almost £220,000 was granted to support local community projects, the highest ever amount through our Local Community Fund
- Bristol Airport and its on-site business partners were accredited as being Real Living Wage employers – paying at least the Real Living Wage, not the legal minimum
- Work began on our £64m Public Transport Interchange and car park, which will transform the experience of those arriving and leaving the Airport
- Upgrades began on a £3.5m upgrade of our Air Traffic Control tower
- 4,100 full-time equivalent jobs were provided on the Bristol Airport site
- Over 60% of waste was recycled at Bristol Airport in 2023. This is a 10% increase compared to 2022
- Out of all air transport movements in and out of Bristol Airport, almost 22% can be attributed to the more modern Neo and Max aircraft.
- The air quality monitoring programme shows air quality levels at the Airport remain within Government Air Quality Objectives in 2023.
- The number of air transport movements increased by 18.5% compared to 2023.
- Runway usage split was 70% Easterly runway 09 and 30% Westerly runway 27 in 2022. This is in comparison to the 20-year average split of 76% Westerly runway 27 and 24% Easterly runway 09.
- Alicante, Amsterdam and Edinburgh were the top 3 destinations from Bristol Airport
- Noise monitoring indicates that all peak departure noise levels recorded were below the noise infringement limits as set out in the Airport's Noise Control Scheme

Environment and Sustainability 3

In July 2021, the UK Department of Transport (DfT) published its 'Decarbonising Transport: A Better, Greener Britain Strategy, setting out the UK Government's commitments, including to reach net zero for UK aviation by 2050 – already implicit with the inclusion of international aviation emissions within the Sixth Carbon Budget. The Jet Zero Strategy was published in July 2022. It includes an ambition for all airport operations in England to be zero emission by 2040.

We acknowledge the role that we will play in the transition to a lower carbon future, in a local, regional and national context, and are committed to navigating this journey in a responsible manner. We have been actively reducing our emissions for some time.

There are three separate scopes of carbon emissions in accordance with best practice from the Greenhouse Gas (GHG) Protocol. These are defined as:

Scope 1: direct emissions relating to activities owned or controlled by Bristol Airport (e.g., fuel consumption, refrigerants etc);

Scope 2: indirect emissions relating to consumption of purchased fuel (e.g., electricity) which is controlled by Bristol Airport; and

Scope 3: emissions associated with activities controlled by third parties where Bristol Airport can guide and influence (e.g., aviation emissions and surface access emissions).

This section considers carbon emissions at Bristol Airport during 2023.

3.1: Bristol Airport Emissions and Climate Change Action Plan

Our targets

We are committed to reducing the emissions that we **control** (Scope 1 and 2 emission sources) and **guiding** and **influencing** the emissions of our stakeholders and our value chain (Scope 3 emission sources) to achieve emission reductions. Our net zero vision is set out in three steps, as follows:

- In 2021, all of our operations and activities were carbon neutral. This means all of our Scope 1 and 2 emissions were offset by the end of 2021.
- By 2030, all our operations and activities will be carbon net zero. This means all of our Scope 1 and 2 emissions will be minimised as far as practicable with any residual emissions being offset.
- By 2050, Bristol Airport as a whole will be carbon net zero. This includes Scope 1, 2 and 3 emissions, and means all of the companies that operate from or provide services to the Airport, including us and the airlines, will be contributing to the UK's carbon net zero economy.

3

2023 Performance

An Emissions and Climate Change Action Plan (ECCAP) for the Airport has been approved by North Somerset Council. The ECCAP sets out a programme of measures to reduce carbon emissions and minimise the impact of the Airport on air quality. We have committed to report on the progress against the actions in the ECCAP as part of the Annual Monitoring Report, and this progress is detailed in Appendix A. Key progress in reducing carbon emissions and other emissions in the past year include:

- Installation of 1.4 MW solar farm completed to contribute to our target of achieving 25% renewable energy generation on-site for our own consumption. 100% renewable energy supply continues to be used to power the remainder of the Airport site.
- Phase one of installation of point-of-use electrical hot water heating for tenants across the Airport completed, reducing gas dependency in line with our terminal decarbonisation initiatives.
- 4 out of 18 airside buses now electric. All Bristol Airport owned buses are now adapted to consume HVO.

The effect of these measures can be seen is our 2023 carbon footprint and have contributed to a carbon emissions per passenger decrease of 20% over last year, despite the increase in passenger numbers from 2022 to 2023.

Carbon footprint

The majority of the carbon emissions relate to our airline partners using the Airport and passengers accessing the Airport over land. Measures we are taking to influence the reduction of scope 1,2 and 3 emissions can be found in the ECCAP targets in Appendix A of this report. A full breakdown of our carbon footprint will be reported on in our 2023 Annual Sustainability Report.

Airport Carbon Accreditation

Bristol Airport calculates the footprint in accordance with the Airports Council International's (ACI's) Airport Carbon Accreditation (ACA) Scheme. ACI's ACA is endorsed by the European Civil Aviation Conference (ECAC), the European Organisation for the Safety of Air Navigation (EUROCONTROL) and the United Nations Framework Convention on Climate Change (UNFCCC). We achieved the first level of certification in the ACA scheme during 2015-2017. In June 2018, we gained ACA Stage 2 Certification and we moved to Stage 3 + Neutrality, in 2021. In 2023, we achieved ACA level 4+, two years ahead of schedule.

This is independent verification that Bristol Airport has a long-term carbon management strategy for absolute emissions reductions, actively drives third parties towards delivering emissions reductions, and that the residual carbon emissions over which the Airport has control, are being offset using internationally recognised offsets. The highest level airports can currently achieve is level 5 which can be obtained on reaching 90% absolute CO_2 reduction in scope 1 and 2 and a commitment to net zero in scope 3 emissions by 2050.

3

3.2 Air Quality:

The quality of the air is defined by concentrations of several pollutants that pose harm to human health. Combustion processes produce nitrogen dioxide (NO_2) and Particulate Matter (PM - PM_{10} and $PM_{2.5}$) with the main potential airport sources coming from vehicle traffic (staff and passenger journeys and airport operational vehicles), aircraft engines (during taxiing, take-off and landing), energy generation (diesel generators and gas boilers), fugitive emissions (evaporation - during fuelling of aircraft and vehicles) and other activities such as fire training.

This section considers air quality at Bristol Airport during 2023, comparing recorded concentrations with the UK Air Quality Objectives (AQOs) and against the commitments contained within Bristol Airport's 12mppa Section 106 Agreement with North Somerset Council (NSC). Action on air quality in the UK is driven by the UK's Air Quality Strategy that sets the AQOs (see below Table). These apply in places where members of the public are expected to spend an amount of time relevant to the averaging period (e.g. houses). The Table below provides a summary of relevant AQOs to the Airport.

Table 1: Relevant air quality objectives to the Airport

Pollutant	Objective (UK)	Averaging period
Nitrogen dioxide (NO_2)	200 μgm^{-3} not to be exceeded more than 18 times a year	1-hour mean
	40 μgm^{-3}	Annual mean
Particulate matter – PM_{10}	50 μgm^{-3} not to be exceeded more than 35 times a year	24-hour mean
	40 μgm^{-3}	Annual mean
Particulate matter – $PM_{2.5}$	20 μgm^{-3}	Annual mean
	Target of 15% reduction in concentration at urban background locations	3 year mean

The Environment Act 2021 establishes a legally binding duty on Government to bring forward at least two new $PM_{2.5}$ air quality targets in secondary legislation by 31 October 2022. This duty sits within the environmental targets framework outlined in the Environment Act (Part 1). The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 set two $PM_{2.5}$ targets into law and contain provisions on how they will be monitored and assessed. The air quality targets set under the Act are:

Annual Mean Concentration Target ('concentration target') - a maximum concentration of 10 µg m-3 to be met across England by 2040; and

Population Exposure Reduction Target ('exposure target') - a 35% reduction in population exposure by 2040 (compared to a base year of 2018).

3

Our targets

As well as the ECCAP, air quality management at Bristol Airport is also legally bound by our Section 106 (S106) Agreement with NSC under 10mppa and 12mppa. The 10mppa S106 stipulates the following requirements:

Highlight air quality monitoring locations where monitored levels exceed 90% of the National Air Quality Strategy limit (as defined in Table 1).

Report significant deterioration in air quality, defined as an increase in average annual concentration of more than 15% compared to the average levels recorded between 2007-2011 (NO_2) or particulate levels exceeding 50 µg/ m^3 in more than 15 days in a calendar year (PM_{10}).

The 12mppa S106 agreement requires that we operate an air quality monitoring programme consisting of continuous monitoring NO_2 and PM (PM_{10} & $PM_{2.5}$) at two locations and NO_2 monitoring using diffusion tubes at not less than 16 locations.

2023 Performance - ECCAP Progress

Progress on the measures contained in the ECCAP is detailed in Appendix A. The most important measures that we have progressed in relation to local air quality in the past year are:

1. The continual upgrade of the airport fleet from the electrification of vehicles to the conversion of buses to consume HVO rather than diesel all have benefits for the local air quality, reducing particulate and nitrous oxide emissions.
2. We continue to drive sustainable transport to and from the Airport and work with our contracted taxi fleet to move towards a fully electric/hybrid fleet. 75% of fleet currently EV/hybrid.
3. Reducing emissions through transitioning to electric ground power equipment and schemes to reduce the idling vehicles on-site.

The effect of these measures on local air quality is highly dependent on the location considered relative to the source of emissions. Emissions from aircraft and ground operations affect air quality in the immediate vicinity of the Airport, but within a few hundred metres of the Airport boundary, road traffic is the most dominant emissions source that determines air quality. Due to the height of flights, airborne aircraft do not have a significant impact on ground level pollutant concentrations at this distance. As such, measures related to road traffic are likely to have the greatest effect on pollutant concentrations at locations near to the local road network, where there are local residents. Measures relating to fixed assets and aircraft and airside operations are only likely to affect air quality relatively close to the airport boundary.

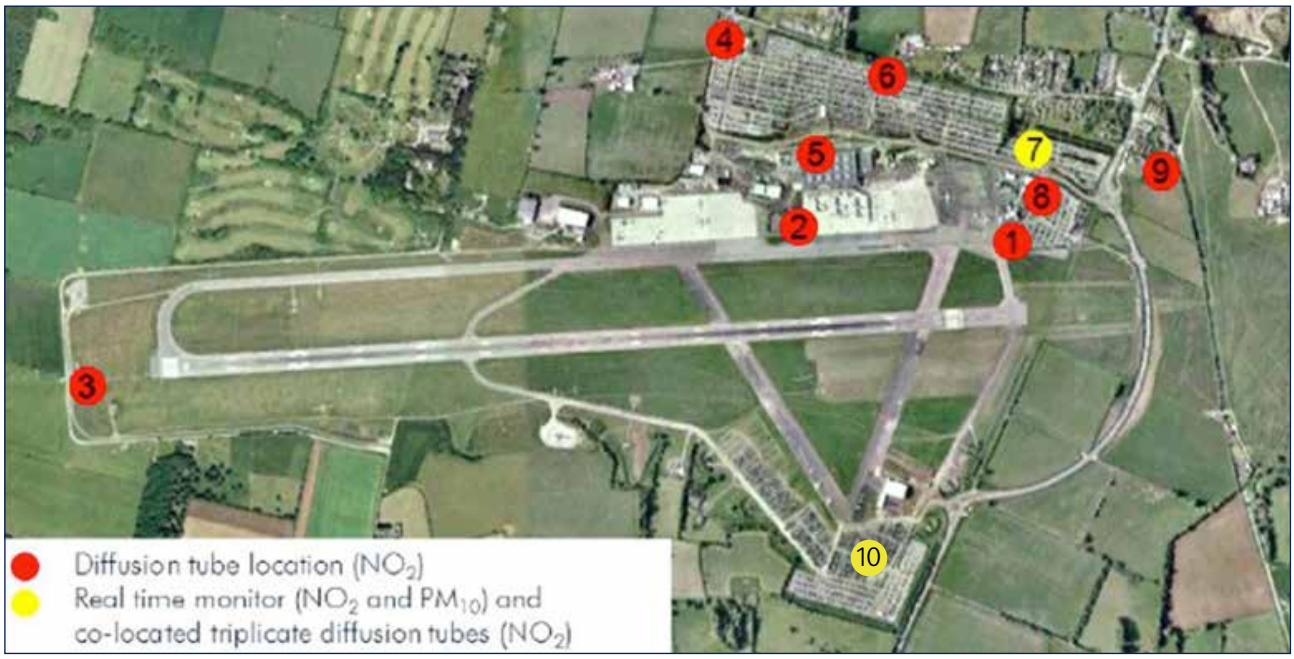
In general, air quality is expected to improve in the future as older vehicles (road vehicles and aircraft) and equipment are replaced with newer models, either removing 'tail pipe' emissions through alternative power sources or meeting tighter emission standards and therefore emitting less pollution. It is therefore challenging to disaggregate the effect of individual measures on air quality from general changes and our focus is on monitoring to demonstrate continued compliance with the AQOs and avoiding significant deterioration in air quality.

Air quality monitoring

Monitoring of air quality is undertaken continuously, with one real-time monitor recording levels of both NO_2 and PM_{10}. NO_2 diffusion tubes are deployed at nine locations across the Airport, including the location of the continuous air quality monitor. The locations of the monitors are shown in Figure 1 and have been selected due to either the potential source of pollutants and/or their proximity to roads and residential areas surrounding the Airport.

The additional automatic monitor will be located on the south side of the Airport with the approximate location, shown in label 10 in Figure 1, additional diffusion tube locations are still yet to be determined. Further information on air quality monitoring is contained within Appendix B.

Figure 1: Location of air quality monitors



3.3 Integrated Landscape Biodiversity Mitigation and Management Plan

As part of the 12mppa planning permission, the Airport has produced an Integrated Landscape Biodiversity Mitigation and Management Plan (ILBMMP) which sets out how we are managing the land we own, both onsite and offsite and how we will protect and enhance habitats for flora and fauna.

Several different habitats have been recorded within or close to the Airport boundary, including scrub areas, broadleaved trees, hedges and calcareous grassland. These habitats support protected species, including ten species of bat (most notably the greater horseshoe and lesser horseshoe), dormice, badgers, greater crested newts and of course, birds. Typically, land that is located airside and directly aligned with the runway needs more control in terms of keeping grass short, with minimal planting and seeding in order to ensure the land does not attract wildlife which could impact aircraft and passenger safety. However, elsewhere around the site, we attempt to enhance biodiversity with hedgerow reinforcement, tree planting, grassland management and bat boxes amongst other measures.

The ILBMMP identifies multiple measures that we will introduce as we build out the scheme. One of the first pieces of infrastructure to be developed is the extension of the Silver Zone carpark, expected to be completed by Spring 2024. As per the ILBMMP, this development will include a landscaping bund around the site with planted trees and hedgerow, plus wildflower grass seed. An existing pond will also be retained and enhanced to encourage biodiversity and an area of calcareous grassland will be translocated to the bunding. The bunding and perimeter of the site will not be lit and will be kept dark to encourage and enable bats to forage for insects.

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Offsite, we have acquired Lulsgate Wood, a 6.5ha area of woodland approximately 1.5km northwest of the runway to provide replacement habitat for the horseshoe bats. To date mitigation has included:

- Felling of non-native hybrid larch and Scot's pine in accordance with a Forestry Commission Felling Licence and associated Woodland Management Plan to reduce the canopy cover to make it more suitable for bats.
- Retention of 15 standing conifer monoliths with a wide range of bat crevices and invertebrate features added.
- Adaption of two known shafts as potential hibernation roost features
- Provision of two insulated timber bat cabins for greater and lesser horseshoe bats to use as night roosts.
- Provision of fallen deadwood features.
- Provision of small ponds and scrapes in the lower lying south area of Lulsgate Wood to support lesser horseshoe bats.

Vision for Lulsgate Wood

Lulsgate Wood will evolve to a thriving and biodiverse mixed woodland, dominated by native broadleaved trees, with an open canopy and revitalized understorey and ground flora, thereby maximizing opportunities for greater and lesser horseshoe bats, and the widest range of local, native flora and fauna in accordance with best practice. It will be monitored and managed in accordance with the Lulsgate Wood Management Plan to provide a diverse ecological structure and function, enhancements to ecosystem services, retaining existing access and acting as an example of responsible woodland management to educate and inspire others.

Grazing animals will be introduced in 2024 (as agreed with Natural England) to manage areas of the woodland and to enhance the prey species availability and increase carrying capacity for an increase in the greater and lesser horseshoe bat populations.

The woodland will be surveyed on a regular basis to monitor the bat numbers and other species and the outcomes will be reported in subsequent Annual Monitoring Reports.

Deadwood features on the woodland floor and more open canopy

Insulated timber cabins for night roosts

3.4 Ground Water Management

Bristol Airport has a number of ground water boreholes across its site as the Airport is situated above an aquifer. The Airport itself sits on high ground with a local geology of black rock limestone. The groundwater level of is between 70 – 100 metres below ground with areas of perched groundwater near the surface.

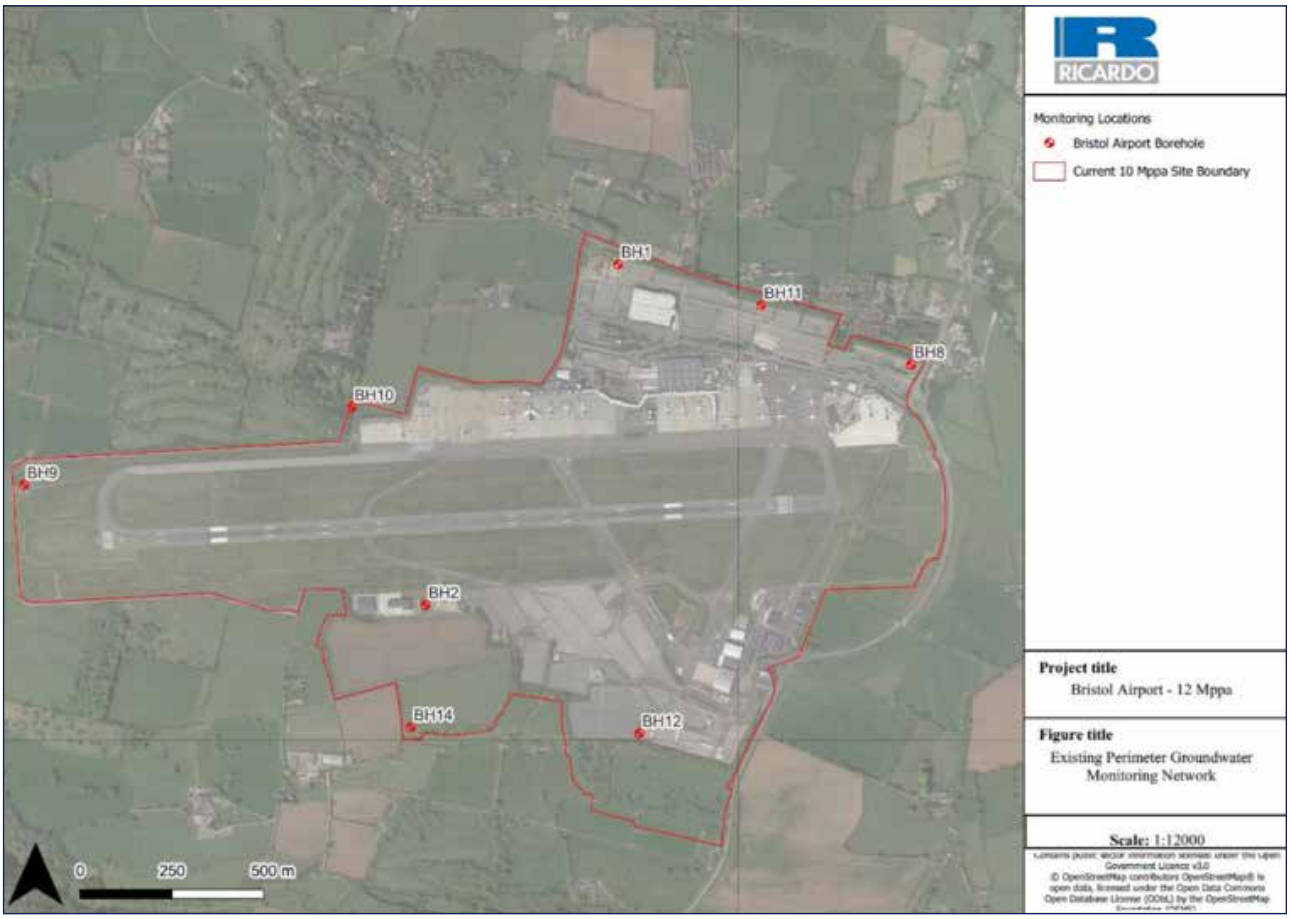
The Airport has several surface water drains which lead to ground-based soakaways. These soakaways have discharges permits, as issued by the Environment Agency, with requirements to conduct routine sampling boreholes to ensure discharges meet these permit requirements. A map of the Airport showing the perimeter boreholes is detailed in Figure 2.

Perimeter boreholes are located strategically to cover key risk areas and are sampled once a quarter. All samples obtained are analysed at a UKAS accredited laboratory. The laboratory results are provided to the Environment Agency. In 2023 a new borehole was drilled (BH14) as required, on the perimeter of the Silver Zone Extension car park.

The groundwater monitoring measures, heavy metals, hydrocarbons, de-icers, PH levels and other elements. These results are reviewed against the Environmental Quality Standards (EQS), Water Framework Directive (WFD) and the Drinking Water Standards (DWS). The Laboratory results are provided every six months, as required, to the Environment Agency. All perimeter boreholes were found to be compliant across the year in relation to these standards. All Bristol Airport perimeter boreholes adhered to WFD EQS for Ground Water (GW) compliance in the quarterly sampling in January, April, July and October. Traces of Benzo(a)Pyrene were detected in Borehole 10 and Borehole 12 so these will remain under observation to establish if the results were an isolated occurrence or whether further assessment/action is necessary.

A new groundwater management strategy under the 12mppa development will be in place moving forward, replacing the current 10mppa groundwater management strategy.

Figure 2: Location of perimeter boreholes across the site



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Our Operations

4.1 Passenger Numbers

Table 2 lists the top ten most popular routes from Bristol Airport during 2023 and 2022. As the first full year operating outside of COVID-19, all but one of the top routes is outside of the UK. All destinations with the exception of Paris remained consistently within the top 10 in 2023. The number of passengers using routes to Glasgow dropped below the top 10. Barcelona is inclusive of three different airports – Barcelona (BCN), Girona-Costa Brava (GRO) and Reus (REU) Airports.

The map below (Figure 3) shows all destinations that Bristol Airport operated flights from in 2023. Direct flights are show in dark blue, one stop indicates lay over destinations and Amsterdam Schiphol as the key connecting hub for KLM.

Figure 3: Destinations flown to from Bristol Airport

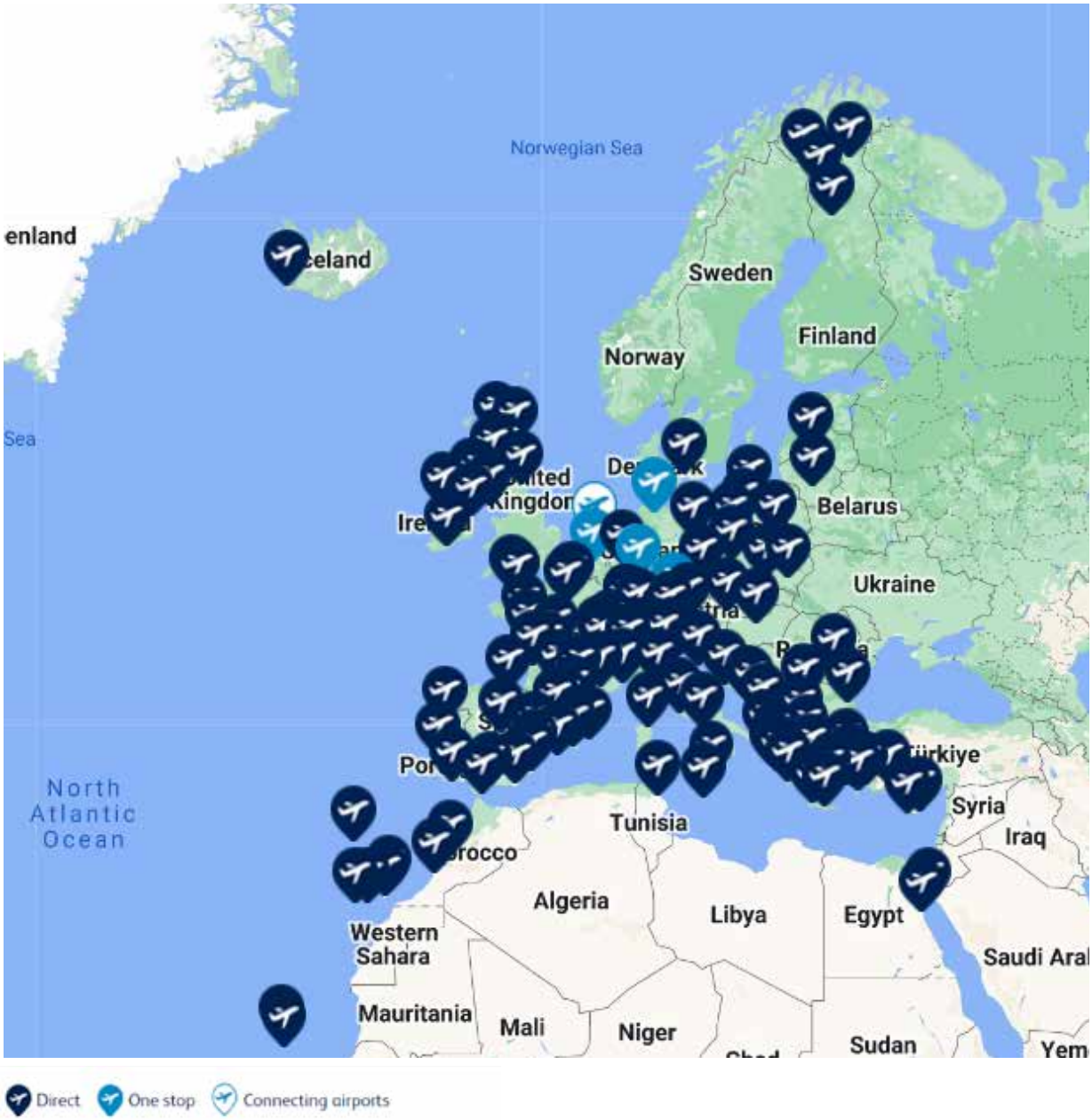


Table 2: 10 most popular destinations at the Airport

	2023 Destinations	2023 Passenger Numbers	2022 Destinations	2022 Passenger Numbers
1	Amsterdam	471,957	Alicante	357,138
2	Alicante	459,151	Dublin	349,481
3	Edinburgh	420,513	Amsterdam	347,410
4	Palma de Mallorca	419,351	Palma de Mallorca	343,573
5	Dublin	399,083	Malaga	313,760
6	Malaga	389,339	Edinburgh	294,976
7	Barcelona	369,745	Glasgow	289,044
8	Tenerife	364,312	Tenerife	288,645
9	Paris	357,163	Faro	285,500
10	Faro	346,600	Barcelona	284,774

4.2 Air Transport Movements

The number of Air Transport Movements (ATMs) grew in 2023 by 18.5% when compared to 2022. ATMs include all flights rather than aircraft movements which mainly reflects scheduled and charter flights only. Positioning flights refer to flights which have the sole purpose of positioning the aircraft to conduct a flight from a different airport. The breakdown of ATMs is provided in Table 3 below.

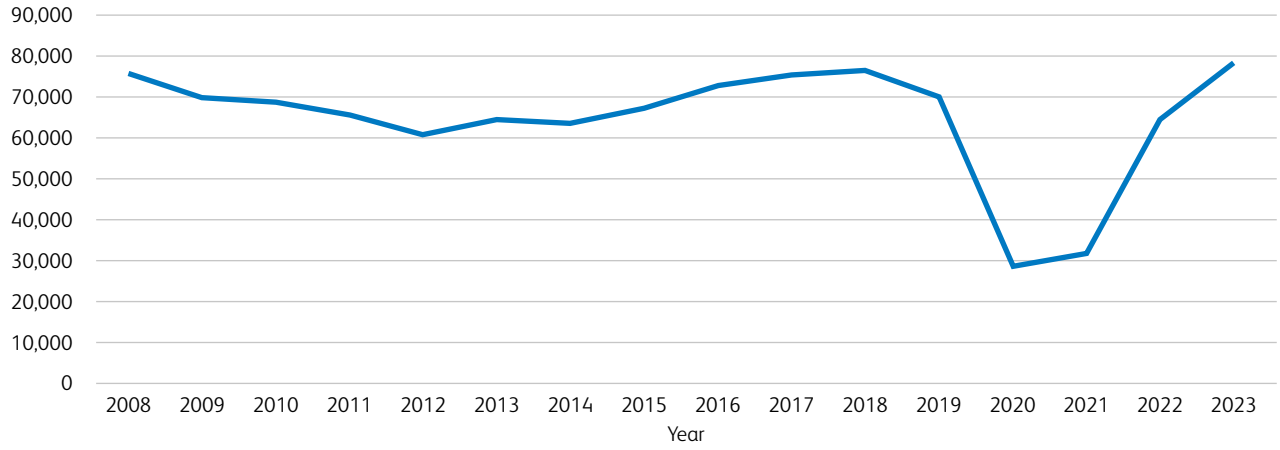
Table 3: Air Transport Movement Categories 2022 and 2023

Air Transport Movements Categories	2022	2023	% Change from 2022-2023
Cargo	0	0	0%
Scheduled domestic passenger aircraft	9,695	11689	20.5%
Scheduled international passenger aircraft	41,741	52,233	25.1%
Charter domestic passenger aircraft	844	937	11%
Charter international passenger aircraft	3,990	3,813	-4.4%
Positioning flights	818	787	-3.8%
Other (incl. flying club, private charter)	8,589	8385	-2.4%
Total ATMs	**65,678**	**77,844**	**18.5%**

This data is provisional Bristol Airport data and therefore may differ marginally to data published by the CAA.

The number of ATMs for the past fifteen years are shown in Figure 4 below.

Figure 4: Aircraft Transport Movements 2008 to 2023



Out of the 77,844 total movements in 2023, the Airbus A320neo and A321neo, which are a modernised, quieter aircraft type, made 10,227 movements, equivalent to 13.2 % of total movements. The number of NEO movements increased by 38.8 % in 2023 compared to 2022. The Boeing 737 MAX which is a similarly modern aircraft made 6,700 movements, equivalent to 8.7 % of total movements in 2023. The number of Max movements increased by 39 % in 2023 compared to 2022.

Table 4: Percentage of Neo and Max movements as a percentage of total movements

Year	2020	2021	2022	2023
% of Neos/Max's	21 %	25 %	18.5 %*	21.9 %

*A miscalculation was made in the 2022 AMR. This has been amended.

4.3 Runway Usage

The runway at Bristol Airport is aligned east/west. The runway designation is derived from the compass bearing of each direction. The westerly runway is known as runway 27 and the easterly runway as runway 09. The percentage of movements by direction since 2001 is provided in Table 5. The average usage over the last 20 years has been 76% for Runway 27 and 24% for Runway 09. Runway use is dependent on several factors including wind speed, wind direction and visibility.

Table 5: Runway usage 2001 to 2023

Year	Westerly (27)	Easterly (09)	Year	Westerly (27)	Easterly (09)
2001	79%	21%	2013	75%	25%
2002	77%	23%	2014	67%	33%
2003	65%	35%	2015	76%	24%
2004	82%	18%	2016	86%	14%
2005	71%	29%	2017	80%	20%
2006	75%	25%	2018	64%	36%
2007	79%	21%	2019	73%	27%
2008	84%	16%	2020	81%	19%
2009	80%	20%	2021	70%	30%
2010	82%	18%	2022	67%	33%
2011	83%	17%	2023	70%	30%
2012	86%	14%	**Average**	**76%**	**24%**

4.4 Night Noise Quota Usage

The following information relates to the requirements as set out within the Airport's planning conditions for 10mppa, but also 12mppa from summer 2023. Night-time operations at Bristol Airport are controlled by a noise quota system. The restrictions specify a night period (23:00-06:00) during which time the noisiest types of aircraft may not be scheduled to land or take off. In addition, between 23:30 and 06:00, the night quota period, aircraft movements are restricted by a noise quota limit. Aircraft count against the noise quota according to their quota count (QC) classification.

The quota count itself is related to the noise classification of aircraft. The restrictions allow for dispensations to be given in certain circumstances and there are provisions for dealing with delayed departures and early arrivals. The quota limits are set on a seasonal basis, defined by the period of British Summer Time. The summer season is therefore about seven months long for which a current quota count limit of 1,260 applies. The winter season is about five months long for which a current quota count limit of 900 applies. There is provision for a proportion of the noise quota limit, if not used in the current season, to be carried over to the following season.

4

As per the 12mppa planning conditions, the total number of take-offs and landings between the hours of 23:30 and 06:00 shall not exceed 4,000 in two adjoining seasons of Summer and Winter. The total number of take-offs and landings between the hours of 06:00 and 07:00 and between 23:00 and 23:30 shall not exceed 9,500 in any calendar year. Table 6 records the night movements and quota usage since the system came into use back in 2000.

Table 6: Night movements and quota use

Year	Night movements		Quota use	
	Summer	Winter	Summer	Winter
2000/01	2564	1371	1239	435.5
2001/02	2999	1536	1230	614
2002/03	2655	1386	1150	444.5
2003/04	2960	1033	1378	413.5
2004/05	2082	786	1288	426
2005/06	2183	891	1225.5	472.5
2006/07	2181	163	1138	88
2007/08	2057	939	974.5	451
2008/09	2322	831	1118.5	326
2009/10	2146	816	940	346
2010/11	2984	559	1375.5	216
2011/12	2216	257	1112.5	120
2012/13	1861	253	938	117
2013/14	1888	233	975.5	100
2014/15	2210	232	1145	106
2015/16	2378	244	1180	96.5
2016/17	2704	298	1354	120.5
2017/18	2991	353	1522	152
2018/19	2975	254	1490	117.5
2019/20	2933	305	1408.5	144.75
2020/21	570	290	216	129
2021/22	694	331	366	155.75
2022/23	2998	398	1564.5	147
2023/24	**3398**	**CURRENT**	**790.6**	**CURRENT**

The breakdown of movements in each quota count level throughout Summer 2023 is shown below for arrivals and departures.

Table 7: Quota use by aircraft quota count for Summer 2023

Quota Count Classification	Arrivals	Departures	Arrivals QC points	Departure QC Points	Total
0.0125	3	0	0.0375	0	0.0375
0.025	0	0	0	0	0
0.045	1	0	0.045	0	0.045
0.085	0	4	0	0.34	0.34
0.125	550	2	68.75	0.25	69
0.17	134	0	22.78	0	22.78
0.21	1144	7	240.24	1.47	241.71
0.25	797	1	199.25	0.25	199.5
0.34	726	0	246.84	0	246.84
0.42	0	14	0	5.88	5.88
0.5	0	2	0	1	1
0.69	0	5	0	3.45	3.45
Exempt	4	4	0	0	0
Total	**3359**	**39**	**777.9**	**12.6**	**790.6**

A total of 3398 movements are included in the quota count. 3359 of these were arrivals, and 39 were departures.

In 2023, Bristol Airport continued slot coordination for the night period. This ensures compliance with existing planning conditions. This was established by a competent and independent organisation known as Airports Co-ordination Limited (ACL). ACL manage all movements at the larger London airports such as Heathrow. Bristol Airport's use of such services was approved by the Department for Transport in 2017. Following a successful application for full slot coordination in 2023, Bristol Airport will become fully slot coordinated from the summer season 2024, meaning that ACL will coordinate slots for all operations at the Airport, day and night.

ACL designate a certain number of slots to airlines for the night period in accordance with the limits, they also manage dispensation requests whilst actively managing the airlines conformance against our controls. If a movement occurred within the night period, an airline could lodge a request for it to be dispensed via ACL as per the requirements of Condition 36 (under 10mppa) and now, Condition 16 (under 12mppa). Bristol Airport would review these and report any dispensations to the local planning authority.

There were 806 movements logged as dispensations based on the agreed criteria within the planning conditions. The majority of these dispensations were due to air traffic disruption across Europe. Delays to flights which would have resulted in serious hardship to passengers were also logged as dispensations, along with a number of emergency flights where there was an immediate danger to life.

There were 5,526 movements during the shoulder periods between the hours of 06:00 and 07:00 and 23:00 and 23:30 during 2023. This remains significantly under the consented threshold of 9,500 movements during these times within a calendar year.

4.5 Noise Contours

The noise contours produced and analysed in this section were completed in line with the Airport's planning requirements. Condition 14 of the 12mppa permission identifies the 57dB daytime noise contour at different passenger throughputs. 57dB is generally used as the industry standard for when people start to become concerned about aircraft noise.

- Below 11mppa, the area enclosed by the 57dB daytime noise contour shall not exceed 12.42km²
- Below 12mppa, the area enclosed by the 57dB daytime noise contour shall not exceed 11.56km²
- On reaching 12mppa, the area enclosed by the 57dB daytime noise contour shall not exceed 10.7km² and the night-time noise contour shall not exceed 6.8km²

We are required to produce a forecast daytime noise contour for summer 2024 based on the expected flight patterns between mid-June and mid-September over a 92-day period. The information is derived from airline schedules operated and co-ordinated for Bristol Airport by Airport Coordination Ltd. Noise predictions have then been undertaken using noise modelling software Aviation Environmental Design Tool (AEDT).

The summer daytime forecast for 2024 for the 57dB noise contour is 10.9km². With predicted passengers expected to be between 10mppa and 11mppa, this forecast contour does not exceed the 12.42km² planning limit. Planning condition 14 also requires us to report on the actual summer daytime 57dB noise for 2023. This is based on actual data collected from our noise monitoring terminals. **The summer daytime actual noise contour for 2023 was 11.32km²**. This is also within the 12.42km² planning limit.

Planning condition 15 of the 12mppa permission requires the Airport to identify the actual 2023 and forecast 2024 summer day and nighttime contour for a variety of noise levels. These are shown in Tables 8 and 9 below. On the whole, contours are forecast to the increased usage of modernised aircraft being a factor in these results.

Table 8: Noise Contour Areas – Summer Day (16h) Period

Contour Level (dB LAeq,16h)	Area of Summer Day Noise Contours - km²	
	2023 Actual	2024 Forecast
≥51	40.31	38.86
≥54	21.06	20.35
≥57	11.32	10.90
≥60	6.20	5.94
≥63	3.13	2.94

Table 9: Noise Contour Areas – Summer Night (8h) Period

Contour Level (dB LAeq,8h)	Area of Night Noise Contours - km²	
	2023 Actual	2024 Forecast
≥40	151.54	151.77
≥55	7.55	7.60

The noise contours referred to in this section can be viewed in Appendix C.

The number of properties within the forecasted 2024 summer daytime contours are detailed in Table 10 below, and the number of properties within the night contours are shown in Table 11. The number of properties is cumulative. For example, the number of properties in the 63dB contour are also included in the 60dB contour. The properties located within the 57dB, 60dB and 63dB daytime contours, plus the 55dB nighttime contour, are eligible to apply to the Airport's 2024 noise mitigation scheme. Details of which are available on the website.

Table 10: Number of Dwellings in Noise Insulation Scheme contours in 2023 (actual) and 2024 (forecast)

Contour Level (dB LAeq,16h)	Dwellings within Summer Daytime Air Noise Contours	
	2023 Actual	2024 Forecast
≥51	4,093	3,842
≥54	1,255	1,157
≥57	529	541
≥60	135	142
≥63	28	28

Table 11: Number of dwellings within night noise contours

LAeq (8h)	2023 Actual	2024 Forecast
≥40	31,737	30,342
≥55	344	356

In 2023, 30 households received grants from the Airport's noise insulation scheme to install measures to help mitigate noise, such as double glazing. The total sum spent on noise insulation in 2023 was £79,893.

Actual noise contours for summer 2023 and predicted noise contours for summer 2024 can be found in Appendix C. Updates on the actions set out in the 2019 – 2024 Noise Action Plan can be found in Appendix D. An updated Noise Action Plan will be published later in 2024.

4.6 Noise Monitoring

Bristol Airport continually analyses aircraft noise using three monitors located near Felton, Winford and Congresbury. The Congresbury and Winford (known as Littleton Hill) monitors are positioned in accordance with ICAO standards for monitoring noise from departing aircraft. They are positioned 6,500m from the start of roll from Runway 09 (Littleton Hill) and Runway 27 (Congresbury).

The Airport's Noise and Track Keeping System monitors noise levels recorded at these monitors and ties this information to operational data. The below section provides an insight into noise produced by Aircraft operations at BRS.

Measured and forecasted noise levels during the 16-hour day and 8-hour night period are shown in the Tables below. Forecast night contours for 2023 were not previously reported in past AMRs.

Table 12: Forecast and Actual Noise Levels – Summer Day (16h) Period

Monitoring Location	Summer Day Predicted Noise Level, dB LAeq,16h	
	2023 Measured	Model – 2023 Forecast
Felton	60.8	64.2
Congresbury	55.1	56.7
Littleton Hill	57.1	58.6

Table 13: Forecast and Actual Noise Levels – Summer Night (8h) Period

Monitoring Location	Summer Night Predicted Noise Level, dB LAeq,8h	
	2023 Measured	Model – 2023 Forecast
Felton	58.6	-
Congresbury	50.4	-
Littleton Hill	55.0	-

Please note that 2023 forecasts were not collected at the time. This is a new requirement of the 12mppa permission.

4

Departure Noise Levels

Aircraft using Bristol Airport are required to be operated in the quietest possible manner. Departing aircraft exceeding 90 dB(A) by day (0600 to 2330 local time) and 85 dB(A) by night (2331 to 0559 local time) at the Congresbury and Littleton Hill noise monitoring points will be subject to a penalty as set out in the Airport Fees and Charges. A summary of data relating to departing aircraft from the noise monitoring undertaken in 2023 is provided in Table 14 with 2022 data represented in brackets. All departing aircraft complied with the noise infringement limits and no penalties were levied in 2023.

Table 14: Noise monitoring - departing aircraft from Congresbury and Littleton Hill noise monitoring points (2022 data in brackets)

	Peak departures noise level Lmax dB(A)	
Month	**Runway 27 - C**	**Runway 09 - LH**
January	81.9 (79.6)	83.2 (82.1)
February	79.7 (81.6)	85.1 (81.2)
March	80.5 (80.3)	82.9 (81.9)
April	79.9 (80.5)	84.3 (81.4)
May	82.1 (80.0)	80.9 (80.2)
June	80.1 (79.4)	80.4 (80.9)
July	80.5 (81.8)	82.5 (79.4)
August	78.8 (82.6)	83.1 (80.7)
September	82.3 (80.2)	81.4 (80.7)
October	80.1 (80.3)	88.6 (81.2)*
November	80.3 (79.3)	82.7 (82.2)
December	84.1 (81.2)	79.4 (83.1)

*Military Aircraft operating at 18:32 for essential authorised training.

4.7 Noise Climate

Noise climates show how noise varies over a set period. This data is an average of noise levels recorded each month over 24-hours.

Table 15: Noise Climates over the past three years

	Congresbury		Littleton Hill		Felton	
	2022	2023	2022	2023	2022	2023
Month	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)
January	57.6	58.5	54.6	56	58.1	60.1
February	60.2	58.2	61.7	55.9	61.5	60.5
March	58.2	58.9	54.3	56.8	59.0	60.8
April	58.2	59.1	56.5	57.5	60.3	61.4
May	58.0	58.5	56.5	56.5	60.6	61.1
June	58.0	58.1	56.5	56.3	60.9	60.9
July	57.9	58.9	56.1	57.6	60.9	61.6
August	57.5	58.5	55.8	57.0	60.6	61.7
September	58.0	58.7	56.2	58.8	61.0	62.0
October	58.5	58.6	56.9	57.1	61.0	61.6
November	58.5	58.4	55.9	56.0	59.5	60.5
December	58.6	58.8	55.4	56.5	59.5	61.3

4.8 Environmental Complaints

For logging and tracking noise complaints, Bristol Airport operates a web-based system, accessible at https://www.bristolairport.co.uk/contact-and-help/noise-and-environmental-concerns/, and by post.

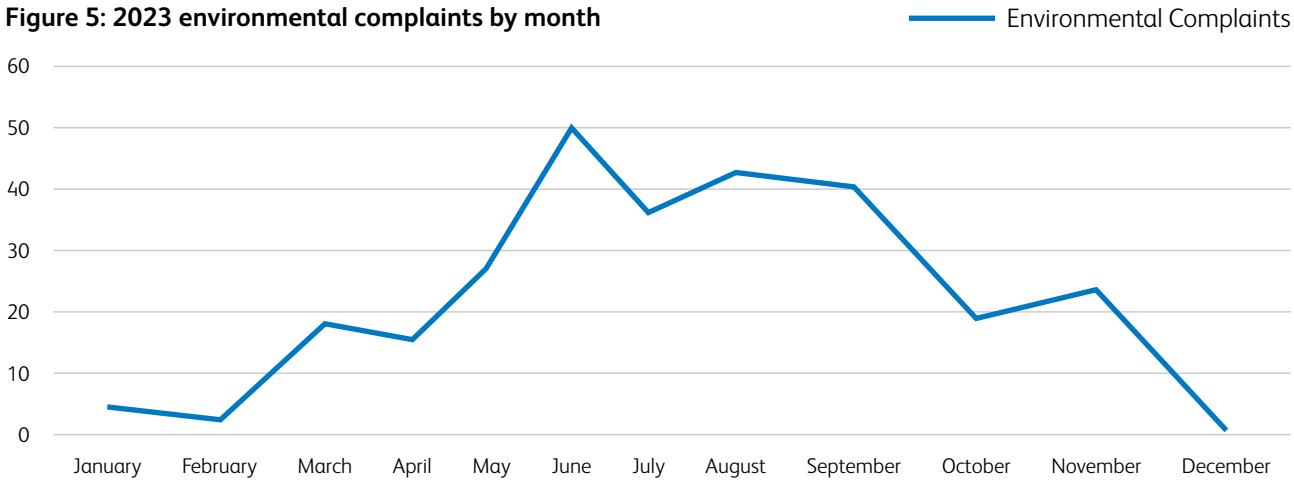
During 2023, Bristol Airport received 276 environmental complaints, of which 236 were related to noise. Environmental complaint statistics are shown in Table 16 below.

Table 16: Environmental complaints

	2023	2022	2021	2020	2019	2018
Total number of complaints	276	398	159	199	451	379
Number of individual complainants	167	253	105	96	229	176
Average number of complaints per complainant	1.7	1.6	1.5	2.1	1.9	2.2

The distribution of noise complaints by month throughout 2023 is shown in Figure 5.

Figure 5: 2023 environmental complaints by month



The nature of complaints is shown below. Noise, flight paths and low flying were the primary causes of concern in 2023.

Table 17: Environmental complaints by category

Type of Complaints	Number of Complaints
Day Noise	105
Night Noise	83
Low Flying	22
Noise Insulation Scheme	2
Flight Paths	24
Pollution	4
Ground Noise	1
Offsite Parking	3
Waste Management	5
Congestion	18
Habitat Management	1
Training School	1
Air Quality	5
General Environment	2
TOTAL	**276**

Complaints can also be split by location, as shown below.

Table 18: Areas with three or more environmental complaints during 2022 or 2023

Location	2022	2023
Backwell	9	3
Bath	74	68
Blagdon	4	-
Bristol	42	110
Claverham	7	-
Cleeve	22	8
Clevedon	7	4
Congresbury	7	4
Dundry	3	-
Felton	11	5
Keynsham	27	3
Long Ashton	7	-
Other North East Somerset	13	-
Wraxall	0	-

Areas with three or more environmental complaints during 2022 and 2023 are shown above. The table shows the origin of environmental complaints, as per postcode given when reporting the complaint. Most complaints originated from Bath and Bristol.

4.9 Flight Routings

Indicative flight routes for easterly and westerly operations are provided in Appendix E. The Noise Preferential Routes (NPRs) are to be flown by all departing aircraft of more than 5700 kg maximum certified weight, unless otherwise instructed by Air Traffic Control (ATC) or unless deviations are required in the interests of safety and/or weather. The NPR requires aircraft to climb straight ahead for 4.5 nautical miles when departing on runway 27 and 4.7 nautical miles on runway 09 and to be no lower than 3,000ft above sea level before commencing the turn. The obligations of the NPR cease when an altitude of 4,000ft above sea level has been reached.

Bristol Airport's noise and track keeping system, ANOMS, is used to monitor adherence to the NPRs and to record continuous descent approaches. As part of the Airport's Noise Action Plan an online flight tracking system is available for public use on the Airport's website. A map showing the NPRs can be found in Appendix E.

Bristol Airport works with the airlines and the air traffic services provider, NATS, to promote the use of continuous descent approaches (CDAs). In contrast to conventional airport approaches, aircraft following CDAs descend continuously from as high as possible. A continuous descent requires less engine thrust than level flights and provides additional noise attenuation by keeping the aircraft higher for longer. In 2023, 79.23% of all flights used a CDA on arrival. This is comparable to 2022. 94% of arrivals operated by the Airport's four main airlines (easyJet, Ryanair, Jet2 and TUI) operated a CDA approach. Factors that mean an aircraft cannot utilise a CDA include weather and air traffic routing requirements. An arrival is classified as a CDA if it is below an altitude of 6000ft, no level flight, or one phase of level flight is no longer than 2.5 nautical miles. CDA performance is regularly reviewed with the airlines at the Flight Operations and Safety Committee to improve performance. Conformance to NPRs in 2023 was 94.5% for all departures. Commercial aircraft do, on occasion, fly outside the permitted tracks under permitted deviations from air traffic control.

Bristol Airport reserves the right to levy a surcharge against any operator who, on a persistent basis, fails to operate in-line with the prescribed NPRs as recorded by ANOMS. No such surcharges were levied in 2023.

4.10 Ground Noise Management

Measures adopted by Bristol Airport to minimise the effects of ground noise are set out in a Ground Noise Management Strategy prepared in accordance with the 10mppa Section 106 Agreement dated 16 February 2011. Progress against the areas of action is set out below. Please note as part of the 12mppa S106 Agreement, a new Ground Noise Strategy is in the process of being written.

Fixed electrical ground power

Fixed electrical ground power (FEGP) is provided as a primary substitute for the use of aircraft auxiliary power units (APUs) or mobile ground power units.

Its use is mandatory where provided and is subject to strict operational rules. Aircraft stands 18, 19, 20, 34, 35, 36, 37, 38 and 39 have been equipped with FEGP.

Ground running of aircraft engines

Ground running of aircraft engines is necessary as part of the scheduled maintenance undertaken to ensure that aircraft are airworthy and fit for flight. All such activities are subject to strict operational procedures.

Table 19: Ground Running of Aircraft Engines
(*September to December estimated based on 2017 due to data loss)

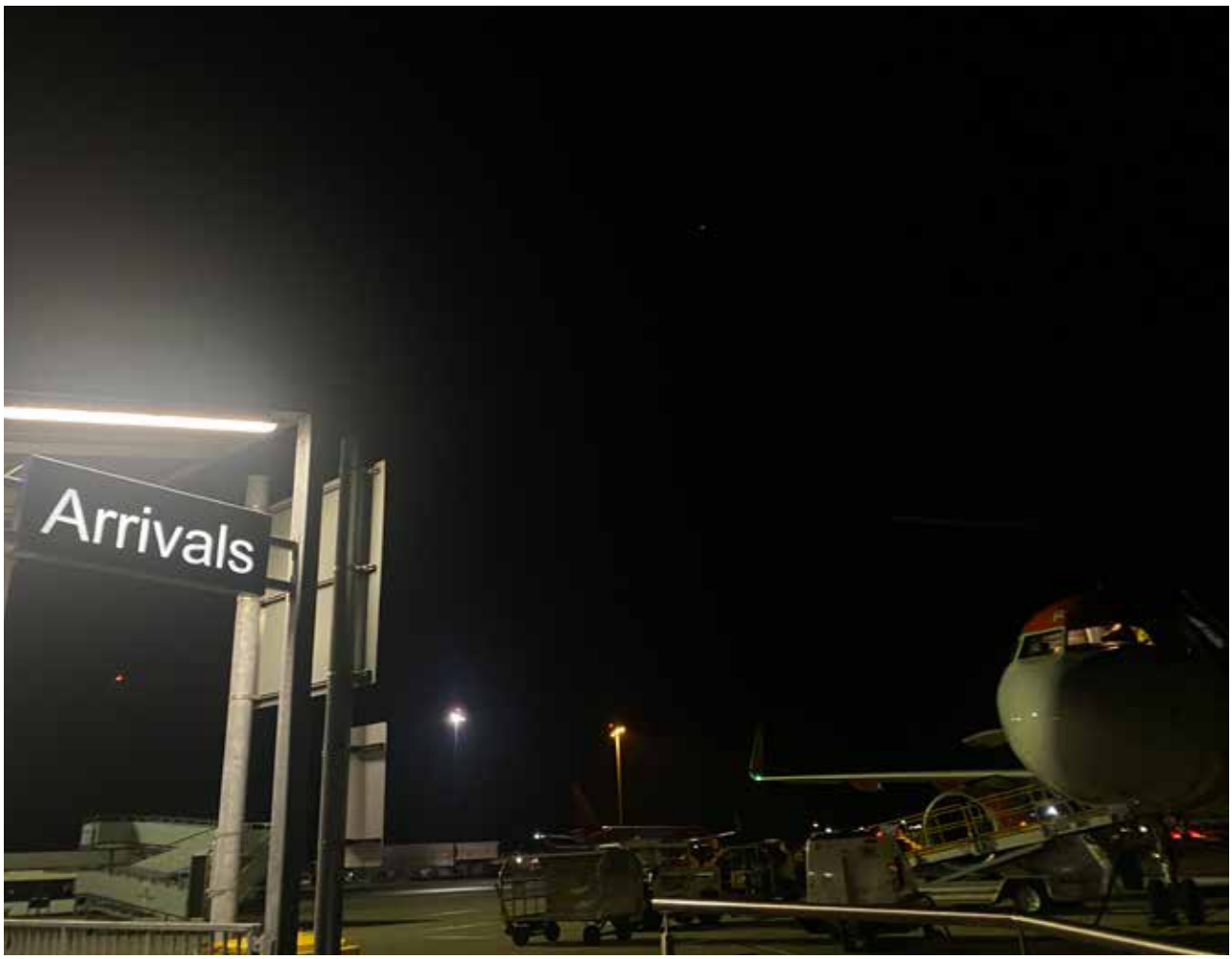
	2023	2022	2021	2020	2019	2018*	2017
Idle	424	372	566	297	347	412	356
Above Idle	23	42	36	26	32	33	39

Aircraft auxiliary power units

Strict operational procedures are in place to control the use of APUs engine runs. APU engine runs between 23:00 and 07:00 are subject to prior approval. APU engine runs are shown in Table 20 below.

Table 20: APU engine runs

	2023	2022	2021	2020	2019	2018	2017
APU Engine Runs	10	10	5	5	20	33	24



Community

5

5.1 Community Fund

In 2023, Bristol Airport paid £171,000 into the Airport Environmental Improvement Fund, also known as the Bristol Airport Local Community Fund. The main purpose of the Fund is to mitigate the environmental and social impacts of the Airport's operations and give something back to the surrounding communities affected by being situated near an international airport. It reflects our aim to develop the airport in a sustainable way, respectful of the local community and the environment.

The Fund's area of benefit concentrates on the areas most affected by aircraft operations and comprises the parishes of Winford, Wrington, Backwell, Brockley, Cleeve and Barrow Gurney.

The Local Community Fund has been set up as a Community Interest Company dedicated to the purpose of investment in local community projects. A partnership approach has been taken to the management of the fund which involves community representatives in determining how funds are allocated. Applications for funding are considered four times a year by a Management Committee comprising four representatives from Bristol Airport Limited and four elected members of North Somerset Council. The Management Committee is independently chaired, and the Chairman has a casting vote on funding decisions. The Management Committee evaluates each application carefully and uses its local knowledge and expertise to ensure that the fund is used to deliver the greatest possible benefit to the local community.

In November 2023, members of the Bristol Airport team used their volunteering day to help clear away brambles and prune chilli plants at Uncle Paul's Chilli Charity.

Dave Lees, CEO, presenting the donated toys and books to a member of staff from Yatton Infant School.

In 2023, the Fund provided grants totalling £216,628.51 to 63 local projects. A list of the organisations and projects that have been supported follows:

Table 21: Community projects supported in 2023

Project Location	Project Description
Winford Parish Council	Road improvements
Wonderland	Community education project
Yeo Explorer Scout Group – Wrington	Climbing equipment
Winford Village Pre-School	Children's educational equipment
Backwell Tennis Club	Facilities Improvements
Felton Village Hall	Hall security improvements
Wrington Parish Council	Nature conservation project
Churchill CE Primary School	New reading areas
Somerset International Festival of the Arts	Family educational workshops
Pentathlon GB – Modern Pentathlon & Laser Run	Sports engagement sessions
Cleeve Parish Council	Cleeve Parish Council
Brockley Parish Council	Community festival project
Groundwork South	Facilities Improvements
Uncle Paul's Chilli Charity	Solar Panel Installation
Barrow Gurney Cricket Club	Solar Panel Installation
Court de Wyck PTA	Children's playground area project
Backwell Parish Hall	Heating/insulation improvements
Wrington Parish Council	Facilities Improvements
Ablaze Bristol	School educational workshops
King George's Field, Cleeve	Solar Panel Installation
Brockley Parish Council	Road improvements
Bristol Avon Rivers Trust	Community volunteer project
1st Burrington Village Scout Group	Camping equipment
Blagdon Cricket Club	Equipment improvements
Cleeve Tennis Club	Equipment improvements
Winford Parish Council	Children's playground area improvements
Churchill Music	Educational sessions
Strawberry Line Cafe and Cycle Project	Facilities improvements
Backwell Playing Fields Charity	Facilities improvements
Cleeve Kids Corner	Children's playground area improvements

5

Our chosen charity throughout 2023 was the British Heart Foundation - 'Heart of Bristol'. The money raised for the British Heart Foundation – 'Heart of Bristol' charity goes towards funding lifesaving research into heart and circulatory diseases, taking place at the Bristol Heart Institute. Throughout 2023, the Airport raised over £4,000 for the charity.

In the summer, Bristol Airport partnered with a women's night shelter and day centre for the homeless in Bristol and donated toiletries and liquids that customers were unable to take in their hand luggage. Also in the summer, Bristol Airport teamed up with WH Smith to help donate over 120 brand-new teddy bears, toys, books and play packs to help raise funds for Yatton Infant School after a fire devastated the school.

In the Autumn, the Airport held its annual Poppy Appeal collection which raised £2,540 for the Royal British Legion. Donation boxes were located across the Airport and a member of the British Royal Legion collected funds for the charity in the terminal for a week leading up to Armistice Day.

Other notable charitable moments in 2023 include a food donation to the Weston-super-Mare Foodbank in December. The food was donated by Bristol Airport colleagues and Business Partners across the Airport. Along with the food donation, members of the Bristol Airport team volunteered at the Foodbank to help organise, sort and pack donations from across the local area.

Each year, every member of the Bristol Airport team has a volunteer day to help support and to give something back to local charities and organisations in the local community. Throughout 2023, the Bristol Airport team provided over 800 volunteer hours supporting projects and educational learning in the local community. This includes litter picking on the Felton Common, clearing away brambles and pruning chilli plants at Uncle Paul's Chilli Charity in Butcombe and repairing a footpath at the Goblin Combe Environment Centre in Cleeve.

2023 also saw the restart of the Bristol Airport Education Programme following the pause due to the Covid-19 pandemic. Members of the Bristol Airport team either visited schools and colleges in the local community or the students came up to the Airport to learn about the history, operations, sustainability initiatives and the future of Bristol Airport. Schools and colleges include Winford Primary School, Clevedon School, Weston College, and the City of Bristol College totalling over 800 students being involved in these educational lessons.

5.2 Employment

Bristol Airport is one of the largest employment sites in the region, with 4,100 people employed directly at the Airport, plus hundreds more indirectly employed through the supply chain, associated businesses as well as in the inbound tourism sector.

Following the COVID-19 pandemic, the Airport had a challenging year in 2022 with business partners trying to recruit and increase workforce levels to keep up with demand. 2023 has been a more stable year for recruitment, with workforce levels and passenger numbers exceeding pre-pandemic figures. Bristol Airport itself employed approximately 350 people during 2023, with the numbers expected to grow in 2024.

The table below summarises the number of staff and companies located on site. Please note that throughout the pandemic, we did not record job numbers and information is missing during these years.

Table 22: Details of employment at the airport

	2015	2016	2017	2018	2022	2023
Total number of staff	3,392	3,470	3918	3978	3,401	4,101
Number of companies	52	52	54	56	50	53

As part of Bristol Airport's expansion plans, we are currently working with North Somerset Council to develop a new Skills and Employment Plan to deliver measures to promote employment opportunities at the Airport for local residents including residents of South Bristol and Weston-super-Mare. The Plan will include a local labour agreement and action plan for the construction phase of expansion plans; a programme of employment and skills initiatives with education providers for the operational phase of expansion; and an education programme of engagement from primary level through to university. The Skills and Employment Plan will be in place in 2024 and its progress and achievements against agreed performance indicators will be reported in future AMRs.

During 2023, we became members of 'Inclusive Employers', the UK's first membership organisation for employers looking to build inclusive workplaces, providing us with consultancy, training and resources to help us on our journey. We also introduced Equality Impact Assessments (EqIA) for any project, new or amended process, function or policy. An EqIA is a tool that helps ensure changes, practices and policies within organisations are maximising the opportunity to promote inclusion and not inadvertently disadvantaging or excluding certain groups. This process will ensure we take a proactive approach to achieving fair and appropriate outcomes for employees and our passengers.

We also worked with Business In The Community (BITC) to be a signatory for The Race At Work Charter. This Charter asks businesses to make a public commitment to improving equality of opportunity in the workplace. Other work with BITC includes an overview of our recruitment processes at BAL which has led to us being awarded with an 'Open Doors' accreditation in 2023. Whilst we recognise these achievements and continue to remain committed to our equality, diversity and inclusion agenda, we will not be complacent. From a recent internal inclusion survey we have gained valuable data that will inform our 2024 People Strategy and help us to embed our new Equality Policy. 2023 has also seen us partner with The Royal Aeronautical Society, for our employees to either be mentors or mentees via the Alta platform. Alta is the first mentoring platform for women, by women in the aviation and aerospace industry. It is solely focused on female attraction, retention, development and support in an industry that needs to attract and retain talent.

We value our employees feedback and work with Best Companies to run regular engagement surveys. We are a 1-star accreditation organisation which demonstrates very good levels of employee engagement. A recent outcome from our Best Companies survey has been the implementation of our salary sacrifice scheme for Electric Vehicles.


easyJet

6 Surface Access

Across the board, bus and coach services at the Airport increased passenger numbers in 2023 compared to 2022. Alongside the increased throughput in numbers, Bristol Airport continued to work with partners, Local Authorities and other transport stakeholders to improve services for passengers and staff. Progress in 2023 included:

- National Express increased the frequency of the 216 service to Newport and Cardiff to ten per day.
- We welcomed WEST link demand responsive transport in April.
- Bath Bus launched a new livery and brand new bespoke buses to their route.
- The A1 Flyer held trials of an electric bus.
- In conjunction with Great Western Railway and North Somerset Council we integrated the A3 Flyer into Worle Railway Station. This new interchange integrates the train and bus timetables, enabling travellers to purchase through-tickets.

A3 Service integrated with Worle Railway Station

The key public transport services at the Airport in 2023 are shown in the table below:

Table 23: Bus Operators and Routes

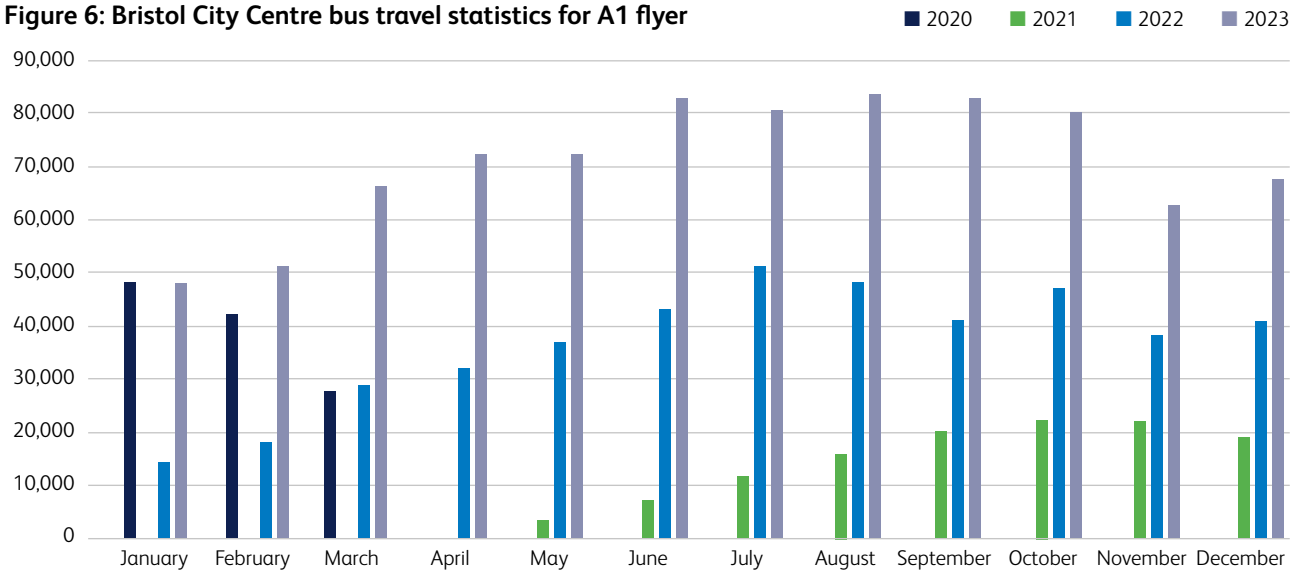
Service	Route	Operator
A1 Bristol Flyer	Bristol City Centre	First
A3 Weston Flyer	Weston-super-Mare	First
A4 Air Decker	Bath City Centre	Bath Bus Company
Falcon	Plymouth, Exeter to Bristol via BRS	Stagecoach
National Express 216	Cardiff, Newport	National Express
WESTlink	On demand transport – South Zone	West of England Combined Authority and North Somerset Council

A4 Air Decker – New Livery outside Terminal

Integration of Worle into A3 Service

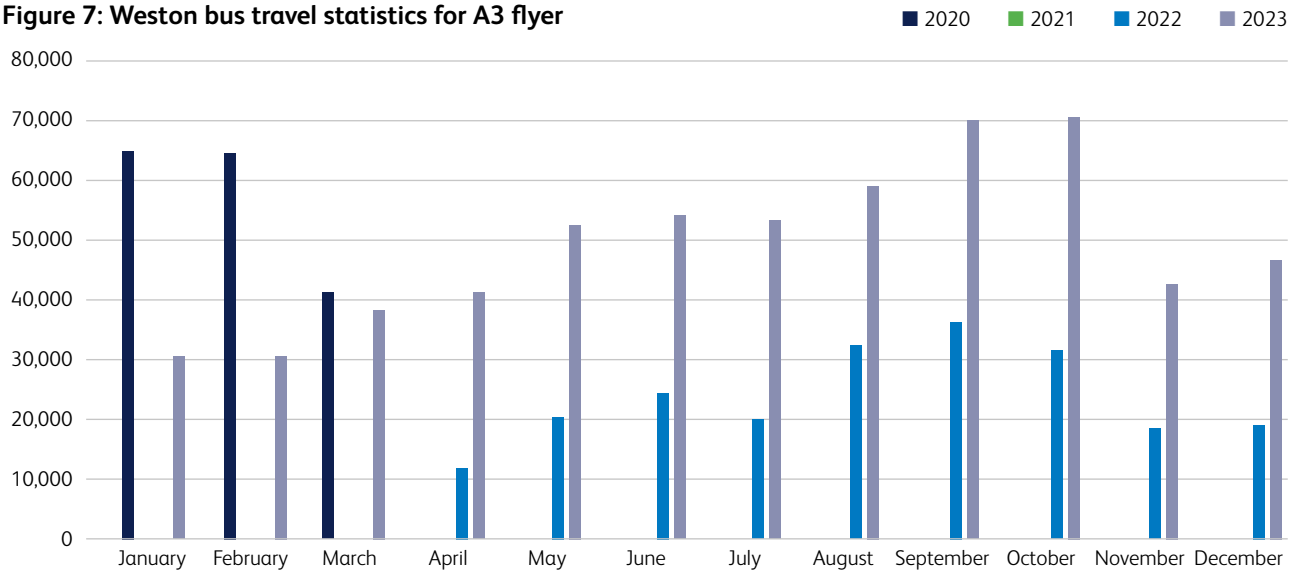
User Statistics:

Figure 6: Bristol City Centre bus travel statistics for A1 flyer



A1 Flyer was suspended from April 2020 to April 2021 due to the pandemic.

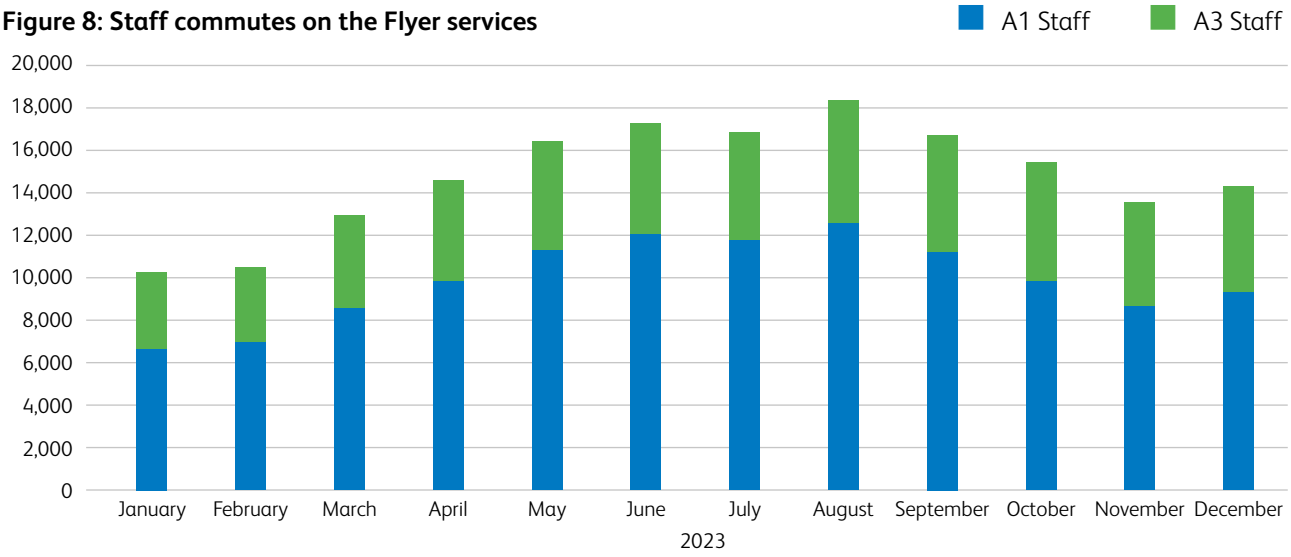
Figure 7: Weston bus travel statistics for A3 flyer



A3 Flyer was suspended from April 2020 to March 2022 due to the pandemic.

Introduced on the 1st of August 2022, the free commute travel offered to all directly employed and business partner staff on the Flyer services continued. Across the year there was a monthly average of just below 15,000 staff journeys per month (Figure 8). Staff patronage has not been included in Figures 6 or 7.

Figure 8: Staff commutes on the Flyer services



Development

7

The Airport is undergoing some significant changes following the approval of the 12mppa permission. As part of the permission, we have developed a Biodiversity Construction Management Plan (BCMP) which has now been approved by North Somerset Council.

The BCMP identifies any potential biodiversity risks associated with construction activities. It then sets out how these risks can be mitigated and includes commitments to the timing of sensitive works to avoid harm to biodiversity features, plus the establishment of biodiversity protection zones and the use of specialist ecologists to supervise as and when necessary. The BCMP will be adhered to at all times.

In addition to the BCMP, the Airport has Construction Environmental Management Plans (CEMPs)setting out how the Airport, and our construction partners will minimise any negative environmental impacts associated with construction projects. The CEMPs include details of approved vehicular access, working hours, noise and vibrations, dust and air quality, potential contamination and how matters will be communicated with the public.

We are aware that construction activities can sometimes cause disruption, but through the BCMP and CEMPs, we aim to manage this and reduce it as much as possible.

7

Some of the major construction projects that have occurred at the Airport in 2023 include:

7.1 Multi-Storey Carpark 2 and Public Transport Interchange

The Airport is investing more than £60m in creating a new multi-storey carpark 2 (MSCP2) with public transport interchange (PTI) on the top level. The project commenced in Autumn 2023 on the former long stay parking area. The new MSCP2 will provide approximately 2,000 new spaces and will adjoin to the existing multi-storey car park. On the top level, a PTI will be built which will more than double the number of coach bays from 6 to 16. It forms a significant investment and commitment to improve public transport links to and from the Airport and across the region.

The terminal will be accessed via a pedestrian bridge link, and the whole scheme, once completed, will form a new transformational gateway to the Airport. The scheme is expected to be completed in 2025.

Computer generated image of the completed MSCP2/PTI with bridge link allowing direct access to the Terminal

MSCP2/PTI under construction on the site of the former Long-Stay carpark

7.2 Solar Farm

This year saw the completion of a major new solar farm on the southside of the runway. The installation of ground mounted solar panels at three separate sites is essential for the Airport to meet its public target of having 25% of its own energy generated by its own renewable sources by the end of 2025.

7.3 Air Traffic Control Tower

The Airport has invested £3.5m on a comprehensive refurbishment of the Air Traffic Control Tower to improve and enhance the 20-year old building.

The Tower is undergoing extensive renovations, improving the overall aesthetics and functionality of the building whilst meeting the latest building standards and regulations. It will incorporate environmentally friendly elements such as energy efficient lighting, heating, and cooling system, reducing the building's carbon footprint. The investment will provide a significantly improved Air Traffic Control Tower for our National Air Traffic Services colleagues and engineers working on site.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Appendix A - Emissions and Climate Change Action Plan

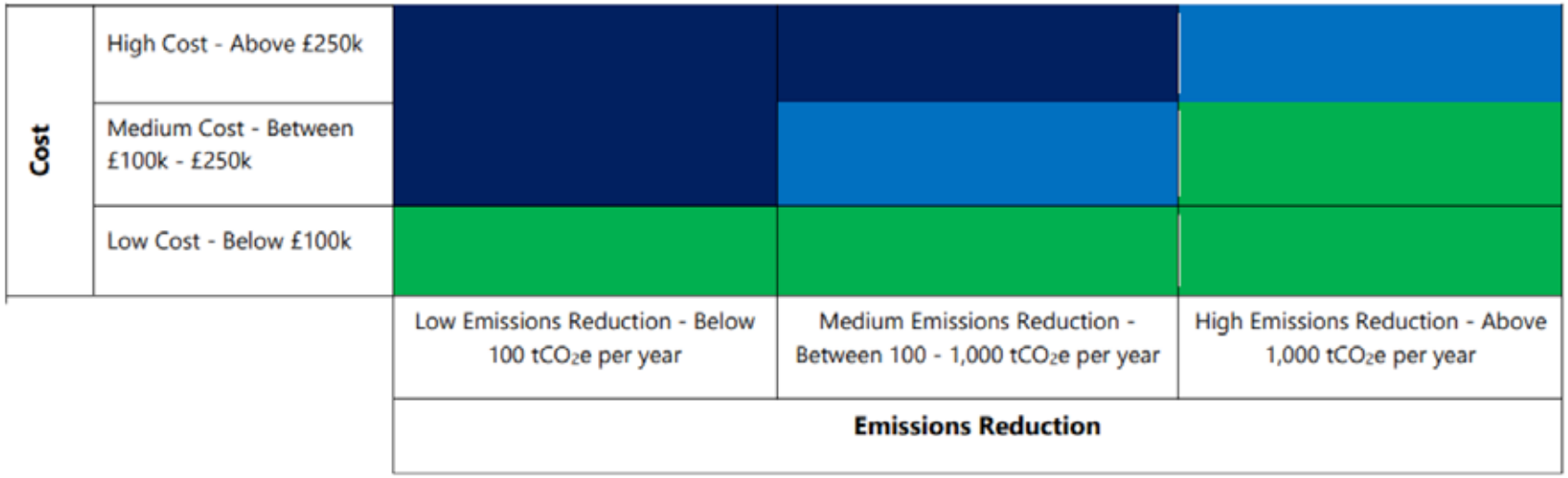
This document details the current baseline for carbon emissions (2019) and air quality. The majority of the carbon emissions relate to our airline partners using the Airport and passengers accessing the Airport over land. Of the carbon emissions over which we have control, the electricity we purchase has the largest footprint (location-based), followed by our fleet vehicles. Air quality is generally good surrounding the Airport, and the AQOs are not exceeded. Emissions from aircraft and ground operations effect air quality in the immediate vicinity of the Airport, but within a few hundred metres of the Airport boundary, road traffic is the most dominant emissions source that determines air quality.

Control

We are dedicated to taking a leadership position in the management of carbon emissions, by reducing the emissions that we control (Scope 1 and 2 emission sources), and guiding and influencing the emissions of our stakeholders and our value chain (Scope 3 emission sources) to achieve emission reductions

Hierarchy

Each measure detailed in this ECCAP has been assigned to an indicative hierarchy based on the cost of implementation and the associated emissions reduction



Fixed Assets

Table A.1: Emission reduction measures – fixed assets

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
FA1	Carbon and air quality	Construction Environmental Management Plan	Production of a CEMP in accordance with planning condition 7, including measures to reduce carbon emissions and manage air quality.	Production of a CEMP.	Pre-construction	We will provide an overall 12mppa CEMP, which will be adapted accordingly to suit individual elements of the 12mppa permission and then submitted for discharge as these individual elements come forward. No elements of the 12mppa infrastructure were delivered in 2023 however a planning application for the early delivery of Cogloop2 was submitted in summer 2023 and accepted by North Somerset Council in January 2024.	No	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
FA2	Carbon	Securing renewable electricity supply	Our current agreement is for a 100% renewable energy supply. This will be supplemented by FA17 with direct solar which would be considered 'additional'.	100% of electricity supply from renewable energy sources.	Retain	100% renewable energy supply continues to be used. A 1.4 MW solar farm is now live.	3.66 kt CO_2e per year for Scope 2 electricity consumption	Scope 2 emissions are reduced to zero	Control	
FA3	Carbon	Offsetting of residual direct carbon emissions from 2021 to 2030 to achieve carbon neutrality	Offsets will be through carbon reduction credits from regional, national or international projects which meet environmental integrity criteria as defined by the ACI ACA Scheme. As part of efforts for continual improvement and development, we will increase the delivery of localised schemes rather than international projects in our offsetting projects. Continual reduction in the volume of offsets as efforts to decarbonise at emission source are implemented.	Achievement of ACA Level 3+ accreditation in 2021, Level 4 in 2023 and Level 4+ in 2025.	2025	Achieved Level 4+ in 2023, two years ahead of schedule.	5.77 kt CO_2e per year for Scope 1 and 2 emissions[4]	Offsetting of residual Scope 1 and 2 emissions to achieve carbon neutrality	Control	
FA4	Carbon	On-site zero-emission building	Deliver a zero-emission building (a highly energy efficient building supplied only by renewable energy generated on-site), for the Consolidated Car Rental Centre (CCRC). We have fitted over 200 kW of solar PV to the CCRC building. Over a 12 month period this will generate 100% of the building's heating and electrical requirements.	A zero-emission building on the CCRC with energy use covered by renewable energy generated on-site.	2022	Complete	CCRC energy demand of 200,000 kWh / 0.05 kt CO_2e per year (2021)	Saving of 0.05 kt CO_2e per year through on-site renewable energy generation	Control	
FA5	Carbon	Energy efficiency appraisal for all capital projects	We will update our internal processes to include an appraisal of energy efficiency for all capital projects.	Updated internal processes for all capital project with sustainability criteria.	2022	This is ongoing and has been factored into capital projects going forward.	Estimated 12 mppa building energy use of 4,000,000 kWh / 1.02 CO_2e per year[1]	Indirect reductions in carbon emissions	Control	

1 BAL (2021). Addendum to Environmental Statement, Doc Ref. 43002-WOOD-XX-XX-RP-O-0002_S3_1.

Table A.1: Emission reduction measures – fixed assets continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
FA6	Carbon	Point-of-use electrical hot-water heating for tenants	Installation of point-of-use electrical hot-water heating for tenants thus reducing gas dependency and allowing decommissioning of the existing gas heaters. As well as removing our gas requirements for hot water it will also allow shut down of the large boiler dilution fans, resulting in additional energy savings.	Installation of point-of-use electrical hot water heating for tenants across the Airport.	2022	Phase one completed end of Q4 2022. Phase 2, during which remaining gas fired water heater in terminal will be removed, is planned for replacement end of Q1 2024.	Estimate 290,000 kWh (0.05 kt CO_2e) airport gas consumption for water heating (7 % of total) per year[4]	Estimate 30,000 kWh energy removed with a reduction 0.01 kt CO_2e per year	Guide and influence	
FA7	Carbon	Continue to actively work with Government and other organisations	To work with Government to deliver aims and objectives of the Jet Zero Strategy and continue work with organisations such as Fly Zero, Connected Places Catapult and others to aid the delivery of technological solutions and learnings for the industry.	Continued engagement and participation in programmes where relevant.	Ongoing	Ongoing engagement with Government, including the Future Flight project and driving the development of hydrogen infrastructure	Actively working with Government and other organisations	Indirect reductions in carbon emissions	Guide and influence	
FA8	Carbon	Sharing best practice learning with partners	Implement a collaboration programme for sharing best practice learning and discussions with stakeholders to disseminate our journey to net zero with the wider community and provide support to partners in their own journey where possible.	Implement a collaboration programme for sharing best practice learning.	2023	From 2023, holding annual Business Partner events to update our BPS on our progress and share learnings.	Collaboration programme to be implemented	Indirect reductions in carbon emissions	Guide and influence	
FA9	Carbon	Further on-site zero-emission buildings	Deliver further zero-emission ancillary buildings across the Airport site based on ongoing learning from the CCRC. This will likely include transitioning heating systems to air / ground heat pumps to reduce reliance on gas.	Create the CRCC to be a demonstrator and a plan to deliver other out-stations in 2023	2023	Learning ongoing and continuing to explore opportunities for installing solar at additional buildings	Total BAL energy consumption of 14,000,000 kWh electricity (3.66 kt CO_2e) and 3,600,000 kWh (0.66 kt CO_2e) gas per year[4]	Delivery under review following CCRC project	Control	
FA10	Carbon	Implement processes and procedures for inclusion of low embodied carbon construction material	We will implement policy and review procedures for inclusion of low embodied carbon construction materials in the internal procurement processes and every effort will be taken to utilise local suppliers where practicable.	Updated internal procurement processes.	2023	This is ongoing and factored into our procurement process	Relates to future construction	Indirect reductions in carbon emissions	Guide and influence	

Table A.1: Emission reduction measures – fixed assets continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
FA11	Carbon	Refrigerant loss surveys	More frequent operational surveys will occur to regularly collect data on refrigerant losses beyond the TM44 reporting requirement to enhance carbon footprinting of associated emissions with the view to considering alternative refrigerant types were possible.	TM44 survey every 5 years. Updated information on losses at least every 3 years.	2023	Ongoing and reported on through the Net Zero delivery group.	75.5 kg refrigerant charge / 0.15 kt CO_2e per year[4]	Review considering alternative refrigerant types	Control	
FA12	Carbon	Increased energy metering	Installation / replacement of electricity meters on key infrastructure to create a detailed baseline of energy usage.	Install meters by end of 2024	2024	Phase 1 of a metering project for business partners and concessions completed. Phase 2 has been initiated and planned for completion by end of Q2 2024. Phase 2 will include both main supply meters and substations. Substations will be metered for key site loads.	Total BAL energy consumption of 14,000,000 kWh electricity (3.66 kt CO_2e) per year[4]	Produce detailed baseline to assess reductions	Control	
FA13	Carbon	Introduce sustainability league table for tenants in energy, water and waste efficiency	Establish an on-site sustainability league table of tenant resource use, recognising and rewarding best behaviours by 2024 as part of our efforts to guide and influence reductions in direct tenant gas and electricity use.	Reporting of league table	2024	All tenant meters are monitored and logged on sitewide BMS.	Tenant energy consumption of 3,500,000 kWh electricity (0.89 kt CO_2e) and 660,000 kWh (0.12 kt CO_2e) gas per year[5]	Indirect reductions in carbon emissions	Guide and influence	
FA14	Carbon	Reduce tenant gas and electricity use and establish corporate sustainability objectives	Influence our value chain and on-site third parties to enter carbon reduction partnerships through a dedicated Carbon Management Forum. Early initiatives could include removal of natural gas dependency.	Reporting of progress through the Carbon Management Forum.	2024	Decarbonisation works are ongoing. They include: • Removal of gas supply from ATC tower. Completed Q4 2022. All gas fired hot water to transitioned to electric by Q4 2023. • Western Walkway Gas boilers planned for conversion to heat pump by summer 2024. • Terminal main gas boiler replacement for heat pumps planned for 2025-26	Tenant energy consumption of 3,500,000 kWh electricity (0.89 kt CO_2e) and 660,000 kWh (0.12 kt CO_2e) gas per year[5]	Indirect reductions in carbon emissions	Guide and influence	
FA15	Carbon	Deliver energy reductions across the airport site	Plan the phased replacement of chillers and boilers across the site with air source heat pumps where feasible. The programme will be determined by the replacement cycle of current assets.	Creation of phased replacement plan in 2024.	2024	The installation of chillers is now due in 2025/26 once existing chillers reach end of life.	Estimate 3,400,000 kWh (0.63 kt CO_2e) BAL gas consumption for water / space heating (95 % of total) per year[4]	To be reviewed as part of the replacement plan	Control	
FA16	Carbon	Upgrade external lighting	Replace non-LED external car park lighting with LEDs with time / occupancy controls.	Replace by the end of 2024 or when development comes forward.	2024	Survey works completed. To be installed in cogloop 1 by Q3 2024	Estimate 2,100,000 kWh BAL electricity consumption (0.55 kt CO_2e) for lighting (15 % of total) per year[4]	LEDs save up to 90 % of energy compared to traditional bulbs	Control	

Table A.1: Emission reduction measures – fixed assets continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
FA17	Carbon	Delivery of direct renewable energy supply to meet 25% of demand	We will install renewable generation systems at various points across the Airport to meet the target of 25% direct on-site renewable energy supply by 2025 for our own consumption. NB: This is dependent on securing planning permission for installations where applicable.	Installation of renewables to deliver 25% of electricity supply by the end of 2025.	2025	A 1.6MW solar farm was installed in late 2023. Additional options for solar currently being scoped to ensure we reach 25% target by 2025.	Total BAL energy consumption of 14,000,000 kWh electricity (3.66 kt CO_2e) per year[4]	Scope 2 emissions are reduced to zero (when combined with FA2)	Control	
FA18	Carbon	Delivery of tree planting / re-wilding on- and off-site	Implement local projects for ecological and carbon sequestration, including tree planting on airport land, through strategic partnerships against recognised standards. Sites could potentially be in areas to provide shade and thereby reduce the need for cooling.	The introduction of localised partnership with direct carbon removal attributes by 2025.	2025	Project for local carbon sequestration opportunities ongoing and can be explored through Aviation Carbon Transition Programme.	We have already planted 500 trees locally as part of Replant Bristol run by the Forest of Avon Trust	To be determined per project	Control	
FA19	Carbon	Renewable energy use for extensions to the passenger terminal	Under 12 mppa, 15% of the on-going energy requirements for the extensions to the passenger terminal will be generated through renewable or low-carbon technologies.	15% generated through renewable or low-carbon technologies.	As works brought forward	Factored into all construction/planning of terminal expansion.	Estimated 12 mppa terminal extensions energy use of 2,100,000 kWh / 0.53 CO_2e per year[5]	Scope 2 emissions are reduced to zero (when combined with FA2)	Control	
FA20	Carbon	Heating and cooling upgrades to buildings	Review of options for improvements to existing buildings to reduce energy usage (e.g. increase insulation in walls / roof of older buildings, improve airtightness and draught proofing, add solar film for cooling, reducing ambient temperature, providing spot heating for staff) by 2026. This will lead to a subsequent delivery programme.	Review of potential improvements to existing buildings, followed by implementation.	2026	CO_2 control changes ongoing. Terminal Setpoint changes completed. Chiller / Boiler control strategy modified. Time schedule and outside hold off control completed. Site survey by external consultant to be conducted by Q2 2024 as part of Energy Saving Opportunity Scheme (ESOS). Findings ton be factored into programme.	Estimate 3,200,000 kWh (0.58 kt CO_2e) BAL gas consumption for space heating (88% of total) per year[4]	Action is to undertake a review	Control	
FA21	Carbon	Upgrade apron floodlights for efficiency improvements	Install remote controls to the apron floodlights from the Airport Control Centre such that the lights are only switched on when needed. Our security system will be upgraded to infrared (IR) CCTV such that lights can be switched off externally and around the apron.	Installation of controls on apron floodlights by 2026.	2026	Project is at design stage and on track for 2025-26	Estimate 2,100,000 kWh BAL electricity consumption (0.55 kt CO_2e) for lighting (15% of total) per year[4]	Estimated saving of 0.04 kt CO_2e per year	Control	

Table A.1: Emission reduction measures – fixed assets continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
FA22	Carbon	Installation of LED airfield ground lighting	AGL replacement to LED as part of runway resurface by 2027 dependant on asset condition.	Installation of LED airfield ground lighting.	2027 dependant on asset condition	Ongoing and scoping/planning underway.	Estimate 2,100,000 kWh BAL electricity consumption (0.55 kt CO_2e) for lighting (15 % of total) per year[4]	LEDs save up to 90 % of energy compared to traditional bulbs	Control	
FA23	Carbon	New buildings to target a BREEAM standard minimum requirement of "Very Good"	All new buildings (including extensions) required to support the increase to 12 mppa will target a BREEAM standard minimum requirement of "Very Good". Projects will be evaluated for energy efficiency and the cost of implementation of such measures will be understood.	Updated internal processes for major capital project with sustainability criteria and availability of BREAM reports on our website.	2028	Working on the detailed design is ongoing. During this process, we are working with engineering consultants to ensure we meet the BREEAM Very Good standard.	Relates to future construction	BREEAM "Very Good" delivers average CO2 savings of 15 %	Control	

Aircraft and Airfield Operations

Table B.2: Emission reduction measures – aircraft and airfield operations

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
AAO1	Carbon and air quality	Encourage based airlines to use continuous descent approaches	CDAs will be tracked and actively encouraged through the committees that we use to engage with airlines, such as the Night Time Slot Committee and Flight Operations Safety Committee. Recommendations will continue to be included in policy and procedure documents.	Target of at least 95% of main customer-based airlines using CDAs. Annual targets will be reviewed and set.	Currently implemented and ongoing	CDAs are now tracked monthly at the Health, Safety and Sustainability Board (compliance) and Flight Operations Safety Committee. In 2023, we achieved 94% CDAs for main airlines.	Scope 3 approach emissions contribute 28.60 kt CO_2e per year[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary	CDAs can deliver an estimated 50% reduction in fuel use and carbon	Guide and influence	
AAO2	Carbon	Support long-term policy developments for sustainable flight	We will continue to engage with Sustainable Aviation and other aviation sector groups to drive long-term policy developments for sustainable growth to UK aviation. We will support action in line with the Sustainable Aviation Decarbonisation Roadmap (e.g., supporting initiatives to develop fuel-efficient aircraft or carbon efficient operations).	Collaboration and engaging with industry.	Currently implemented and ongoing	We continue to engage directly with Sustainable Aviation.	Actively working with Sustainable Aviation and other organisations	Indirect reductions in carbon emissions	Guide and influence	
AAO3	Carbon and air quality	Work across the aviation sector to push for sustainability metrics within aircraft slot allocation guidelines	We are committed to working across the sector to push for sustainability metrics within local and national aircraft slot allocation rules / guidelines encouraging the take-up of new, more fuel-efficient aircraft into the fleet.	Collaboration and engaging with industry to produce a harmonised approach to green slots.	Currently implemented and ongoing	We continue to engage directly with Government and other organisations	Actively working with Government and other organisations	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
AAO4	Carbon and air quality	Hydrogen South West partnership	Continue to support the Hydrogen South West partnership. We are collaborating to enable businesses and communities to create cross-sectoral partnerships that drive the development of hydrogen infrastructure and technology.	Support the Hydrogen South West partnership.	Currently implemented and ongoing	We continue to engage directly with Hydrogen South West	Actively working with Hydrogen South West	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	

Table B.2: Emission reduction measures – aircraft and airfield operations continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
AAO5	Carbon and air quality	Establish an Aviation Carbon Transition Programme worth £250k in 2021 for enabling scope 3 emissions reduction solutions at Bristol Airport	Continue to offer Bristol Airport as a 'test bed' for innovation projects. An ACT Programme worth £250k was established in 2021 to kickstart innovative ways to reduce Scope 3 emissions. This starter fund was open for solution developers to apply for in 2021.	Delivery of external fund and details of projects funded including their outcomes on our website.	Annually up to 2030	Bristol Airport are part of the Future Flight project for eVTOL technology, working with key partners to be an airport testbed. The annual ACT programme is ongoing.	ACT Programme worth £250k	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
AAO6	Carbon and air quality	Implement an electric bus trial on-site	Implement an on-site trial of an airside bus switching to EV. This will be used as a feasibility study on the phasing of zero emission fleet including details on charging specifications, fleet renewals, and coverage. We will implement a hydrogen bus trial to inform our procurement strategy for fleet. This will become the blueprint for zero emissions fleet by 2030.	Include 1 EV bus within our fleet and conduct a feasibility study on future investments.	Implemented in 2022	As of 2023, there are 4 electric buses on site. Delivery of buses is a phased approach and timed with current vehicles reaching end of life. Another 3 -5 are due in 2024. Therefore, by the end of 2024, at least 7 out 18 buses will be electric.	11 buses were in the airside fleet, with estimated 390,000 litres of total BAL fleet diesel fuel use (1.0 kt CO_2e)4 Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary	Emission-free airside bus operations	Control	
AAO7	Carbon and air quality	Single-engine taxiing	We actively encourage single-engine taxiing (where aircraft type and operations allows) through the committees that we use to engage with airlines such as the Night Time Slot Committee and Flight Operations Safety Committee, as well as operational procedures. Review applicability at Bristol Airport through data gathering and review. There are limitations on which aircraft can do this, so a specific airport wide target has not been set.	Review application and where feasible, encourage single-engine taxiing.	Ongoing	Engagement with airlines through the Night Time Slot Committee and Flight Operations Safety Committee is ongoing and we actively encourage single engine taxiing. Progress to be documented in the 2024 update of ECCAP	Scope 3 taxiing emissions contribute 33.2 kt CO_2e per year[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary (Figure 3.5)	Single-engine taxiing (where possible) can have up to a 50% reduction in fuel use and pollutant emissions. This is not something that is currently tracked but will be encouraged during busier periods when taxi times are longer. Arrival taxi time is tracked – e.g. the average arrival taxi time for Rwy 27 is 2 mins 58 seconds. For certain aircraft, they can only reduce to single engine taxi for arrival after 3.5 minutes from arrival. Therefore, no specific target is set as circumstances will vary.	Guide and influence	

Table B.2: Emission reduction measures – aircraft and airfield operations continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
AA08	Carbon and air quality	Reduce auxiliary power unit running times	Review APU running time allowances in operational procedures and reduce to minimum level practicable, engaging with airlines through committees such as the Flight Operations Safety Committee. Further research is required to determine current levels of APU use, which will then determine targets for reductions.	APU running time reduction requirement implemented through operating procedures.	2023	We detail within our AIP and Airside Operational Instructions that APUs must be run at the minimum time possible when on stand. Overall, this is widely adhered to and any restrictions on certain stands due to noise monitoring is strictly monitored by the airside operations teams in conjunction with airlines. APU run times are not currently logged by airside operations or BAL, however data may be available via airlines.	Scope 3 APU emissions contribute 4.1 kt CO_2e per year[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary (Figure 3.5)	Under review	Guide and influence	
AA09	Carbon and air quality	Encourage quieter and greener fleets through a league table	A league table will be established in 2023 to measure and record carbon emissions and noise levels from aircraft operators arriving at Bristol Airport. This will encourage and drive airlines to continually engage in improvement. The league table will be developed in the future to include SAF and new technology aircraft.	Production of league table showing movements measured by quota count, published on our website.	2023	This is now a focus to be implemented in 2024.	Scope 3 cruise and LTO emissions contribute 476 kt CO_2e per year[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary (Figure 3.5)	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
AA010	Carbon and air quality	Review of landing charge structure to incentivise fuel efficient aircraft	Review of landing charges and contract renewals where applicable to incentivise more fuel efficient aircraft based at Bristol Airport.	Complete review	From 2023 annually and/or when contracts are renewed	New agreements made in 2023 to increase individual airlines to operate more Max/NEO type aircraft in future years	Scope 3 cruise and LTO emissions contribute 476 kt CO_2e per year[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary Current structure published on the BAL website[2]	Under review. In 2023, 22% of aircraft movements were Max/Neo and considered fuel efficient (excluding general aviation/helicopters). Expected to be 30% in summer 2024.	Guide and influence	

2 https://www.bristolairport.co.uk/about-us/doing-business-with-us/fees-and-charges

Table B.2: Emission reduction measures – aircraft and airfield operations continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
AAO11	Carbon	Support customer offsetting of flights to / from Bristol Airport via an online platform	Work with airline partners to highlight their processes for customers to offset flight emissions. This will provide details of offsetting provisions provided by flight operators from Bristol Airport, giving the customer choice and increasing transparency around offsetting commitments delivered by airline operators.	Development of website providing customers with details to offset their carbon emissions.	2023	This is now a focus to be implemented in 2024	Scope 3 cruise and LTO emissions contribute 476 kt CO_2e per year[4]	Indirect reductions in carbon emissions	Guide and influence	
AAO12	Carbon	Add de-icer usage to our carbon footprint	As part of continuous improvement, de-icer usage will be added to our carbon footprint. This will help support efforts to identify actions to reduce usage.	De-icer included in carbon footprint.	2023	Since 2022, Scope 1 and Scope 2 de-icer have been included in carbon footprint	De-icer to be added to carbon footprint	Actions to reduce usage to be reviewed	Control	
AAO13	Carbon	Control the use of de-icer with our Winter Weather Response Plan	Our Winter Weather Response Plan includes details to control the use of de-icer. The Plan sets out conditions for de-icing and governance procedures, to ensure that de-icing occurs only when required.	Review of Winter Weather Response Plan annually.	2023	Scope 1 and Scope 2 de-icer included in 2022 carbon footprint which will support review of Winter Weather response	De-icer to be added to carbon footprint	Actions to reduce usage to be reviewed	Control	
AAO14	Carbon and air quality	Reduce vehicle / equipment idling and improve efficiency	Airside staff will be provided with information to encourage them to operate more efficiently and minimise idling of vehicles / equipment. Install tracking on all vehicles we own where possible to reduce idling and improve efficiency of equipment.	Install tracking on all our vehicles where feasible.	Complete review in 2022 and begin implementation in 2023	Vehicle and equipment idling is included in airside audits. Reduction in vehicle and equipment idling has been included in driver training process.	Estimated 390,000 litres of total BAL fleet diesel fuel use (1.0 kt CO_2e)[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary (2023 – 30 fleet vehicles are tracked (mix of vans and cars, EV and diesel – is collects information on idling times, speeding, braking, cornering, routes, frequency on certain routes).	Vehicle tracking can deliver an estimated 14% reduction in fuel usage	Control	

Table B.2: Emission reduction measures – aircraft and airfield operations continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
AAO15	Carbon and air quality	Airside vehicle and equipment pooling scheme	Review the possible implementation of a pooling scheme for airside vehicles and equipment to reduce fuel usage and support the transition to zero emissions options.	Review implementation of a pooling scheme for airside vehicles and equipment.	2023	Scoping stage of pooling scheme initiated in 2023 and key handlers notified	Vehicles and equipment operated by third parties not included within the carbon footprint4 Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary	Under review	Guide and influence	
AAO16	Carbon and air quality	Auxiliary power unit running time surveys	Carry out spot checks to monitor the time taken to shut down the APU after arrival on stand and set targets for shutdown to enable continuous improvement.	Implement APU running surveys.	2024	To be undertaken during turnaround audits in 2024	Scope 3 APU emissions contribute 4.1 kt CO_2e per year[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary	Under review	Guide and influence	
AAO17	Carbon and air quality	Support the introduction of low-carbon flights	We will support the introduction of short-haul, low- zero-emission, hybrid flights or electric vertical take-off and landing (eVOLT). We are participating in the Future Flight Challenge, supported by government funding.	Participation in the Future Flight Challenge.	2025	Participation in Future Flight Challenge ongoing	Scope 3 cruise and LTO emissions contribute 476 kt CO_2e per year[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary (Figure 3.5)	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
AAO18	Carbon and air quality	Airside vehicle / equipment ultra-low emission zone	Airside vehicle and equipment fleet will be regularly reviewed to ensure older items are replaced. Increased permit costs will be applied for older and high-polluting vehicles / equipment over time. Review and prepare plan in 2023 for phased removal (subject to consultation). Target implementation of an airside ultra-low emission zone with 100% of vehicles / equipment meeting Euro 6/VI / Stage V emissions standards by the end of 2025 where feasible.	100% of vehicles / equipment Euro 6/VI / Stage V.	2023 & 2025	Many BAL airside partners are working towards a fully electric fleet. Within airside operations we have now moved to a fully electric fleet of four vehicles, radically reducing our emissions on within the airside environment. Our Energy Efficiency manager is working site wide on providing electric charging facilities to support this transition.	Estimated 390,000 litres of total BAL fleet diesel fuel use (1.0 kt CO_2e)[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary Out of 105 registered road vehicles, 30% are Euro 6. These are vehicles purchased from 2014 onwards.	Euro 6 standard particularly focuses on restricting diesel NOx emissions, with the permitted level of NOx reduced from 0.18 g/km in Euro 5 to 0.08 g/km	Control	

Table B.2: Emission reduction measures – aircraft and airfield operations continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
AAO19	Carbon and air quality	Additional runway entry point	The efficiency of airfield movements will be improved through an additional runway entry point which is expected to reduce waiting times.	Reduced taxi and hold times based on baseline.	2027	Currently working with Airspace Change in early stages of planning	Scope 3 cruise and LTO emissions contribute 476 kt CO_2e per year[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary	Analysis carried out by NATS indicates that taxi times on arrival may decrease by around 30% with the 12 mppa layout on easterlies and increase by around 24% on westerlies, with marginal (~3-5%) increases in departure taxi times. The current average waiting time at BRS is 93 seconds (Runway Hold Area Delay). The target is to reduce this time following the creation of the additional runway entry point.	Guide and influence	
AAO20	Carbon	Installation of LED airfield ground lighting	AGL replacement to LED as part of runway resurface by 2027 dependant on asset condition.	Installation of LED airfield ground lighting.	2027 dependant on asset condition	Early stages of planning have been initiated	Estimate 2,100,000 kWh BAL electricity consumption (0.55 kt CO_2e) for lighting (15% of total) per year[4]	LEDs save up to 90% of energy compared to traditional bulbs	Control	
AAO21	Carbon	Airspace modernisation	We will conduct airspace modernisation with National Air Traffic Services (NATS) to minimise miles flown from 2027. Airspace modernisation is also expected to reduce hold times and ground delay. This will reduce carbon emissions and noise impacts. The process is currently at the stage 2 gateway.	Completion of airspace modernisation.	2027	Project has advanced to Stage 3 of 6, the aim of which is to narrow down routes following a consultation process	Scope 3 LTO emissions contribute 120 kt CO_2e per year[4]	Current forecasts show that modernising airspace in the UK offers the potential to reduce CO2 emissions by up to 20% by 2050	Guide and influence	

Table B.2: Emission reduction measures – aircraft and airfield operations continued

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
AAO22	Carbon and air quality	Development of new airside power and distribution methods	Building on feasibility studies conducted, where it is deemed feasible, we will develop a new power and distribution site(s) for airside vehicles, GSE and mobile electric ground power units (GPUs) by 2027. We will ensure that use of mobile EGP/GPU is mandatory where provided.	Installation of power and distribution site(s) for airside vehicles, GSE and mobile electric GPUs by 2027.	2027	On schedule	Vehicles and equipment operated by third parties not included within the carbon footprint4 Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary	Reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
AAO23	Carbon and air quality	Transition to zero emission fleet	We will transition to zero emission (hydrogen / full electric plug-in / alternative fuels) ground fleet vehicles / equipment by 2030. This commitment includes airside buses and support vehicles.	Zero emission ground fleet vehicles / equipment.	2030	On schedule. Our Energy Efficiency manager is working site wide on providing electric charging facilities to support this transition.	Estimated 390,000 litres of total BAL fleet diesel fuel use (1.0 kt CO_2e)[4] Aircraft and ground operations contribute ~60% of NOx on the Airport and ~30% ~300 m beyond the boundary	Emission-free BAL fleet vehicles	Control	

Surface Access

Table C.3: Emission reduction measures – surface access

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
SA1	Carbon and air quality	Construction Environmental Management Plan	Production of a CEMP in accordance with planning condition 7, including a construction traffic management plan with details of the transport routes and vehicle entrance routes into the Airport to be used by contractors' vehicles moving to and from the site (and the appropriate signage thereof) and HGV delivery times.	Production of a CEMP.	Pre-construction	CEMP in place for existing capitalr works projects. Prior to the commencement of the West and South Terminal extensions (likely to be the first 12mppa infrastructure works) a CEMP will be produced.	Relates to future construction	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA2	Carbon and air quality	To convene an Airport Transport Forum	We will continue to convene an Airport Transport Forum (ATF), to oversee the development and delivery of the ASAS and its targets.	ATF meeting minutes to be provided to the Airport Consultative Committee.	Ongoing	Held twice a year. Most recently on 10th October. New Terms of reference developed in 2023.	Actively working with the ATF	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA3	Carbon and air quality	Optimise third party deliveries	Encourage those companies operating retail and catering concessions at the Airport to optimise the transport and logistics for deliveries of goods to the Airport.	Considered as part of the ASAS.	2023	Timeslot sequencing around the clock has been introduced to improve delivery efficiencies.	Supply chain not included within the carbon footprint4 Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA4	Carbon and air quality	Provide a replacement Airport Surface Access Strategy	The enhancements contained in the ASAS would include bus service improvements, a public transport improvement fund, publicity, interchange improvements, integration of services, parking management and pricing controls. The ASAS will apply a 'transport mode hierarchy', recognising the environmental impacts of different transport modes. The exact scope of the measures contained in the ASAS would be determined in consultation with a Surface Access Steering Group.	Measurement will be contained in ASAS	2023	Consultation with ATF has been ongoing and ASAS due to be published 2024	Current ASAS[3] Staff surface access emissions are 8.12 kt CO_2e and passenger surface access emissions are 109.05 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Exact scope of all measures to be determined within the revised ASAS to inform potential emissions reductions	Guide and influence	

3 https://gat04-live-1517c8a4486c41609369c68f30c8-aa81074.divio-media.org/filer_public/43/c1/43c169eb-1fd5-4d7e-a98e-f13fc287b5ff/cd74_-_bristol_airport_surface_access_strategy_2012.pdf

Table C.3: Emission reduction measures – surface access contiuned

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
SA5	Air quality	Air quality monitoring reporting	Air quality monitoring to continue around the Airport and be reported on a quarterly basis alongside other key metrics (e.g. flights, passenger numbers, quota count).	Continued reporting of air quality monitoring data in Annual Monitoring Report	2023	Air quality continues to be monitored and reported on in the Annual Monitoring report	No exceedances of the AQOs surrounding the Airport for NO_2 and PM_{10}	Maintaining / improving air quality	Control	
SA6	Air quality	Additional air quality monitoring locations	We will install a second continuous air quality monitoring station at the Airport to monitor NOx, NO_2, PM_{10} and $PM_{2.5}$ and expand diffusion tube monitoring for NO_2 to 16 sites.	Installation of additional Air Quality Monitor.	2023	To be installed by May 2024	No exceedances of the AQOs surrounding the Airport for NO_2 and PM_{10}	Maintaining / improving air quality	Control	
SA7	Carbon and air quality	Passenger and staff travel surveys	Passenger and staff travel surveys will be undertaken every year to gain a better understanding of origins and mode choices (alongside CAA data) so that public transport options and charging infrastructure is planned accordingly.	Completion of annual surveys and achievement of targets for transport modes.	2023	Staff Travel Survey conducted, in conjunction with Stantec in June 2023.	Staff surface access emissions are 8.12 kt CO_2e and passenger surface access emissions are 109.05 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA8	Carbon and air quality	Encourage EV usage for travel to the Airport	Assess ways in which EV usage can be encouraged (e.g. preferential parking spaces for EVs, EV charging valet service), improved filling facilities and infrastructure.	Considered as part of the ASAS.	2023	Free two-hour access for all car park bookings to charging points in Long stay car park has been introduced. Rapid charging hub installation planned for 2025. Additional EVCPs planned for MSCP2- opening date 2025. EVCPs installed in Car rental centre to increase adoption of EVs as rental cars.	Staff surface access emissions are 8.12 kt CO_2e and passenger surface access emissions are 109.05 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	

Table C.3: Emission reduction measures – surface access contiuned

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
SA9	Carbon and air quality	Annual sustainable transport marketing programme	Undertake an annual marketing programme to raise awareness of, and promote, all sustainable modes of transport at the Airport including the development of the Bristol Airport website to enable customers to make a comparison between all journey options by different modes (including parking and public transport) and pricing during, or to inform, their booking.	Annual marketing programme.	2023	Digital Marketing programme held Q4 2022/Q1 2023. Radio and out of home advertising campaigns launched in summer 2023.	Passenger surface access emissions are 109.05 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA10	Carbon and air quality	Optimise construction deliveries	Policy and procurement requirements for development projects will include the requirement to optimise transport and logistics of materials brought to site for construction processes.	Updated internal procurement processes.	2023	Procurement policy has been updated to ensure sustainable and environmental considerations during the procurement lifecycle in line with our company targets or roadmap to net zero.	Supply chain not included within the carbon footprint4 Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA11	Carbon and air quality	Delivery of a Workplace Travel Plan in line with surface access targets	Low-carbon alternatives such as carsharing, a cycle to work scheme and the introduction of an employee travel scheme, including a new travelcard package by 2025, will be incorporated into the plan.	Achieve a 30% share of staff travel by non-single occupant vehicle modes such as car share, public transport, motorcycle, walking and cycling. This will be recorded in staff travel surveys. Staff survey methodology to be agreed and provided as part of the 12mppa planning permission.	2023	Now scheduled for 2024	Staff surface access emissions are 8.12 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA12	Carbon and air quality	EV salary sacrifice scheme	The salary sacrifice scheme covering bikes/E-bikes will be expanded to include EVs for Bristol Airport Ltd employees.	Expand salary sacrifice scheme to Bristol Airport Ltd employees. Octopus Energy EV salary sacrifice commencing in April – will be available to approximately 300 BRS employees.	2023	Scheme brought in in 2022	Staff surface access emissions are 8.12 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	

Table C.3: Emission reduction measures – surface access contiuned

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
SA13	Carbon and air quality	Installation of EV charging infrastructure	Deliver a scheme for the installation of rapid EV charging points at the Airport. We intend to develop an EV charging hub, subject to planning approval. This will be designed for passenger and employee use. In accordance with planning condition 11, the number and locations of the charging points and timetable for their installation is subject to approval by NSC.	Delivery of an EV charging hub.	2024	Plans complete. Installation in 2025	Staff surface access emissions are 8.12 kt CO_2e and passenger surface access emissions are 109.05 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA14	Carbon and air quality	Airport access improvements	Main gate entrance enhancements to airfield allowing improved access for essential services.	Delivery of access improvements.	2024	Works to main gate remain planned for completion in 2024	Estimated 390,000 litres of total BAL fleet diesel fuel use (1.0 kt CO_2e) Vehicles and equipment operated by third parties not included within the carbon footprint[4]	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA15	Carbon and air quality	Local road network improvements	Improvements to the local road network will be made to reduce queuing on local roads, particularly the A38.	Support delivery of local road network improvements undertaken by North Somerset Council.	Estimated 2025	Bus Prioritisation works, funded by BSIP, complete at A38 Barrow Tanks and at A370/Airport Road by NSC/ WECA A38 junction works awaiting funding from DfT with NSC still planning for works to begin Summer 2024	Staff surface access emissions are 8.12 kt CO_2e and passenger surface access emissions are 109.05 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Guide and influence	

Table C.3: Emission reduction measures – surface access contiuned

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
SA16	Carbon and air quality	Disincentivise high-carbon employee vehicles	Needs-based allocation of staff car parking will be implemented from 2025. Additionally, parking charges will be reviewed to incentivise public transport and EV use.	Increase the percentage of staff travelling by sustainable modes of transport including car sharing to 30% by 2030. This will be recorded in staff travel surveys. 2022 – fleet in 76 taxis. 46 are petrol hybrid and 1 is fully electric. The rest are petrol/diesel.	2025 (implementation of needs-based allocation of staff parking)	New Surface Access Manager appointed in Q1 2024.	Staff surface access emissions are 8.12 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Reductions in carbon emissions and maintaining / improving air quality	Guide and influence	
SA17	Carbon and air quality	EV taxi fleet	Phased introduction of EVs into our contracted taxi fleet and encourage the use of lower emission vehicles amongst other taxi operators. Initial target within the contracted taxi fleet of 75% of vehicles to be fully electric or hybrid, transitioning to 100% by 12 mppa. Taxi contracts have been updated to reflect the requirement for the introduction of EVs. Onsite EV charging will be provided as part of the EV strategy.	100% of Bristol Airport Limited Contracted taxi vehicles to be fully electric or hybrid. 75% of onsite taxis will be hybrid1 or pure electric by the end of 2025. Out of this 75%, at least 25% will be fully electric.	2030	Existing taxi concession is converting to fully electric/hybrid. 75% of fleet currently EV/hybrid.	Vehicles and equipment operated by third parties not included within the carbon footprint4 Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Indirect reductions in carbon emissions and maintaining / improving air quality	Control	
SA18	Carbon and air quality	Improve and encourage the use of public transport links through the Public Transport Improvement Fund	We have committed to encouraging the use of public transport and increasing modal splits of passengers and employees travelling to the Airport by public transport. These targets are dependent on the passenger capacity at the Airport. There is a commitment to achieve 17.5% of passengers travelling by public transport by 2030 under 12 mppa. This will be achieved through measures such as improved ticketing, real-time travel information and the Public Transport Interchange.	Increase the percentage of passengers travelling by public transport to 17.5% by 2030 for a 12 mppa capacity airport. This will be measured within CAA data.	2030	Year-to-date (August 2023) modal share up on 2022 and pre-pandemic levels (2019). All public transport bus and coach services showing patronage and penetration increased from 2022.	Staff surface access emissions are 8.12 kt CO_2e and passenger surface access emissions are 109.05 kt CO_2e per year[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Reductions in carbon emissions and maintaining / improving air quality	Guide and influence	

Table C.3: Emission reduction measures – surface access contiuned

Reference	Relevance	Measure	Description	Deliverable	Target date	Progress to date	Baseline	Reduction	Control	Hierarchy
SA19	Carbon and air quality	Transition to zero emission fleet	We will transition to zero emission (hydrogen / full electric plug-in / alternative fuels) ground fleet vehicles by 2030. This commitment includes landside buses and the Airport Flyer services. We are investigating the feasibility of delivering hydrogen or EV buses landside. By 2027 a trial period will be completed with a phased transition planned beyond this. On-site infrastructure will be provided as required.	Zero emission fleet landside. 2022 – BAL has 15 fully electric vehicles supplied to 8 internal departments at Bristol Airport including 1 fully electric landside bus which transports passengers on the Apron. No Airport Flyer buses are electric at present.	2030	Ground fleet vehicles transitioning to EV including Airside and landside buses currently on order and awaiting delivery	Estimated 390,000 litres of total BAL fleet diesel fuel use (1.0 kt CO_2e)[4] Road traffic contributes ~20% of NOx on the Airport and ~50% ~300 m beyond the boundary	Emission-free BAL fleet vehicles	Control	

B

Appendix B: Air Quality Monitoring Results 2023

Continuous air quality monitoring results are shown in Table 1. Ambient concentrations of NO_2 and PM_{10} recorded by real time monitoring in 2023 are shown in Table 2 with analysis against AQS and S106 objectives. No exceedances of the AQOs have been recorded in the last six years and there has been a gradual reduction in pollutant concentrations across the site excluding years that were affected by the COVID-19 pandemic that show reduced nitrogen dioxide levels due to significantly reduced airport activity.

Table 1 Continuous monitoring results

	Recorded annual mean (µg/m³) (NO_2- hourly means > 200µg/m³; PM_{10}- daily means > 50µg/m³)					
Pollutant	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**
NO_2	20	17		8	12.7	12.6
PM_{10}	19	17.7		15.5	14.7	14.3

Table 2 Analysis of continuous monitoring data against NAQS and S106 requirements

Pollutant	Recorded annual mean (µg/m³)	NO_2 Hourly Means > 200µg/m³ PM_{10}- Daily Means > 50µg/m³	NAQS Compliant	Annual Mean <90%	Significant Deterioration
NO_2	12.6	0	Yes	Yes	No
PM_{10}	14.3	0	Yes	Yes	No

B

Monthly ambient concentrations of NO_2 and PM_{10} recorded by real time monitoring are in Figures 1 and 2. Note that the target PM_{10}/NO_2 is the mean limit set in the National Air Quality Strategy Objectives.

Figure 1: Particulate Matter monthly average readings for real time monitoring in 2023

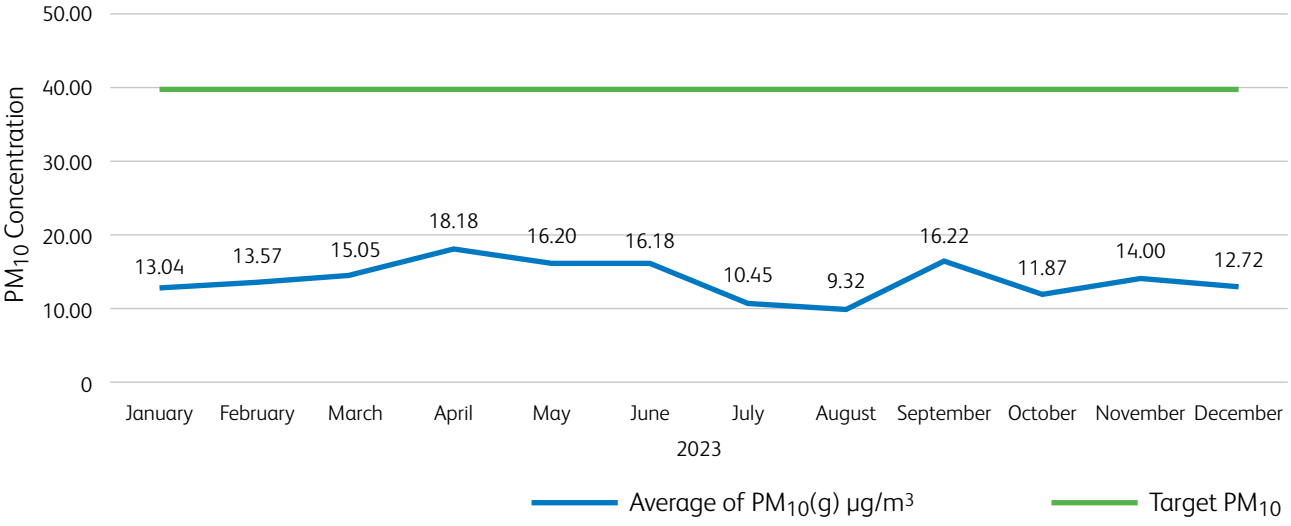
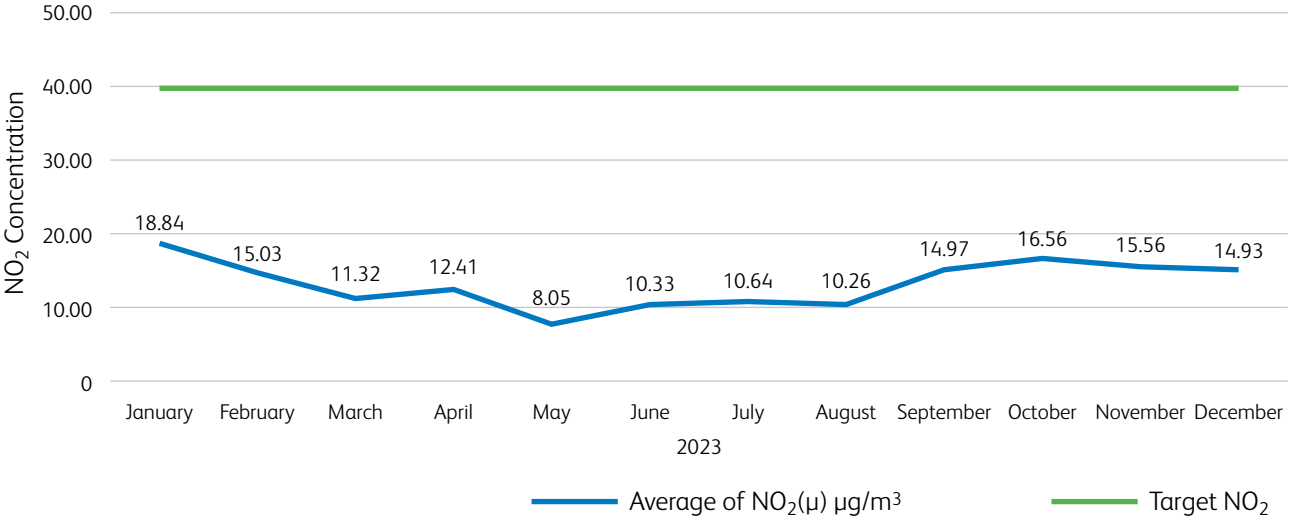


Figure 2: Nitrogen Dioxide monthly average concentrations recorded by real time monitoring in 2023



B

NO_2 concentrations recorded by diffusion tube monitoring are shown in Table 3 and 4 below. There have been no exceedances of the AQOs have been recorded in the last six years.

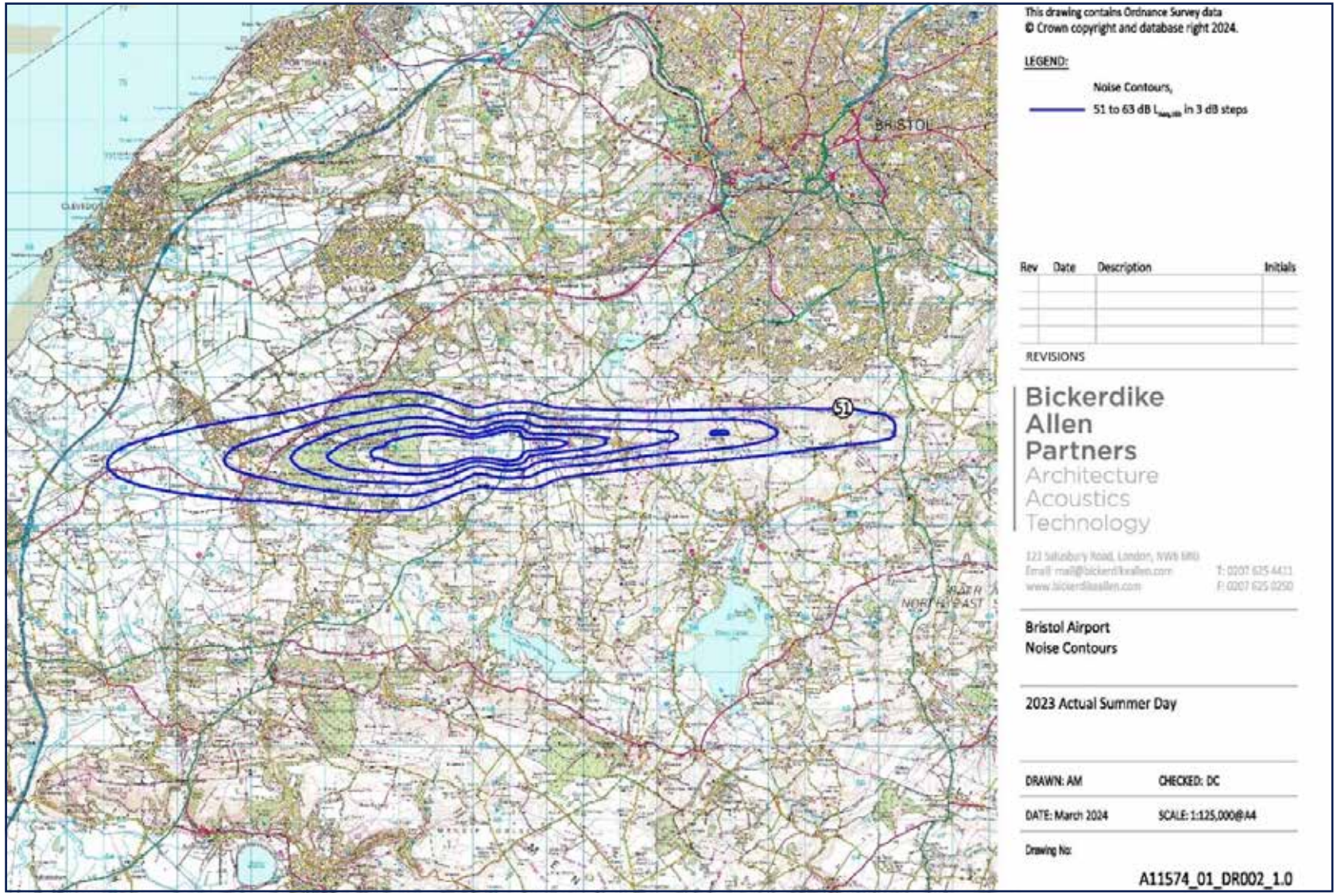
Table 3 Historical diffusion tube monitoring results

	Recorded annual mean (µg/m^3)					
Monitoring location	2018	2019	2020	2021	2022	2023
1	35	31		12	16	16
2	34	34		17	29	29
3	11	11		8	10	10
4	16	13		8	11	17
5	34	33		12	22	21
6	22	20		12	16	14
7	24	23		11	17	16
8	38	36		14	24	29
9	24	21		11	15	10

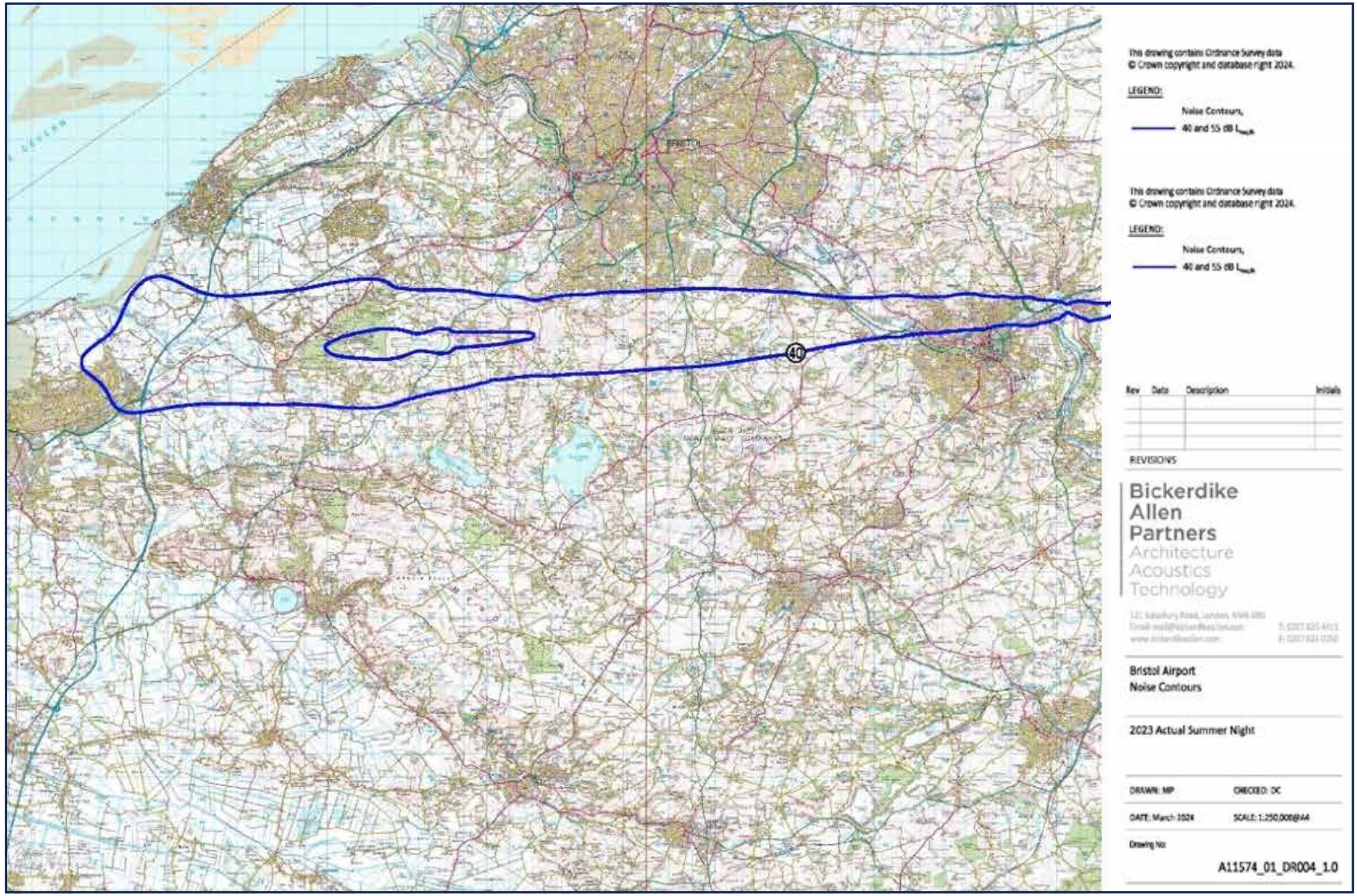
Table 4 Diffusion tube monitoring results for 2023

Monitoring Location	Recorded annual mean (µg/m^3)	NAQS Compliant	Annual Mean <90%	Significant Deterioration
1	16	Yes	Yes	No
2	29	Yes	Yes	No
3	10	Yes	Yes	No
4	17	Yes	Yes	No
5	21	Yes	Yes	No
6	14	Yes	Yes	No
7	16	Yes	Yes	No
8	29	Yes	Yes	No
9	10	Yes	Yes	No

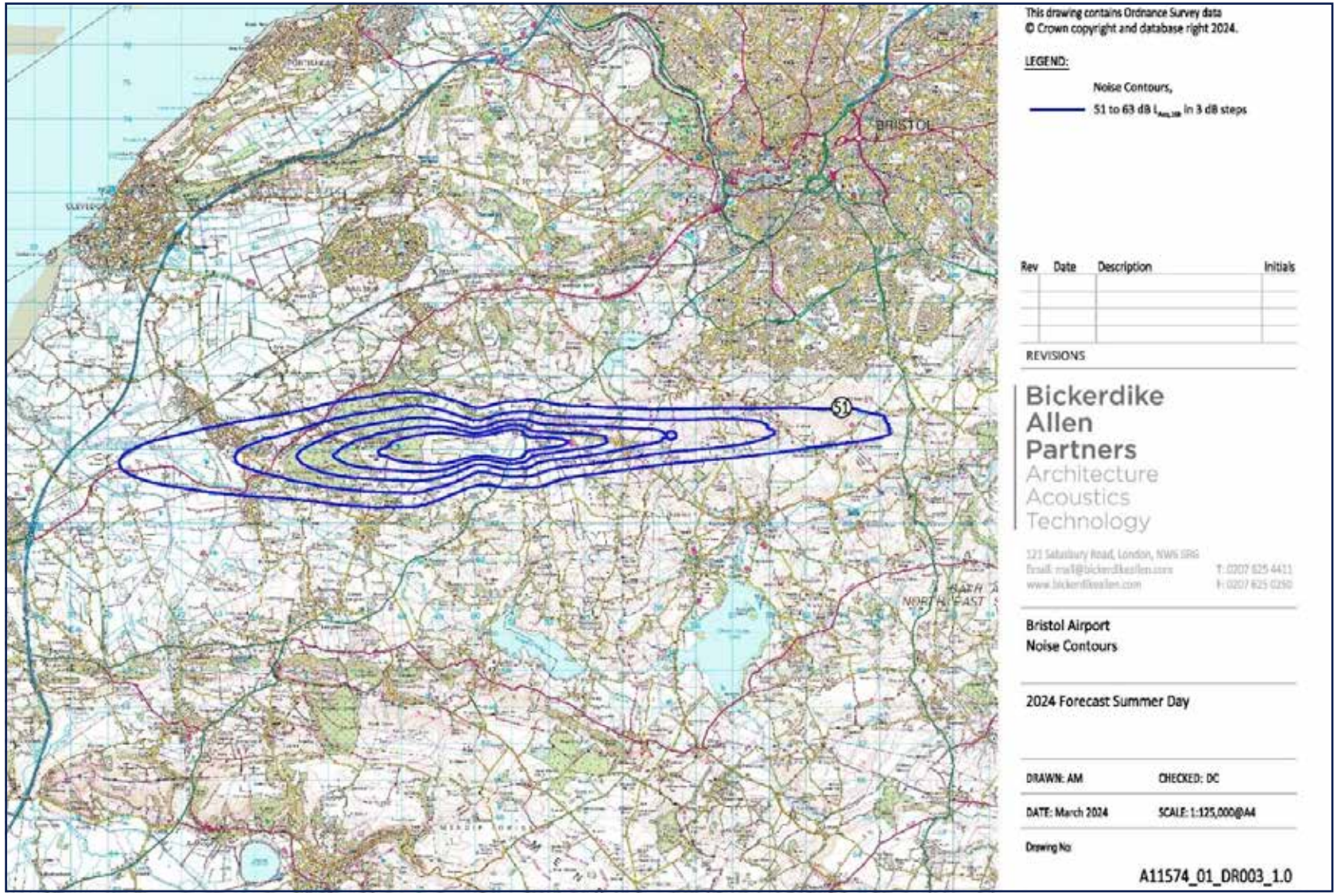
Appendix C –
2023 Actual Summer Daytime Noise Contours



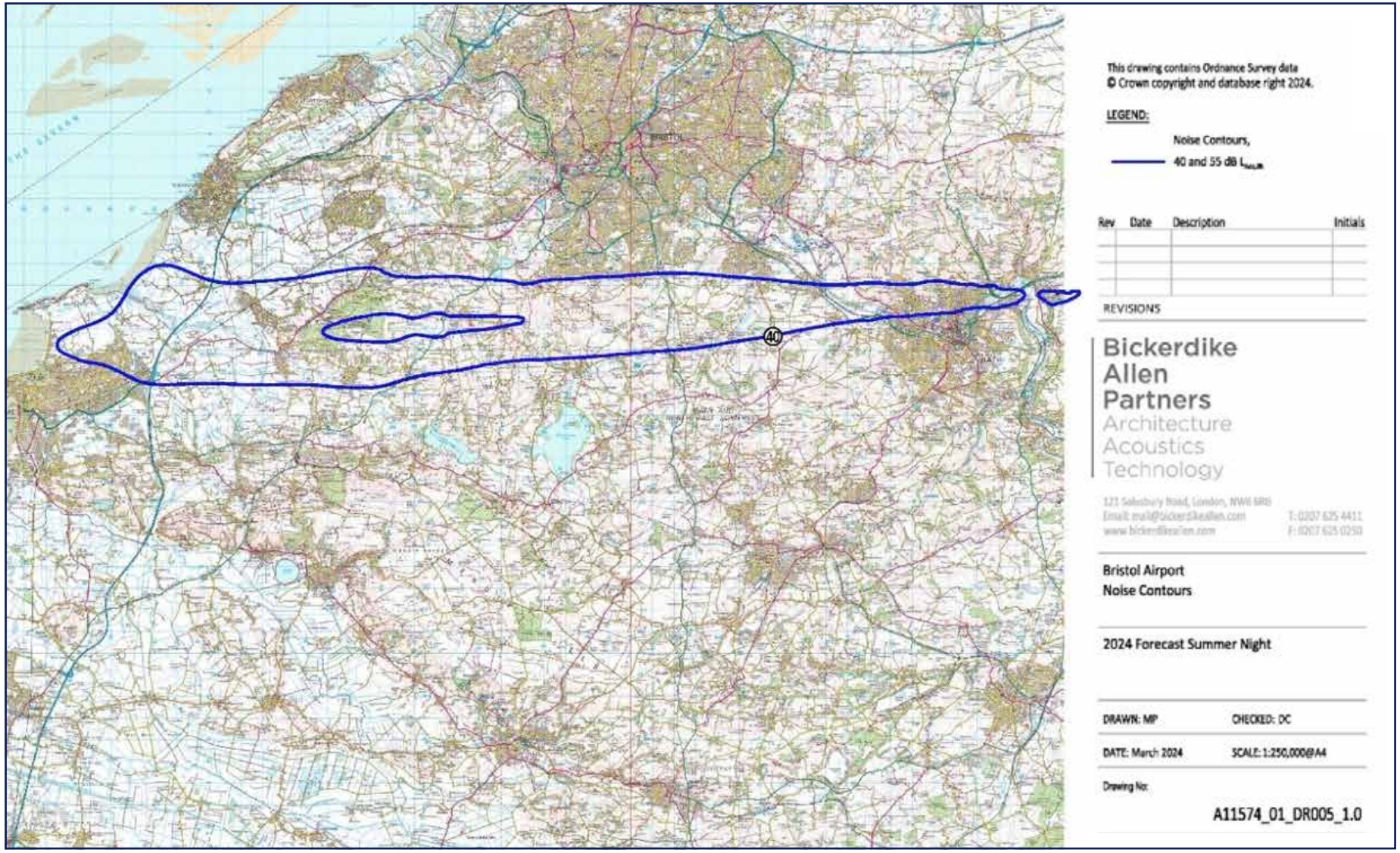
Appendix C –
2023 Actual Summer Night Noise Contours



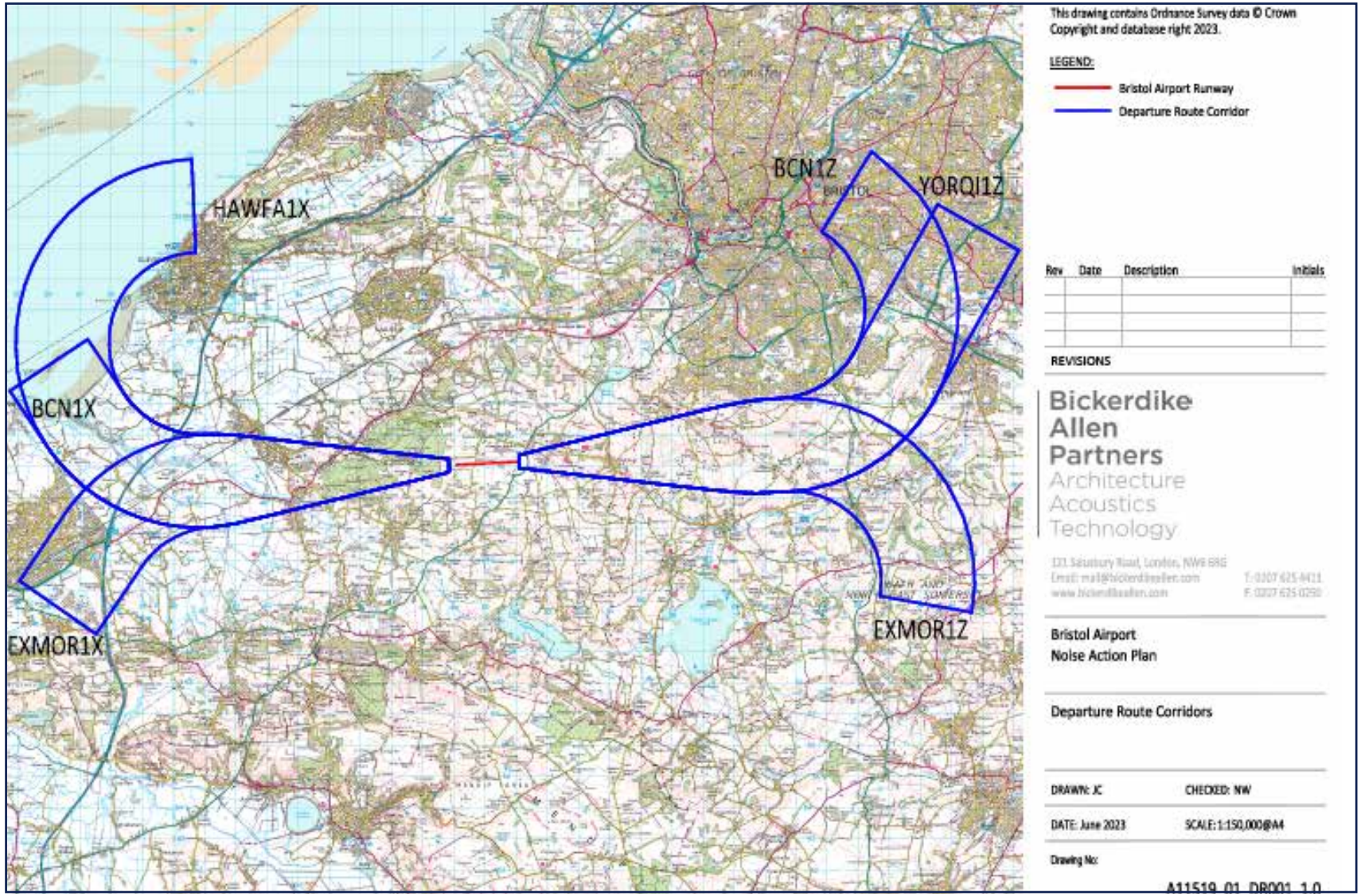
Appendix C –
2024 Forecast Summer Daytime Noise Contours



Appendix C –
2024 Forecast Summer Night Noise Contours



Appendix C –
Noise Preferential Routes



Action Plan

D

The proposed Action Plan is set out below under the headings used in Section 4 to describe the existing Noise Management Framework. Actions either completed or ongoing from the Plan adopted in 2014 are included with information about progress achieved.

Where appropriate each action is coupled with a key performance indicator (KPI), which will be used to monitor progress. All actions from the adopted noise action plan carry over unless indicated otherwise. The actions below have been generated through collaboration with key internal stakeholders whilst the final actions will take into account feedback received from the public consultation.

To aid this review of progress, rather than listing each area the tables below highlight progress in a simple Red, Amber, Green or RAG status. Red shows an action which has not been completed, Amber depicts an action which is ongoing with Green denoting its completion. New actions are shown in Blue. These have been introduced as part of the 12 mppa consent and are new to this Noise Action Plan.

Complete

Action	Progress - 2019	Progress - 2023
Actions to manage and reduce the effects of noise from aircraft on the ground		
We will ensure that ground equipment is well maintained and provide facilities to support the use of electric vehicles on the aircraft parking apron.	All ground equipment in use on the airfield is subject to an annual 'MOT-type' inspection by the Bristol Airport Motor Transport team. Provision has been made on the Western Walkway for electric vehicle charging. Charging points are also available on the Eastern Apron. The majority of the equipment associated with the baggage handling operation is electric powered.	Electric vehicle charging is provided at appropriate locations airside. Each vehicle that goes airside receives an airside MOT and an airside vehicle inspection. EV charging hubs are located behind ATC for the west side and there is a hub outside Northgate house for east side. All BPs use various versions of electric baggage handling equipment. In 2014 BRS had one EV van, now we have 16 EV vehicles on site. Jet 2 ground operating fleet and ground equipment all electric.
We will review the feasibility of installing fixed electrical ground power (FEGP) to selected existing stands.	Provision has been made for the installation of fixed electrical ground power on stands 1 to 5 in conjunction with the Central Walkway project. FEGP has been installed on the recently constructed new stands on the Western Apron and will be installed on all future new stands in accordance with the planning conditions attached to the 2011 planning permission.	FEGP has been installed and is in use, in accordance with the planning conditions. Eight stands have now been equipped with FEGP and usage is mandatory where provided.

Complete continued

Action	Progress - 2019	Progress - 2023
We will undertake and complete a feasibility study for the further installation of FEGP provision to service stands which currently rely on MGPU use by December 2020. Bristol Airport successfully completed an electric turnaround trial in 2022 for 6 months. Review complete and no further FEGP planned at this time.	New Action.	The 12mppa S106 commits us to producing a Ground Noise Management Plan which will include measures to reduce and phase out the use of mobile diesel generators, through FEGP and any transitional arrangements towards FEGP at all aircraft stands. Our Emissions and Climate Change Action Plan (ECCAP) also includes a commitment to developing new airside power and distribution methods.
We will review the Bristol Airport Ground Noise Management Strategies prepared in 2012 and 2019.	This has been achieved. The review of the Ground Noise Study was completed as part of the Airports Planning Application. The main revision was the ability to provide FEGP to the East Stands in 2019.	Review complete.
We will review procedures for managing the ground running of aircraft engines and the use of aircraft auxiliary power units.	Procedures revised, published and now incorporated into the Ground Noise Management Strategy (2011). KPI's relating to ground engine running are incorporated into the annual Operations Monitoring Report. These will be reviewed annually.	Complete. Will be updated by revised Ground Noise Management Strategy.
Implement the Bristol Airport Ground Noise Management Strategy prepared in 2012 in compliance with the planning obligation in the Section 106 Agreement dated 16 February 2011. This includes the actions described above and in addition covers the installation of noise attenuation buildings and screens.	Installation of noise attenuation buildings and screens complete. East Apron works complete.	Installation of noise attenuation buildings and screens complete.
Actions to manage and reduce the effects of noise from airborne aircraft		
Incentivise airlines to use the most modern and quiet aircraft by imposing a surcharge on Chapter 3 high aircraft.	The Bristol Airport Fees and Charges include a 50% surcharge for Chapter 3 aircraft. No Chapter 3 high aircraft are currently operating at Bristol Airport.	No Chapter 3 high aircraft are currently operating at Bristol Airport. In addition, the Bristol Airport Fees and Charges also include a 200% surcharge for aircraft not meeting Chapter 3, and Chapter 3 aircraft operating at night.

Complete continued

Action	Progress - 2019	Progress - 2023
We will consult with the airlines regarding the introduction of a penalty system for flagrant disregard of noise preferential routes and introduce the agreed penalty system.	This was introduced in 2012 as part of the Noise Control Scheme.	The airport continues to track flight routes against the noise preferential routes and impose fines where necessary.
We will ensure that adherence to the night noise quota system is maintained and report night quota usage and night movements on a seasonal basis to the Airport Consultative Committee and North Somerset Council.	The Airport continues to adhere to the night quota usage. Night flying activity is in full compliance with the refreshed restrictions on night flying in the 2011 planning permission.	The Airport remains compliant with these restrictions for night flying and reports publicly on performance annually. New enhanced quota count system to be introduced for 12mppa consent.
We will promote adherence to the Arrivals Code of Practice issued by the Department for Transport relating to continuous descent approaches (CDA). We will investigate and adopt, where appropriate, the best practice guide for environmentally optimum departure procedures under preparation by Sustainable Aviation.	New Action	A Guide to continuous decent approaches has been published by Sustainable Aviation and this has been issued to our Airline partners. The Airport also address CDA's with our Flight Operations Safety Committee (FLOPSC) on a quarterly basis in addition to the governance of a league table where the highest performance rated airline is identified.
The Airport will provide localised guidance to CDA's and will issue to airlines by 2020.	This has been made clear within the updated Aeronautical Information Publication (AIP) for Bristol Airport available online within a specific section for Noise Abatement Controls. The Airport will also produce a localised booklet to pilots during the life of this iteration of the Noise Action Plan.	Regular dialogue takes place at FLOPSC. Guidance Complete
We will work with Bristol City Council, its neighbouring authorities and Defra to protect quiet areas within the Bristol agglomeration, as far as practicably possible, from noise from aircraft using Bristol Airport.	No quiet areas have been identified within the Bristol agglomeration. The implementation of RNAV (area navigation) approaches from the south is expected to result in an increase in the average height of aircraft flying over the Mendip Hills AONB.	No further areas have been identified in the Bristol agglomeration. The implementation of RNAV approaches from the south has been completed. Complete and to be removed unless new areas are identified.

Complete continued

Action	Progress - 2019	Progress - 2023
Measures to mitigate the effects of aircraft noise		
We will engage with North Somerset Council to ensure that awareness of aircraft operations is considered in the preparation of local planning policy as set out in the Local Development Framework.	Policies concerned with airport safeguarding are incorporated in the North Somerset Council Replacement Local Plan and the Consultation Draft Sites and Policies Development Plan Document.	The North Somerset Council Replacement Local Plan incorporates policies concerned with airport safeguarding.
The 2011 planning permission introduced a new requirement to monitor the footprint of the 63dB $L_{Aeq,16h}$ noise contour in relation to the area of previous A38 Diversion noise insulation grant scheme and provide grants for noise insulation to any properties within this contour that did not previously qualify for noise insulation. The Section 106 Agreement also establishes an Airport Environmental Improvement Fund, one of the purposes of which is to fund noise mitigation measures. We are implementing a programme of noise insulation for local residents through this fund.	New Action	Noise insulation Grants totalling around £170,000 made between 2018 and 2022, including to any properties qualifying as a result of the A38 diversion. The current Noise Insulation Scheme covers the provision of new glazing, secondary glazing, ventilation and loft insulation.
In 2019, we will be updating our noise insulation scheme guidance to allow for two opportunities to apply and enhancements to treatments it can cover.	New Action	New enhanced scheme for 2022 planning permission. From 2021 onwards a weighted application hierarchy system has been used so households can reapply each year for funding. If over subscribed, having previously approved applications would reduce the chance of success. Treatment enhancements refer to the change from covering only windows to a noise insulation scheme where we now offer more than just window replacements to also include doors and loft insulation.
In association with a successful planning application the quota count system will be reviewed.	Complete. The Quota Count system was reviewed and new system in place for 2022 planning permission.	Information on Quota Count to continue to be issued within Annual Operations Monitoring Report.

Complete continued

Action	Progress - 2019	Progress - 2023
Arrangements for monitoring aircraft noise		
In 2019 we will review our current noise and track keeping system and upgrade where necessary.	New Action	Current system has been reviewed and deemed appropriate for track keeping. No upgrades have been necessary to date.
By 2020, we will introduce a new interactive online tracker tool presenting, with a minimal delay where possible, of live information to aid members of the public to understand the proximity of aircraft to their location and enhance the ability of improvements of track keeping to be made.	Complete Tool available here - https://webtrak.emsbk.com/brs2	System live
Through our partnership with Sustainable Aviation we shall continue to seek technological and operational improvements towards the ACARE (Advisory Council for Aeronautics Research in Europe) goal of 50% reduction in perceived external noise by 2020 based on new aircraft relative to equivalent aircraft of 2000. We will monitor ongoing research into the effects of noise on health.	The (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.
Actions to engage and work with the local community on matters relating to aircraft noise		
We will undertake a public attitude survey (by telephone survey), every two years, to assess the local community views on aircraft noise.	To be kept under review but experience elsewhere suggests that this is a complex task and it will be difficult to get meaningful results. A round of consultation was undertaken in late 2017/early 2018 with regard to the update of the Airport's Master Plan and during the spring/summer 2018. This was utilised to understand current impacts from residents regarding various operations resulting from airport activity including airborne noise.	Community feedback from is also obtained from the regular community feedback sessions described above.

In –Progress.

It is proposed these will be refined and consolidated into roll-over actions in the 2024 - 2028 Noise Action Plan

Action	Progress - 2019	Progress - 2023
Actions to manage and reduce the effects of noise from aircraft on the ground		
We will review aircraft stand allocation at the beginning of each operational season.	The stand allocation is reviewed annually. Use of stands at Western Walkway is prioritised to make use of the building screening.	Stand allocation is reviewed daily with a goal of 80% of flights allocated to contact stands over the course of a year.
Endeavour to minimise the noise from ancillary activities.	Relevant staff have been made aware of this requirement.	Further to employees being made aware of this requirement a curfew has been imposed on activity in the multi storey car park in-conjunction with construction works as part of a dedicated construction environment management plan for such works.
Actions to manage and reduce the effects of noise from airborne aircraft		
We will review the aeronautical fee differentials for aircraft every two years to ensure that appropriate incentives are in place for airlines to use the quietest available aircraft on the basis of recognised and published operational noise characteristics.	Chapter 3 aircraft are being phased out of operations at the Airport. The majority of aircraft operating at Bristol Airport comply with Chapter 4 noise standards.	We continue to prioritise business with commercial airlines who operate modern aircraft fleets. The majority of aircraft operating at Bristol Airport comply with Chapter 4 noise standards. For Summer 2023, we expect significant improvement in the number of flights operated by the quietest and most environmentally friendly aircraft. Ryanair will replace 2 of their previous generation Boeing 737 with 2 new Boeing Max aircraft and Easyjet will increase the number of flights operated by Airbus NEO aircraft. The vast majority of Tui's services will be operated by Boeing Dreamliner or Boeing Max models. New airlines such as Swiss, Sunexpress, Corendon and Aegean all have Airbus NEO and Boeing Max models and BAL is working with these airlines to deploy these aircraft at BAL as a priority.
By 2021, the Airport will review the aeronautical fee differentials based on aircraft noise certification to further enhance incentives for quieter aircraft to operate from Bristol Airport. The resulting findings and actions will be published within our Annual Operations Report for the year 2021.	This is pending due to the impact of COVID19 on the industry.	We will seek to complete the review by through contract renewals in 2023.

In –Progress continued

Action	Progress - 2019	Progress - 2023
We will consult with airlines on the introduction and implementation of a departures noise limit at the runway 27 and 09 departures noise monitors and a penalty for infringement of the noise limit. The penalty system will be reviewed every two years to ensure that it continues to provide a strong financial incentive for airlines to use the quietest aircraft.	The penalty system was introduced through the noise control scheme put in place in 2012. Details of penalties levied will be reported annually in the Operations Monitoring Report. Penalty system review has been carried out and changes implemented with revised penalty charges.	The number of penalties levied continue to be reported in the Airport Annual Operations Report. The success of the scheme has meant zero infringements were made since the last update.
We will assess the mechanics of the Penalties Scheme and update, where applicable, in line with latest guidance and best practice in 2019. Reviews of the application of the scheme and if required alterations applied, every two years thereafter.	The mechanics of the Penalties Scheme using daytime and night-time Lmax levels continues to be best practice as emulated by other airports. This will be reviewed as further guidance provided by industry bodies to highlight best practice in this area as and when available.	Ongoing
We will review approach and departures procedures with a view to identifying measures to reduce noise impacts through flight path management on an annual basis with ATC and the airlines. We will report progress on an annual basis to the Airport Consultative Committee and make the information publicly available on the Bristol Airport website.	We have been working with the airlines through the Bristol Airport Flight Operations Safety Committee to promote the use of continuous descent approaches (CDAs) and other operational improvements. Introduced a league table to compare and analyse the CDA performance of major airlines.	The implementation of RNAV approaches from the south has been completed. CDA performance continues to report to the Airport Consultative Committee and is detailed within our Annual Operations Monitoring Report.
We will seek to achieve a 85% CDA compliance rate (an increase of almost 10% in performance) by 2023.	CDA performance was 74% for all airlines and 91% for major airlines in 2019.	2022 CDA performance for major airlines was 94% and all airlines was 84%.
We will begin looking at alternative flight paths for respite purposes with a view for implementation by 2026/27.	New Action	Public consultation expected in 2024.
We will review the procedures for light aircraft operations regularly with representatives of the general aviation community and work with them to limit the noise effects of their operations.	Ongoing	This is raised at regular Monthly Airside Safety Information Group (MASIG) and Flight Operations Sub Committee (FLOPSC) meetings to ensure the correct procedures are adhered to and will continue to do so.

In –Progress continued

Action	Progress - 2019	Progress - 2023
We will review our approach with the GA community and how best to deliver best practice in conjunction with future airspace change work.	Ongoing	Currently reviewed on a regular basis at quarterly FLOPSC meetings.
We will work with NATS and the airlines using Bristol Airport to adopt flight path management procedures that ensure that aircraft overflying the Mendip Hills Area of Outstanding Natural Beauty (AONB) do so at as high an altitude as is practically possible, given the constraints of air safety and the need to avoid other adverse environmental impacts.	Early discussions with NATS	Consideration for 2024 airspace change public consultation.
We will liaise with NATS to ensure that consideration of noise effects from aircraft using Bristol Airport is considered in proposals for airspace redesign.	Ongoing. The RNAV proposal has been prepared in conjunction with NATS.	The implementation of RNAV approaches from the south has been completed in conjunction with NATS.
The Airport will introduce RNAV routes for arrivals and departures by 2026/27.	New Action	Timescale: 2027 on track. Essential area of airspace change which Bristol Airport consulted extensively in 2019, albeit, due to covid19 the entire FASI south programme is paused.
We will monitor the implementation of RNAV approaches from the south and explore opportunities for implementing similar techniques from the north in the longer term. This is likely to involve a complex change to airspace which may not be achievable in the short term.	Ongoing	The implementation of RNAV approaches from the south has been completed.

In –Progress continued

Action	Progress - 2019	Progress - 2023
We will monitor ongoing work by the UK aviation industry and the CAA exploring the adoption of steeper approaches. An approach at 3.25˚ instead of the standard 3˚ is understood to result in a 9 % reduction in the noise footprint of the Boeing 737-800. The majority of aircraft operating at Bristol are thought to be capable of undertaking approaches at this angle but at present instrument landings at angles steeper than 3˚ are prevented by international regulation. Even if this regulation is relaxed current technology is likely to require a dual angle instrument landing system, which may give rise to a cost that is disproportionate to the benefit. There may be potential for steeper angles for the intermediate approach. We will monitor research and development on this subject.	Ongoing	Ongoing
Low Power Low Drag is a noise abatement technique for arriving aircraft in which the pilot delays the extension of wing flaps and undercarriage until the final stages of the approach, subject to compliance with ATC speed control requirements and the safe operation of aircraft. Such techniques may be able to offer noise reductions of between 1 and 3 dBA SEL in the initial and intermediate approach phases. We will explore the implementation of these techniques in conjunction with the implementation of RNAV approaches from the south.	New Action	Such techniques are discussed at our Flight Operations Sub Committee (FLOPSC) and where possible are introduced. This action will remain open as the Civil Aviation Authority explores this further.

In –Progress continued

Action	Progress - 2019	Progress - 2023
Measures to mitigate the effects of aircraft noise		
We will keep the noise climate under review and reassess the need for changes to the previous noise insulation grant in the event that the noise climate alters significantly (an increase of 3 dB on the 16 hour LAeq measured using the noise monitors over a summer season).	Noise monitoring and noise mapping undertaken to date indicates that the noise climate has not altered significantly.	Noise monitoring and noise mapping undertaken to date indicates that the noise climate has not altered significantly. The scheme has been updated and this is captured in a new action.
We will use a portable noise monitor for ad hoc noise monitoring where hot spots are identified through the noise inquiry system.	The portable noise monitor is in regular use and has been useful in identifying areas for noise insulation.	The noise monitors are currently being regularly used, setting up between 4 and 6 each year. Currently installed for 2 week periods during the summer months when the most movements occur, installed between June and August.
Based on the findings of the noise climate generated from monitor data, we will consider any noise mitigation measures on a case by case basis. This will be introduced from 2018.	These monitors are used to consider noise mitigation on a case by case basis.	Ongoing. The Noise Insulation Scheme has been updated and included as new action.
Arrangements for monitoring aircraft noise		
We will complete the commissioning of the new runway 09 noise monitor at Littleton Hill ('Tracker'), continue with the monitoring of noise at Felton and Congresbury and use the new monitor system in conjunction with a feed from the radar system to record the tracks taken by aircraft. Noise monitor results will be assessed on a month by month basis and the results of the monitoring will be reported to the Airport Consultative Committee on an annual basis.	This installation of the new noise monitor has been completed. A range of noise indicators are reported to the Airport Consultative Committee, including Leq, SEL, L_{max}, average departure noise levels and number of flights. The Tracker system provides flight tracks for use in responding to noise complaints and these can be downloaded from the Bristol Airport website as Google Earth files. A range of noise indicators will continue to be reported to the Airport Consultative Committee, including Leq, SEL, Lmax, average departure noise levels and number of flights. The Tracker system provides flight tracks for use in responding to noise complaints and these can be downloaded from the Bristol Airport website as Google Earth files.	Ongoing Publicly available tracker system is now through Webtrak (a software provided by Envirosuite) which offers a user-friendly interface to track flights and see conditions affecting flight paths such as weather.

In –Progress continued

Action	Progress - 2019	Progress - 2023
We will undertake an annual review of airline track keeping and establish a 'league table' of performance with an annual awards ceremony to recognise the best performing airlines. Performance data and penalties imposed will be included in the annual Operations Monitoring Report provided to the Airport Consultative Committee.	Track keeping and CDA performance is recorded in the annual Operations Monitoring Report presented to the Airport Consultative Committee. A 'league table' has been established and Ryanair received the first 'Tracker' award in 2013.	Track keeping and CDA performance is recorded in the annual Operations Monitoring Report presented to the Airport Consultative Committee.
To maintain and improve the systems described above, as appropriate.	New Action	Track keeping and CDA performance is recorded in the annual Operations Monitoring Report presented to the Airport Consultative Committee.
Actions to engage and work with the local community on matters relating to aircraft noise		
We will record and make available, on request, flight tracks of aircraft recorded by the 'Tracker' system within our controlled airspace. We will respond to all queries from the local community, providing them with details of the location of the aircraft in question.	Flight tracks are provided in response to noise queries where appropriate. Tracks, showing aircraft altitude by height band, are also available for download from the Bristol Airport website for viewing using Google Earth.	Achieved and ongoing.
We will set a target to respond to all reasonable noise inquiries from the local community within ten working days of receiving the inquiry and to complete any detailed follow up investigations within 20 working days. We will provide a quarterly report on noise inquiries to the Airport Consultative Committee.	Achieved and ongoing.	Achieved and ongoing.
We will provide an annual report on aircraft track keeping to the Airport Consultative Committee. NPR violations and noise infringements will be reported quarterly.	Detailed information is reported through the Environmental Effects Working Party sub-group. Track performance is reported annually to allow for full investigation. Ongoing.	Detailed information continues to be reported through the Environmental Effects Working Party sub-group. Track performance is reported annually to allow for full investigation.
In 2019, we will refresh how this information is presented and reported i.e. citing particular instants and associated improvements where relevant.	Achieved in 2019.	As part of the Environment Effects Working Group, close views of tracks to highlight flight profiles in the local community are now reported on a quarterly basis. This will continue to be worked on and refreshed with the group.

In –Progress continued

Action	Progress - 2019	Progress - 2023
We will continue to engage with the local community through the Consultative Committee on noise management and future noise implications. Our Community Relations Manager will hold regular surgeries in the local community providing members of the public an opportunity to discuss noise related matters directly with airport management.	Liaison is ongoing.	Liaison is ongoing.
From 2019, the Airport will host every 6 months a community feedback session at the airport to update residents directly on airport matters including noise abatement measures and in order to receive feedback on how these are perceived.	New Action	We hold three events a year for 79 parish councillors and clerks. Hosted by CEO.
We will publish an annual Operations Monitoring Report which will include key performance indicators relating to noise management including aircraft movements, aircraft movements by key periods of the day, night quota usage, track keeping, noise monitor results and noise complaint statistics.	The Operations Monitoring Report has been published annually.	The Operations Monitoring Report has been published annually and will continue to do so.
In 2019, we will review the Annual Operations Monitoring Report content and presentation to make it even more accessible.	The Annual Monitoring Report for 2019 was published with fresh artwork and included more data than previous reports, in particular regarding complaints analysis as requested by local community representatives. In the 2021 Annual Monitoring Report, we have expanded it further with Ground Water Monitoring being included for the first time.	Continue to receive feedback from receive feedback from the Airport Consultative Committee and Environmental Effects Working Party.
We will publish an annual progress report on the actions within the Action Plan, the performance achieved and the benefits obtained. All monies raised from noise and track keeping penalties will be added to the Bristol Airport Community Fund. All aircraft have operated within the noise limits and no penalties have been levied to date.	To be carried forward.	The Operations Monitoring Report to include a dedicated progress report on the actions within the Action Plan. Any funds from noise penalties will continue to be added to the Community Fund.

New

Action	Description
Actions to manage and reduce the effects of noise from aircraft on the ground	
Ground Noise Management Strategy to be reviewed by 2024	Within six months of commencement a revised Ground Noise Management Strategy (GNMS) should be submitted for approval.
Construction Environmental Management Plans	Demonstrate how construction of works will take place, including details of construction and traffic routes, mitigation plans, waste management and air quality management plan, and working hours in accordance with condition 7 of the 12mppa permission.
Pre-flight servicing	Revised GNMS to include measures to reduce noise from pre-flight servicing or checks on aircraft while stationary on stands.
Ground power	Revised GNMS to include measures to reduce and phase out mobile diesel generators through FEGP along with transitional arrangements towards FEGP for all stands.
Actions to manage and reduce the effects of noise from airborne aircraft	
Passenger limits	Planning condition 5 restricts passenger movements to 12 million passengers per annum. Details of compliance to be agreed with local authority.
Movement limit - night flights	The total number of aircraft movements at the airport including take-offs and landings between the hours of 23:30 hours and 06:00 hours for 12 months shall not exceed 4,000.
Movement limit – shoulder periods	The total number of take-offs and landings between 06:00 hours and 07:00 hours and between 23:00 hours and 23:30 hours (the 'shoulder periods') shall not exceed 9,500 in any calendar year
Contour limit - 10mppa – Day	Upon commencement of development, up to the passenger throughput at Bristol Airport exceeding 10 million passengers in any 12-month period, the area enclosed by the 57dB $L_{Aeq\ 16h}$ daytime noise contour shall not exceed 12.42 km^2.
Contour limit -11mppa – Day	Upon the passenger throughput at Bristol Airport exceeding 11 million passengers in any 12-month period the area enclosed by the 57dB $L_{Aeq\ 16h}$ daytime noise contour shall not exceed 11.56 km^2
Contour limits 12mppa – Day	The area enclosed by the 57 dB L_{Aeq} 16h daytime noise contour shall not exceed 10.70 km^2 from when passenger throughput at Bristol Airport reaches 12 mppa in any 12-month period.
Contour limits 12mppa – Night	The area enclosed by the 55 dB $L_{Aeq,8h}$ night- time noise contour shall not exceed 6.8km^2 from when passenger throughput at Bristol Airport reaches 12 mppa in any 12-month period.

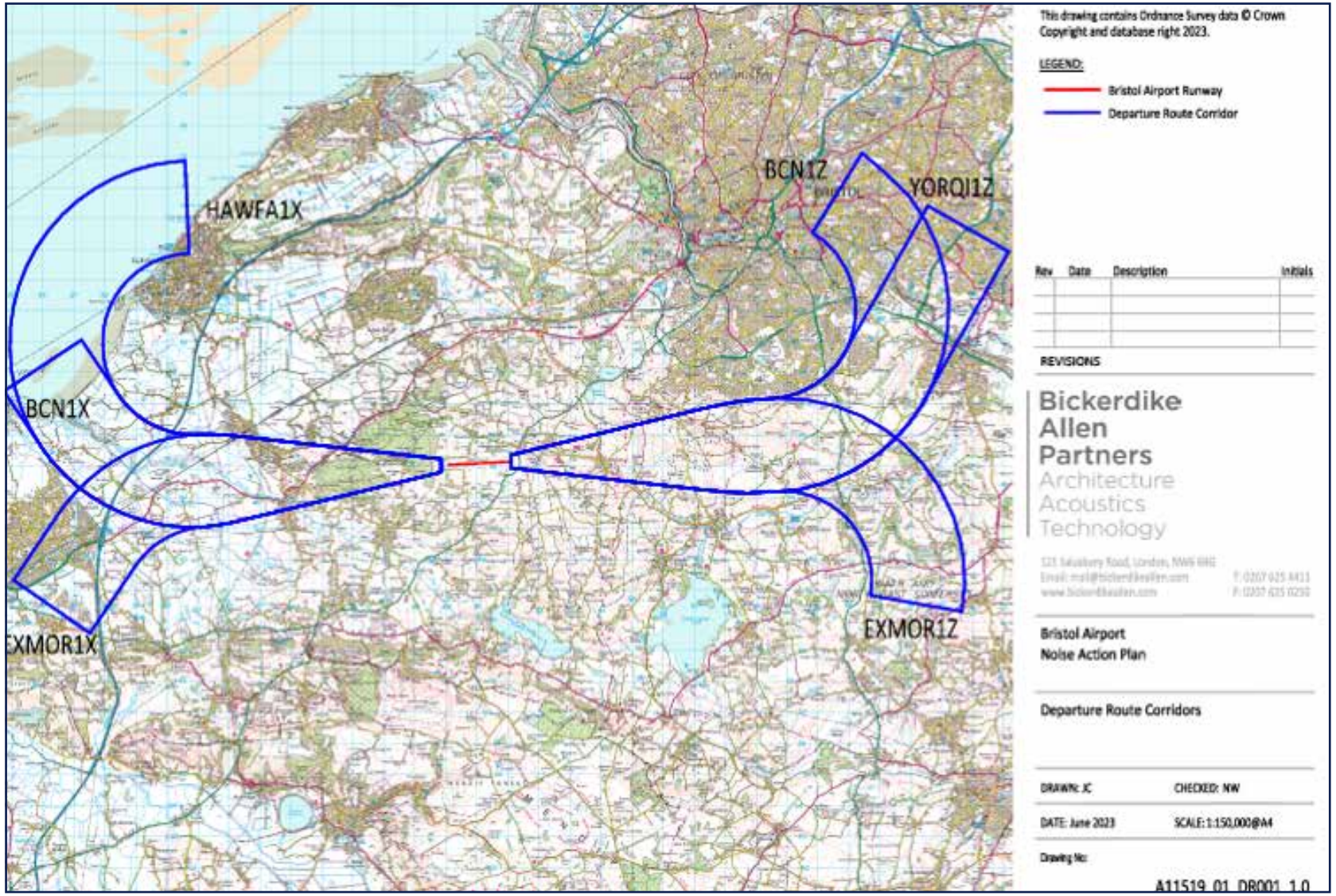
New continued

Action	Description
Movement reporting	a) the number of passengers per annum; b) the number of Air Traffic Movements per annum; c) the number of nighttime flights per annum; d) the number of flights in the shoulder period per annum; e) the quota count score for the preceding British Summer Time and British Winter Time respectively; f) the number of positioning flights per annum.
New enhanced QC count system	New planning condition limit on QC. Quota count usage to be included in Annual Operations Monitoring Report.
Revised Noise Control Scheme (NCS)	An updated NCS should include a mechanism for imposing penalties on airlines that exceed noise limits. This mechanism should encompass the publication of an airline performance league table. The revised NCS will also offer incentives to promote the adoption of quieter aircraft. Furthermore, it should introduce supplementary measures aimed at encouraging aircraft operators, in coordination with the Flight Operations Committee, to adopt operational procedures and practices that drive forward improvements in the levels of aircraft noise.
Measures to mitigate the effects of aircraft noise	
Enhanced sound insulation scheme – grants	New scheme required with sound insulation grants of £8,000 for dwellings exposed to levels ≥60 dB $L_{Aeq,16h}$, £5,500 for levels ≥57 dB $L_{Aeq,16h}$ and £5,500 for those above a night time level of 55 dB $L_{Aeq,8h}$.
Sound insulation scheme – in situ testing	The noise mitigation measures included in any Noise Mitigation Scheme shall be supported by evidence of in-situ testing of effectiveness against aircraft noise for a representative sample of residential properties.
Sound insulation scheme – ventilation and overheating	As well as noise mitigation measures the Noise Mitigation Scheme shall include measures to provide suitable alternative means of ventilation and prevention of overheating where appropriate and necessary.
Sound insulation scheme – performance targets	New scheme to be designed to achieve recommended internal levels based on BS8233:2014 internal noise guidelines and World Health Organisation internal noise guidelines for noise maxima at night.
Reduce airside ground noise	Investigate the incentivisation of electric ground equipment through a revised airside vehicle permit scheme which will help reduce background noise levels. Continue to investigate the feasibility of ground service equipment pooling allowing BRS to influence an expeditious move to wholesale electric ground handling operation.
Sound insulation scheme – reporting	Details of grants provided will be provided to the Council annually.
Arrangements for monitoring aircraft noise	
Noise monitoring	The Annual Operations Monitoring 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.

New continued

Action	Description
Contour reporting	Forecast aircraft movements and consequential forecast and actual noise contours for the forthcoming year shall be reported to the Local Planning Authority annually within the Annual Operations Monitoring Report. The area enclosed by the 63, 60, 57, 54 and 51 dB $L_{Aeq,16h}$ (07:00 hours to 23:00 hours) noise contours and the 55 and 40 dB $L_{Aeq,8h}$ 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.
Contour verification	As soon as reasonably practicable following the third Annual Monitoring Report following the Effective Date (and subsequently at three year intervals) a verification report shall be submitted which shall include input data, methodology, and output data used to calculate the noise contours as well as recommending appropriate calculation procedures.
Actions to engage and work with the local community on matters relating to aircraft noise	
Enhanced sound insulation scheme consultation	A Noise Mitigation Scheme shall be submitted to the Council for not less than three months consultation. The scheme shall not be implemented before considering any consultation feedback from the Council.
Revised Noise Control Scheme (NCS) consultation	Within six months of the Commencement of Development a draft Revised NCS scheme shall be submitted to the Council for consultation. The scheme shall be implemented within 12 months with details reported in the Annual Monitoring Report.

Appendix E – Noise Preferential Routes



Contact us

yourairport@bristolairport.com