

# Annual Monitoring Report 2021



# Contents

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Section 1	<b>Foreword</b>	<b>1</b>
Section 2	<b>Summary and key year highlights</b>	<b>2</b>
Section 3	<b>Aircraft movements</b>	<b>3</b>
Section 4	<b>Aircraft types</b>	<b>4</b>
Section 5	<b>Passenger statistics</b>	<b>6</b>
Section 6	<b>Passenger routes</b>	<b>7</b>
Section 7	<b>Runway usage</b>	<b>8</b>
Section 8	<b>Flight routings</b>	<b>9</b>
Section 9	<b>Noise monitoring</b>	<b>10</b>
Section 10	<b>Noise contours</b>	<b>12</b>
Section 11	<b>Noise complaints</b>	<b>13</b>
Section 12	<b>Night noise quota usage</b>	<b>17</b>
Section 13	<b>Ground noise management</b>	<b>20</b>
Section 14	<b>Public transport</b>	<b>21</b>
Section 15	<b>Air quality</b>	<b>23</b>
Section 16	<b>Waste management</b>	<b>26</b>
Section 17	<b>Ground water management</b>	<b>28</b>
Section 18	<b>Utilities &amp; energy management</b>	<b>30</b>
Section 19	<b>Electric vehicle charging points</b>	<b>34</b>
Section 20	<b>Employment</b>	<b>36</b>
Section 21	<b>Community relations</b>	<b>38</b>
Appendix A	<b>Flight routing maps</b>	<b>40</b>
Appendix B	<b>Predicted noise contours for summer 2021</b>	<b>42</b>
Appendix C	<b>Noise Action Plan</b>	<b>43</b>

# Foreword

Welcome to the Annual Monitoring report (AMR). The AMR brings together key reports, from across Bristol Airport's operation during 2021. This report also highlights the key areas of improvement the Airport is undertaking to continuously develop and deliver against its sustainability ambitions.



We have published the AMR for over a decade as part of our ongoing commitment to engagement and transparency within our community. This report covers 2021, an exceptional year for aviation that saw travel begin to tentatively return in the summer before the emergence of the Omicron variant in November.

Despite the substantial challenges of 2021, we moved ahead with our long-term sustainability commitments. There was no greater commitment than our new stated aim of achieving net zero operations by 2030, bringing our target forward by 20 years. This means that we will reduce emissions from our buildings and vehicles as much as technology allows, develop additional renewable energy, and remove any remaining emissions from the atmosphere.

We took a major step forward toward our net zero target in 2021. I was delighted and very proud that in December our operations were independently accredited as being carbon neutral by the Airports Council International (ACI), which was achieved four years ahead of our target. Progress made during 2021 includes the doubling of our renewable energy generation on-site to over 10% of our electricity requirement, with new solar panels installed on the car rental building.

The remainder of our electricity is generated by off site renewables and purchased via the grid.

Bristol Airport must play its part in the UK reaching net zero by 2050, and that includes the emissions from aircraft and surface access, known as scope 3 emissions. During 2021 we launched our Aviation Carbon Transition (ACT) Programme, with a fund of £250,000 for the year to support innovative projects to decarbonise our scope 3 emissions.

We began what we believe to be a world-first ultra-low emissions aircraft turnaround trial in partnership with easyJet and others, which initially showed a 96% reduction in CO2 emissions compared to using standard equipment. Footage of the new electric vehicles and ground handling equipment servicing an aircraft was shown to delegates at COP26 and final results of the trial will be published in 2022.

With partners from our region, we've led the creation of Hydrogen South West, a group of organisations that aims to create a hydrogen economy here in the South West. This will drive the availability of hydrogen for new flight technology and its potential use in heavier ground vehicles.

The steps that we have taken and plan to take are set out in our detailed draft Emissions and Climate Change Action Plan. As part of our planning permission for expanded capacity, this document will now be updated and finalised in 2022.

We continue to invest significantly in local community projects, with a focus on supporting the communities closest to us. Our Local Community Fund made grants totalling £160,000 last year, providing play areas, sports equipment, and supporting nature conservation in the parishes surrounding the airport.

During a year of uncertainty and rapidly changing operating conditions, I am enormously proud that Bristol Airport has continued to innovate and make the important long-term decisions. Firm foundations have been laid during 2021 for the Airport to recover sustainably in the period ahead.

**Dave Lees**  
Chief Executive Officer



# Summary and key year highlights

- 2021 was dominated by the effects of the Covid-19 pandemic.
- Passenger numbers decreased by 5% to 2,061,491.
- Aircraft movements rose by 9% to 32,203 compared to last year.
- Edinburgh, Belfast and Glasgow were the most popular destinations from Bristol. This shows the impacts of international travel restrictions.
- Noise monitoring indicates that the noise climate at the noise monitors is consistent. The peak departure noise levels recorded were below the noise infringement limits.
- The area of the 57 dB(A) Leq 16hr noise contour for summer 2021, at the time of writing, is predicted to be 10.2 sq. km, falling compared to the 2020 contour of 10.8 sq km and remains within the permitted noise envelope.
- 159 complaints were recorded in 2021 a decrease from 199 in 2020.
- During the summer season there were 694 aircraft movements using 366 quota count points, during the night quota period of 23:30 to 06:00. A further 2,071 aircraft movements took place during the 'shoulder periods' of 06:00 to 07:00 and 23:00 to 23:30.
- The air quality monitoring programme shows air quality levels at the Airport remain within Government Air Quality Objectives.
- In 2021 there has been a 20% decrease in absolute carbon emissions for Scope 1 and 2 emissions compared to 2020.
- Over 85% of general waste generated at the Airport was recycled or reprocessed and diverted from landfill. Overall, waste generated on site fell from 514 tonnes in 2020 to 444 tonnes in 2021.
- The number of people working could not be compiled to the ongoing effects of Covid-19 outbreak in early 2020.
- Customers and staff using our Electric Vehicle Charging Points used 17,189 kilowatt hours (kWh) of electricity, the equivalent of 9626 kilograms kg of CO2 saved. This was a 233% increase from 2020.
- In 2021, the Airport Environmental Improvement Fund, also known as the Bristol Airport Local Community Fund provided grants totalling over £73,960 to 19 local projects. Due to the reduced opportunities for fundraising activities in 2020, Bristol MIND remained Bristol Airport's Charity of the Year in 2021 and Teenage Cancer Trust will be Charity of the Year for 2022.
- Bristol Airport maintained the ISO 14001:2015 accreditation for its Environmental Management System which it first earned in 2019.



# Aircraft movements

There was a total of 32,203 Aircraft Transport Movements (ATMs) in 2021, compared with 29,417 in 2020. The increase in movements, of around 9%, was due mainly to the small recovery seen from the impacts of Covid-19 which affected international travel from March 2020 onwards. Beyond UK lockdowns, travel and entry restrictions around the world varied throughout 2021 which was why, despite a small increase in movements, the total number was still below half of that seen in 2019 (69,534). The breakdown of these ATMs is provided in Table 1 below. This data is provisional Bristol Airport data and therefore may differ marginally to data published by the CAA<sup>1</sup>. Aircraft Transport Movements includes all flights rather than aircraft movements which mainly reflects scheduled and charter flights only.

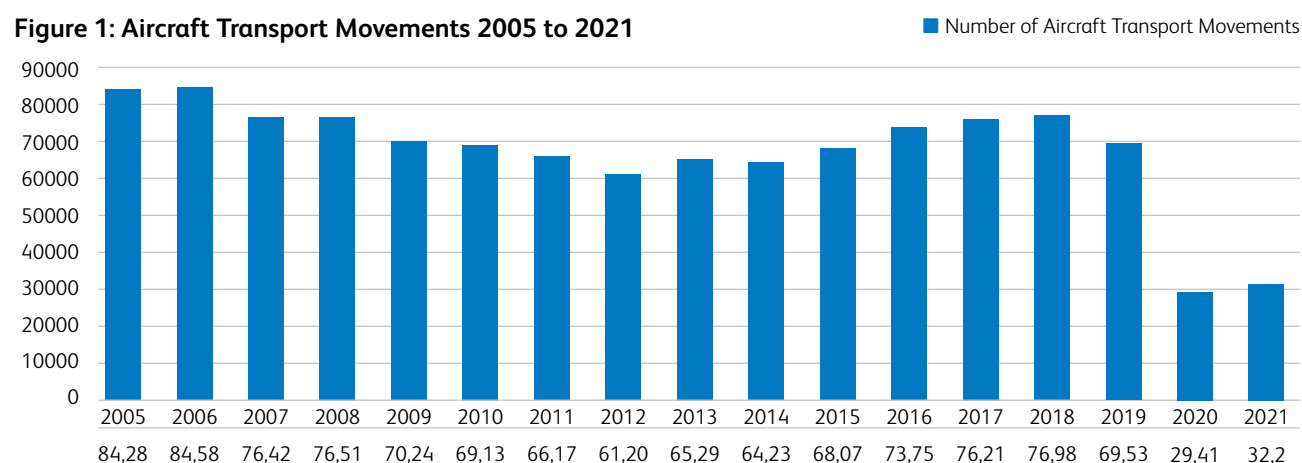
**Table 1: Aircraft Transport Movements in 2021 and 2020**

Air Transport Movements Categories	2021	2020	Change 2020 to 2021
Cargo	-	0	
Scheduled domestic passenger aircraft	5,987	4,354	38%
Scheduled international passenger aircraft	15,390	15,405	0%
Charter domestic passenger aircraft	577	721	-20%
Charter international passenger aircraft	849	1,019	-17%
Positioning flights	609	645	-6%
Other (incl. flying club, private charter)	8,791	7,273	21%
<b>Total ATMs</b>	<b>32,203</b>	<b>29,417</b>	<b>9%</b>

We did see domestic travel increase as a result of the Covid-19 pandemic. Though despite a large percentage increase the actual number of movements was still relatively low.

The number of ATMs for the past fifteen years are shown in Figure 1.

**Figure 1: Aircraft Transport Movements 2005 to 2021**



<sup>1</sup> CAA Air Transport data for 2019 was 69,434 compared to 69,534 reported ([https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard\\_Content/Data\\_and\\_analysis/Datasets/Airport\\_stats/Airport\\_data\\_2019\\_annual/Table\\_03\\_1\\_Aircraft\\_Movements.pdf](https://www.caa.co.uk/uploadedFiles/CAA/Content/Standard_Content/Data_and_analysis/Datasets/Airport_stats/Airport_data_2019_annual/Table_03_1_Aircraft_Movements.pdf))

# Aircraft types

A breakdown of ATMs by aircraft type that used Bristol Airport during 2021 is set out in Table 2.

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

**Table 2: ATMs by aircraft type**

Aircraft Types	No. of movements	Aircraft Types	No. of movements
<b>Helicopter</b>	<b>2174</b>	Boeing 737-700 pax	2
AgustaWestland AW109	48	Boeing 737-700 WINGLET	8
Eurocopter - EC135	1818	Boeing 737-800	29
Eurocopter AS-355 ECUREUIL 2	12	Boeing 737-800 WINGLET	6805
AgustaWestland AW169	22	Boeing 737-800	10
AgustaWestland AW189	2	Boeing 757-200	2
Aerospatiale AS332	14	Boeing 787-8 Dreamliner	1
Bell 429 GlobalRanger	8	Boeing 787-8 Dreamliner	2
Bell 206	72	Boeing EC135A	77
Boeing CHINOOK 114/234/414	38	Boeing Globemaster III	6
Airbus Helicopter H145	64	Boeing Goshawk	9
Eurocopter EC130	41	Bomardier Challenger CL601-A3 (600 Series)	18
KAWASAKI EC-145	4	Bombardier Challenger CL300	34
AGUSTAWESTLAND LYNX WILDCAT	14	Bombardier CRJ200	8
Eurocopter AS-365 DAUPHIN 2	4	Bombardier CRJ-900	2
Robinson R22	2	Bombardier Global 5000	6
Robinson RAVEN II R-44	7	Bombardier Global 7500	4
Sikorsky S-76	4	Bombardier Global Express	29
		British Aerospace BAE 146-200	12
<b>Jet Engine</b>	<b>22776</b>	Canadair Regional Jet 1000	2
Airbus 139	231	Cessna Citation 525	280
Airbus 319	1821	Cessna Citation II C550	20
Airbus 320	4151	Cessna Citation Mustang 510	3
Airbus 320 neo	3947	Cessna Citation	8
Airbus 320 WINGLET	640	Cessna CITATION 10	2
Airbus 321	52	Cessna Citation 500	10
Airbus 321 neo	1236	Cessna Citation 550	4
Airbus A340 all models	10	Cessna Citation 560 5 Ultra	86
BAe 146 all pax models	2	Cessna Citation 56X	107
BEECH Beechjet 400	36	Cessna Citation 680 SOVEREIGN	36
Beechcraft/Raytheon Premier 1	10	Cessna Citation CJ4-525C	18
Boeing 737 MAX 8 pax	20	Cessna Citation Latitude (Model 680A)	10
Boeing 737 MAX 8 pax	521	Cessna Citation Mustang	59

Aircraft Types	No. of movements
Cessna Citation Mustang	235
Dassault Falcon 2000	27
Dassault Falcon 50	8
Eclipse Aerospace EA500	12
Embraer 145	3
Embraer 145	289
Embraer 170	106
Embraer 175	287
Embraer 190	585
Embraer 195	28
Embraer E190-E2	2
Embraer Legacy 600 / Legacy 650	4
Embraer Phenom 100	28
Embraer Phenom 100	22
Embraer Phenom 300	455
Embraer Phenom 300	5
Eurofighter Typhoon	2
Falcon 7X	8
Falcon 8X	44
Falcon 900	6
Gulfstream 1125 ASTRA	2
Gulfstream 2	2
Gulfstream 4	2
Gulfstream 5	37
Gulfstream Aerospace G-1159	
Gulfstream II / III / IV / V	2
Gulfstream G650	99
Honda HA-420 HondaJet	8
Learjet 31	12
Learjet 35	8
Learjet 45	54
Learjet 55	2
Learjet 75	6
<b>Propellered</b>	<b>6973</b>
2000 Rockwell Commander 114B	8
Aerospatiale/Alenia ATR 42-500	2
Airbus A400M Atlas	20
ATR 42-300	74
ATR 42-500	6
ATR 72 600	372
ATR 72 600	274
Beechcraft 200 SUPER KING AIR	996
Beechcraft 35 Bonanza	14

Aircraft Types	No. of movements
Beechcraft King Air BE-90	8
Beechcraft Super King Air 200	49
Cessna 172 SKYHAWK MESCALERO	354
Cessna 182 SKYLINE	30
Cessna 421 GOLDEN EAGLE	12
Cessna Caravan	8
Cessna F150L	171
Ciruss SR-22	153
Dassault Dash 8-400 series	4
Diamond DA40 Diamond Star	269
Diamond DA-42 Twin Star	1451
Diamond DA-42 Twin Star	1
Diamond DA62	24
Diamond Star	1
GROB G-115	2
GROB G-120TP	2
Lockheed L-182 / 282 / 382 (L-100) Hercules	16
Mooney M-20	64
Partenavia/Vulcanair PA-68	22
Piaggio P180 Avanti	4
Pilatus PC-12	99
Pilatus PC-12/47E	1
Piper P28A CHEROKEE WARRIOR	202
Piper P28R Arrow	26
Piper PA-28 CHEROKEE	1879
Piper PA-31-350 CHIEFTAN/MOJAVE/NAVAJO T1	10
Piper PA-32 CHEROKEE SIX/SARATOGA/TURBO SARATOGA	4
Piper PA-34 SENECA	28
Piper PA-46 MALIBU MIRAGE	4
Robin DR400	2
Socata Tampico 9	4
Socata TBM-850	2
Socata TB-10 TOBAGO	218
Socata TBM-700	83
<b>Grand Total</b>	<b>31923</b>

# Passenger statistics

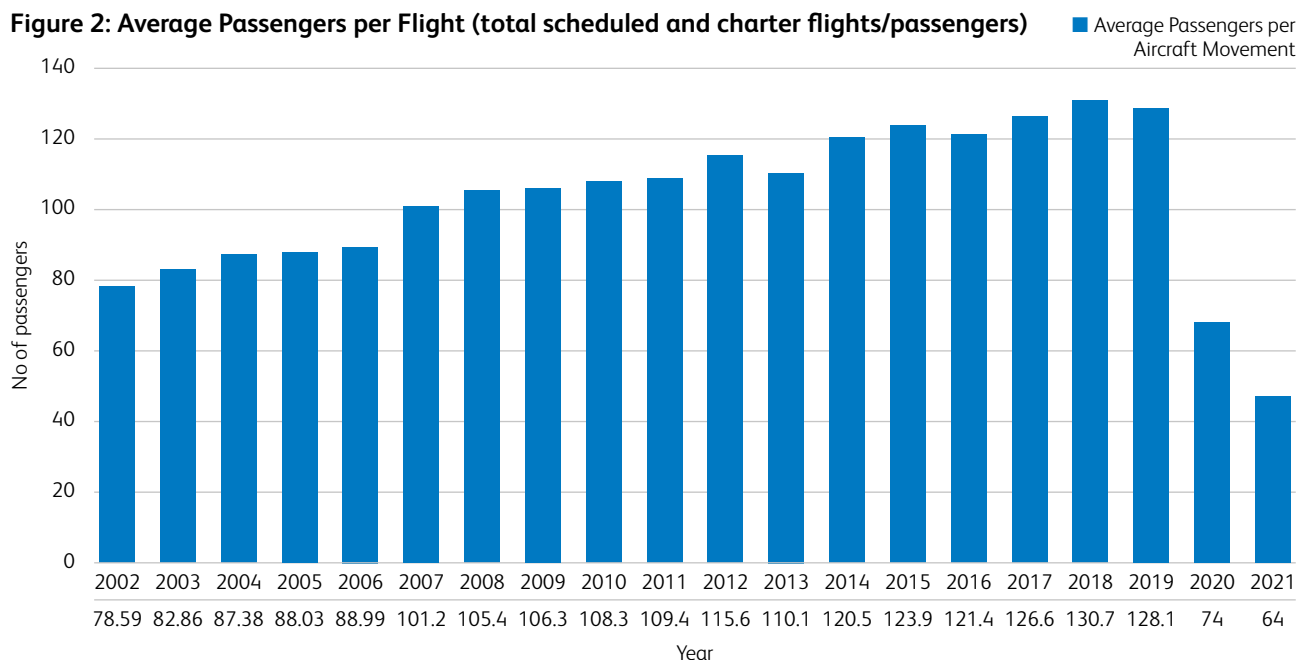
The number of passengers travelling through Bristol Airport decreased by 5 % in 2021. This followed a 75 % decrease from 2019 to 2020. This was due to the continued effects of Covid-19 on travel. Statistics related to passenger numbers are provided in Table 3. The breakdown of data for itemised infants and transit passengers was not available, so the % difference cannot be applied against these categories.

**Table 3: Passenger statistics**

Passenger Categories	2021	2020	Change
Scheduled Domestic	647,030	437,925	48%
Scheduled International	1,303,810	1,595,245	-18%
Charter Domestic	2,996	4,947	-39%
Charter International	104,518	135,605	-23%
Other	3,137	3,386	-7%
Infants	-	0	
Transit	-	0	
<b>Total</b>	<b>2,061,491</b>	<b>2,177,108</b>	<b>-5%</b>

The average number of terminal passengers per commercial passenger carrying aircraft is shown in Figure 2.

**Figure 2: Average Passengers per Flight (total scheduled and charter flights/passengers)**



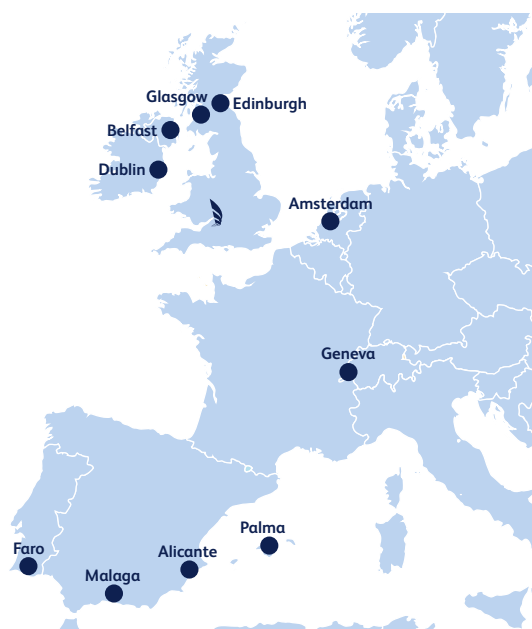
It is important to note that due to differences in the way some flights are recorded, passenger and aircraft movement figures generated by Bristol Airport may contain small variances when compared to those reported by the UK Civil Aviation Authority (CAA).



# Passenger routes

Table 4 lists the top ten most popular routes from Bristol Airport during 2021 and 2020. These are represented in the map below (Figure 3). 2021 saw Palma reappear in the top ten list, having dropped out in 2020. Another Spanish Island, Tenerife, retained its place having appeared in 2020. Geneva dropped out of the top ten. Domestic routes to Belfast and Glasgow saw their positions in the top ten rise whilst Edinburgh remained the most popular destination. This was down to the international travel restrictions.

**Figure 3: Map detailing the 10 ten destinations in 2021**



**Table 4: Top ten most popular routes 2021 and 2020**

Destination	2021 Passengers	Destination	2020 Passengers
Edinburgh	173,698	Edinburgh	129,287
Belfast	165,203	Amsterdam	117,897
Glasgow	140,113	Belfast	107,904
Dublin	105,183	Dublin	106,120
Palma de Mallorca	101,360	Glasgow	98,591
Alicante	89,939	Geneva	83,005
Malaga	78,734	Alicante	77,478
Faro	74,250	Malaga	68,595
Tenerife	66,970	Tenerife	57,632
Amsterdam	59,629	Faro	54,809

# 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. Runway use is dictated by wind direction. The percentage of movements by direction since 2001 is provided in Table 5. The average usage over this period has been 77% for Runway 27 and 23% for Runway 09.

**Table 5: Runway usage 2001 to 2021**

Year	Westerly (27)	Easterly (09)
2001	79%	21%
2002	77%	23%
2003	65%	35%
2004	82%	18%
2005	71%	29%
2006	75%	25%
2007	79%	21%
2008	84%	16%
2009	80%	20%
2010	82%	18%
2011	83%	17%

Year	Westerly (27)	Easterly (09)
2012	86%	14%
2013	75%	25%
2014	67%	33%
2015	76%	24%
2016	86%	14%
2017	80%	20%
2018	64%	36%
2019	73%	27%
2020	81%	19%
2021	70%	30%
<b>Average</b>	<b>77%</b>	<b>23%</b>



# Flight routings

Indicative flight routes for easterly and westerly operations are provided in Appendix A. Flight routes are shown as 3km swathes for departing aircraft on Noise Preferential Routings (NPRs) and arrivals which are established on final approach. The 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 a new online flight tracking system is available for public use on the Airport's website. Accompanying this to further enhance access to information and to contact the Airport, the online

complaints form<sup>2</sup> was also updated where information taken from the online web track portal can be used.

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 2021, 76 % of arrivals were undertaken using the CDA operating technique, which is comparable with the previous year. 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. In 2021, over 99 % of monitored departures conformed to the NPRs which demonstrates our continued high rate of compliance in this area.

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 2021.



# 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).

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 2021 is provided in Table 6 with 2020 data represented in brackets. All departing aircraft complied with the noise infringement limits and no penalties were levied in 2021.

**Table 6: Noise monitoring - departing aircraft from Congresbury and Littleton Hill noise monitoring points (2020 data in brackets)**

Month	Peak departures noise level Lmax dB(A)		Average departures noise level
	Runway 27	Runway 09	Runways 09 and 27
January	79.5 (80.2)	78.6 (81.2)	71.2 (73.2)
February	74.8 (80.3)	76.2 (80.2)	70.5 (73.2)
March	74.2 (82.0)	74.2 (81.1)	70.0 (72.7)
April	75.2 (74.8)	77.3 (74.7)	70.7 (71.3)
May	79.6 (75.0)	79.9 (76.1)	71.7 (71.3)
June	76.4 (75.9)	76.8 (77.8)	72.4 (73.2)
July	78.9 (78.0)	81.1 (79.4)	72.9 (73.4)
August	79.1 (79.2)	80.6 (82.0)	73.2 (73.2)
September	79.5 (79.5)	80.2 (76.9)	73.1 (72.3)
October	79.7 (80.4)	81.3 (80.1)	73.1 (72.4)
November	78.6 (78.0)	77.8 (77.2)	72.9 (71.2)
December	79.1 (77.8)	79.8 (79.8)	72.6 (71.7)

The noise climate recorded at the three noise monitors is provided in Table 7.

**Table 7: Noise climate**

	Congresbury		Littleton Hill		Felton	
	2021	2020	2021	2020	2021	2020
Month	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)	Leq dB(A)
January	56.2	58.9	53.7	57.1	54.3	60.4
February	57.2	60.1	55.2	62.5	52.6	62.6
March	57.4	57.7	56.4	57.1	55.1	66.7
April	56.2	52.8	48.6	49.5	52.0	49.1
May	56.9	81.7	56.0	52.0	55.6	52.3
June	55.8	68.8	50.8	50.5	54.5	51.4
July	56.4	56.4	52.2	53.1	56.9	57.3
August	57.0	57.7	53.5	55.6	58.3	58.5
September	57.1	56.8	53.8	53.6	58.4	57.5
October	57.6	57.4	55.1	53.6	59.2	56.5
November	57.6	56.8	55.2	54.3	58.6	54.0
December	57.8	57.3	54.6	53.4	58.9	55.0





# Noise contours

The contours produced and analysed in this section of the 2021 Annual Monitoring Report were completed in January 2021 as per the Airport's planning requirement. The Noise Insulation Grant Scheme returned in 2021, following the Airport Environmental Improvement Fund committee's decision to suspend it in 2020.



Conditions 30 and 31 attached to the planning permission for the development of the Airport dated 16 February 2011 require forecast aircraft movements and consequential noise contours over a 92 day period between mid-June and mid-September to be reported to the local planning authority on 31 January each year. Condition 30 refers to the 57dB(A) Leq16hr (0700-2300) contour and condition 31 refers to the 63dB(A) Leq 16hr (0700-2300) contour. Noise predictions have been undertaken using the latest version of the Federal Aviation Authority noise contour modelling software Aviation Environment Design Tool (AEDT – Version 2d), which has replaced the Integrated Noise Model 7.0 used previously. Forecast commercial aircraft movements for summer 2021 have been derived from the airline scheduling system operated and co-ordinated for Bristol Airport by Airport Coordination Limited.

Movements have been allocated to the 09 and 27 runway directions in accordance with the 16-year average modal split between the two runways for the summer period of 23%/77% (as shown in Table 5). The area of the 57dB predicted contour for summer 2022 has been calculated

at 10.2 sq. km, an 8.5% decrease on 2021's predicted contour of 10.8 sq. km. Both figures are below the limit of 12.42 sq. km set out in planning condition 30. The noise contours are included at Appendix B. It is this contour which determines the eligible properties as per the airports Noise Insulation Scheme.

It is important to note, the methodology used to collate this contour does not take into consideration:

- Topographical terrain data for the area.
- Final climb and arrival profiles for airline fleets.
- Adjustments to noise emissions to represent measured noise levels at the airport.

The Airbus A320neo, which is a modernised, quieter aircraft type, made up 16% of movements in 2021, being responsible for 5,183 movements. This is an increase from 4,926 movements in 2020, which was also 16%. The Boeing 737 MAX which is a similarly modern aircraft did not feature in the movements list in 2020. In 2021 it made up 2.4% of jet engine aircraft movements. The Neo and the MAX combined were 25% of jet engine aircraft movements, an increase from 21% in 2020.

The number of properties within the forecasted summer daytime contours are detailed in Table 8 below. The number of properties is cumulative. For example, the number of properties in the 63dB contour are also included in the 60dB contour.

**Table 8: Number of Dwellings in Noise Insulation Scheme contours with 2020 for comparison.**

Contour Level (dB LAeq,16h)	Dwellings within Summer Daytime Air Noise Contours	
	2020	2021
≥57	467	492
≥60	192	259
≥63	13	52

# Noise Complaints

Bristol Airport operates a dedicated noise complaint telephone number, an email address and a web-based system for logging and tracking complaints at [www.bristolairport.co.uk](http://www.bristolairport.co.uk).

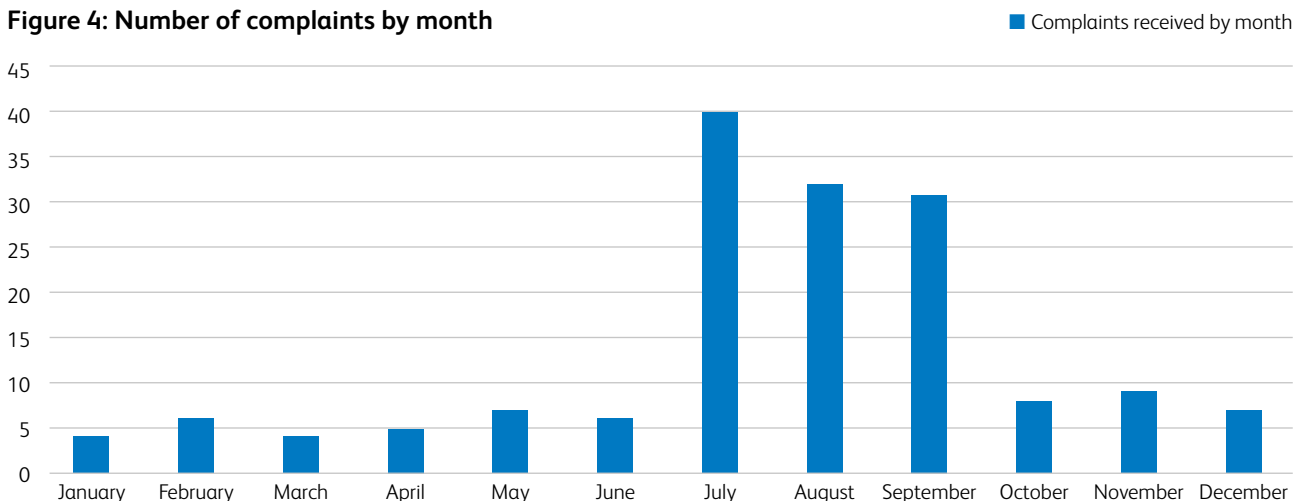
Noise complaints can also be submitted by post. During 2021, Bristol Airport received a total of 159 complaints relating to aircraft operations through all communication channels. The number of aircraft movements per complaint has fallen from 199 in 2020 to 159 in 2021. These statistics are provided in Table 9.

**Table 9: Noise complaints**

	2021	2020	2019	2018	2017	2016
Total number of complaints	159	199	451	379	172	167
Number of individual complainants	105	96	229	176	100	71
Average number of complaints per complainant	1.5	2.1	1.9	2.2	1.7	2.4
Number of aircraft movements per complaint	203	148	154	203	443	442

The distribution of noise complaints by month throughout 2021 is shown in Figure 4.

**Figure 4: Number of complaints by month**



The nature of complaints, as allocated by complainants, in 2021 is shown in Table 10. Figure 5 shows this data by nature of complaint.

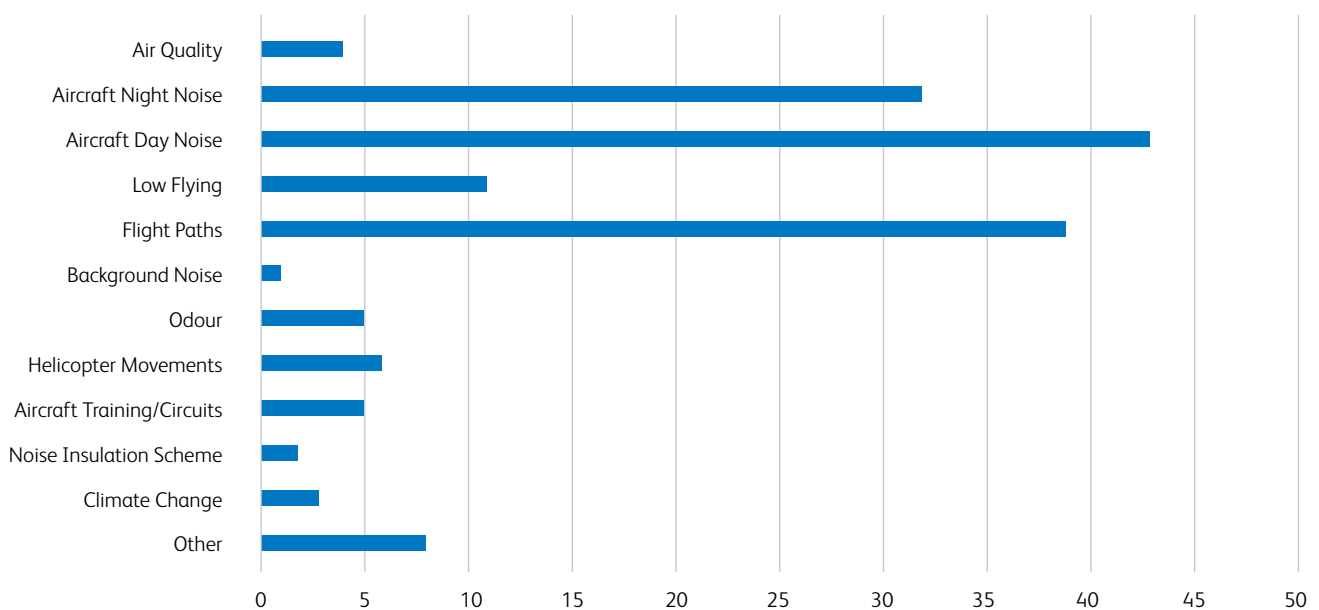
**Table 10: Type of Concern and number of complaints raised**

Type of Concern	Number of Complaints
Air Quality	4
Aircraft Night Noise	32
Aircraft Day Noise	43
Low Flying	11
Flight Paths	39
Track Keeping	0
Ground Noise	0
Background Noise	1
Odour	5
Helicopter Movements	6
Aircraft Training/Circuits	5
Noise Insulation Scheme	2
Climate Change	3
Other	8
<b>Total</b>	<b>159</b>



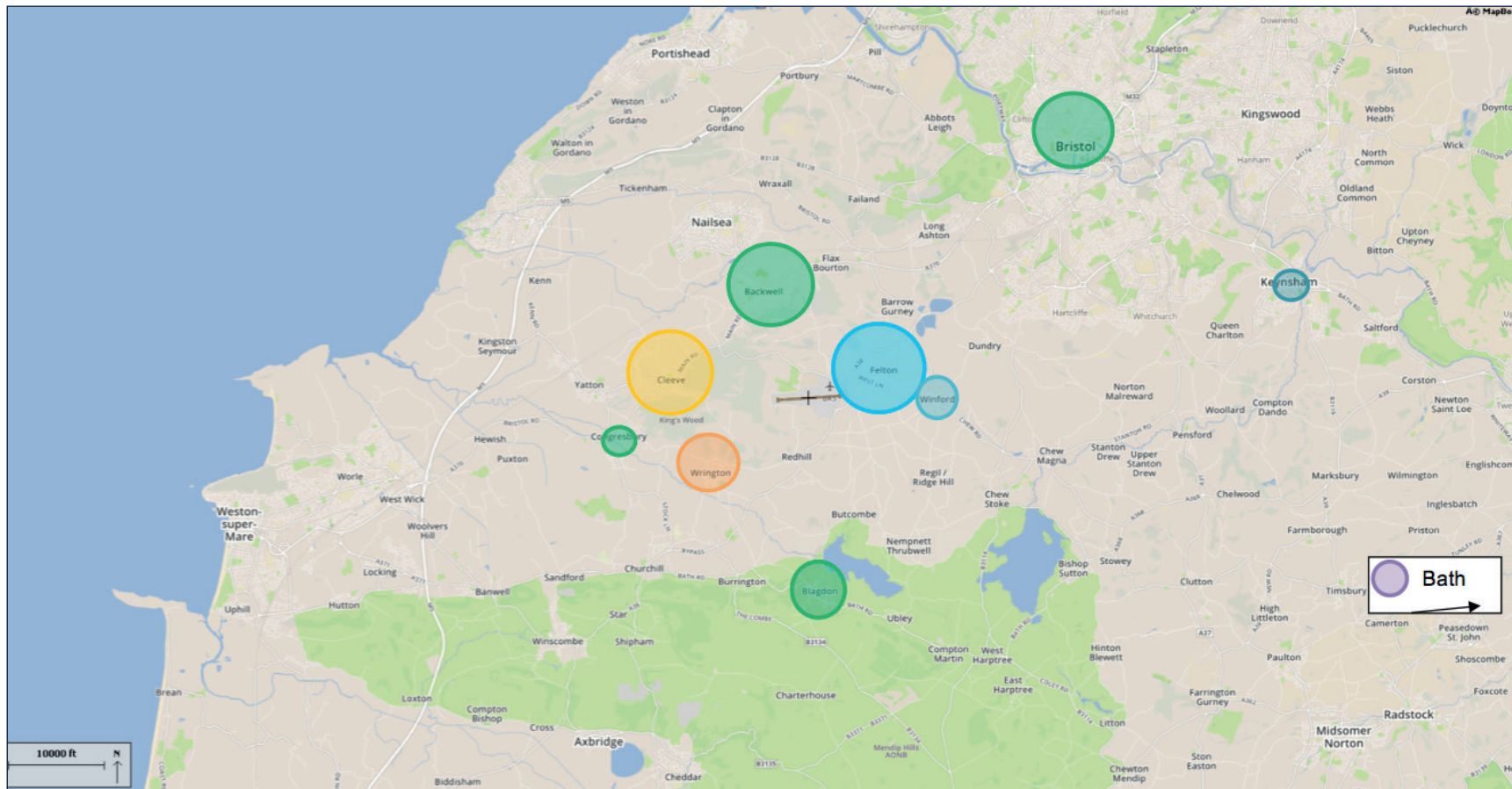
**Figure 5: Nature of complaints**

■ Number of Complaints by Type



The source of noise complaints in 2021, as allocated by the complainants, can be found in Figure 6. The size of the dot represents the number of complaints from a specific location made to the airport. The colour of the dot represents the main theme of the complaints made.

**Figure 6: Top 10 locations of noise complaints**



*Key: Note the colour denotes the majority reason for complaints in an area and the larger the size the higher number of complaints*

- Night
- Track-keeping
- Day
- Helicopter
- Background
- Training/Circuits
- Low Flying
- Multiple

Table 11 identifies the areas from which three or more complaints were received in 2021 compared with 2020. New areas with three or more complaints in 2021 are Keynsham and Congresbury.

The months with the highest number of complaints from across the year were July, August and September. This summer period is historically the time where we would expect the most aircraft movements and therefore the most complaints.

**Table 11: Areas with three or more noise complaints during 2021 and 2020**

Location	Number of complaints		Location	Number of complaints	
	2020	2021		2020	2021
Axbridge	1	0	Newquay	0	1
Backwell	13	15	Nailsea	7	0
Bath	3	5	Pensford	1	4
Bishop Sutton	0	1	Radstock	2	0
Blagdon	5	7	Saltford	0	2
Bristol	10	15	Stanton Drew	0	3
Burnett	36	0	Taunton	1	0
Chelvey	0	1	Timsbury	1	0
Chew Magna	6	0	Unknown	16	17
Chew stoke	0	1	Weston super Mare	0	4
Chewton Mendip	0	1	Wick St Lawrence	2	2
Claverham	3	0	Winford	4	7
Cleeve	10	21	Wraxall	1	0
Clevedon	2	1	Wrington	9	11
Compton Dando	0	1	Yatton	4	4
Congresbury	0	5			
Dundry	0	1			
Felton	55	21			
Keynsham	0	4			
Kingsdown	1	0			
Kingswood	1	0			
Langford	2	1			
Little Stoke	0	1			
Long Ashton	1	1			
Longwell Green	2	0			
Midsomer Morton	0	1			



# Night noise quota usage

The following information relates to the requirements as set out within the airports Section 106 Conditions 36 to 39, 16th February 2011. Night-time operations at Bristol Airport are controlled by a noise quota system. The restrictions specify a night period (23:00-07:00) 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 as set out in a formal notice published by the CAA on a regular basis. 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. Up to 10% of the noise quota, if not used in the current season, is carried over to the following season. Similarly, up to 10% of the next season's quota may be anticipated in the event of an overrun. Any excess overrun over 10% is penalised in the following season at double the amount of the excess.

The total number of take-offs and landings between the hours of 23:30 and 06:00 shall not exceed 3000 in the summer season and 1000 in the winter season. 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 10,500 in any calendar year. Table 12 records the night movements and quota usage since the system came into use.

**Table 12: Night movements and quota use**

Year	Night movements		Quota use	
	Summer	Winter	Summer	Winter
1996/97	-	1251	-	447.5
1997/98	2334	1238	1124	675
1998/99	2492	1361	1351	765
1999/00	2940	1254	1294	632.5
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

**Table 12: Night movements and quota use continued**

Year	Night movements		Quota use	
	Summer	Winter	Summer	Winter
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	CURRENT	366	CURRENT

The breakdown of movements in each quota count level in summer 2021 is shown in Table 13 for arrivals and departures.

**Table 13: Quota use by aircraft quota count, summer 2020**

	Movements	Quota count use			
		Exempt	0.5	1	2
Arrivals	<b>636</b>	141	490	2	3
Departures	<b>58</b>	15	12	21	10

Both the Quota Count and Night Movement limit schemes allow the airport to raise dispensations for night flying. These dispensations relate to those identified within Condition 36 of the airports current planning permission.<sup>3</sup> Such dispensations highlight, where applicable, if a movement occurred within the night period but was outside of the airports sphere of control. Such instances include wider air traffic congestion, air strikes and medical emergencies amongst others. For clarity, the 156 exempt movements in Table 15 are still included in the total night movements. The reason for exemption is due to the aircraft type meeting the criterion of exemption as part of the Quota Count scheme rather than the movement, in its entirety, being granted dispensation as per the criteria in Condition 36.

In 2021, 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.

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. Both ACL and Bristol Airport would review these and report any dispensations to the local planning authority. Those requests which did not align to the conditional criteria would be refused.

There were no movements logged with dispensations to ACL based on the agreed criteria in Condition 36.

There were 2,071 movements between the hours of 06:00 and 07:00 and between 23:00 and 23:30 in 2021 compared with 1,708 in 2020.

# 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 Section 106 Agreement dated 16 February 2011. Progress and key performance indicators against the areas of action are set out below.

## 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 19, 20, 34, 35, 36, 37, 38 and have been equipped with FEGP and the equipment was used by in 408 aircraft turnarounds in 2021.

## 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. The increase in idle runs was due to a significant number of based aircraft grounded for prolonged period due to the pandemic.

**Table 14: Ground Running of Aircraft Engines**

(\*September to December estimated based on 2017 due to data loss)

	2021	2020	2019	2018*	2017	2016	2015
Idle	566	297	347	412	356	360	300
Above Idle	36	26	32	33	39	36	27

## 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 and there were 5 such runs in 2021 (5 in 2020, 20 in 2019, 33 in 2018, 24 in 2017, 41 in 2016, and 47 in 2015).

# Public transport

Entering 2021 the A1 Bristol Flyer and A3 Weston flyer services, operated by Bristol Airport remained suspended due to low passenger numbers during the Covid-19 Pandemic.



In May 2021, Bristol Airport announced, the A1 Bristol Flyer would be re-commencing service from Sunday 16th May. To improve public transport connectivity between the Airport and Bristol, the A1 Bristol Flyer will now be following the A2 connect route. This route will enable the A1 to also service Bristol Bus Station. The route change to the A1 Bristol Flyer allows a service which covers more densely populated areas of south Bristol, thereby offering a more convenient and frequent public transport option for both passengers and staff. The new service runs 24 hours a day, seven days a week, offering a 20-minute frequency at peak times in the morning and afternoon reducing to a 30 minute frequency the rest of the time. To avoid duplication, this change meant that from Sunday 16th May 2021 the A2 connect service would cease operation.

The A3 Weston Flyer remained suspended throughout 2021, As did National Express services 216 and 404 to South Wales.

The key public transport services at the airport in 2021 are shown in the table below:

**Table 15: Bus Operators and Routes**

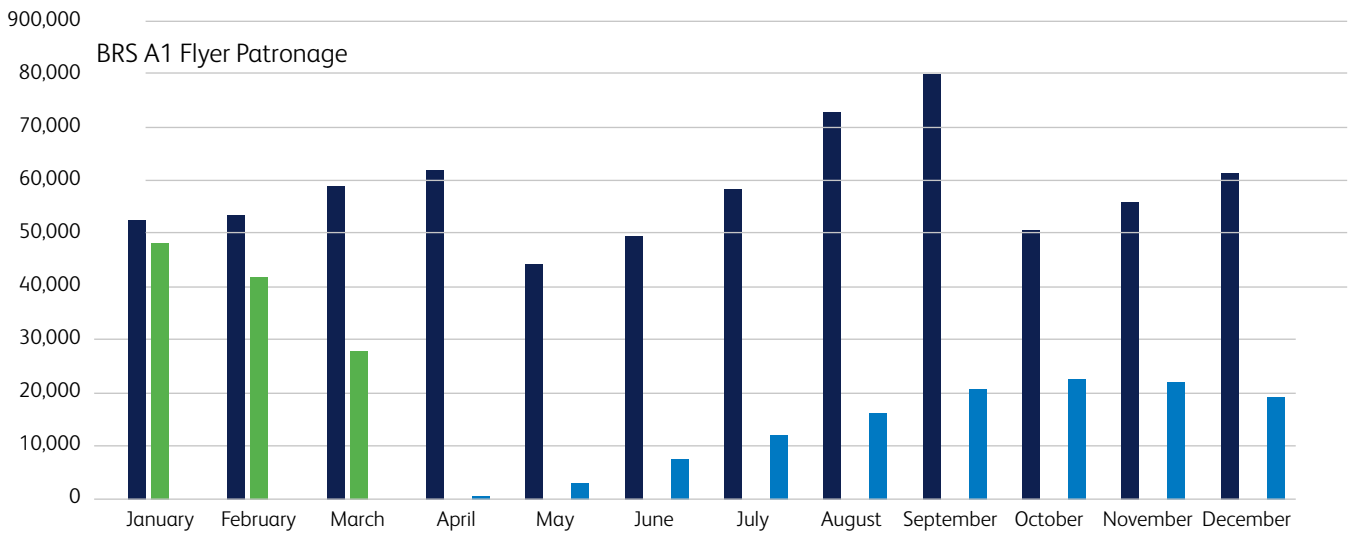
Service	Route	Operator	
A1 Bristol Flyer	Bristol City Centre (Metrobus)	First	Returned May 2021
A2 Air Connect	Bristol City Centre via Bedminster	First	Ended May 2021
A3 Weston Flyer	Weston-super-Mare	First	Suspended throughout 2021
A4 Air Decker	Bath City Centre	Bath Bus Company	
Falcon	Plymouth, Exeter to Bristol via BRS	Stagecoach	

Service A5 provided connections between Winford, Felton, Bristol Airport, Wrington and Langford, with alternate journeys either serving Congresbury and Yatton or Sandford and Winscombe. The service ran from Mondays to Fridays and provided 10 journeys per day. This route operated as a part replacement of the former A2 and 97 routes. In April 2021 Service A5 was replaced by two new lines; service 54 and service 55.



Figure 7: Bristol City Centre bus travel statistics.

■ 2019 ■ 2020 ■ 2021



Bristol Airport is working closely with our public transport service providing partners to develop services which inspire demand as levels of international travel increase from their Covid 19 hiatus.



# Air quality

Air quality can be affected by several pollutants that, in high concentrations, may pose harm to human health. Combustion processes produce Nitrogen Dioxide (NO<sub>2</sub>) and Particulate Matter (PM<sub>10</sub>) 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 2021, comparing recorded concentrations with the UK's Air Quality Strategy and against the commitments contained within Bristol Airport's S106 Agreement<sup>4</sup> with North Somerset Council.

The National Air Quality Strategy (NAQS) forms the legislative basis for air quality in the UK, stipulating long and short-term objectives to ensure air quality does not contribute to health issues.

## National Air Quality Strategy Objectives

Pollutant	Annual objective (mean limit)	Short term objective (max events per annum)
NO <sub>2</sub>	40 µg/m <sup>3</sup>	18 hourly means > 200 µg/m <sup>3</sup>
PM <sub>10</sub>	40 µg/m <sup>3</sup>	35 daily means > 50 µg/m <sup>3</sup>

## Section 106 Agreement

- Highlight air quality monitoring locations where monitored levels exceed 90% of the National Air Quality Strategy limit
- 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<sub>2</sub>) or particulate levels exceeding 50 µg/m<sup>3</sup> in more than 15 days in a calendar year (PM<sub>10</sub>)

Monitoring of air quality is undertaken continuously, with real-time monitors recording levels of both NO<sub>2</sub> and PM<sub>10</sub> at the Airport site. Additionally, passive diffusion tubes are deployed to monitor average monthly NO<sub>2</sub> concentrations at nine locations across the Airport, including the location of the continuous air quality monitor. The locations of the monitors are shown in Figure 8.

<sup>4</sup> S106 Agreement relating to Bristol Airport, 16th February 2011

Figure 8: Location of air quality monitors



Ambient concentrations of NO<sub>2</sub> and PM<sub>10</sub> recorded by real time monitoring in 2020 are shown in Table 16 with analysis against NAQS and S106 objectives.

Table 16: Recorded results for 2021 and performance

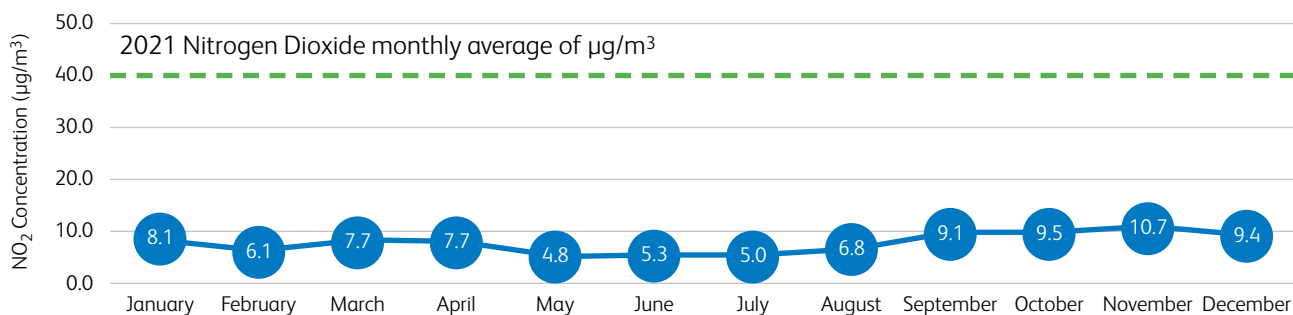
	5yr Baseline (µg/m3)	Recorded Annual Mean (µg/m3)	NO2- Hourly Means > 200µg/m3 PM10- Daily Means > 50µg/m3	NAQS Compliant NAQS Objective	Annual Mean <90%	Significant Deterioration
NO <sub>2</sub>	N/A	8	0	Yes	Yes	N/A
PM <sub>10</sub>	N/A	15.5	0	Yes	Yes	N/A

Five-year baseline data is derived from historic monitoring prior to 2012. The current air quality monitoring programme includes several sites which were not monitored prior to 2012 and therefore a five-year baseline is not available at all locations. A five-year baseline running from 2013 – 2018 is in bold where necessary<sup>5</sup>.

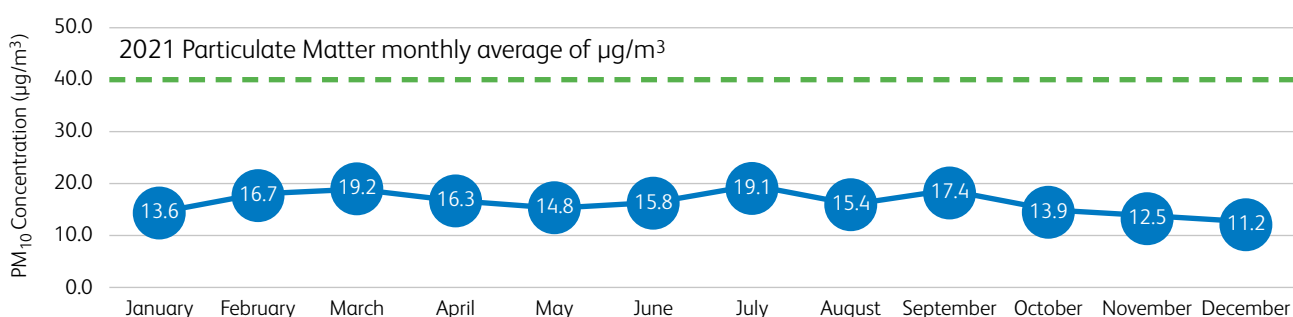
Monthly ambient concentrations recorded by real time monitoring are in Figures 9 & 10.

<sup>5</sup> is not required as part of the S106 Agreement relating to Bristol Airport, 16th February 2011

**Figure 9: Nitrogen Dioxide monthly average readings for real time monitoring in 2021**



**Figure 10: Particulate Matter monthly average concentrations recorded by real time monitoring in 2021**



NO<sub>2</sub> levels recorded by diffusion tube monitoring are shown in Table 17 with analysis against NAQS and S106 objectives.

**Table 17: Diffusion tube monitoring results for 2021<sup>6</sup>**

Monitoring Location	5yr Baseline ( $\mu\text{g}/\text{m}^3$ )	Recorded Annual Mean ( $\mu\text{g}/\text{m}^3$ )	NAQS Compliant	Annual Mean <90% NAQS Objective	Significant Deterioration
1	34	12	Yes	Yes	No
2	39	17	Yes	Yes	No
3	16	8	Yes	Yes	No
4	15	8	Yes	Yes	No
5	38	12	Yes	Yes	No
6	21	12	Yes	Yes	No
7	25	11	Yes	Yes	No
8	50	14	Yes	Yes	No
9	22	11	Yes	Yes	No

<sup>6</sup> Five year baseline data is derived from historic monitoring prior to 2012. The current air quality monitoring programme includes a number of sites which were not monitored prior to 2012 and therefore a five-year baseline is not available at all locations.

# Waste management

Bristol Airport Limited manages all the waste streams from property under its control (including terminal and administration waste). The waste figures for 2021 and 2020 are shown in Table 18.

**Table 18: Waste management results for 2020 and 2021**

Year	2021		2020	
Waste Stream	Totals (tonnes)	Waste per passenger (kg)	Totals (tonnes)	Waste per passenger (kg)
<b>Recycled waste</b>				
• Cardboard	36.96	0.02	50.48	0.02
• Glass	32.78	0.02	62.21	0.03
• Plastic bottles	8.25	0.00	12.25	<0.01
• Mixed (incl. paper/plastics/cans)	21.41	0.01	22.91	<0.01
• Coffee Cups	0.96	0.00	3.02	<0.01
• Other such as wood, metal and electrical	32.77	0.02	28.98	0.01
Total recycled waste	133.13	0.06	179.85	0.08
Food waste to Anaerobic digestion	74.6	0.04	76.09	0.03
Green Waste	10.93	0.01		
<b>Total Waste diverted from landfill</b>	<b>218.66</b>	<b>0.11</b>	<b>255.94</b>	<b>0.12</b>
Waste treated and sent to energy from waste	161.97	0.08	249.89	0.11
Waste sent to landfill	63.59	0.03	8.58	<0.01
Total waste removed from BIA	444.22	0.22	514.41	0.24
<b>% waste recycled or recovered</b>	<b>85.69%</b>		<b>98.33</b>	
<b>% waste recycled on site (including food waste)</b>	<b>57.4%</b>		<b>49.75%</b>	

Bristol Airport continued to minimise waste to landfill by using the energy from waste process. The ash (a by-product of the waste to energy disposal process) is collected at the Avonmouth Waste 2 Energy plant and is used in other products such as tarmacadam and colourisation of concrete.

Recycling efforts remained high in 2021 despite testing circumstances including an increase in covid related waste such as masks and gloves which when following DEFRA guidelines reduces the abilities to recycle. This saw overall % waste recycled or recovered remain below 99% for the second year. Lower passenger numbers led to lower volumes of recycling which impacted the frequency of collections from site. Practically, this meant that there was still unrecorded recycling volumes at the close of the year. We are yet to see if these unrecorded volumes will impact the figures for 2022. Throughout this period clear business-to-business partnerships with all the airports on-site operators and our dedicated waste management team have continued to develop new strategies to improve recycling volumes and efficiencies. For the first time, we are able to capture the volume of green waste which is removed from site.



# 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 discharge 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 11.

Perimeter boreholes are located strategically to cover key risk areas and are sampled every 3 months. All samples obtained are analysed at a UKAS accredited laboratory. The laboratory results are provided to the Environment Agency every 6 months.

The results include indicators for sewage, heavy metals, hydrocarbons, de-icers and other elements. These are reviewed against the Environmental Quality Standards (EQS) and the Drinking Water Standards (DWS).

**Figure 11: Locations of perimeter boreholes at Bristol Airport**



The Airport also assess these results against groundwater level and rainfall data to identify any prominent trends between the groundwater level recorded. Total daily rainfall data were provided by the Environment Agency from the Barrow Gurney rain gauge for all of 2021. Groundwater level data were collected by independent consultants on behalf of Bristol Airport using a submersible barometric data logger (Hobo U20L) recording continuously at 15-minute intervals for the full sampling period. Data is also mapped against calculated ground water contours and estimated directional ground water flows.

For 2021, through the sampling undertaken Bristol Airport remains within the requirements of its discharge permits and monitoring will continue for 2022.

# Utilities & energy management



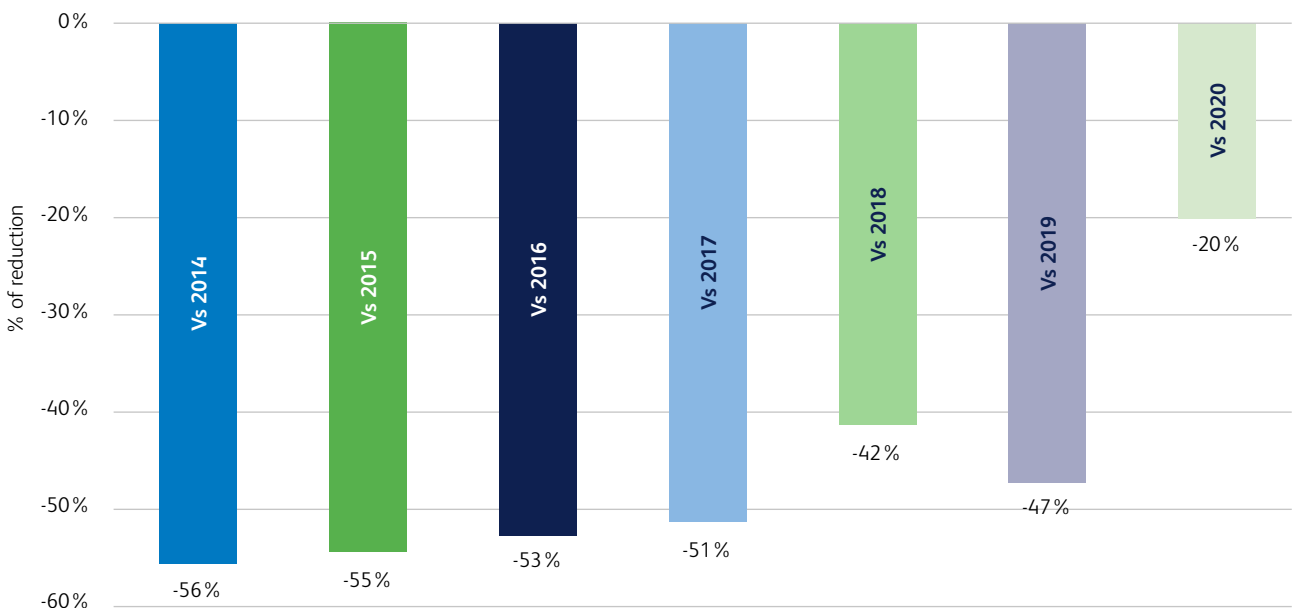
Bristol Airport is committed to continuing to reduce carbon emissions across the airport site. As an airport we aimed, by the end of 2021, we will have reduced or offset all the carbon emissions under our direct control, 4 years ahead of our previous target of 2025. This has been achieved at the end of 2021. A range of actions are taking place to reduce the carbon intensity of the airport infrastructure. The success of this is normally measured through reducing per passenger carbon emissions however during 2021, with passenger levels affected by the pandemic, BAL has focused on absolute emissions reduction.

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). Over 350 airports in 76 countries across the world are part of the scheme.

Bristol Airport achieved the first level of certification in the ACA scheme during 2015, 2016 and 2017. In June 2018, Bristol Airport gained ACA Stage 2 Certification of the four-stage programme by successfully reducing its carbon emissions year-on-year. We are delighted to announce we have moved another two levels, to Stage 3 + Neutrality, in 2021.

Performance year on year is shown in Figure 12 below.

**Figure 12: Graph showing reduction in total Scope 1 and 2 emissions by comparing each year to 2021 performance.**



Below is a breakdown of our 2021 vs 2020 full year Scope 1 and 2 Carbon Footprint:

**Table 19: Scope 1 and 2 emissions for 2020 and 2021**

Scope 1			
Activity	Component	2021 CO <sub>2</sub> eq (kg)	2020 CO <sub>2</sub> eq (kg)
Gas use	Natural Gas	379,067	422,531
Fleet vehicles	Biodiesel	206,917	340,165
Heating/ red diesel	Gas Oil	91,004	77,072
Fire Training	LPG	2,470	10,888
Company cars	Petrol	2,254	1,714
Refrigerants	F-Gas	145,833	233,953
<b>Total Scope 1 tonnes CO<sub>2</sub>eq</b>		<b>828</b>	<b>1,086</b>
Scope 2			
Activity	Component	CO <sub>2</sub> eq (kg)	CO <sub>2</sub> eq (kg)
Grid electricity	Electricity	2,219,364	2,724,167
<b>Total Scope 2 tonnes CO<sub>2</sub>eq</b>		<b>2,219</b>	<b>2,724</b>
<b>TOTAL ALL SCOPES tonnes CO<sub>2</sub>eq</b>		<b>3,047</b>	<b>3,810</b>

In summary:

- Absolute Scope 1 and 2 carbon emissions have decreased by 20% in 2021 compared to 2020.
- There has been almost a 100% decrease in per passenger carbon emissions for Scope 1 and 2 emissions compared to 2014 (the baseline for improvement) and 56% reduction in total emissions over the same time.

Bristol Airport's carbon footprint includes all Scope 1 (directly generated) and Scope 2 (indirectly generated) emissions. This includes all infrastructure and vehicles under the airports direct control, including:

- Terminal common areas
- Offices and workshops (Lulsgate House, Aviation House, Fire Station, Silverzone Reception building and Motor Transport)
- Fleet vehicles (car park buses, airside operations vehicles, fire vehicles, other pool vehicles)
- Air Traffic Control Tower- electricity use (gas for heating is paid for by the tenant).

It includes tenanted common areas but not tenant's units, as operators are accountable for their own energy use in those areas.

In 2021 we continued to drive improvements including solar PV installs on site, optimising our building management system in the terminal for more efficient heating and cooling of spaces and site wide metering installations.

During 2021 Scope three emissions, including mobile sources, process and aircraft emissions equated to 139,015 tonnes of CO<sub>2</sub>eq in 2021. A complete emissions breakdown for 2021 is in Table 20.

**Table 20: Breakdown of Scope 1, 2 and 3 emissions for 2021**

Year	Scope	End Use	Activity	Control, guide, or influence?	Carbon Emissions (kgCO <sub>2</sub> e)	Carbon Emissions (TnCO <sub>2</sub> e)	% Emissions Mix
2021	Scope 1 - Direct Emissions	Mobile sources	Diesel Plant and Equipment	Control	91,004	91	0.06 %
2021	Scope 1 - Direct Emissions	Mobile sources	Diesel On site transport	Control	206,917	207	0.15 %
2021	Scope 1 - Direct Emissions	Other	Refrigerants for chilling and cooling	Control	145,833	146	0.10 %
2021	Scope 1 - Direct Emissions	Stationary sources	Natural Gas	Control	379,067	379	0.27 %
2021	Scope 1 - Direct Emissions	Stationary sources	Liquid Petroleum Gas (fire-fighting training)	Control	2,470	2	0.00 %
2021	Scope 2 - Energy indirect Emissions	Indirect emissions	Electricity (HHD and non HHD)	Control	2,219,364	2,219	1.56 %
2021	Scope 3 - Other indirect Emissions	Mobile sources	Direct Employee Business travel	Control	2,900	3	0.00 %
2021	Scope 3 - Other indirect Emissions	Process emissions	Water	Guide	9,989	10	0.01 %
2021	Scope 3 - Other indirect Emissions	Aircraft	Auxillary Power Unit Usage	Guide	5,200,000	5,200	3.66 %
2021	Scope 3 - Other indirect Emissions	Aircraft	Landing Roll, Hold & Taxiing	Guide	31,100,000	31,100	21.89 %
2021	Scope 3 - Other indirect Emissions	Aircraft	Ground Testing	Guide	1,900,000	1,900	1.34 %
2021	Scope 3 - Other indirect Emissions	Mobile sources	Staff travel/ commuting	Guide	4,447,164	4,447	3.13 %
2021	Scope 3 - Other indirect Emissions	Mobile sources	Vehicles operated by third parties	Guide	-	-	0.00 %
2021	Scope 3 - Other indirect Emissions	Process emissions	Offsite management/ disposal of waste	Guide	9,459	9	0.01 %
2021	Scope 3 - Other indirect Emissions	Aircraft	Take Off & Initial Climb	Influence	23,100,000	23,100	16.26 %
2021	Scope 3 - Other indirect Emissions	Aircraft	Approach	Influence	25,600,000	25,600	18.02 %

continued

**Table 20: Breakdown of Scope 1, 2 and 3 emissions for 2021 continued**

Year	Scope	End Use	Activity	Control, guide, or influence?	Carbon Emissions (kgCO <sub>2</sub> e)	Carbon Emissions (TnCO <sub>2</sub> e)	% Emissions Mix
2021	Scope 3 - Other indirect Emissions	Aircraft	Climb Out	Influence	22,200,000	22,200	15.63%
2021	Scope 3 - Other indirect Emissions	Mobile sources	Passenger access	Influence	25,249,482	25,249	17.77%
2021	Scope 3 - Other indirect Emissions	Process emissions	Electricity (Transmission and distribution)	Influence	196,401	196	0.14%
<b>Scope 1 - Direct Emissions Total</b>					<b>825,292</b>	<b>825</b>	<b>0.6%</b>
<b>Scope 2 - Energy indirect Emissions Total</b>					<b>2,219,364</b>	<b>2,219</b>	<b>1.6%</b>
<b>Scope 3 - Other indirect Emissions Total</b>					<b>139,015,396</b>	<b>139,015</b>	<b>97.9%</b>
<b>Total for All 3 Scopes</b>					<b>142,060,052</b>	<b>142,060</b>	



# Electric vehicle charging points

In 2019 Bristol Airport installed 14 Electric vehicle charging points (EVCP) in various locations around the site, including the multi-storey and long stay car parks as well as outside the administration building. This means they are available to both staff and customers and 2020 was the first opportunity to present complete annual data. The EVCPs are operated by Pod Point who provide information on locations and facilitate charging via an app.

**Table 21: Energy consumed by electric vehicles charging on site, expressed in kilowatt hours**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2020 Energy used (kWh)	1071	604	874	64	143	131	114	422	439	554	428	322	5,166
2021 Energy used (kWh)	165	269	286	224	522	490	1706	1758	1764	3301	3762	2942	17,189

As travel restrictions eased and passengers returned to the airport, 2021 saw a big increase in the amount of passengers and staff charging vehicles on site. 17,189 kWh of energy were used charging electric vehicles. This is a 233% increase from 2020.

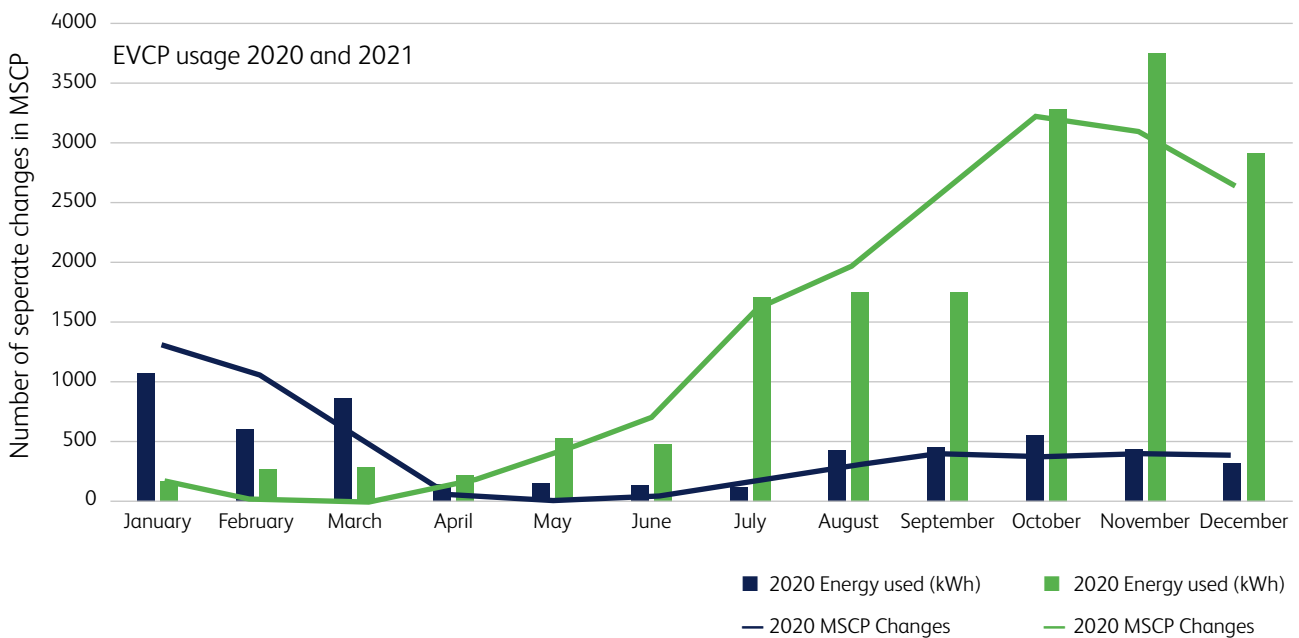


We also captured the number of individual vehicle charges completed in the Multi Storey Car park. In 2021, as shown in Figure 13, there were 1035 completed charges in 2021, this is a 228 % increase on the 316 charges completed in 2020.

Podpoint also provide a figure of the amount of CO<sub>2</sub> saved. This is calculated using the following assumptions: the average EV consumes 1kWh every 4 miles; the average petrol car emits 0.28kg of CO<sub>2</sub> per mile; and the electricity used by an EV will create the equivalent of 0.14kg of CO<sub>2</sub> per mile. The DEFRA figure of 0.49kg per kWh of electricity produced is used.

In 2021, this showed a total of 9626 KG of CO<sub>2</sub> saved. This is a 233 % increase from the 2893kg saved in 2020.

**Figure 13: Energy consumed by electric vehicles charging on site and the number of individual charges in the Multi Storey Car Park.**



# Employment

Bristol Airport is a critical employment generator within North Somerset. Regular surveys are undertaken by Bristol Airport to determine the extent and nature of employment available. The number of staff working at the Airport between 2011 and 2018 is reported in the 2018 Annual Monitoring Report. The impact of the COVID-19 pandemic has meant collating the 2021 and 2020 information from our business partners has not been possible.

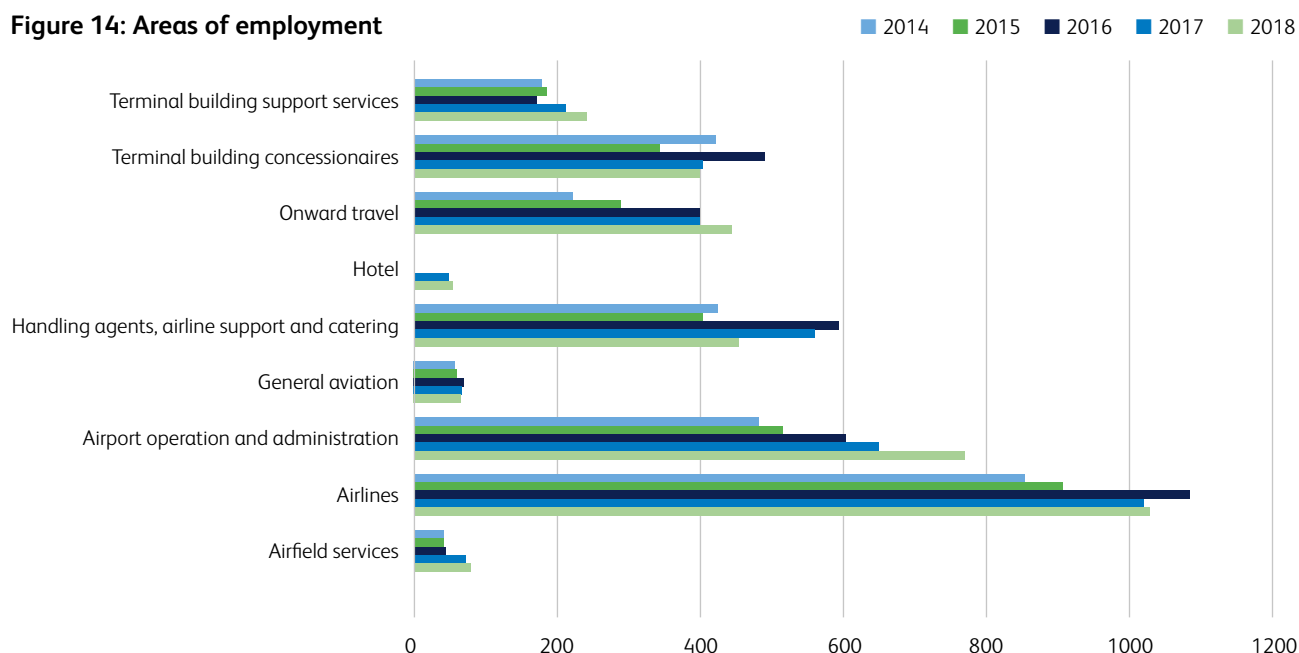
Bristol Airport was able to utilise the UK Government's Job Retention Scheme and place staff on full and part time furlough, adjusting to account for variance in passenger numbers.. At year end the total number of direct employees at Bristol Airport was 259.

**Table 22: Details of employment at the airport.**

	2018	2017	2016	2015	2014
Full time staff	2957	2976	2,669	2,243	2,396
Part time staff	1021	942	801	1,149	600
Total number of staff	3978	3918	3,470	3,392	2,996
Full time equivalents	3654	3459	3,070	2,818	2,696
Number of companies	56	54	52	52	47

A breakdown of the airport staff headcount by area of employment is provided in Figure 14.

**Figure 14: Areas of employment**



Bristol Airport's Skills and Employment Plan aims to provide opportunities for local residents, particularly young people, to access jobs at Bristol Airport. Last year we attended 1 careers fair – in conjunction with our Business Partners.

As predicted in last year's report, 2021 was dominated by furlough and restructure, so external recruitment was limited.

A new set of corporate values were curated in 2019 (Figure 15) which became the foundation for a new induction programme for new employees. This included updates from various roles across the business and presentations on Health and Safety and Sustainability.



As a business we will be incorporating our values and behaviours, alongside our vision and strategy, into how we recruit, develop, engage, and measure performance across the airport.

We have continued to embed this in all of our people policies right through from recruitment, onboarding, to our new policies such as flexible working and supporting family life and wellbeing. Also, we are planning to relaunch a recognition scheme across the Airport that will have the values embedded within it.

**Figure 15: Corporate values as announced by Bristol Airport in 2019**

ALWAYS AIMING  
**HIGH**

WORKING WITH  
**PASSION**

ONE TEAM ONE  
**FAMILY**

MAKING A  
**DIFFERENCE**

DOING WHAT'S  
**R/GHT**

# Community relations

In 2021, Bristol Airport paid £163,296 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 supports projects in the following areas:

Initiatives to mitigate the impact of aircraft and ground noise on the local community which may include (but not be limited to) noise insulation for schools and homes in affected areas, the construction of additional noise insulation barriers and the funding of school trips; The on-going improvement of transport infrastructure and services to and from Bristol Airport with an emphasis on reducing the impact of airport traffic in the community and villages surrounding the Airport which may include (but not be limited to) road improvements, public transport initiatives and measures to reduce community severance; and Nature conservation, educational projects and sustainability initiatives in the locality of the Airport.

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

## Donation of laptops to Merchants' Academy in Withywood, Bristol.



## Donation of tables and chairs to British Heart Foundation in Weston-Super-Mare.





In 2021, the Fund provided grants totalling £73,960 to 19 local projects. A list of the organisations and projects that have been supported follows:

**Table 23: Locations and projects introduced through the community fund in 2021**

Project Location	Project Description
Love The Future	Cleeve Festival
Wrington Church of England Primary School	Children's playground area
Backwell Junior School Association	Children's playground area
Avon Wildlife Trust	Nature conservation scheme
Bristol Avon River Trust	Nature conservation scheme
Nailsea Town Council	Tree planting scheme
Cleeve & Claverham Parochial Church Council	Eco-bench and bike stand
St Francis Primary School Nailsea	Outdoor learning area
Friends of Brockley Church	Kitchen improvements
Backwell Parish Council	Children's playground area improvements
Wrington Redhill Football Club	Equipment improvements
Cleeve Cricket Club	Equipment improvements
Winford Parish Council	Environmental project
The Groundwork South Trust Limited	Environmental project
Wrington Memorial Hall and Recreation Field Committee	Hall improvements
West Leigh School Parents Association	Outdoor pond improvements
Wrington Village Fair Week Committee	Wrington Village Festival
Cleeve & Claverham Parochial Church Council	Eco-bench
Cleeve & Claverham Parochial Church Council	Community Garden

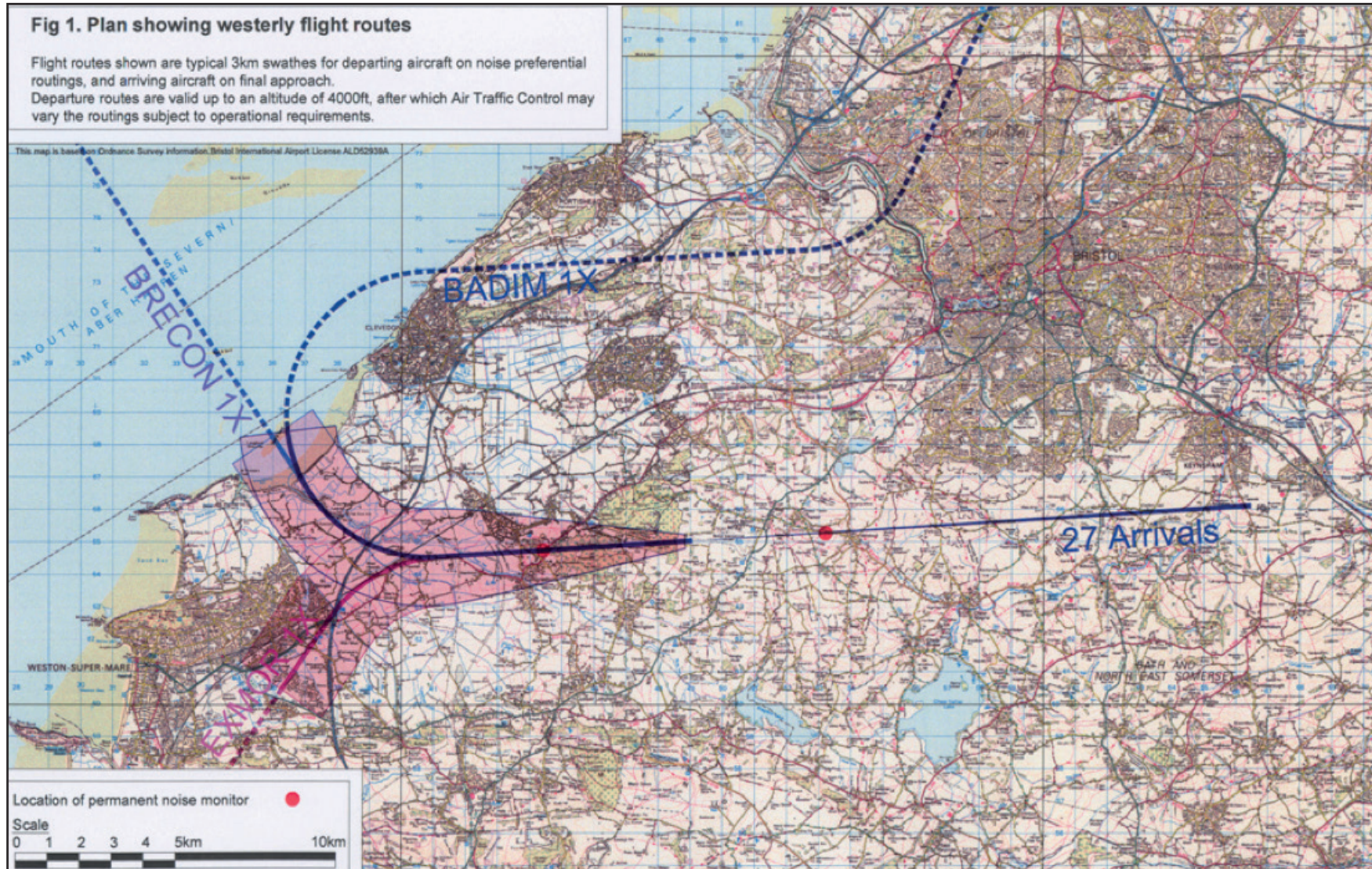
Our chosen charity throughout 2021 remained as Bristol Mind. Bristol Mind aims to promote a positive view of mental health and provide services that are accessible, relevant and empowering to the people who use them.

In 2021, some of the Bristol Airport team took part in the 'Run the Runways' challenge for Aviation Action. The charity supports colleagues in the aviation industry and raises money to help those who have had their lives turned upside down in recent months as a result of COVID-19. The airport donated £640 towards the charity with the airport staff contributing to the grand total which exceeded over £20,000.

Other notable charitable donations in 2021 were ten laptops to help the students at Merchants' Academy in Withywood, Bristol. Also, the airport partnered with the British Heart Foundation in Weston-Super-Mare to offer a large donation of tables and chairs from one of our restaurants. The donation went directly towards helping raise funds for the charity.



# Appendix A - Flight routing maps



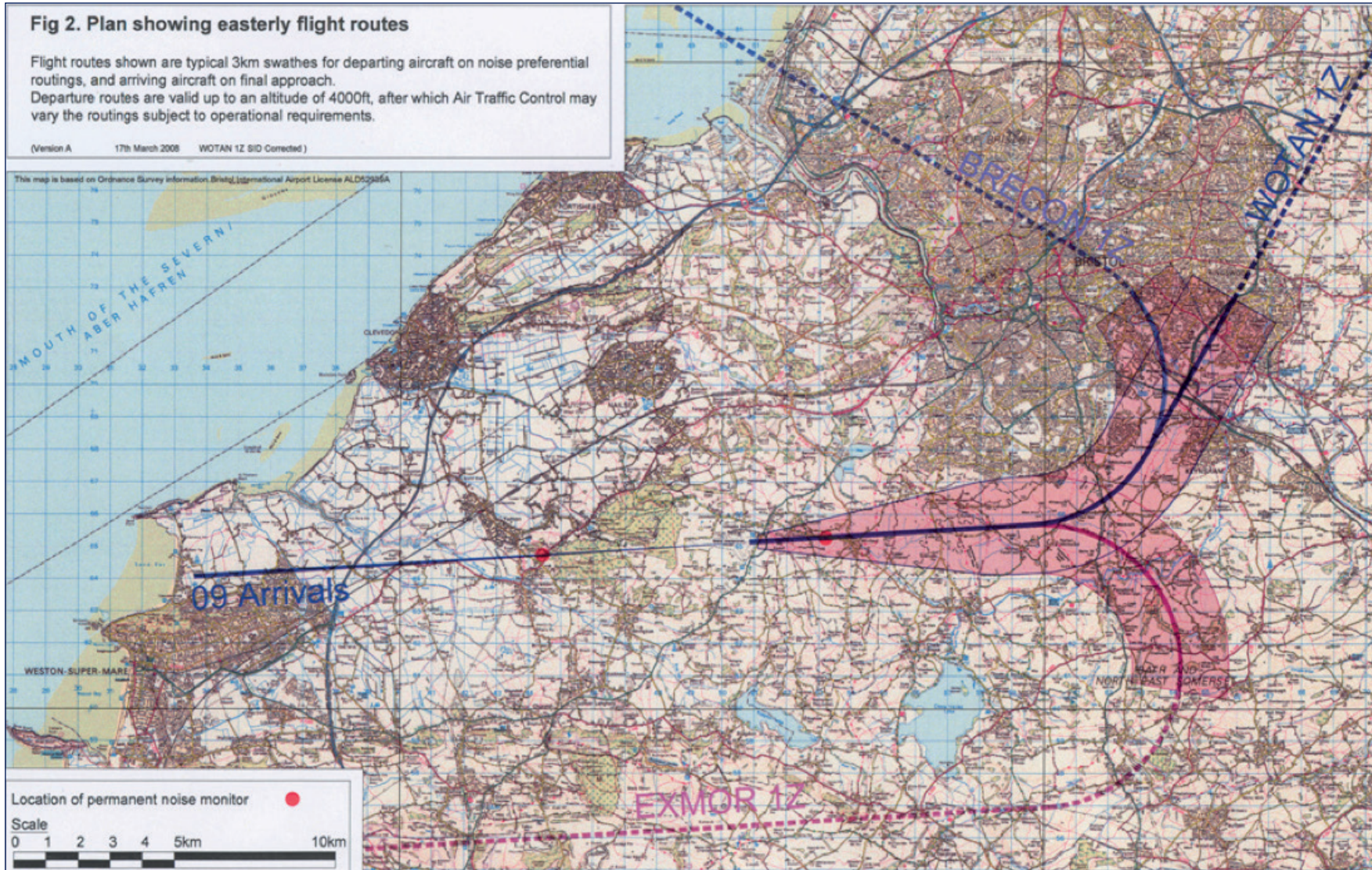


**Fig 2. Plan showing easterly flight routes**

Flight routes shown are typical 3km swathes for departing aircraft on noise preferential routings, and arriving aircraft on final approach. Departure routes are valid up to an altitude of 4000ft, after which Air Traffic Control may vary the routings subject to operational requirements.

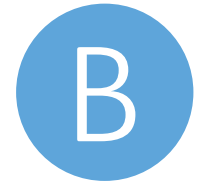
(Version A 17th March 2008 WOTAN 1Z SID Corrected)

This map is based on Ordnance Survey information (Sheet) International Airport License ALD5236A





# Appendix B – Predicted noise contours for summer 2021



This drawing contains Ordnance Survey data © Crown Copyright and database right 2021.

**LEGEND:**

— Noise Contours,  
54 to 69 dB LAeq,15h in 3 dB steps

Rev	Date	Description	Initials

**REVISIONS**

**Bickerdike  
Allen  
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Acoustics  
Technology

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**Bristol Airport  
2021 Forecast Noise Contours**

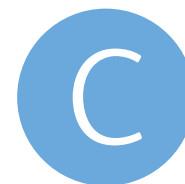
2021 Summer LAeq,15h

DRAWN: MP CHECKED: NW

DATE: January 2021 SCALE: 1:10000@A4

Drawing No:  
A11372\_01\_DR002\_1.0

Note: contours are at 3dB intervals with an outer contour of 54dB<sub>LAeq,15hour</sub>



# Appendix C – Noise Action Plan

## **Noise Action Plan 2019-2024**

Our first Noise Action Plan covered the period from 2010 to 2015, and our second from 2014 to 2018. This is our third Noise Action Plan covering the period 2019 to 2024 and where applicable, includes actions beyond this time period.

The Noise Action Plan (2019 – 2024) was fully adopted on 11th February 2019 by the Department for Environment Food & Rural Affairs for Bristol Airport as required by the Environmental Noise Directive and the Environmental Noise (England) Regulations 2006 (as amended). The main purpose of an airports Noise Action Plan is to effectively plan, manage and where possible reduce the adverse effects of aviation noise associated to our operations.

Within the Noise Action Plan 19 new actions were developed and progress are as follows:

Action No	Action	Define Success	Timescale	Status
1	Complete a feasibility study for the further installation of FEGP provision to service stands which currently rely on MGPU use by December 2020. Once completed any actions derived will be presented to the airports Consultative Committee.	Completed Feasibility Study	Dec-20	<b>Achieved</b> – Bristol Airport has completed this and is now seeking ways to implement further FEGP at the Airport including testing with a fully electric turnaround
2	We will review the Bristol Airport Ground Noise Management Strategy prepared in 2012 in 2019.	Review of Ground Noise Management Study	Dec-19	<b>Achieved</b> - The review of the Ground Noise Study was completed as part of the Airports Planning Application and the only main revision was the ability to provide FEGP to the East Stands in 2019 This will be revised at a suitable time, no later than 2024.
3	By June 2020, 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.	Review the aeronautical fee differentials based on aircraft noise certification	Jun-20	<b>Reconsidering timing</b> - This pending due to the impact of COVID19 on the industry. Will seek to complete the review by the end of 2022 and through contract renewals in 2023.



Action No	Action	Define Success	Timescale	Status
4	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.	Completed assessment of the mechanics of the Penalties Scheme	Dec-19	<b>Achieved</b> - 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.
5	In conjunction with the above, in association with a successful planning application, the penalty system will be reviewed.	Review of Penalty System	Dec-20	<b>Achieved</b> – Review has been carried out and changes implemented with revised penalty charges.
6	We will seek to achieve an 85 % CDA compliance rate by 2023.	Achieving 85 % CDA success rate	Dec-23	<b>On Track</b> - Work will continue with our customer airlines to promote CDA compliance as part of the airports Flight Operations Sub Committee. In 2021, the customer airlines with the biggest presence at Bristol Airport achieved a rate of over 90 %.
7	We will begin looking at alternative flight paths for respite purposes with a view for implementation by 2026/27.	Review and Implementation of Airspace Change	Dec-27	<b>On Track</b> - This is essential area for airspace change which Bristol Airport consulted extensively in 2019 albeit, due to COVID19, the entire FASI South Programme was paused for the majority of 2021.
8	In association with a successful planning application the night quota count system will be reviewed.	Review of Night Quota Count system	Dec-20	<b>Achieved</b> - The airports night quota count scheme was reviewed and changes were proposed as part of Bristol Airports Planning application.
9	We will review our approach with the General Aviation (GA) community and how best to deliver best practice in conjunction with future airspace change work.	Enhancements gained through Airspace Change	Dec-27	<b>On Track</b> - This is essential area for airspace change which Bristol Airport consulted extensively in 2019 albeit, due to COVID19, the entire FASI South Programme is paused.



Action No	Action	Define Success	Timescale	Status
10	The Airport will provide localised guidance to CDA's and will issue to airlines by 2020.	Localised Guidance on CDAs	Dec-20	<b>Achieved</b> - This has been made clear within the updated Aeronautical Information Package (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.
11	The Airport will seek to introduce RNAV routes for arrivals and departures by 2026/27 (subject to consultation).	Review and Implementation of Airspace Change	Dec-27	<b>On Track</b> - This is essential area for airspace change which Bristol Airport consulted extensively in 2019 albeit, due to COVID19 the entire FASI South Programme is paused.
12	We will, based on the findings of the noise climate generated from the monitor data, consider suitable noise mitigation measures, as per the current Noise Insulation Scheme, on a case by case basis. This will be introduced from 2019.	Provide Noise Insulation Grants based on localised noise monitoring	Dec-19	<b>Achieved</b> - The airport provided several noise insulation grants based on findings from localised temporary noise monitoring in 2019.
13	The Airport will continue to engage with North Somerset Council as and when local planning policy is developed.	Engagement with North Somerset Council to inform local policy	Dec-24	<b>Achieved and ongoing</b> - This continues at an officer and district Councillor level where applicable.
14	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.	Two opportunities to apply and treatment enhancements	Dec-19	<b>Achieved</b> - The airport allowed for applications to occur both in June 2021 and when local noise monitoring occurred. For simplicity it is decided only one application timeframe for eligible properties will be allowed for going forward. In addition, the airport also allowed eligible properties to fund noise reduction loft insulation and doors hung on masonry walls as part of the scheme in 2019.





Action No	Action	Define Success	Timescale	Status
15	By 2020, we will review our current noise and track keeping system and upgrade where necessary.	Review and upgrade the airports Noise and Track Keeping System	Dec-20	<b>Achieved</b> - The airport reviewed its Noise and Track Keeping System capabilities and removed the need for complaint reporting due to the launch of a new Customer Relation Management System, up dated maps and improved the frequency of data download from nightly to hourly.
16	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.	Publication of Online Tracker Tool for public use on the airport's website	Dec-19	<b>Achieved</b> – This is now on the Airports website under the 'Tracker Tool' heading: Noise management policies at Bristol Airport   Bristol Airport
17	In 2019, we will refresh how this information (aircraft and airline track keeping) is presented and reported i.e. citing particular instances and associated improvements where relevant.	Update and refresh track keeping performance	Dec-19 Dec-19 Apr-19	<b>Achieved</b> - 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.
18	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 in order to receive feedback on how these are perceived.	Hold Community Feedback Sessions		<b>Achieved</b> - The airport held two drop-in sessions in 2019 and, although on hold in 2020, completed one session in 2021 when COVID19 and the social distancing restrictions resinded for a brief period.
19	In 2019, we will review the Annual Operations Monitoring Report content and presentation to make it even more accessible.	Improve the Annual Monitoring Report and availability		<b>Achieved</b> - 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.

## Contact us

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