Gatwick Airport Limited
Airspace Office
2021 Annual Report

This report covers the period 1st January – 31st December 2021

Introduction and Executive Summary

It is my pleasure to introduce the Gatwick Airport Airspace Office Annual Report for 2021. This report provides a summary of key metrics relating to noise, track keeping and airfield performance for the past year at Gatwick Airport.

Similar to the year previous, 2021 was another year significantly impacted by the COVID-19 pandemic. A national UK lockdown was in force during the first quarter of the year, while travel restrictions around the world impacted traffic levels for significant periods of the year. Promising signs of traffic levels returning towards the end of the year occurred in December 2021, where the airport facilitated 10,118 movements; the busiest number of movements in a month since the onset of the COVID-19 pandemic in March 2020.

There were 55,225 air traffic movements at Gatwick Airport in 2021, a consecutive annual reduction representing only 19.4% of traffic levels in 2019. Passenger numbers similarly reduced to 6.25 million which was 13.4% of 2019's passenger numbers and a further consecutive annual reduction. In the 2021 summer season, 1,590 movements occurred during the core night hours, while 287 movements have occurred in the 2021/2022 winter season night period so far.

It is acknowledged by the airport that even with these reduced operations, aircraft noise remains a concern for our communities and during 2021 there were 5,068 aircraft noise complaints registered with the airport from 254 complainants. These figures represent 19.8% and 36.4% respectively of the complaints and complainants registered in 2019 and are both reductions on the same figures from 2020.

Regardless of the reduced air traffic movements throughout 2021, the Airspace Office continued to carefully monitor all aircraft activity, complete the relevant noise abatement compliance reporting, record and monitor noise levels through our network of Noise Monitoring Terminals, provide responses to noise complaints and requests for information, and monitor and report usage of the night flying restrictions applicable to the airport. In addition, the airport continued to implement its Section 106 Obligations and selected actions from our Environmental Noise Directive Noise Action Plan and support the delivery of the Noise Management Board workplan.

Each year, the UK's Civil Aviation Authority (CAA) undertakes noise exposure contour analysis for Gatwick Airport. The 2021 report shows that the airport's day noise footprint (54 dBA Leq) increased, as expected, by 38%: from an area of 13.3 km2 in 2020 to 18.3 km2 in 2021. It is however significantly lower compared to 2019 (-75%). The number of people living within this area increased by 100% to 1,000 people from 500. (-90% compared to 2019). The CAA attributed the reductions to the fall in movements (30% reduction) and also to fleet mix changes and noise updates following 2021 measurements (26% reduction). This also accounted for a similar reduction in night noise.

It is recognised that since March 2020, many will have become used to quieter skies and may be spending more time at home due to flexible working arrangements. If traffic levels start to return to pre-pandemic levels in 2022, the increase in noise, for some, may be more noticeable than usual. Aircraft noise can never be removed completely, but the airport does try to strike a balance by reducing noise impacts as much as possible, while facilitating the many benefits that air travel delivers.

As well as the usual reports and updates to the Noise and Track Monitoring Advisory Group and the Noise Management Board, as air travel starts to return the airport noise webpages will be updated regularly in order to help local communities understand the levels of aircraft activity that are expected to take place at Gatwick Airport.

Kim Heather,

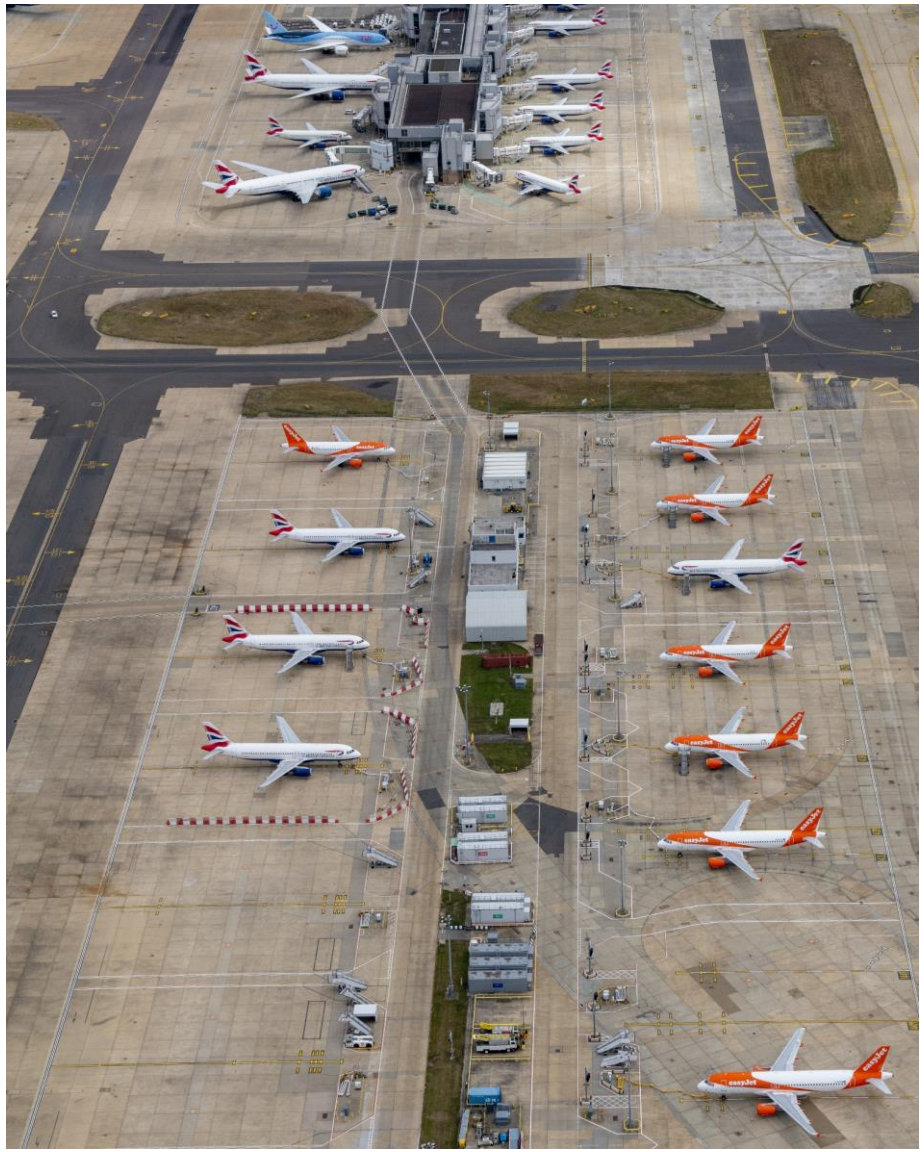
Airspace and Noise Performance Manager

About this report

This report is produced by the Gatwick Airport Airspace Office. This team is responsible for recording, investigating and responding to aircraft noise enquiries as well as monitoring airline compliance to noise mitigation measures as detailed in the UK Aeronautical Information Publication (AIP). This team also actively engages with the airlines to improve their adherence to the above noise mitigation measures and in addition manages the night-time restrictions on flying at Gatwick.

This report contains detailed data on aircraft activity at Gatwick including the adherence to the noise mitigation measures detailed in the UK AIP, an airline noise performance table, a report on night flying during the period, and an analysis of noise complaints received during the period.

Footnotes are explained in the Annex to provide insight into the regulatory basis of the reported figures.



Contents

Performance Summary

Gatwick Key Statistics 2021

Total passengers: 6.3 million

Aircraft movements: 55,225

Total number of aircraft seats: 9.7 million

Average number of passengers per flight: 114

Average load factor: 65%

Biggest airline: easyJet carrying 3.9m passengers

Long haul passengers: 0.6m

Top destination served: Dublin

Performance Summary

Key Performance Indicators

This section details how the airport is performing in conjunction with its Key Performance Indicators (KPIs), the change in traffic numbers over the course of the year and provides information of the types of aircraft and airlines which operate at the airport. The KPIs are in line with the noise mitigation measures of the UK Aeronautical Information Publication (AIP).

KPIs	Q1 2021	Q1 2021 vs Q1 2020	Q2 2021	Q2 2021 vs Q2 2020	Q3 2021	Q3 2021 vs Q3 2020	Q4 2021	Q4 2021 vs Q4 2020
Total Aircraft Movements	3,116	↓ -93.91%	5,368	↑ 81.91%	21,258	↑ 15.38%	25,483	↑ 191.87%
Percentage of Chapter 14 aircraft	69.60%	↑ 5.90%	65.94%	↑ 31.07%	59.60%	↓ -10.58%	54.15%	↓ -16.68%
Percentage of Chapter 4 aircraft & above	99.40%	↑ 0.16%	98.71%	↑ 1.18%	99.65%	↑ 0.24%	99.75%	↑ 0.66%
Percentage of Chapter 3 & Below Aircraft	0.60%	↑ 0.48%	0.36%	↑ 0.01%	0.12%	↓ -0.02%	0.07%	↓ -0.24%
Continuous Descent Operations (CDO) compliance	85.20%	↓ -4.13%	87.49%	↑ 14.80%	92.95%	↑ 0.53%	90.60%	↑ 3.55%
Track Keeping Compliance	98.90%	↑ 0.28%	97.65%	↓ -0.28%	98.02%	↓ -0.43%	98.37%	↑ 0.50%
Total Noise Infringements	0	0	0	0	0	0	0	0
Noise Complaints Received	382	↓ -88.79%	535	↑ 40.56%	1928	↓ -17.47%	2223	↑ 292.06%
Individual complainants	48	↓ -76.00%	71	↓ -8.97%	161	↓ -58.61%	103	↓ -48.24%
Enquiry response performance target is 95% within 8 days	99.74%	↓ -0.24%	100.00%	↑ 0.30%	99.87%	↑ 20.72%	100.00%	↑ 14.93%

Figure 1: Summary of KPIs

Performance Summary

Key Performance Indicators – five-year view

This KPI table shows the last 5 years of statistics in line with the noise mitigation measures of the UK Aeronautical Information Publication.

	12 Month Performance										
Parameter	**2021**	**2021 vs 2020**		**2020**	**2020 vs 2019**		**2019**	**2019 vs 2018**		**2018**	**2018 vs 2017**		**2017**
Track keeping performance (% on track)	**98.20%**	↓	-0.29%	**98.49%**	↑	0.07%	**98.42%**	↑	0.34%	**98.08%**	↑	0.02%	**98.06%**
24hr CDO (% achievement)	**90.89%**	↑	1.45%	**89.59%**	↑	0.01%	**89.58%**	↓	-1.16%	**90.74%**	↑	0.26%	**90.48%**
Day/Shoulder CDO (% achievement)	**90.94%**	↑	1.28%	**89.79%**	↑	0.10%	**89.70%**	↓	-1.10%	**90.80%**	↑	0.24%	**90.56%**
Core night CDO (% achievement)	**90.07%**	↑	5.05%	**85.74%**	↓	-2.87%	**88.27%**	↓	-1.76%	**90.03%**	↑	0.43%	**89.60%**
1000ft Infringements (No.)	**0**	-	N/A	**0**	-	N/A	**0**	-	N/A	**0**	-	N/A	**0**
Departure Noise Infringements	**0**	-	N/A	**0**	↓	-100.00%	**0**	↑	100.00%	**0**	↓	-100.00%	**2**
Individual Complainants	**254**	↓	-18.85%	**313**	↓	-55.16%	**698**	↓	-16.51%	**836**	↓	-16.15%	**997**
Total Noise Complaints Received	**5,068**	↓	-23.54%	**6,628**	↓	-74.10%	**25,593**	↑	4.69%	**24,447**	↓	-0.86%	**24,658**
Enquiry Response Performance Target is 95% Within 8 Days	**99.98%**	↑	0.49%	**99.49%**	↑	28.16%	**77.63%**	↓	-22.35%	**99.98%**	↑	0.09%	**99.89%**
Percentage of Chapter 4 (or equivalent) aircraft %	**99%**	-	N/A	**99%**	↑	1.02%	**98%**	↓	-1.00%	**99%**	-	N/A	**99%**
Percentage of Chapter 14 aircraft %	**58%**	↓	-12.12%	**66%**	↑	6.45%	**62%**	↑	6.00%	**56%**	↑	1.00%	**55%**
West/East Runway Split (%)	**68/32**	-	N/A	**83/17**	-	N/A	**68/32**	-	N/A	**62/38**	-	N/A	**78/22**
Total Air Traffic Movements	**55,225**	↓	-30.37%	**79,310**	↓	-72.15%	**284,736**	↑	0.29%	**283,926**	↓	-0.82%	**286,271**

Figure 2: Summary of Annual KPIs

Performance Summary

Comparison to END 2016 Baseline

Parameter	+/-	12 Month Performance Averages[1] 2021	2020	2016	2011	2006
Track keeping performance (% on track)[2]	▼	98.20%	98.49%	98.56%	97.47%	98.17%[3]
24hr CDO (% achievement)[4]	▲	90.89%	89.59%	88.58%	90.49%	80.79%
Day/Shoulder CDO (% achievement)	▲	90.94%	89.79%	88.18%	90.19%	79.9%
Core night CDO (% achievement)	▲	90.07%	85.74%	92.90%	93.96%	89.6%
1,000ft Infringements (No.)	-	0	0	0	3	11
1,000ft Infringements (No. below 900ft)	-	0	0	0	1	6
Departure Noise Infringements (Day)	-	0	0	0	0	10
Departure Noise Infringements (Night/Shoulder)	-	0	0	1	4	2
Individual complainants	▼	254	313	2,324	343	587
Total noise complaints received[5]	▼	5,068	6,628	17,715	2,673	4,791
Enquiry response performance target is 95% within 8 days	▲	99.98%	99.49%	46.55%	KPI 95%	
West/East Runway Split (%)	-	68/32	83/17	67/33	67/33	68/32

Figure 3: Summary of 2021 and 2020 KPIs against the 2016 END Baseline

[1] The colour indicates the most recent 12 month performance compared to the 2016 END Baseline, with green showing improvement and red a decline in performance, the directional arrow indicating performance compared to the previous 12 month performance.

[2] Track keeping statistics measurement changed on the 26th May 2016 due to the Route 4 amendment, all SIDs are now included in the total figure.

[3] This figure did not include deviations from prop types or those due to weather.

[4] As a result of the Independent Review of Arrivals, it was recommended (Imm-05) that the CDO monitoring altitude be increased from 6,000ft to 7,000ft as of 1st August 2016.

[5] Complaints are recorded in line with our published complaints handling policy. The revised policy, published in November 2014, advised that only one complaint per day is recorded per individual. On the 29th September 2016, there was a further revision to our complaints handling policy which now allows individuals to make multiple complaints per day and these will each be recorded. It is important to note that since January 2018, complaints which have been deleted from the NTK system are no longer counted in the complaint statistics when they had been previously. Complaints are only deleted if they contain abusive, obscene or threatening language.

Airline Noise Performance Table

In order to drive continuous improvement and to help showcase airline performance in relation to noise, Gatwick Airport issues a quarterly Airline Noise Performance Table (ANPT), comparing operators' performance against strategic and operational metrics. This report presents the ANPT for all of 2021. Carriers with an established base at Gatwick are highlighted in **bold.**

Rank by ATMs	Airline name	Total movements	QC/Seat	Rank (QC)	CDO performance	Rank (CDO)	TK performance	Rank (TK)
1	**EasyJet**	**34,083**	**0.00160**	2	**94.53%**	3	**99.70%**	8
2	**TUI Airways**	**4,216**	**0.00240**	6	**94.17%**	4	**99.86%**	6
3	Ryanair	2,745	**0.00265**	8	**98.25%**	2	**99.78%**	7
4	**British Airways**	**2,491**	**0.00304**	9	**91.40%**	5	**99.68%**	9
5	Vueling	2,488	**0.00181**	3	**83.40%**	8	**99.36%**	12
6	**Norwegian**	**1,339**	**0.00360**	12	**89.24%**	6	**100.00%**	1
7	**Aurigny**	**1,177**	**0.00247**	7	**98.47%**	1	**99.66%**	10
8	Air Europa	1,026	**0.00321**	11	**67.58%**	12	**99.42%**	11
9	Air Baltic	1,011	**0.00143**	1	**86.73%**	7	**100.00%**	1
10	TAP Portugal	715	**0.00216**	5	**80.95%**	9	**100.00%**	1
11	Aer Lingus	672	**0.00215**	4	**74.63%**	10	**100.00%**	1
12	Ukraine International	523	**0.00308**	10	**73.56%**	11	**100.00%**	1

Airlines are ranked by the number of movements. The ranking within each metric is presented.

Figure 4: Airline Noise Performance Table

This table is based on operational data during the COVID-19 pandemic. Throughout the year, operations were impacted by travel restrictions and significant national lockdown at the start of the year. A number of airlines ceased their operations at Gatwick in 2020, but are now only starting to reappear on this table as they commence operations once again. The threshold for inclusion in the table is an average of 10 movements per week.

* Route 4 Track-Keeping performance is excluded from noise performance table.

Airline Noise Performance Table – Methodology Statement

This page describes the methodology used to calculate the three metrics that form the Airline Noise Performance Table (ANPT) and explains some of the key terms.

Noise Quota Count (QC) per Seat

This metric assesses the average Quota Count (QC) per seat per flight. Individual aircraft have a defined QC value for arrival and departure, which is determined by the Effective Perceived Noise Level (EPNdB) stated on its noise certificate and may be affected by the type of engines used, certified Maximum Take-Off Weight (MTOW) and any applicable noise modifications (e.g. landing gear plugs for B787). QC/seat is a strategic metric as it can only improve in the longer term when airlines change their fleet mix, introduce newer aircraft types, or modify existing aircraft to reduce their noise impact.

Airlines operating modern and quieter aircraft will have a lower QC/seat score. For example, a typical A320 has a QC value of 0.25 for arrival and 0.5 for departure and a typical number of seats would be around 180, although this may vary between airlines. Therefore, an A320 would normally have an average QC/seat score = (0.25 + 0.5) / (180 * 2) = **0.00208**, as each rotation of the aircraft requires one arrival and one departure. For comparison, an A320 NEO would typically have an arrival and departure QC equal to 0.125, which reflects the fact that it is much quieter than its predecessors within A320 family, but the number of seats is roughly the same. An A320 NEO's QC/seat score would therefore be = (0.125 + 0.125) / (180 * 2) = **0.00069**.

Continuous Descent Operations (CDO) Performance

CDO performance is the first operational metric in the ANPT and relates to the vertical profiles flown during arrival. CDO performance is equal to the proportion of arrivals that meet the criteria for CDO, i.e. no level segment longer than 2.5 nautical miles below the altitude of 7,000ft. Continuous descent approaches reduce the noise impact because they require lower engine thrust and the aircraft stays higher for longer. The airport-wide CDO performance is also presented separately in this report.

RAG definition: **Green ≥ 85%** **70% ≤ Amber < 85%** **Red < 70%**

Track Keeping (TK) Performance

Track keeping performance is the second operational metric in the ANPT and applies to the lateral departure track. All departures are required to stay within the Noise Preferential Routes (NPRs) defined by the Department for Transport to avoid more densely populated areas. Track keeping performance is equal to proportion of departures that stay within the NPRs until they reach an altitude of 3,000ft or 4,000ft depending on the route. Note that the Route 4 NPR has been excluded from the ANPT statistics for the time being due to the more challenging flyability and its inclusion would unfairly penalise airlines with higher proportion of Route 4 departures. Track keeping performance at airport level is also presented separately in this report.

RAG definition: **Green ≥ 95%** **90% ≤ Amber < 95%** **Red < 90%**

Airlines with CDO or Track keeping performance in the red or amber range will be considered as priority for engagement and we will work with them to improve their operational performance.

Airport and Runway Statistics

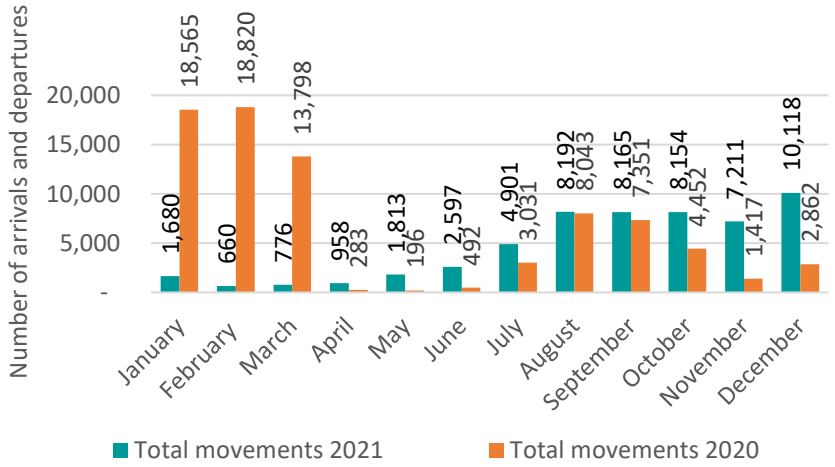


Figure 5: Comparison of arrival and departure numbers over the past two years

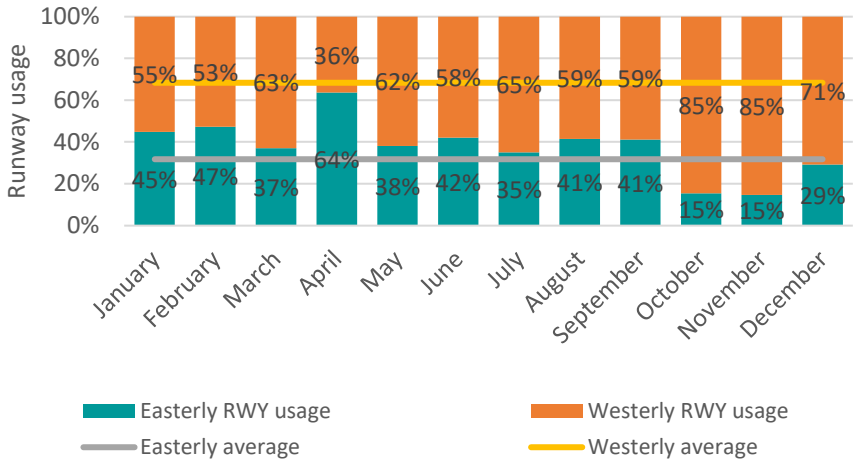


Figure 6: Comparison of easterly and westerly runway usage

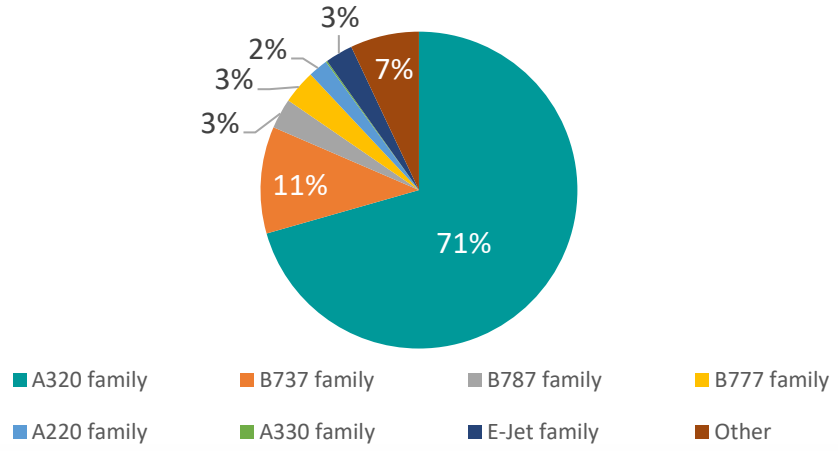


Figure 7: Aircraft fleet mix

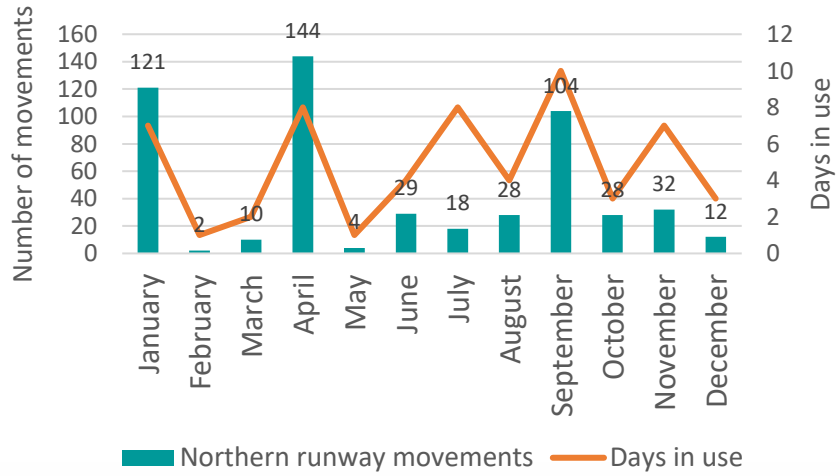


Figure 8: Northern runway usage

The impact of the COVID-19 pandemic can be further evidenced by total movements (Figure 5), with a third national lockdown occurring in the initial months of 2021. December 2021 experienced the most movements since the pandemic began.

Prevailing meteorological conditions at Gatwick continues to require more frequent use of westerly operations, with an average use of 68% last year.

Figure 7 shows that the A320 aircraft family continues to be the most common type at Gatwick Airport in 2021 and is used by easyJet, British Airways, Vueling and Wizz Air.

Movements by Aircraft Type

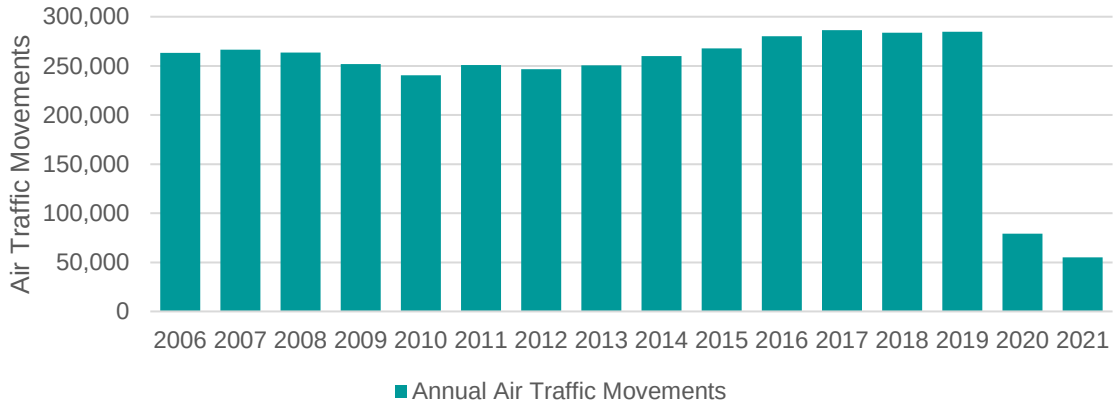


Figure 9: Annual Air Traffic Movements 2006-2021

Figure 9 shows the annual air traffic movements since 2006. A breakdown by different aircraft types is presented in Figure 10.

Aircraft movements in 2021 across the spectrum of aircraft types were approximately 30% down on 2020 figures. The notable trend experienced in 2020 of operators favouring newer, quieter and smaller aircraft continued in 2021; ~91.3% of 2021 movements were operated by narrow bodied, single aisle twin engine aircraft, up from ~87.8% in 2020. The most common aircraft used in 2021 at Gatwick was the Airbus A320.

Airbus A380 aircraft recommenced flying to Gatwick Airport in December 2021 after an extended break in operations, while the Boeing 777 and 787 variants remained notable aircraft types utilised in 2021.

Similarly to 2020, usage of small business jets remained approximately similar reflecting the fact that business aviation was not as severely affected by the pandemic as conventional airlines.

Aircraft Type	2021	2020	Percent +/-
Airbus A220 (Bombardier C-Series)	1,049	958	9.50%
Airbus A310	2	12	-83.33%
Airbus A319	10,141	17,051	-40.53%
Airbus A320	17,256	25,107	-31.27%
Airbus A320 Neo	7,230	8,378	-13.70%
Airbus A321	490	1,346	-63.60%
Airbus A321 Neo	3,905	4,887	-20.09%
Airbus A330	82	662	-87.61%
Airbus A340	4	36	-88.89%
Airbus A350	4	248	-98.39%
Airbus A380	44	506	-91.30%
ATR 42/72	257	547	-53.02%
BAe 146/Avro RJ	74	78	-5.13%
Beech B200	42	22	90.91%
Boeing 737	8,766	10,941	-19.88%
Boeing 747	2	340	-99.41%
Boeing 757	156	825	-81.09%
Boeing 767	94	58	62.07%
Boeing 777	1,905	2,731	-30.25%
Boeing 787	1,703	3,275	-48.00%
Bombardier Learjet	30	16	87.50%
Cessna Citation/Challenger	116	130	-10.77%
Dassault Falcon	56	26	115.38%
Embraer 135/145	26	49	-46.94%
Embraer 170/175	12	28	-57.14%
Embraer 190/195	1,563	929	68.25%
Embraer Phenom/Legacy	16	36	-55.56%
Gulfstream	48	32	50.00%
Other Jet Aircraft	94	32	193.75%
Other Propeller Aircraft	58	24	141.67%
Total	55,225	79,310	-30.37%

Figure 10: Movements by Aircraft Type 2021 vs 2020

Westerly Operations

These maps depict aircraft tracks (Figure 11) and track density (Figure 12) on the busiest day with westerly operations in 2021. Westerly operations means that aircraft will depart towards the west and arrive from the east (see Annex F for more information on westerly operations).

The frequency and altitude of overflight over different locations depends on the weather, the destination/origin of the flights and the traffic volumes at the airport and the surrounding airspace. Flights to and from Gatwick need to be integrated with traffic to and from other airports in the London Terminal Manoeuvring Area.

During westerly operations, aircraft will arrive over East Sussex, Surrey and west Kent and depart over areas in Surrey, West Sussex and west Kent meaning that certain settlements in these areas will be overflown by Gatwick traffic.

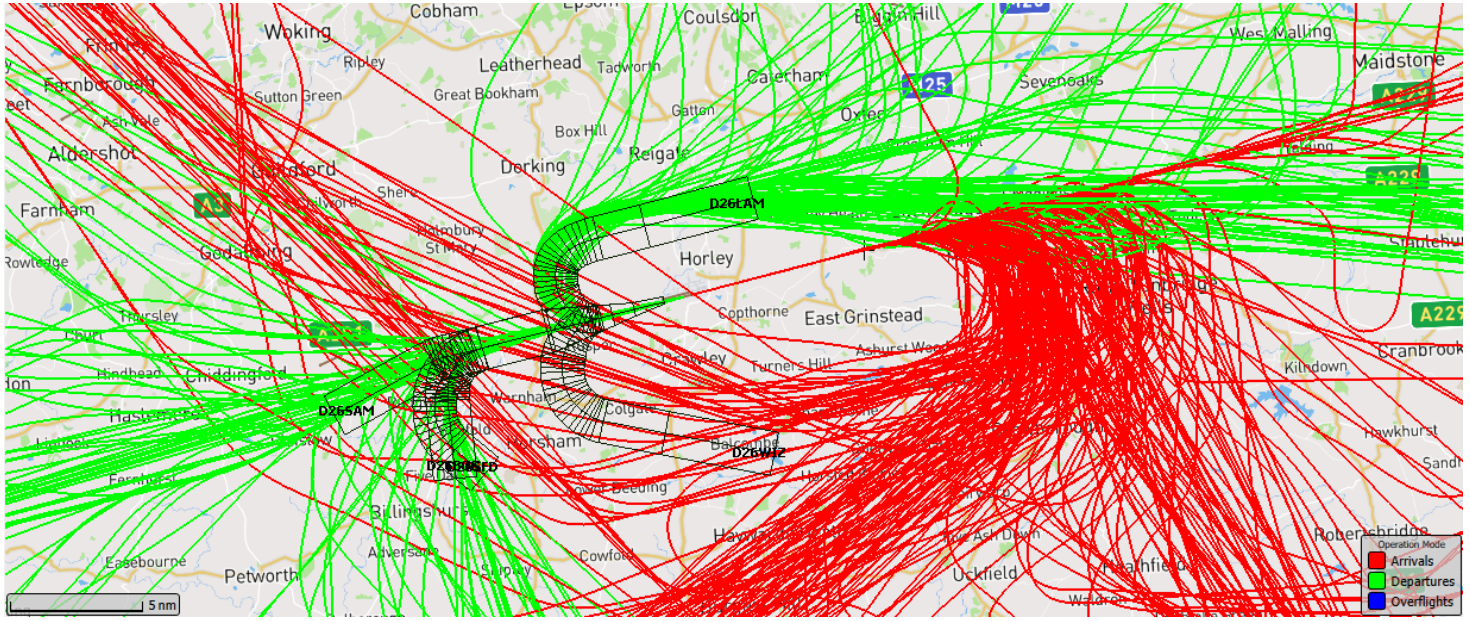


Figure 11: Westerly Operations Arrival and Departure Tracks

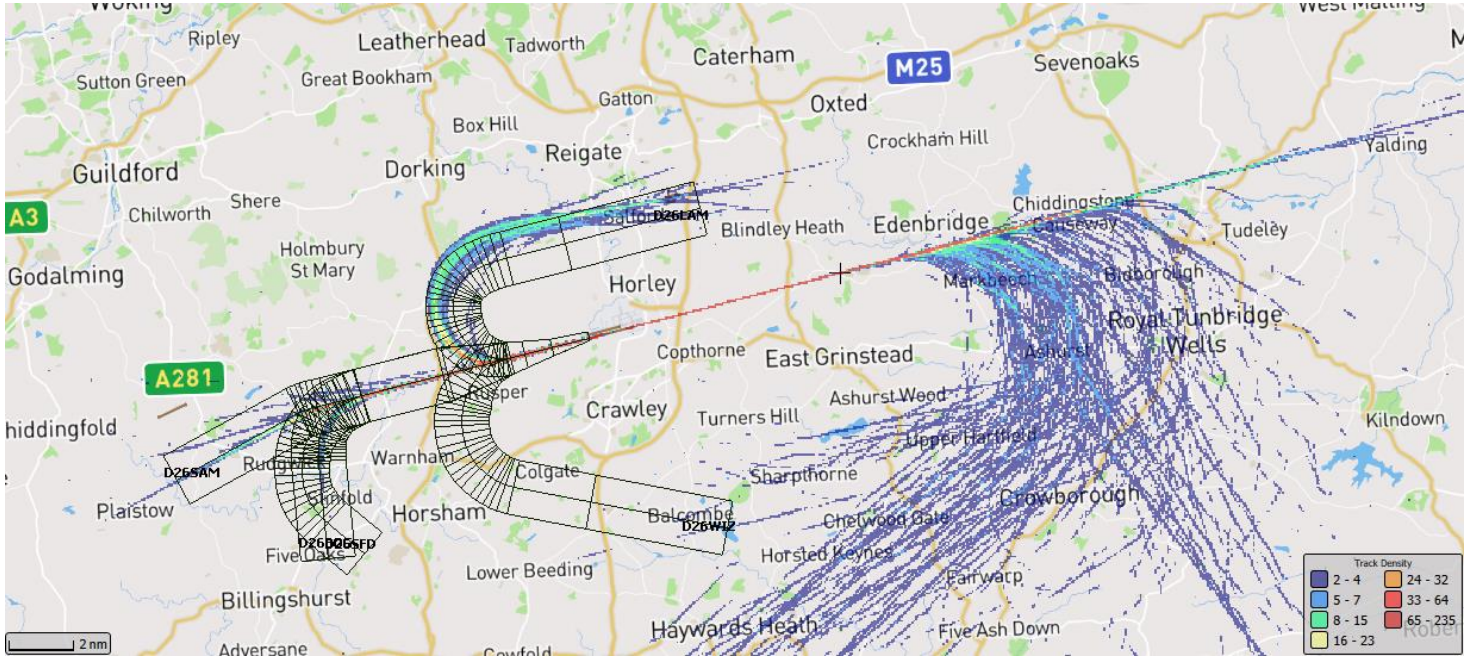


Figure 12: Westerly Operations Track Density

Easterly Operations

These maps depict aircraft tracks (Figure 13) and track density (Figure 14) on the busiest day with easterly operations in 2021. Easterly operations means that aircraft will depart towards the east and arrive from the west (see Annex F for more information on easterly operations).

The frequency and altitude of overflight over different locations depends on the weather, the destination/origin of the flights and the traffic volumes at the airport and the surrounding airspace. Flights to and from Gatwick need to be integrated with traffic to and from other airports in the London Terminal Manoeuvring Area.

During easterly operations, aircraft will arrive over East and West Sussex, Surrey and West Kent and depart over areas in Surrey, East Sussex and West Kent meaning that certain settlements in these areas will be overflown by Gatwick traffic.

Aircraft arriving from the North-West or South may be directed straight onto the final approach, leading to a less concentrated arrival swathe.

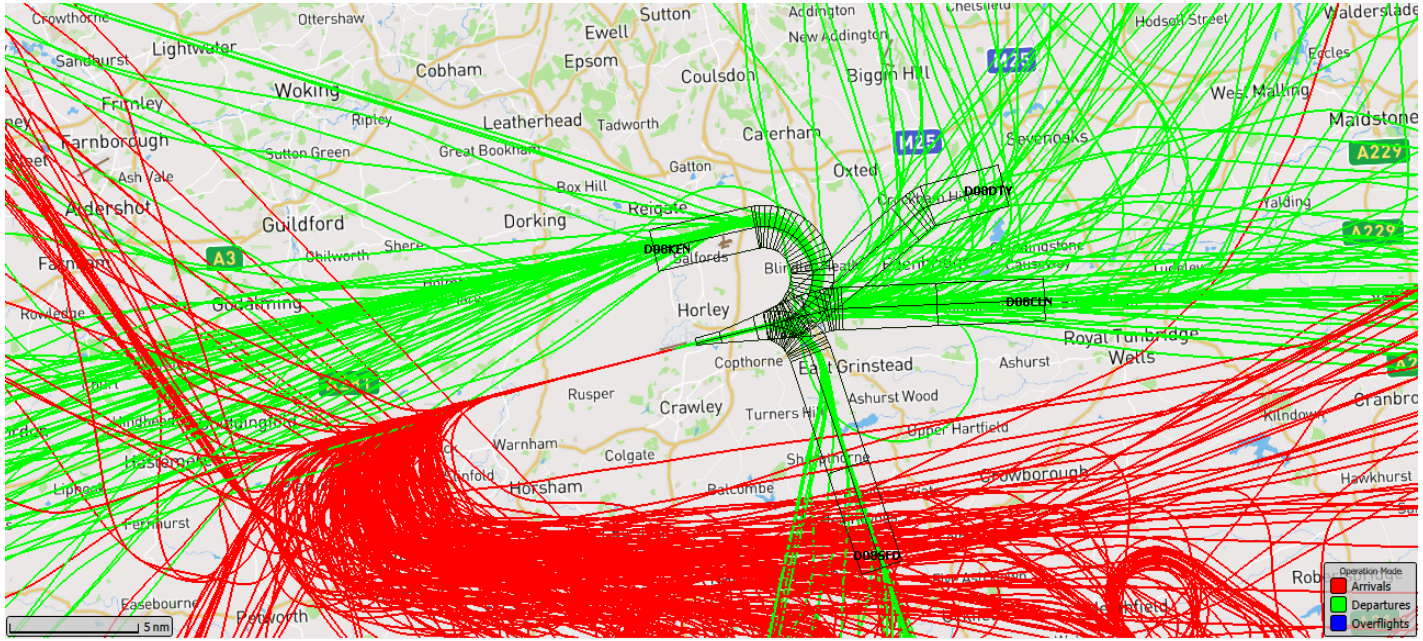


Figure 13: Easterly Operations Arrival and Departure Tracks

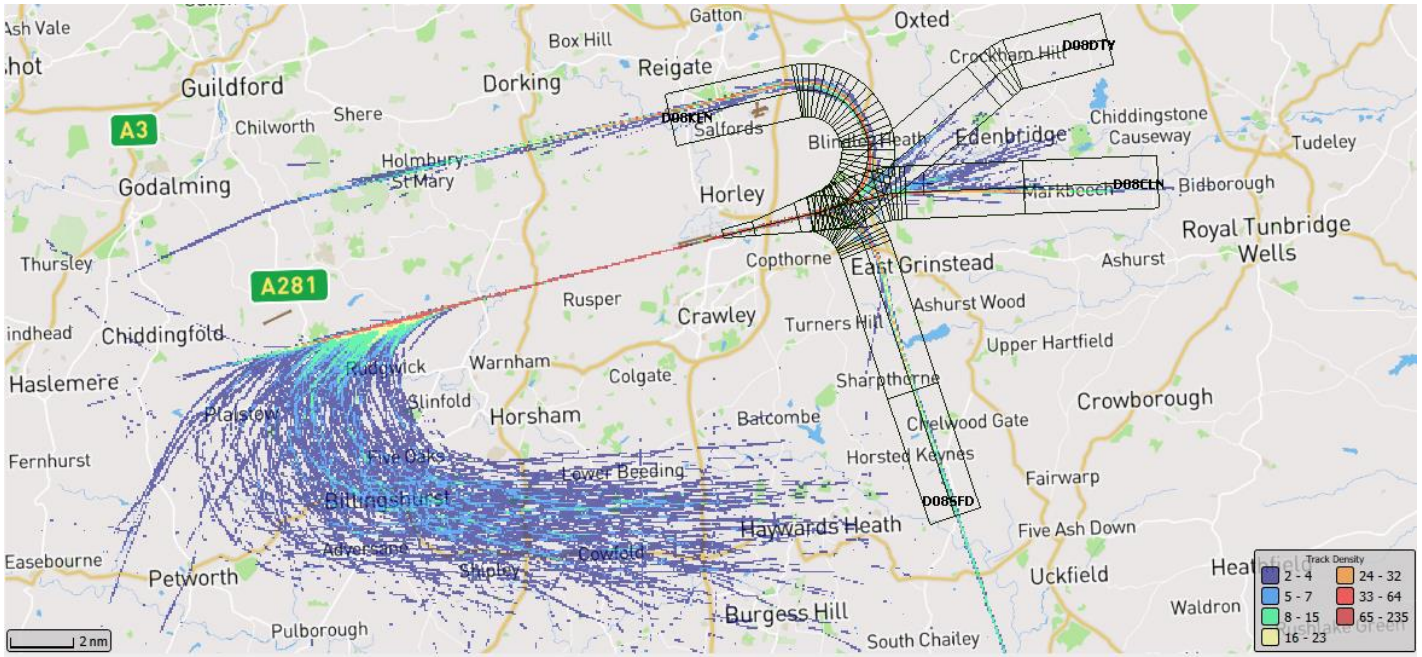


Figure 14: Easterly Operations Track Density

Arrivals Statistics – Continuous Descent Operations[1]

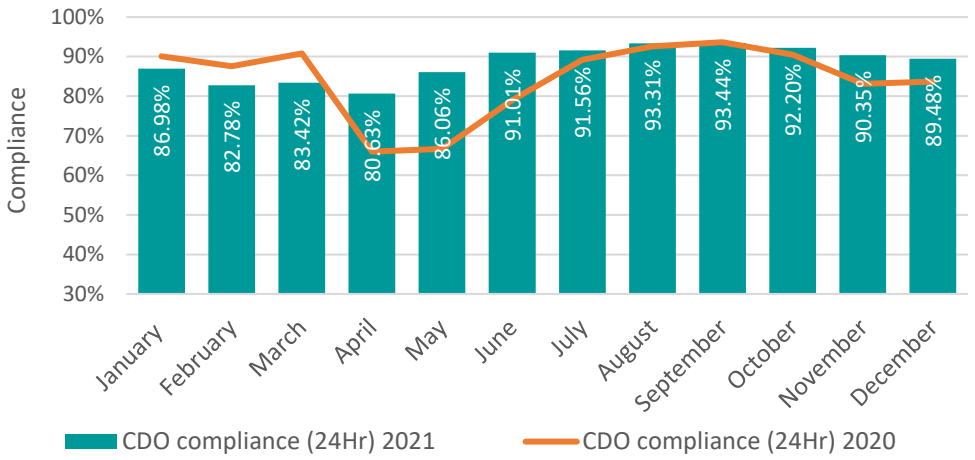


Figure 15: CDO compliance (24Hr)

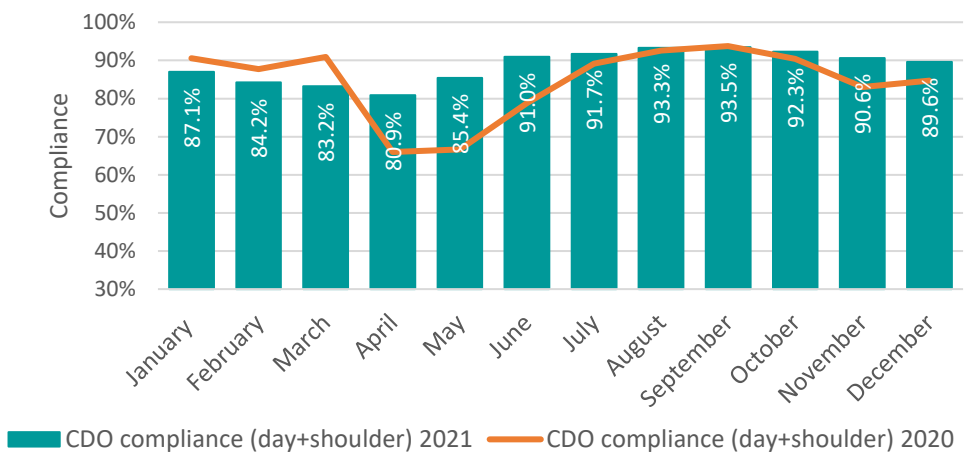


Figure 16: CDO compliance (Day+Shoulder)

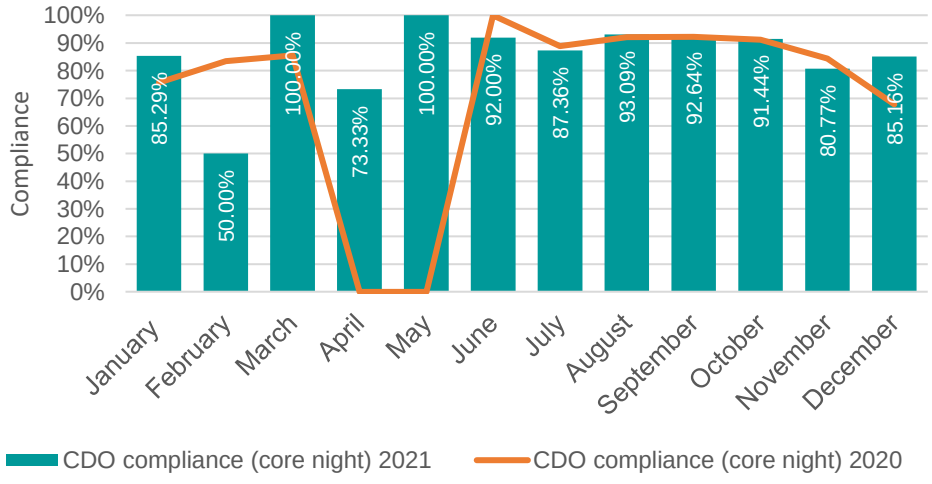


Figure 17: CDO compliance (Core Night)

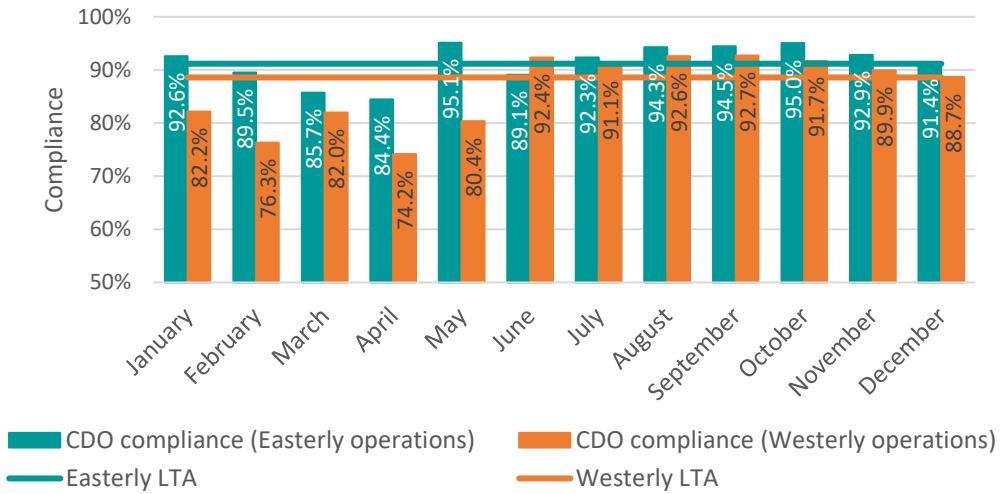


Figure 18: CDO compliance per runway

CDO compliance historically declines during winter months due to more frequent adverse weather. Furthermore, it would be expected that when airlines return to regular operations after a hiatus, CDO compliance would initially be poor while returning to standards. However despite both of these facts in the last quarter of 2021, 24-hour CDO compliance (Figure 15) averaged above 90%.

Due to the lower movement numbers in the core night, non-CDO compliant flights in this period of day have a more adverse effect on overall figures, as evidenced in Figure 17. However, when compared to 2020, few significant differences can be noted.

Arrivals Statistics – Go-Arounds

A go-around is a safety procedure adopted when an arriving aircraft on final approach aborts landing by applying take off power and climbing away from the airport. It is a set procedure to be followed by the flight crew in the event of an aircraft being unable to land. The procedure is published so that ATC and the pilots can anticipate where the aircraft will go following the decision to go-around.

The standard missed approach procedure applicable to Gatwick Airport requires a go-around aircraft to climb straight ahead to 3,000ft, then, on passing 2,000ft or 1DME (distance measuring equipment), whichever is later, turn heading 180. This may or may not result in aircraft overflying the town of Crawley or outlying areas. The number and reasons for go-arounds are routinely discussed at FLOPSC meetings.

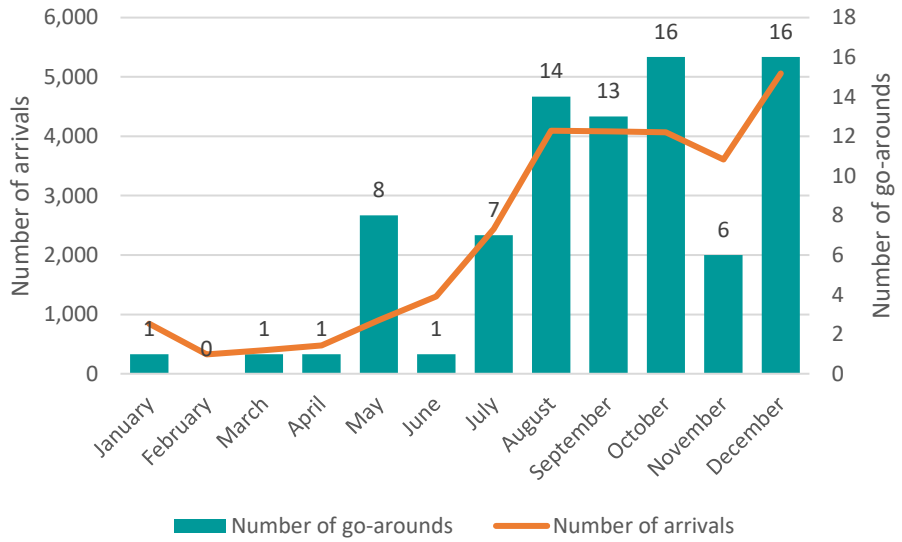


Figure 19: Number of arrivals and go-arounds

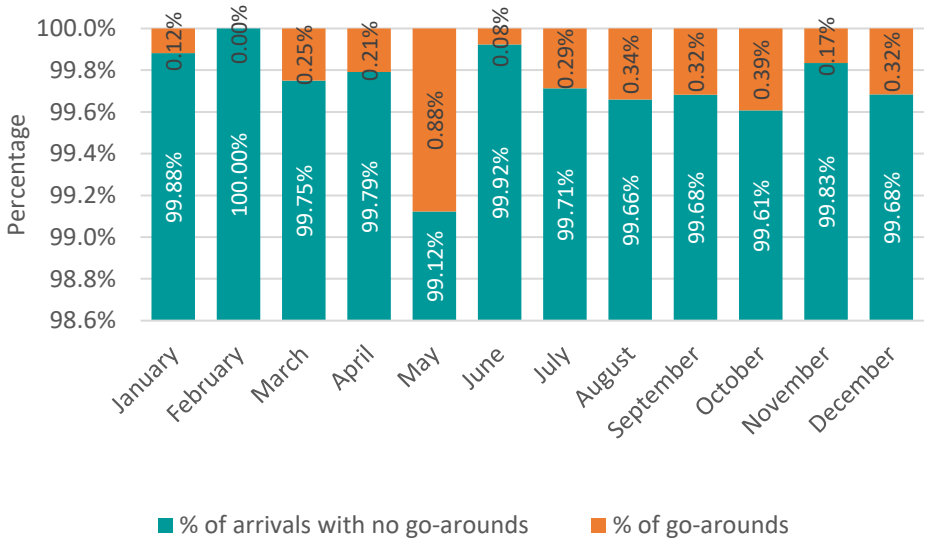


Figure 20: Ratio of go-arounds

Arrivals Statistics – Go-Arounds

The causes for go-arounds are recorded by controllers in the ATC Tower and provide an insight into the operational situations causing them to happen. The top three reasons in Figure 21 (left) are weather (e.g. wind shear), unstable approach and an occupied runway. The latter may be caused by a range of reasons as broken down in Figure 21 (right).

Due to a national lockdown in the first part of 2021, few go-arounds occurred at the start of the year due to the airport's low number of total movements. As traffic levels increased throughout the year, so too did the number of monthly go-around occurrences.

GO-AROUND MAIN CAUSES

CAUSES OF RUNWAY OCCUPANCY

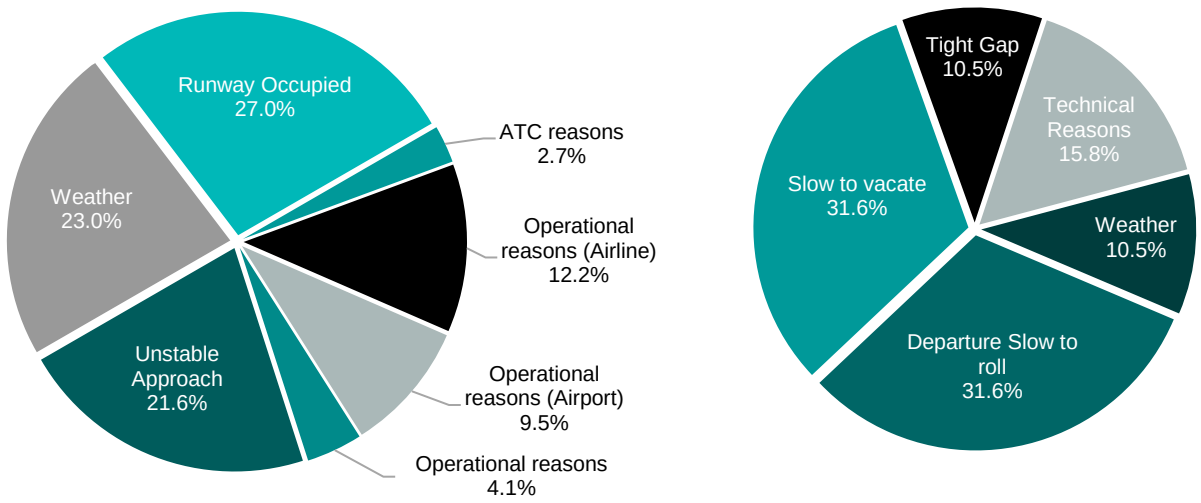


Figure 21: Reasons for go-arounds in 2021

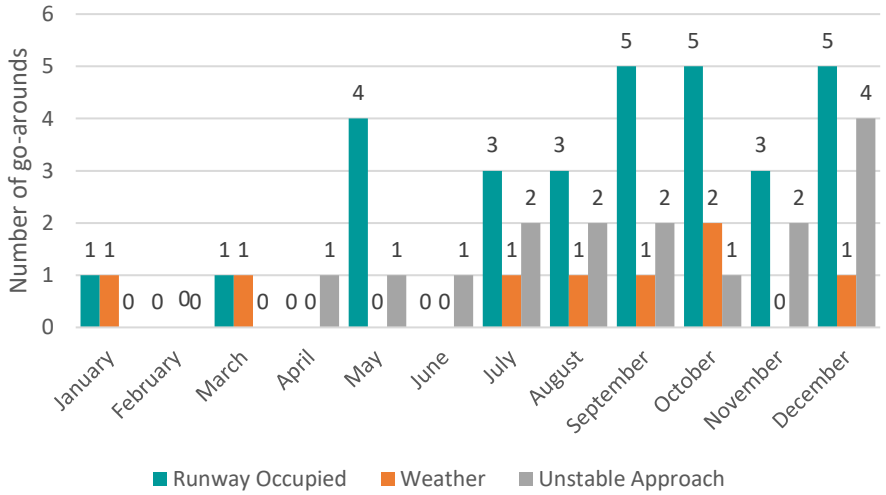


Figure 22: Number of main reasons for go-arounds per month

Arrivals Statistics – Joining Point

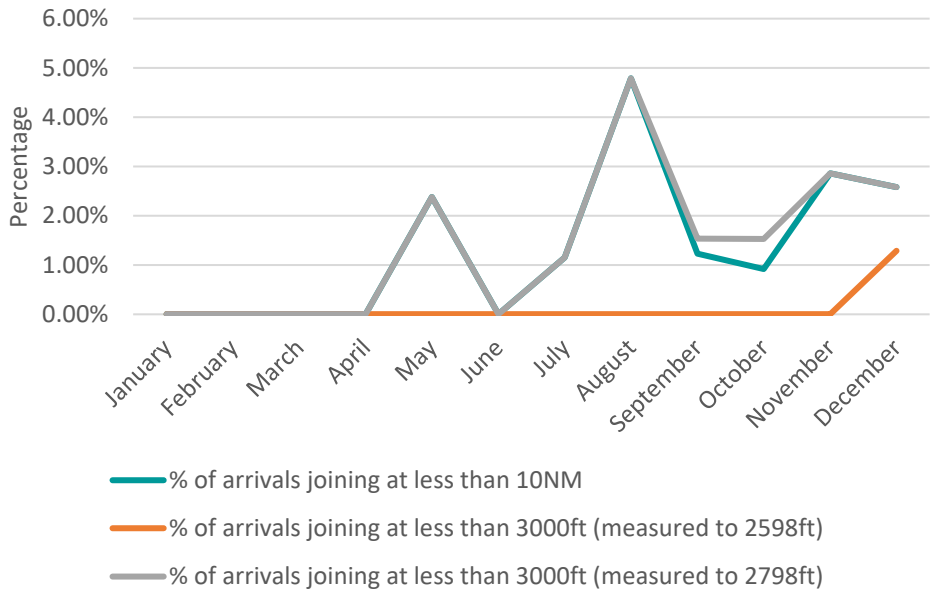


Figure 23: Night time joining point violations[2]

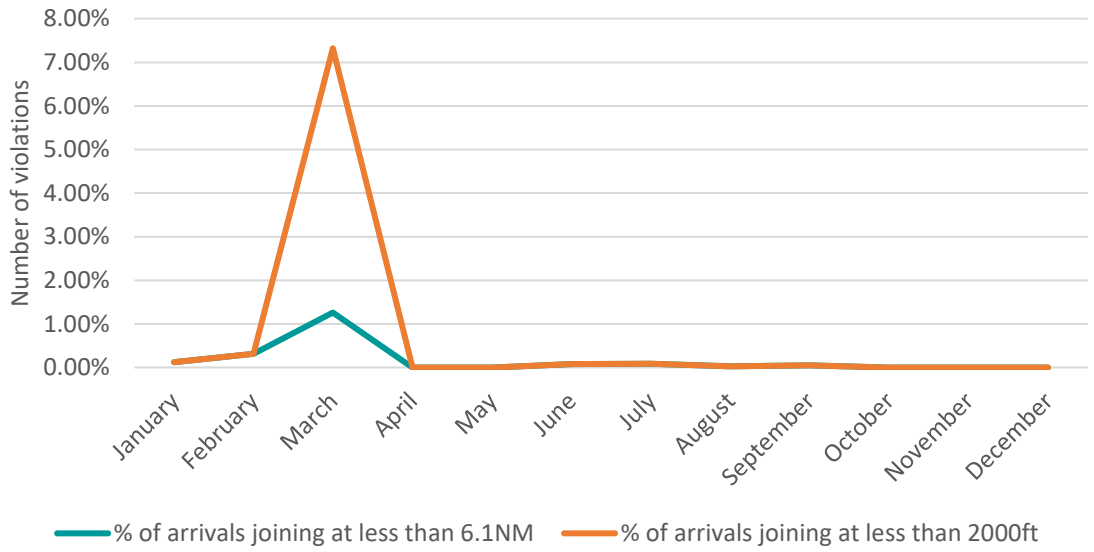


Figure 24: Day time joining point violations

As per the AIP rule, aircraft shall not join the ILS at less than 10NM from touchdown or below 3,000ft at night. Figure 23 shows the percentage of arrivals violating this rule.

During the day, the DfT noise abatement procedures stipulate that arrivals shall not descend below 2,000ft before intercepting the ILS glidepath; this equates to 6.1NM from touchdown. We continually monitor this for conformance, as shown in Figure 24, and infringements are followed up with the airline and NATS for feedback on the event to prevent future infringements. Helicopters and calibration flights are excluded from this requirement. For detail on the monitoring of the arrivals swathe see Annex C.

Joining point distance is measured from the approximate touchdown point abeam the Precision Approach Path Indicator (PAPI) lights. Joining point altitude is assessed through the noise & track keeping system, see Annex B Note 2.

Arrivals Statistics – Joining Point

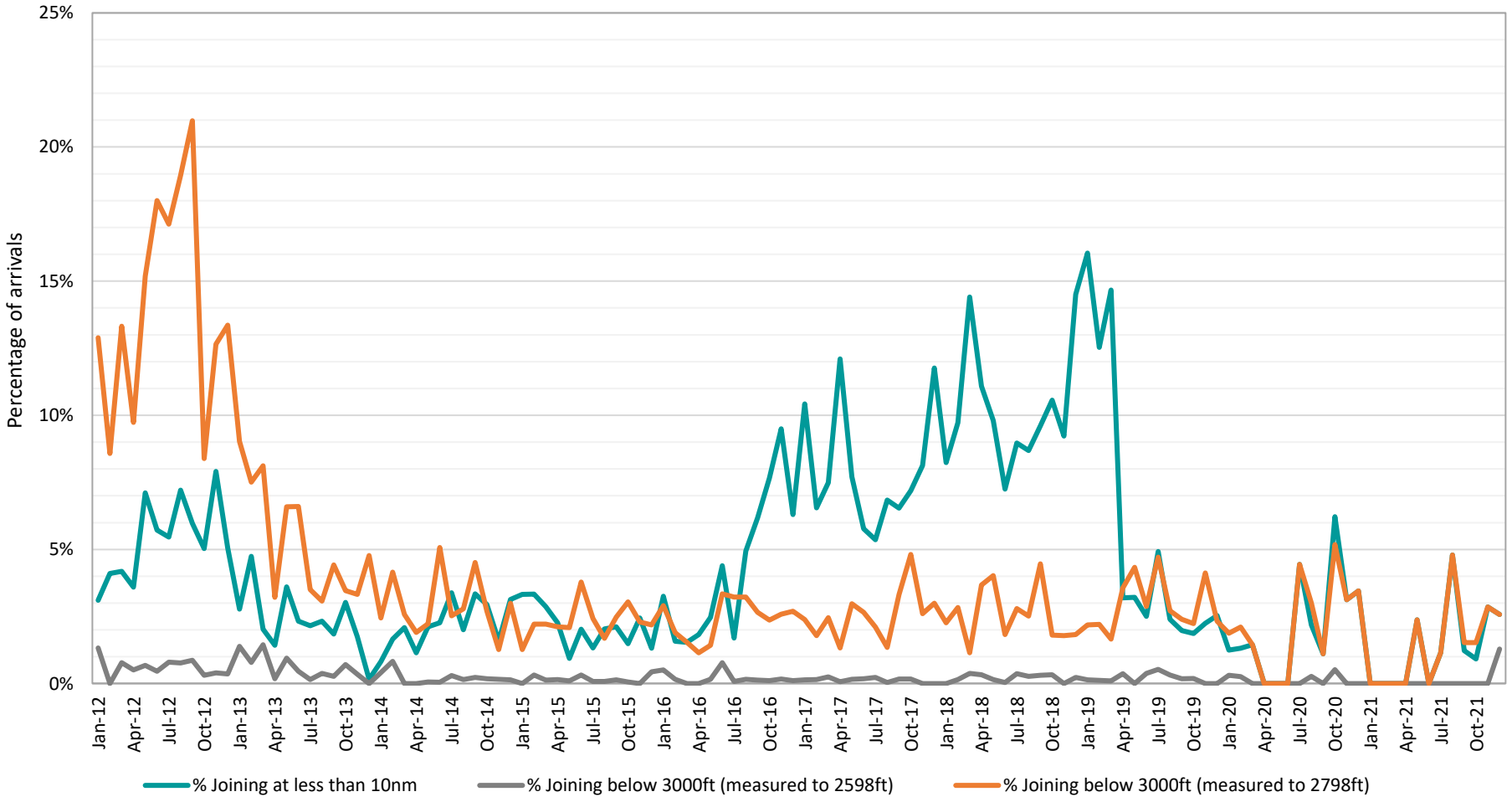


Figure 25: Night-time joining point violations (past 10 years)

Figure 25 shows the last 10 years of ILS joining point data for night time arrivals.

The daytime joining point was altered in August 2016 which meant that aircraft could join between 8NM and 14NM, allowing for a wider distribution of arrivals. As a knock-on effect, more arrivals at night joined at just below 10NM.

Upon upgrading the NTK system in April 2019, the analytic process was updated and independently verified, leading to the observed drop.

The Airspace Office continues to monitor these statistics and are in regular contact with NATS to identify reasons for violations.

Arrivals Statistics – Overflight[3]

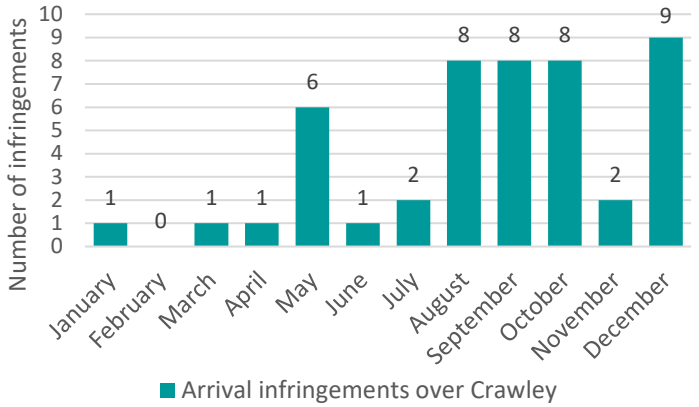


Figure 26: Arrival infringements over Crawley

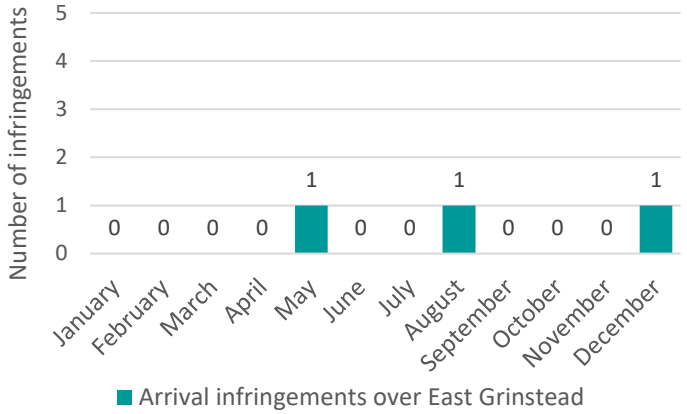


Figure 27: Arrival infringements over East Grinstead

The Gatwick AIP does not allow arriving aircraft to pass over the congested areas of Crawley, East Grinstead, Horley or Horsham below the altitude of 3,000ft or Lingfield below 2,000ft.

The infringements shown in Figure 17, 18 & 20 were all caused by go-arounds.

The Lingfield infringement in Figure 21 for March 2021 was caused by pilot error. There have been no infringements since.

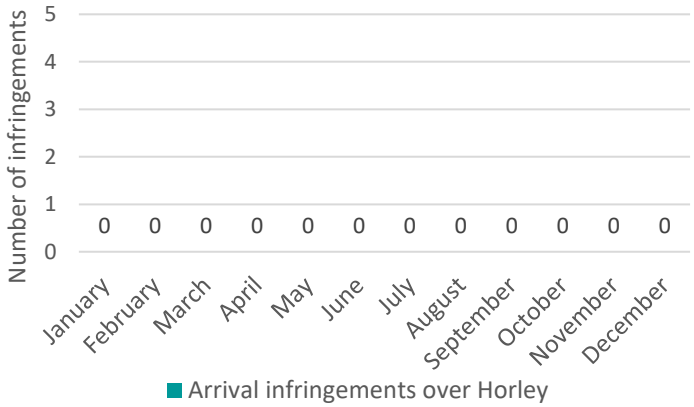


Figure 28: Arrival infringements over Horley

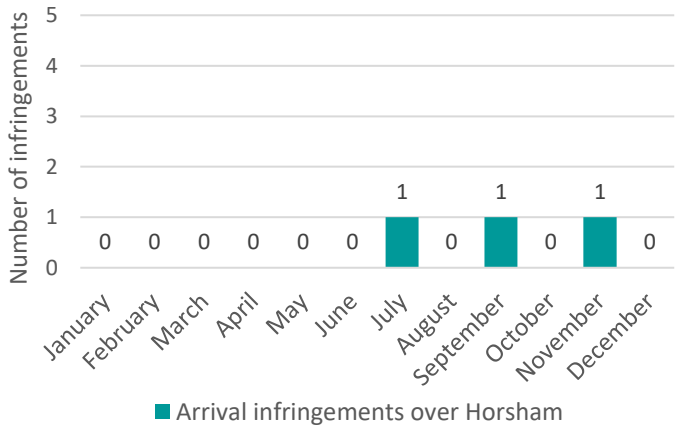


Figure 29: Arrival infringements over Horsham

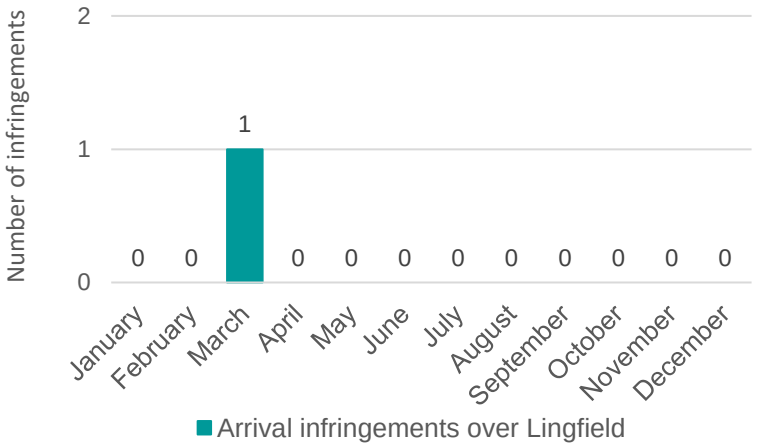


Figure 30: Arrival infringements over Lingfield

Departures

Noise Preferential Routes (NPRs)

Aircraft departing Gatwick Airport are required to follow specific departure flight paths for the initial stages of flight called Noise Preferential Routes (NPRs). The nine NPRs at Gatwick were designed and set by the DfT to avoid overflight of built-up areas where possible. NPRs provide volumes of pre-defined airspace within which Standard Instrument Departure (SID) routes are established where aircraft must follow on departure from an aerodrome and so provide certainty as to which areas will be exposed to aircraft activity.

An NPR consists of a ‘centreline’, where SIDs follow, and an associated compliance monitoring swathe, which is 3km wide, i.e. 1.5km either side of the NPR centreline. These NPRs are mapped in Figure 34, together with minimum vectoring altitudes. As long as aircraft remain within the corridor boundaries up to the minimum vectoring altitude, they are deemed to be on-track. A map illustrating the Noise Preferential Routes is also available from www.gatwickairport.com/noise.

Air Traffic Control (ATC) is responsible for the routeing of aircraft once they are airborne and each departure will be assigned a route to follow, however once aircraft reach a minimum vectoring altitude of 4,000ft (or 3,000ft dependent on departure route and time) at any point along an NPR, they may be vectored off the route by ATC onto more direct headings to their destinations.

There are also occasions when ATC direct aircraft off from NPRs for safety reasons, such as to avoid adverse weather conditions along the intended route or to maintain safe separation from other traffic.

Aircraft that leave the NPR below the required minimum altitude are classified as track deviations. Track keeping performance at Gatwick is generally very good, however the westerly wrap around route designated as 26LAM / Route 4 consistently presents a challenge for modern aircraft to fly; this tight turn was designed in 1968 when very different types of aircraft types were in operation. Flights off-track below the required height are automatically flagged to the Airspace Office and details are sent to the airline for investigation. Our Flight Operations Performance & Safety Committee (FLOPSC) regularly reviews track keeping performance. Our track keeping performance is detailed on the following pages.

Departure Statistics – Track Keeping

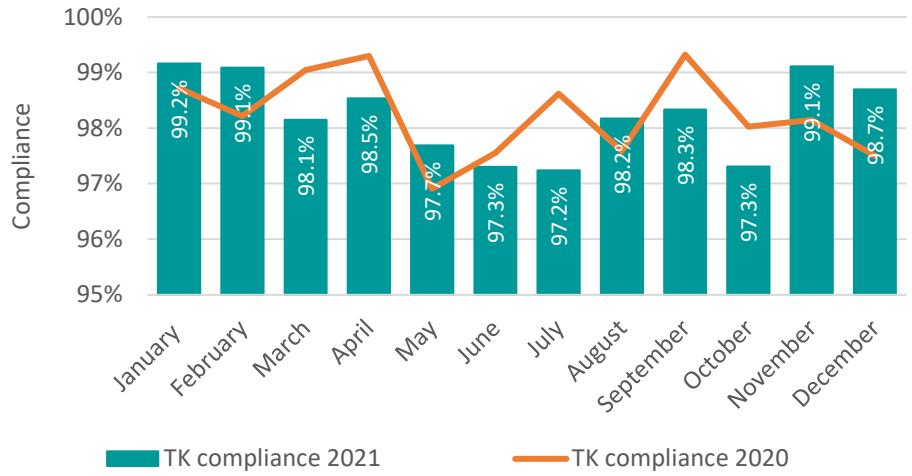


Figure 31: TK compliance (24Hr)

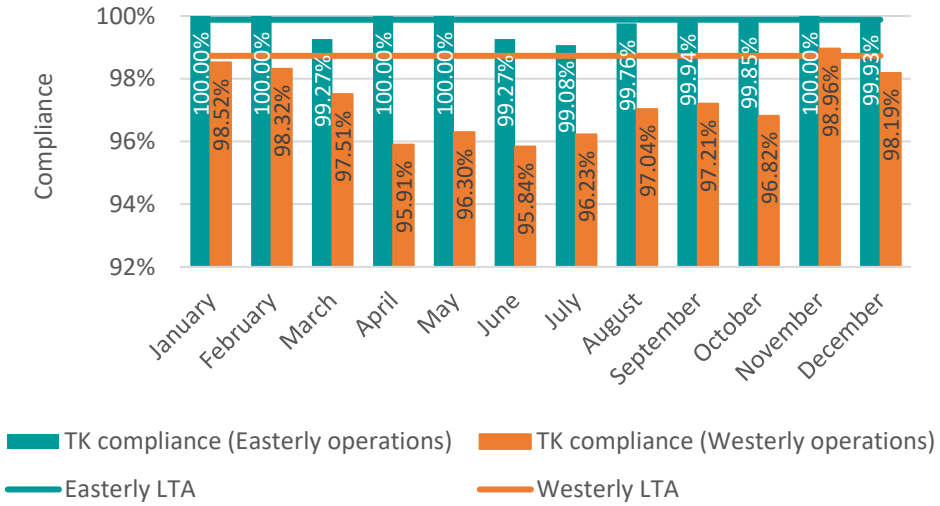


Figure 32: TK compliance per runway

Although traffic movements steadily increased throughout 2021, track keeping remained consistently high at above 97%, as shown in Figure 31. In December 2021, the month with the highest traffic levels since the onset of the COVID-19 pandemic, approximately 99% of flights maintained their departure tracks.

Figure 32 shows that track keeping in 2021 was generally more compliant during easterly operations than westerly operations. Route 4 is a westerly departure route, so issues with Route 4 track keeping will negatively affect the overall performance for westerly operations.

Departure Statistics – Track Keeping in 2021

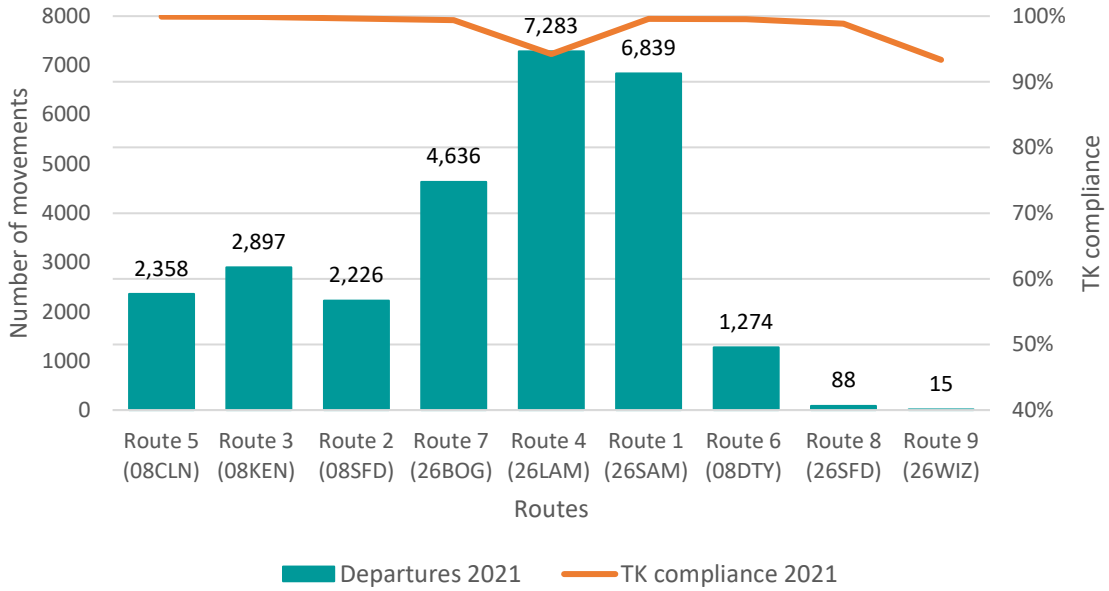


Figure 33: Track keeping and route usage

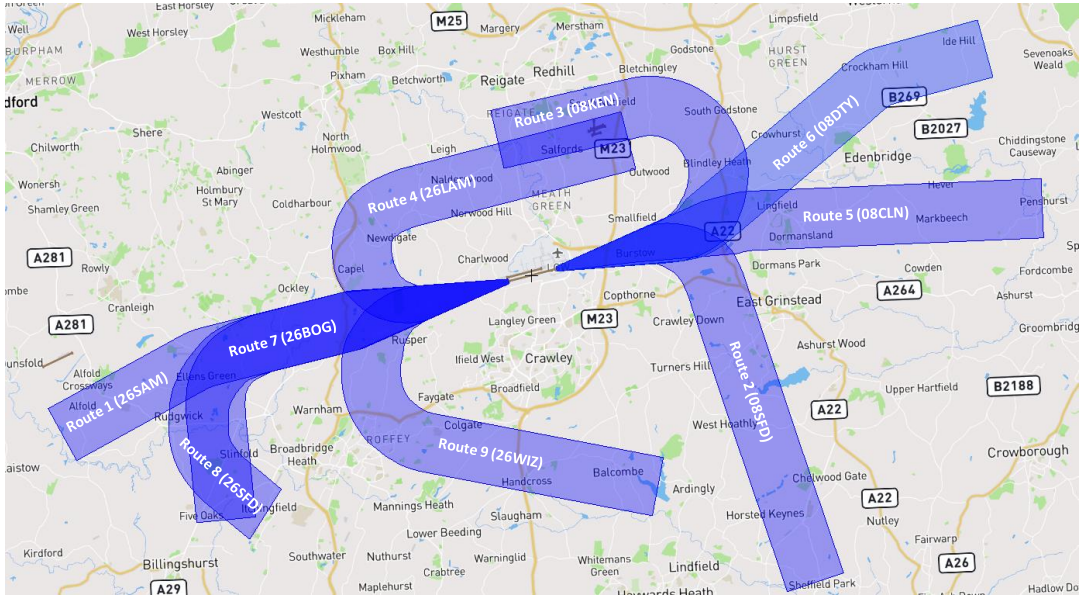


Figure 34: Noise Preferential Routes for departures

Figure 33 shows that the most frequently utilised routes during 2021 were 26LAM / Route 4, 26SAM / Route 1 and 26BOG / Route 7. Track keeping was above 98% for all routes, except Route 4 (94.2%) and Route 9 (93.3%), although no violation on Route 9 has occurred since August 2021.

Figure 34 shows a map of all nine noise preferential routes for departures in use at Gatwick Airport. The table to the right lists the altitudes up to which aircraft are required to stay within the conformance monitoring swathe of the respective noise preferential route. Once above the minimum vectoring altitude, air traffic control may give them vectors to direct them onto a more direct path towards their destination.

Route	Minimum vectoring altitude
Route 1 (26SAM)	3,000 ft
Route 2 (08SFD)	4,000 ft
Route 3 (08KEN)	3,000 ft
Route 4 (26LAM)	4,000 ft
Route 5 (08CLN)	3,000 ft
Route 6 (08DTY)	3,000 ft
Route 7 (26BOG)	4,000 ft
Route 8 (26SFD)	3,000 ft
Route 9 (26WIZ)	4,000 ft

Departure Statistics – Noise, Climb and Overflight

There were no departure noise infringements in 2021.

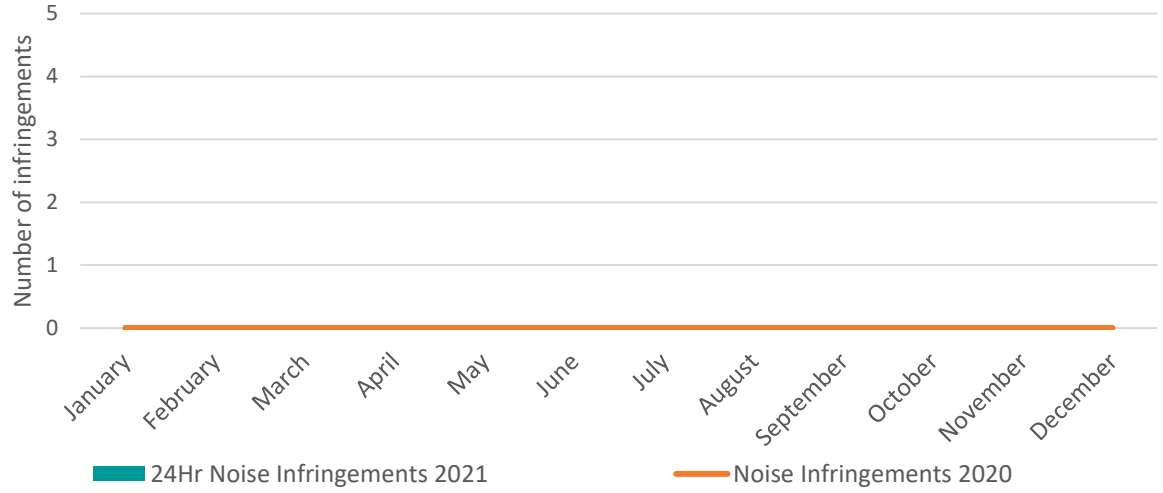


Figure 35: 24H Noise Infringements[5]

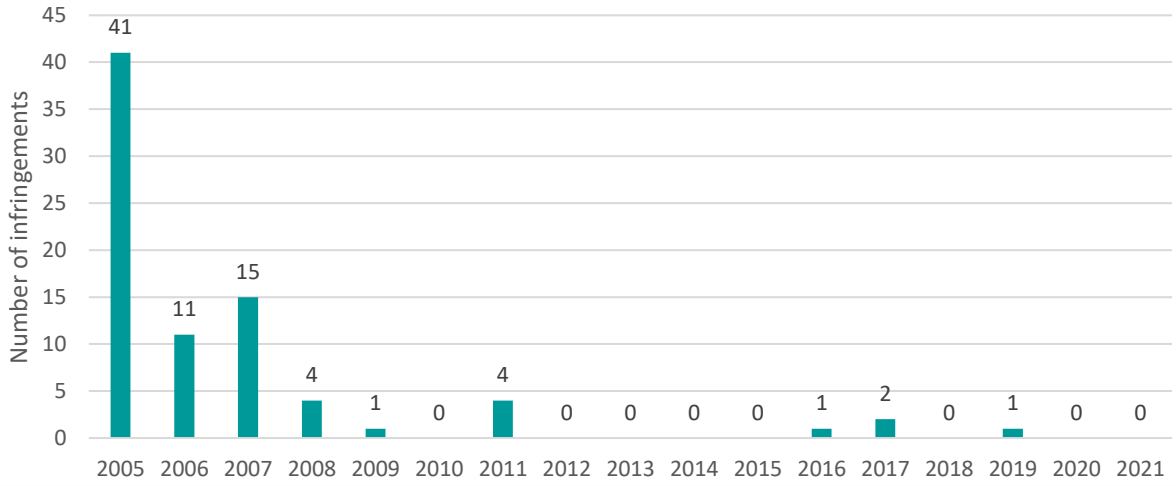


Figure 36: Historic Noise Infringements[5]

Departure Statistics – Noise, Climb and Overflight

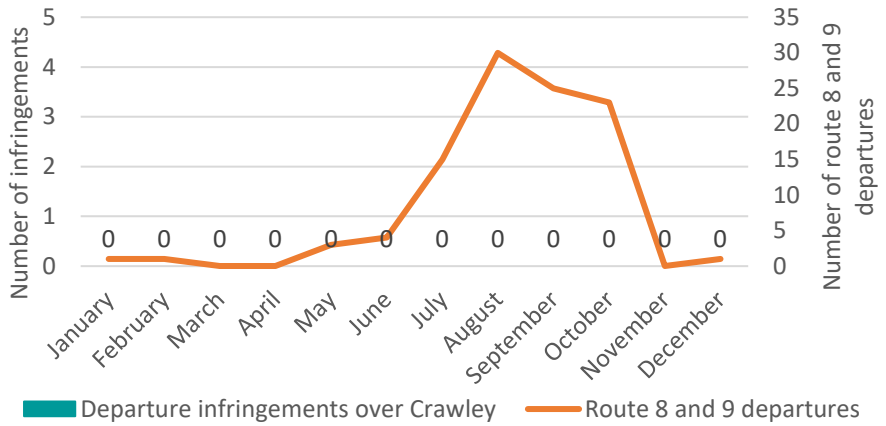


Figure 37: Departure overflight infringements over Crawley[4]

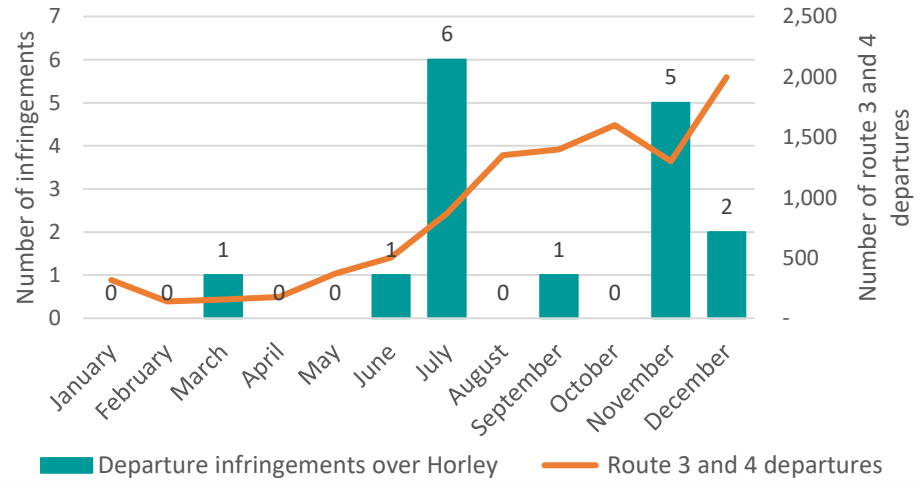


Figure 38: Departure overflight infringement over Horley[4]

Figure 37 shows that although Routes 8 and 9 were used by departures in 2021, no flights infringed over the town of Crawley. This does not include go-arounds, which do not count towards this metric.

Figure 38 shows the number of departures overflying Horley in 2021. Although the number of these occurrences are relatively low compared to the number of departures using Routes 3 and 4, the Airspace Office continues to work closely with NATS to further reduce the number of these infringements over the town.

Figure 39 shows that there have been no 1,000ft departure noise infringements during the year.

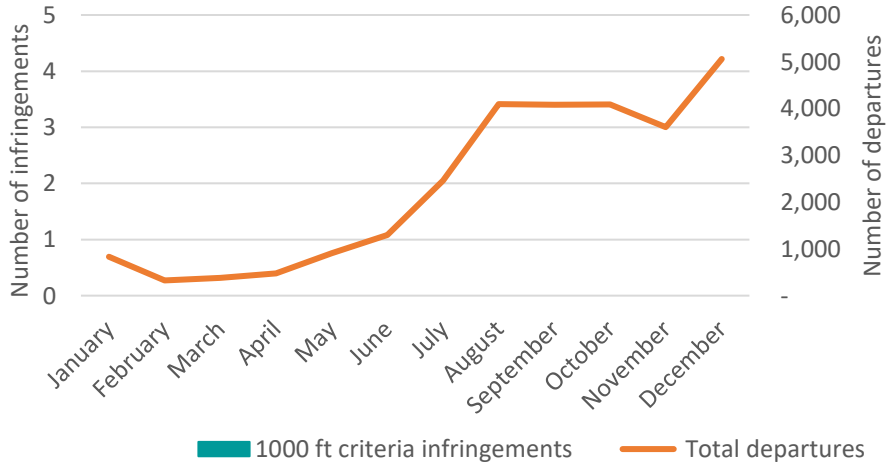


Figure 39: Number of aircraft not meeting the required climb performance[5]

Night Operations – Summer Season

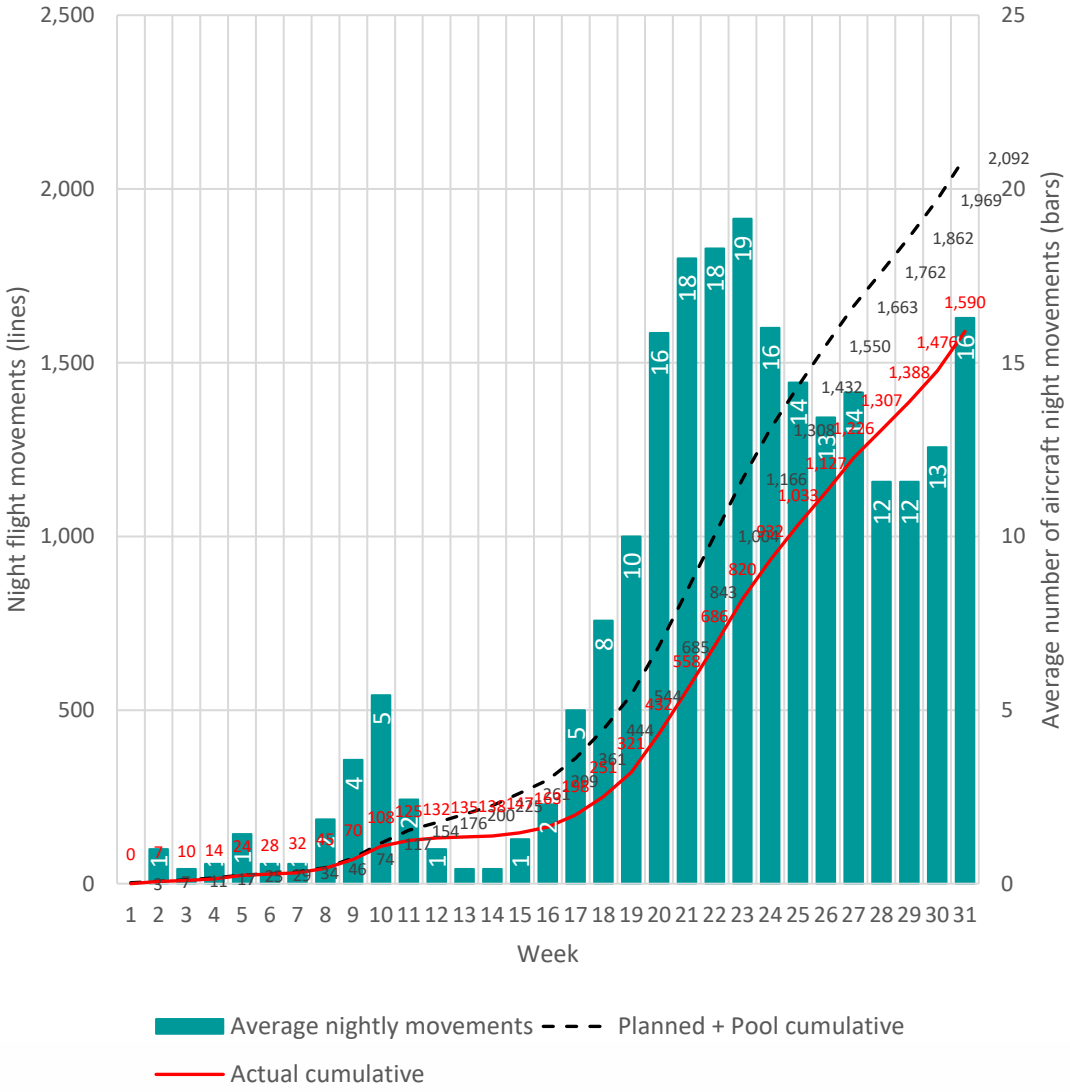


Figure 40: Night flight movements in summer

The Summer 2021 season began on 28th March 2021 (0100hrs local) and ended on 31st October 2021 (0159hrs local). Figure 40 depicts the planned and actual usage of the night flight movement quota for the whole summer season.

Figure 41 provides a breakdown of the flights either avoiding the night quota period or using unplanned quota usage (dispensed or non-dispensed). “Avoided” includes flights which had been scheduled to operate during night quota period but operated during the day or shoulder period.

Figure 41: Number of non-dispensed, avoided and dispensed flights

Night Operations – Winter Season

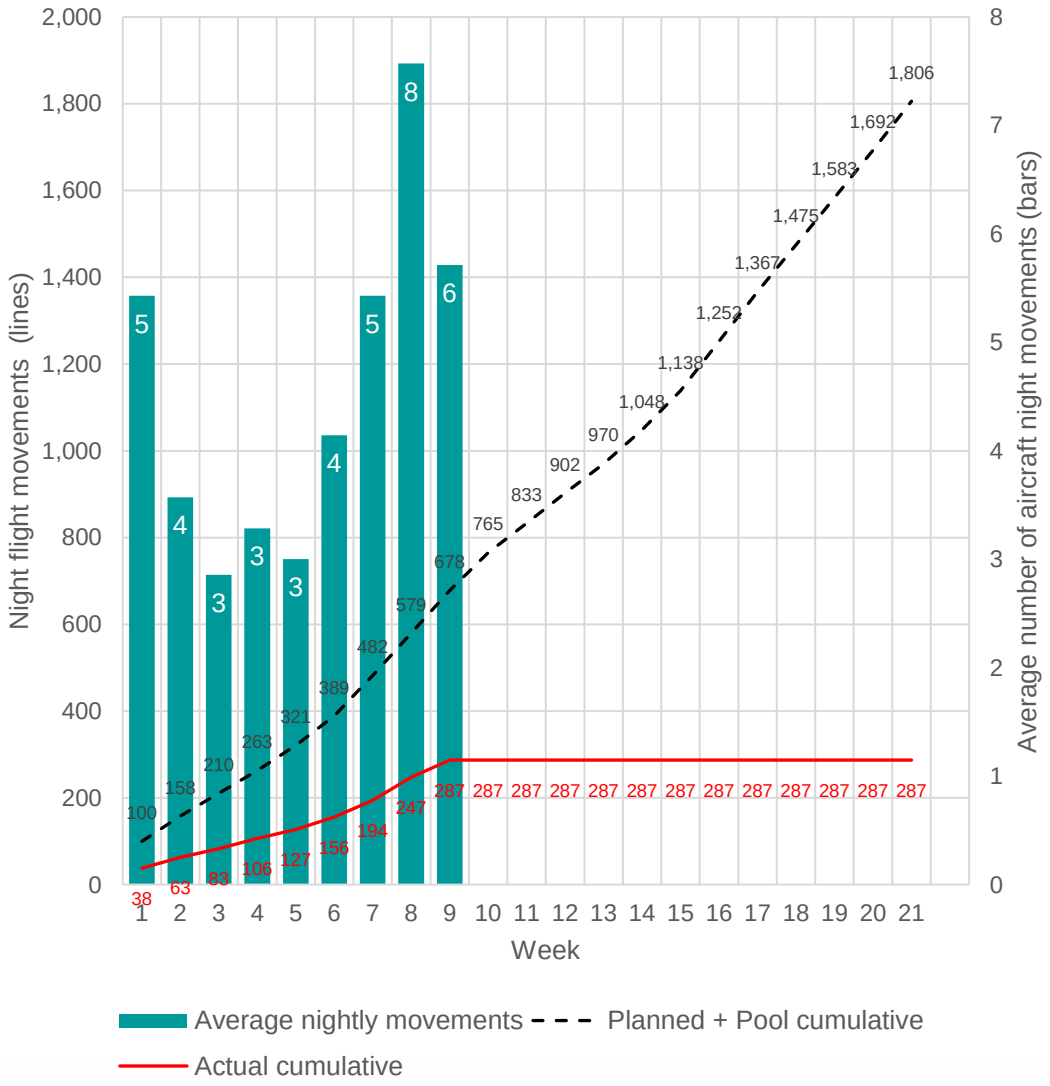


Figure 42: Night flight movements in winter

The Winter 2021/2022 season began on 31st October 2021 (0200hrs local) and will end on 27th March 2022 (0059hrs local). Figure 42 depicts the planned and actual usage of the night flight movement and quota limit for the winter season so far.

Figure 43 provides a breakdown of the flights either avoiding the night quota period or using unplanned quota usage (dispensed or non-dispensed) due to delayed arrivals or early departures. No dispensations have been applied in the winter season yet.

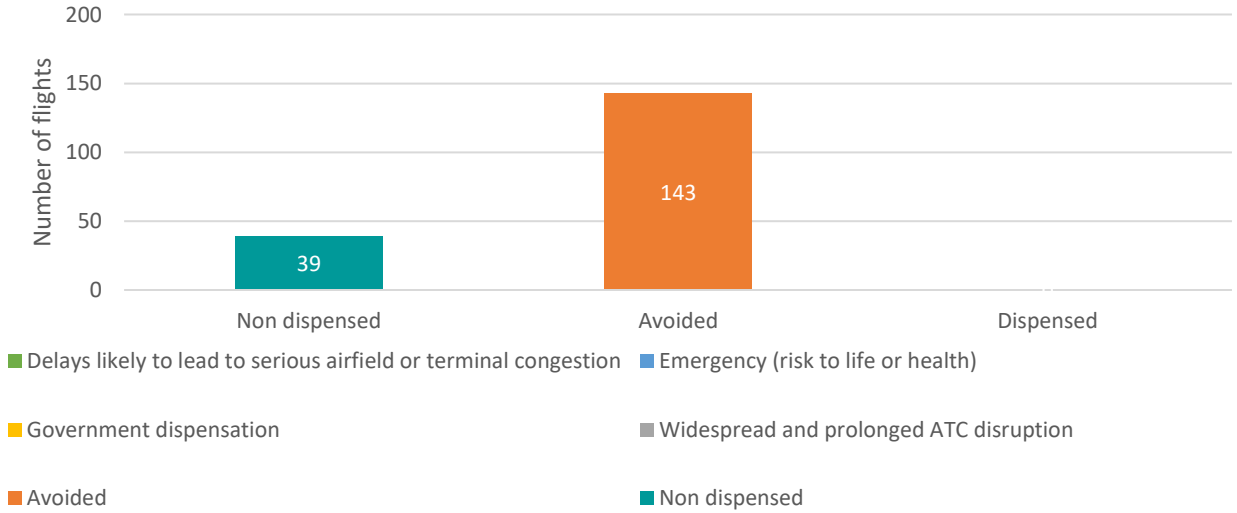


Figure 43: Number of non-dispensed, avoided and dispensed flights

Night Operations – Historic Usage in Summer

Gatwick Airport operates as a Public Licensed Aerodrome for 24 hours each day, offering great flexibility for passengers and airlines. However, in order to try to balance the interests of the local communities and those of the airport users, there are stringent restrictions and rules in place governing how the airport manages flights at night.

The Department for Transport (DfT) is responsible for defining these restrictions. The current rules apply between 23:30 to 06:00 with a set movement and quota count (QC) limit. QC is based on how noisy a particular aircraft is, with the noisier the aircraft type, the higher the points allocated. This is designed to encourage the use of the quietest aircraft types within a limited number of movements.

Figure 44 depicts the usage of the night quota period since 2000. While the movement limit has remained at 11,200 movements, the QC limit has been repeatedly lowered and is now at 5,150. The limits in Winter are lower at 3,250 movements and 1,785 QC points, and are generally not utilised fully.

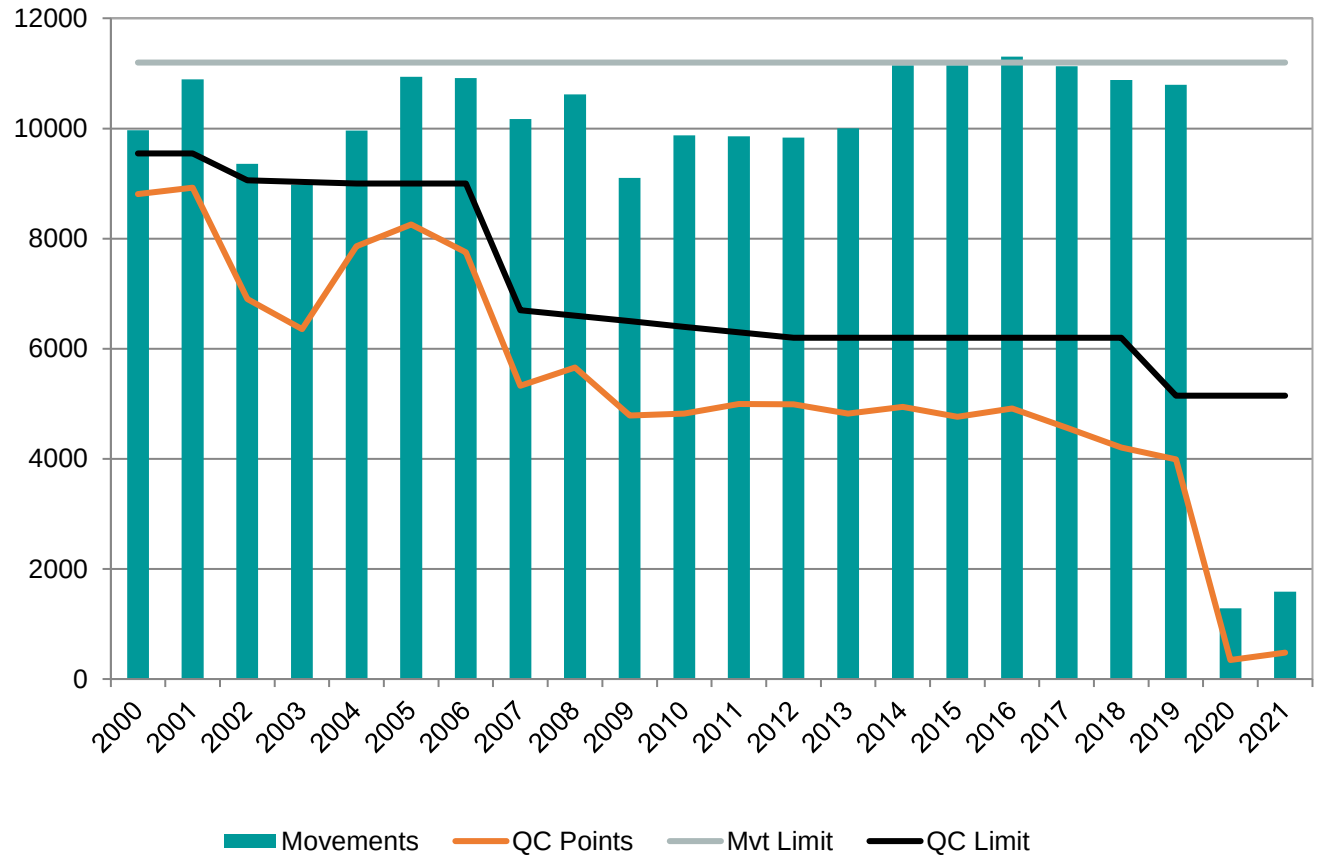


Figure 44: Night flight usage in Summer since 2000

Noise Monitoring

Gatwick has a local noise monitoring system this consists of a number of 'monitoring stations'. Each station includes a microphone, recording device and transmitter to send the data back to our servers.

The monitor records noise from both aircraft and background sources such as road traffic or the wind in the trees. The active monitoring of noise allows us to track aircraft noise levels, evaluate trends and make comparisons between the noise environments.

Noise monitoring is useful as it gives a better understanding of the levels of aircraft noise and how it may affect communities surrounding Gatwick Airport. It is especially important during trial periods where new routes or procedures may be under review.

The Gatwick Noise Monitoring Group (GNMG) is responsible for suggesting the location of noise monitors and has an established process to follow.

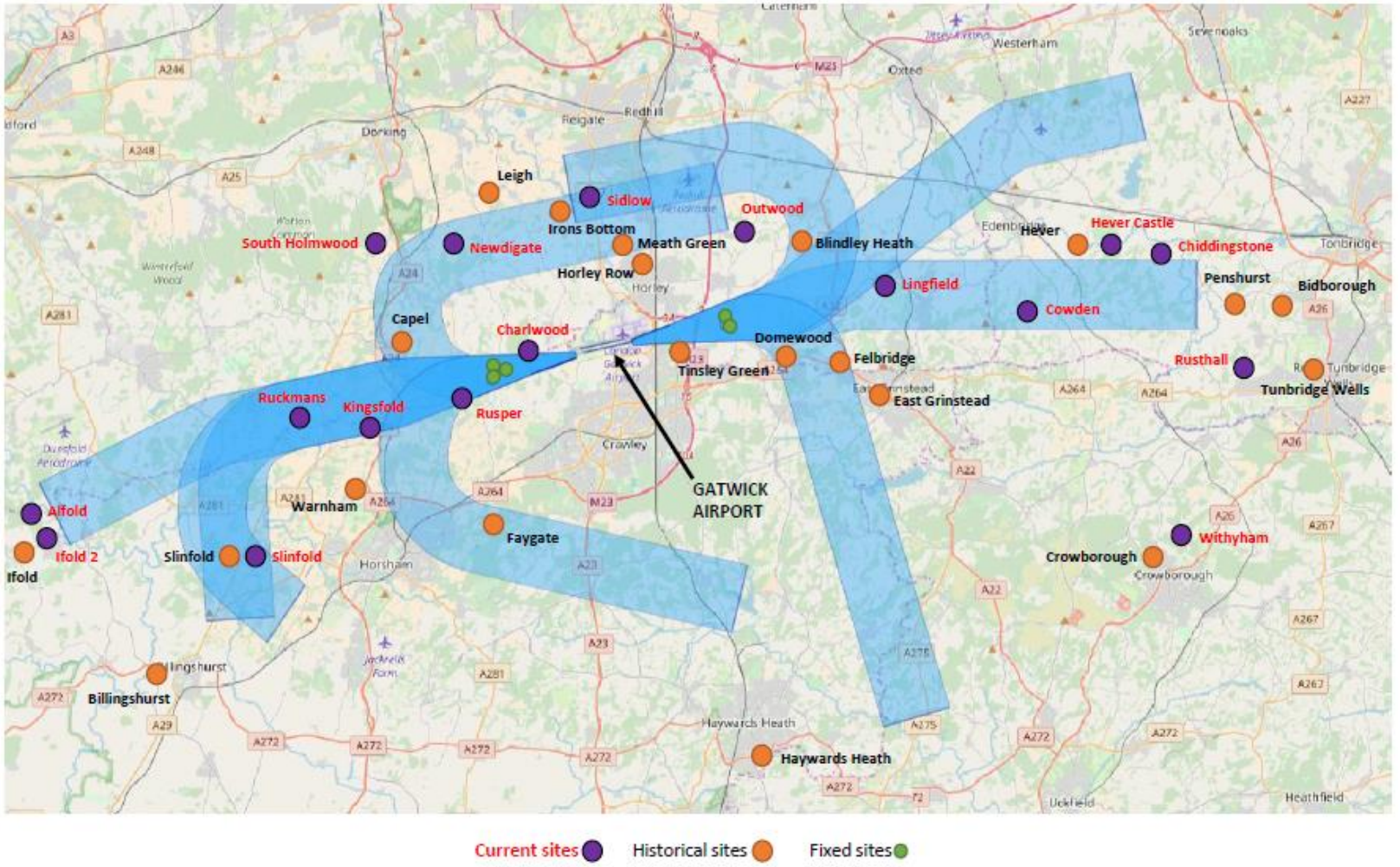


Figure 45: Location of current and historical noise monitors and NPRs

Noise Contours 2021

In the UK, Government research originally indicated that annoyance from aircraft noise typically develops at 57dB averaged over 16 hours (57 dB LAeq). There has since been a Survey of Noise Attitudes (SONA 2014) that has found the degree of annoyance now occurs at 54 dB LAeq.

To show where the different average noise levels are located around the Airport, the Government has developed maps showing noise contours. Figure 47 on the next page shows the noise contour map for the area around Gatwick Airport.

The contours are an irregular shape because typically people experience a greater amount noise at the ends of the runway (where planes take off and land) than along the sides of the runway.

The 57 dBA Leq day contour area for 2021 based on the day standard runway modal split was calculated to be 9.7km^2, which as expected is 39% higher than in 2020 due to traffic levels increase after COVID-19 pandemic. Similarly, the population enclosed within the actual 57 dBA Leq day contour increased by 167%.

LAeq,16h (dB)	2020 area (km^2)	2021 area (km^2)	Area change	2020 population	2021 population	Population change
>54	13.3	18.3	+38%	500	1,000	+100%
>57	7.0	9.7	+39%	150	400	+167%
>60	3.6	5.2	+44%	50	100	+100%
>63	2.0	2.7	+35%	0	<100	(-)
>66	1.2	1.6	+33%	0	0	(-)
>69	0.8	1.0	+25%	0	0	(-)
>72	0.5	0.6	+20%	0	0	(-)

Figure 46: Gatwick 2020 and 2021 summer day standard LAeq,16h contours – area and population estimates
Note: The 2020 and 2021 summer day standard runway modal splits were both 74% W / 26% E.

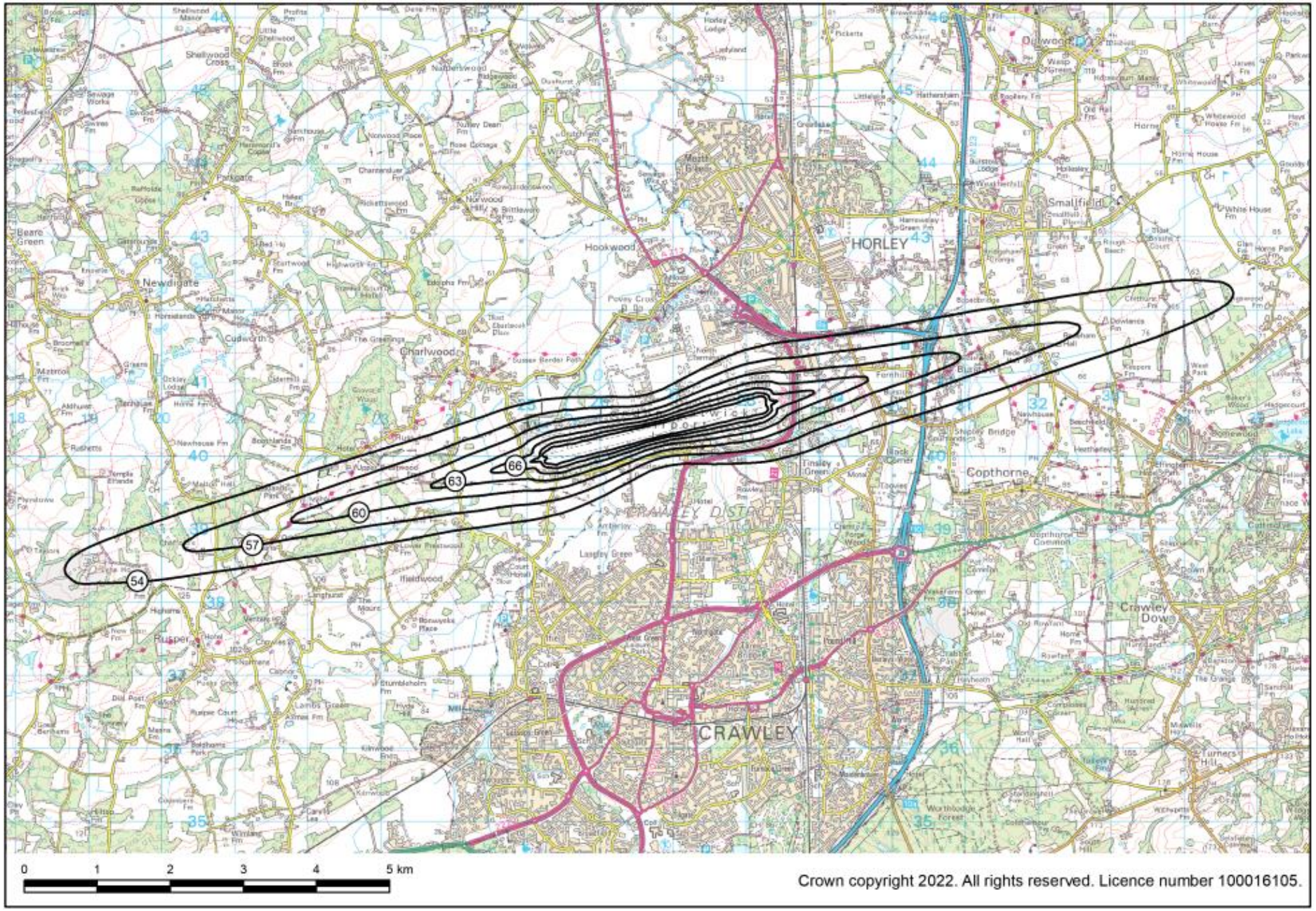


Figure 47: The Gatwick day standard noise exposure contours 2021

Complaints

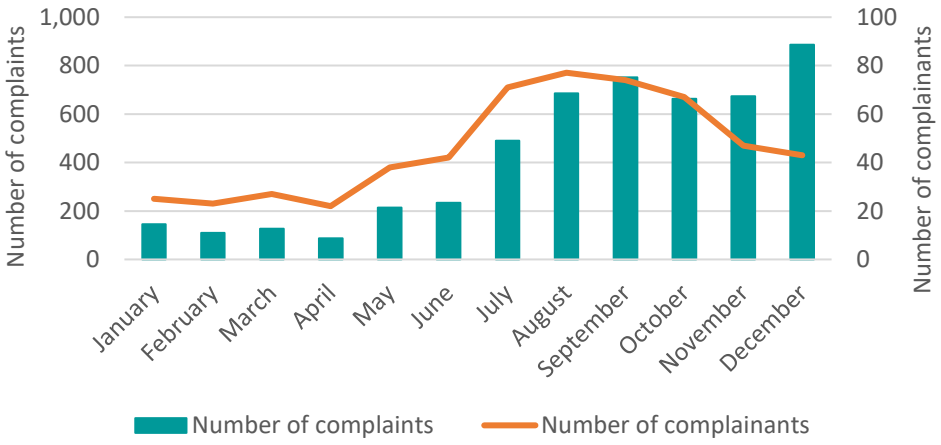


Figure 48: Number of complaints and complainants

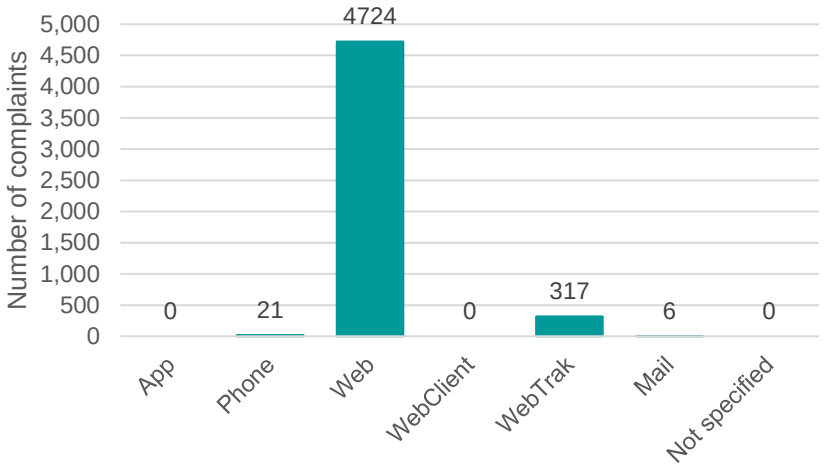


Figure 49: Complaints submission methods (whole year)

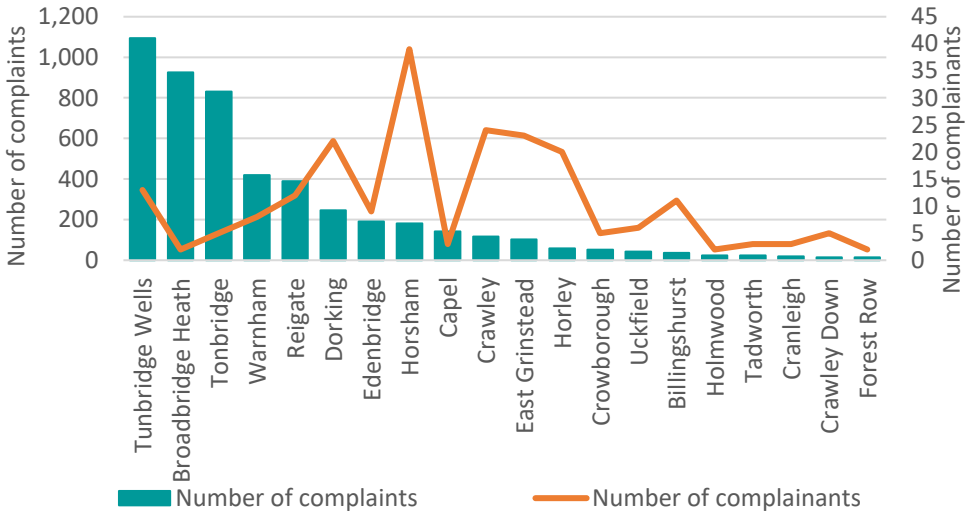


Figure 50: Areas with most complaints (whole year)

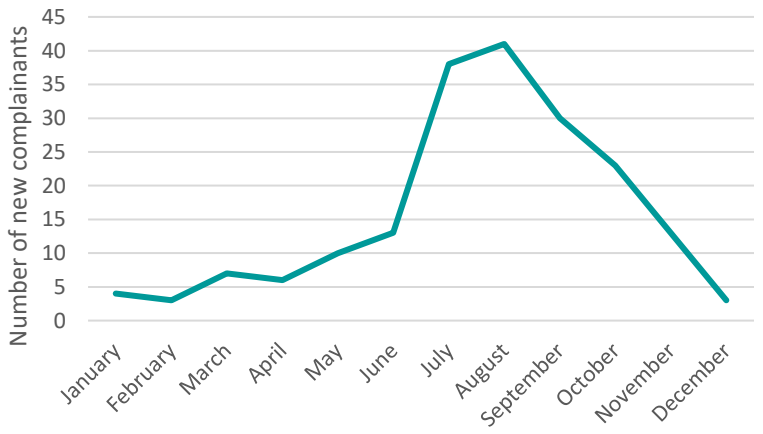


Figure 51: New complainants

December saw the largest number of noise complaints for 2021, as traffic levels reached their highest since March 2020. Although the number of complaints each month has remained as high as summer, the number of complainants has steadily reduced.

Figure 49 shows that almost all complaints are received via either the online web form, or through the use of WebTrak.

Figure 51 shows the number of new complainants per month who have not contacted the airport in the previous 12 months prior to that date.

Complaints

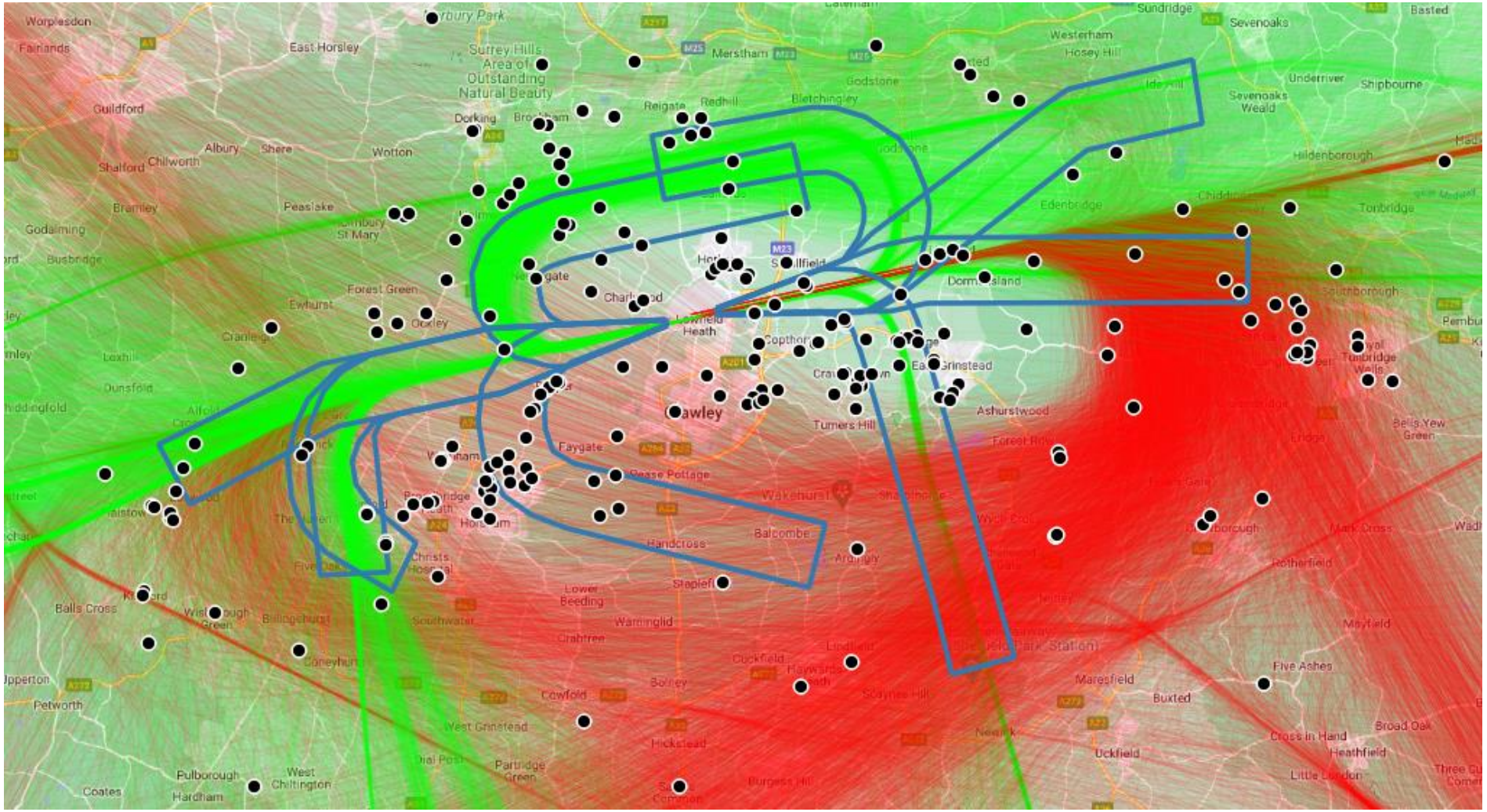


Figure 50 showed the areas in 2021 with the greatest number of complaints received were Tunbridge Wells, Broadbridge Heath and Tonbridge.

Figure 52 shows the distribution of individual complainants throughout 2021, as well as the tracks of all movements in Q4 for representative purposes.

Figure 52: A graphical representation of 2021's individual complainants, with an overlay of Q4 arrivals & departure tracks and NPRs

Complaints

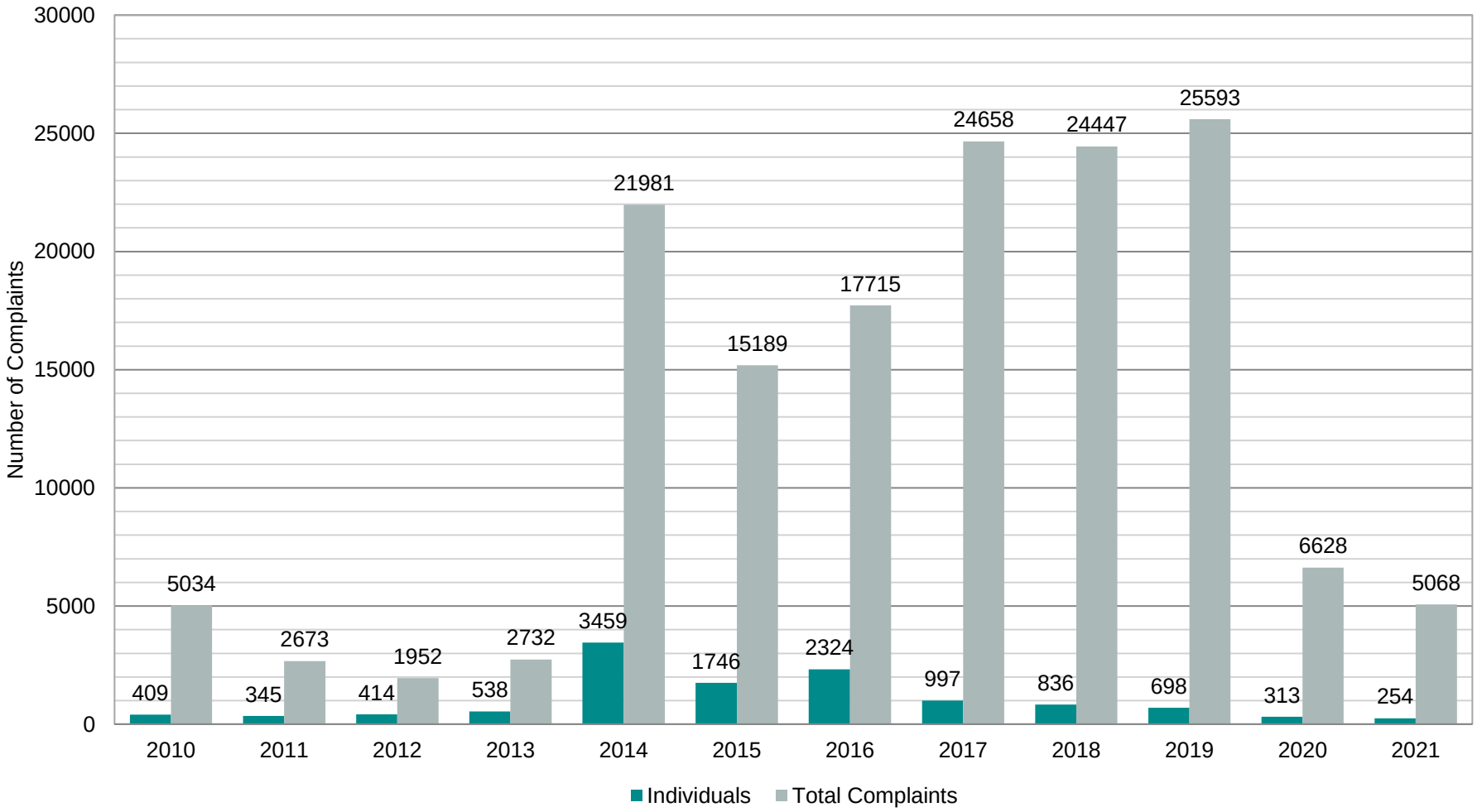


Figure 53: Number of individual complainants and complaints 2010-2021

Figure 53 shows how the total number of complaints and the number of individual complainants have changed since 2010.

The number of individual complainants has significantly reduced compared with recent years due to the impact of COVID-19 on the reduction of air traffic movements. This has led to fewer noise complaints being received by the Airspace Office. The number of complainants has been declining each year since 2016.

Ground Noise

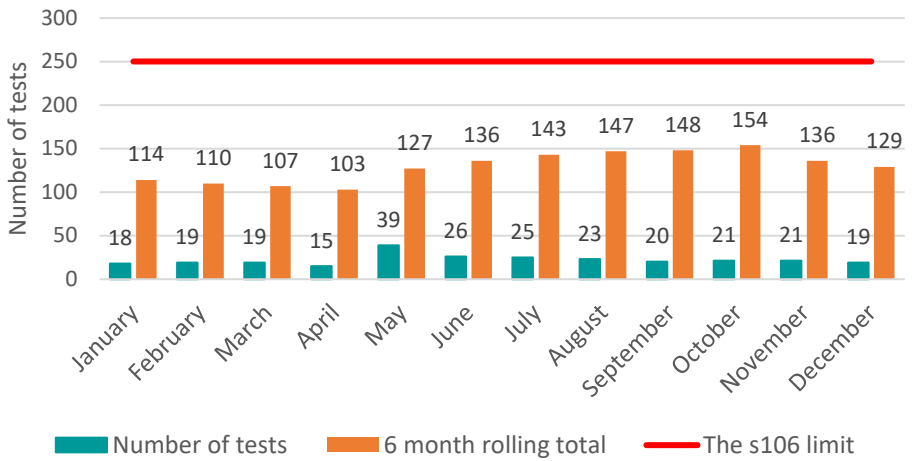


Figure 54: Engine runs[7]

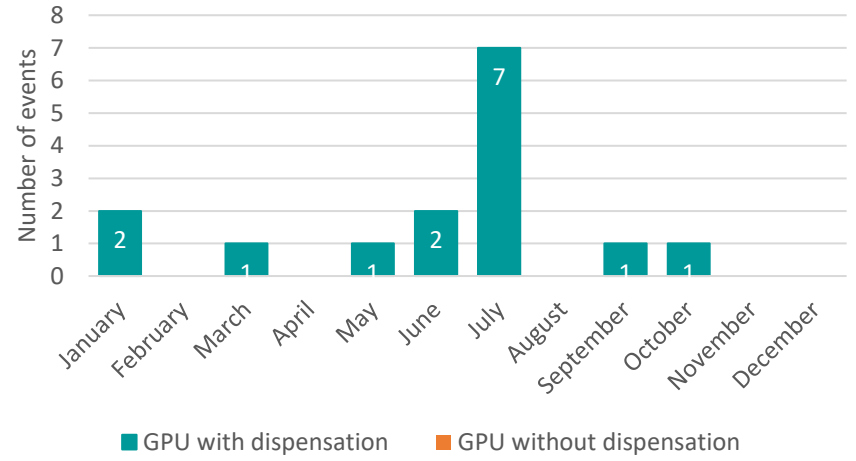


Figure 55: GPU usage[8]

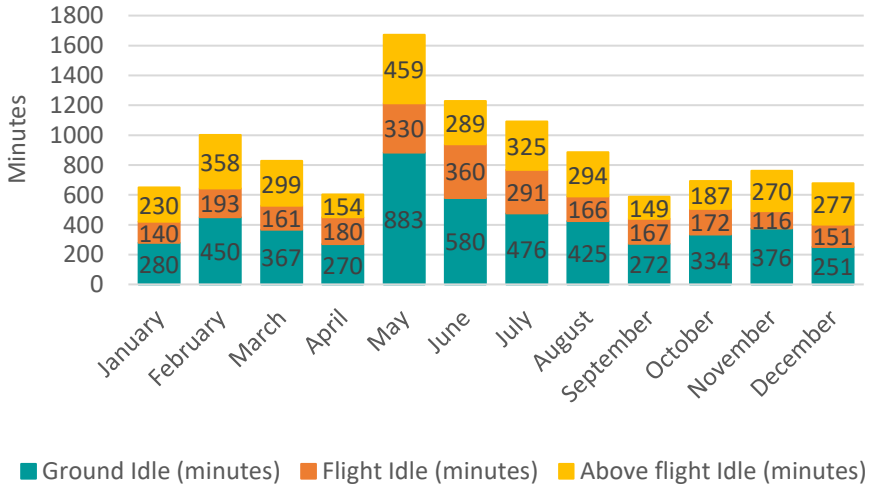


Figure 56: Cumulative minutes of engine tests

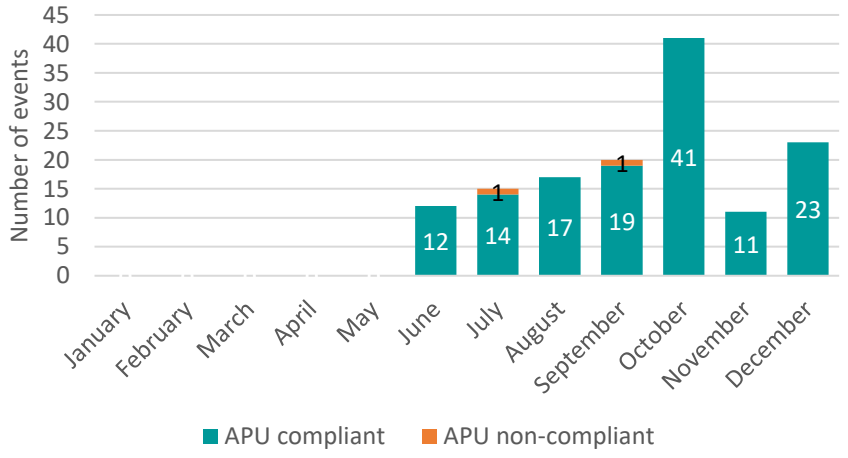


Figure 57: APU usage[8]

Figure 54 shows that the number of engine tests remains well below the Section 106 limit of 250 in a six-month period.

Figure 55 shows that there was only one use of a Ground Power Unit in Q4 2021, where a dispensation for its use was granted.

Figure 57 shows there were no instances of non-compliant APU usage in Q4 2021.

Further details on ground noise can be found in Annex F.

Annex A

Additional Statistics

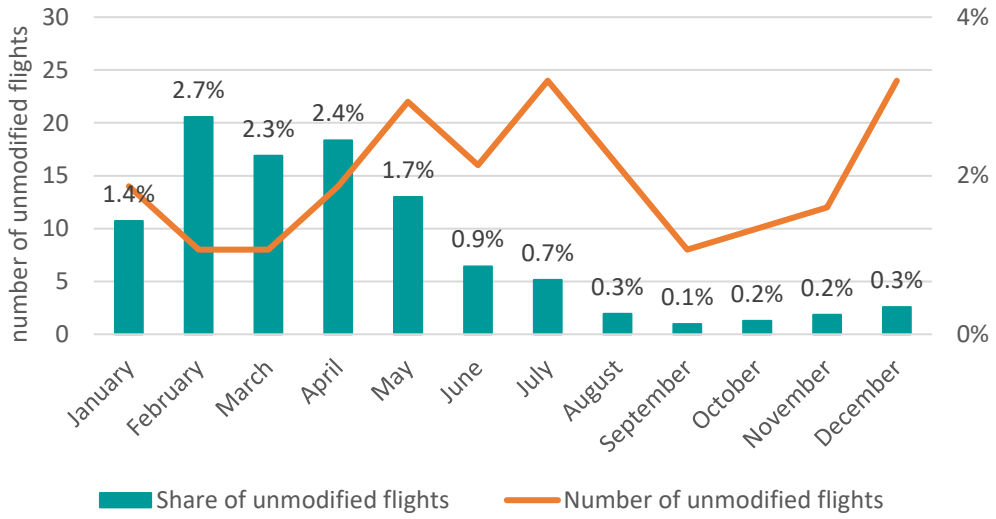


Figure A-1: Number and share of flights by unmodified A320 family aircraft

The number of flights operated by unmodified A320 family aircraft, which have not had a fuel over-pressure protector modification installed, has been very low. These aircraft are being operated by airlines that are not regular operators at Gatwick.

Gatwick Airport has been applying an additional noise charge to unmodified A320 aircraft since the 1st January 2018. The number of these flights has been reduced by -95% since then and represented 0.32% of all the A320 traffic in 2021.

The relatively high percentages of unmodified A320 family aircraft in the first half of 2021, were adversely affected by the low number of total movements during this stage of the year.

Annex A

Additional Statistics

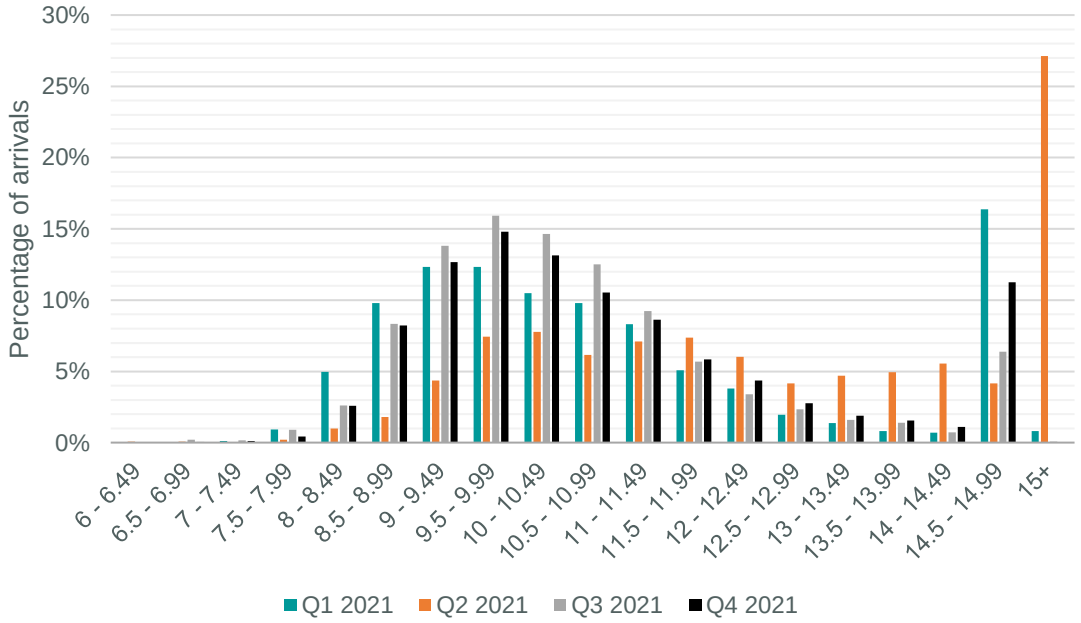


Figure A-2: Traffic Joining ILS per quarter – Runway 26 Only

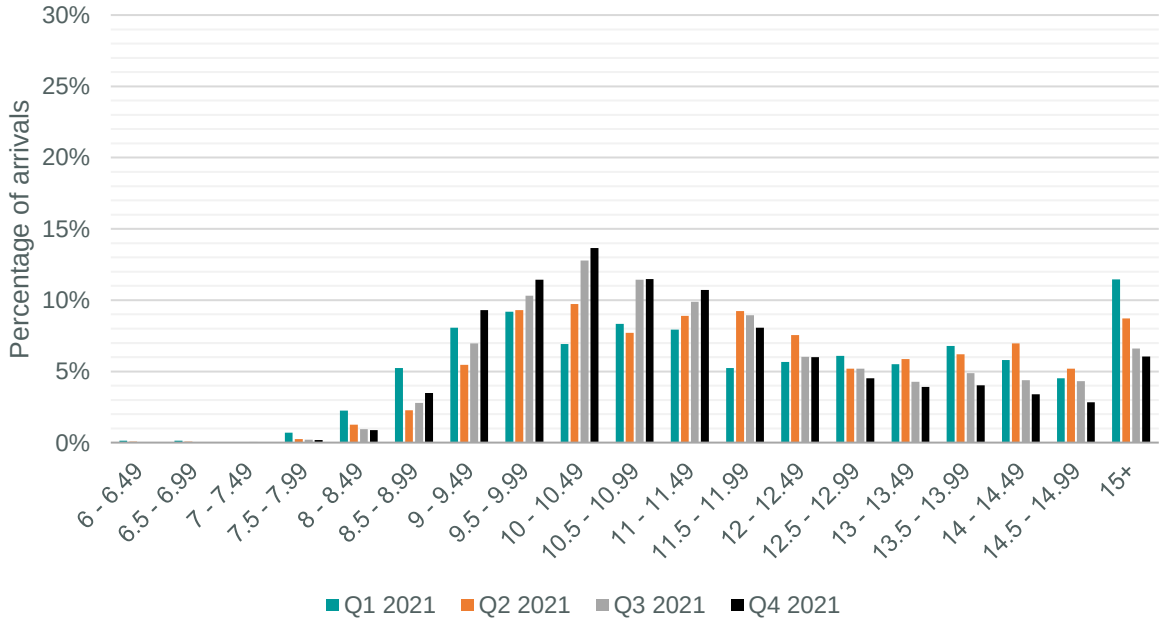


Figure A-3: Traffic Joining ILS per quarter – Runway 08 Only

Figure A-2 shows a high percentage of arrivals joining greater than 14NM which accounts for aircraft that arrive directly from the east.

In Q4, only 0.61% of aircraft joined ILS inside 8 NM. This is monitored as a result of Recommendation Imm-10 of the 2016 Independent Arrivals Review (IAR). Please refer to Annex C for the full background and rationale for continuous monitoring.

Figure A-3 shows a rather even distribution of arrivals during easterly operations. There have been more aircraft joining at 15NM+ during Q1 2021, mainly due to the quieter airspace as a result of the third national lockdown and a higher proportion of straight-in approaches.

In Q4, only 0.23% of aircraft joined ILS inside 8NM

Annex B

Noise Abatement Procedures referred to by figures in this report

1 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES, Sub-paragraph 10

Where the aircraft is approaching the aerodrome to land it shall, commensurate with its ATC clearance, minimise noise disturbance by the use of continuous descent and low power, low drag operating procedures.

2 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES, Sub-paragraph 14

Aircraft which land at Gatwick Airport - London between the hours of 2330 (2230) and 0600 (0500), whether or not making use of the ILS localiser and irrespective of weight or type of approach, shall not join the centre-line: below 3,000 FT or closer than 10 NM from touchdown.

Note on altitude tolerances:
3,000 ft (Gatwick QNH) – 202 ft (airfield elevation) = 2,798 ft
2,798 ft – 200ft ATC radar tolerance = 2,598 ft
These values are used to assess compliance within the Airport Noise & Track-Keeping System.

3 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES, Sub-paragraph 11

Before landing at the aerodrome the aircraft shall maintain as high an altitude as practicable and shall not fly over the congested areas of Crawley, East Grinstead, Horley and Horsham at an altitude of less than 3000 FT (Gatwick QNH) nor over the congested area of Lingfield at an altitude of less than 2000 FT (Gatwick QNH).

4 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES, Sub-paragraph 9

After taking off the aircraft shall avoid flying over the congested areas of Horley and Crawley.

5 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES, Sub-paragraph 1

After take-off the aircraft shall be operated in such a way that it is at a height of not less than 1,000 FT AAL at 6.5 KM from start of roll as measured along the departure track of that aircraft.

6 AIP, EGKK AD 2.21 NOISE ABATEMENT PROCEDURES, Section 3 and section 4

Any aircraft shall, after take-off, be operated in such a way that it will not cause more than 94 dBA Lmax by day (from 0700 (0600) to 2300 (2200) hours) as measured at any noise monitoring terminal at any of the sites referred to in sub-paragraph (2).

Any aircraft shall, after take-off, be operated in such a way that it will not cause more than 89 dBA Lmax by night (from 2300 (2200) to 0700 (0600) hours) and that it will not cause more than 87 dBA Lmax during the night quota period (from 2330 (2230) to 0600 (0500) hours) as measured at any noise monitoring terminal at any of the sites referred to in sub-paragraph (2).

7 Agreement in relation to Gatwick Airport Under Section 106 of the Town and Country Planning Act 1990 and other powers

Full version:
www.gatwickairport.com/globalassets/company/sustainability/s106/s106-legal-agreement.pdf

8 AIP, EGKK AD 2.20 LOCAL AERODROME REGULATIONS, 1 AIRPORT REGULATIONS, Sub-paragraph l

Fixed Electrical Ground Power must be used when available and serviceable. Use of aircraft Auxiliary Power Units (APUs) and Ground Power Units (GPUs) are strictly controlled to minimise environmental impact. APUs must be shut down after arrival and only restarted before departure according to the timescales described in detail in published Gatwick Airport Instructions and Directives. Regular audits take place to ensure compliance with the regulations.

Annex C

ILS Joining Point – Background and Rationale for Monitoring

Background

Joining point data is monitored as a result of Recommendation Imm-10 of the 2016 Independent Arrivals Review (IAR). The recommendation proposed to alter a safety feature - the ILS minimum joining point - applied by air traffic controllers to help pilots ensure a fully stabilised final approach to the runway. The objective was to safely increase geographical dispersal of arrivals to more closely emulate the operations prior to a change in 2013 when the ILS minimum joining point had been increased from 7NM to 10NM. Specifically, the recommendation proposed extending the arrival swathe by reducing the ILS minimum joining point from 10NM to 8NM from touchdown. Hence the arrival swathe would extend from a minimum of 8NM to 14NM, with aircraft joining on a straight in approach when traffic permits.

Following the publication of the Action Plan, GAL working closely with NATS, progressed the implementation of the recommendation into an operational evaluation supported by detailed analysis. The evaluation commenced on the 15 August 2016. GAL & NATS have closely monitored use of the ILS since the implementation of the evaluation. In early January 2017, in anticipation of the need to conduct a thorough assessment of the results from the evaluation period and in order to avoid a temporary reversion to the pre-August 2016 minimum joining point, GAL made a request to CAA for a 3-month extension of the use of the reduced ILS minimum joining point.

Over the entire evaluation period the joining points between 8NM to 10NM was used by, on average, almost 20% of arrivals. As the evaluation progressed, the number of aircraft making use of joining points between 8NM and 10NM increased, reaching a peak of 31% in January 2017. The increased use of these joining points closer to touch down had increased the geographical dispersal of the arrivals swathe. With the agreement of the CAA and NATS at Noise Management Board (NMB) 5 it was decided that the 8NM minimum ILS joining point would be transitioned to a permanent procedure on the 15 May 2017.

Rationale for continuous monitoring

Following the adoption of the change as a permanent procedure, reporting continued to the NMB on a regular basis to provide transparency of the traffic dispersal achieved. The reporting and monitoring function was subsequently transferred to NaTMAG, as reporting became part of routine operational monitoring. In Q4 2020, ILS joining point distance statistics were absorbed into the new Airspace Office Quarterly and Annual reporting.

Communities continue to express concerns regarding flights that join the ILS inside 8NM during the day due to their noise impact. When the proportion of such flights becomes noticeably higher than the long-term average, the Airspace Office informs NATS (providing supporting data) and refers this to Gatwick's Flight Operations Performance and Safety Committee (FLOPSC) for further investigation. Whilst it is understood that vectoring practice by air traffic controllers has noise impacts, the rationale for taking action through FLOPSC - instead of NaTMAG - is that the 8NM ILS minimum joining point is a safety procedure, rather than a noise abatement procedure, relating to the stabilised approach of aircraft to the runway. FLOPSC is the competent safety body.

Annex D

Roles and Responsibilities

Gatwick Airport Limited

GAL is the licensed operator of Gatwick Airport. It is not directly responsible for aircraft operations but is responsible for the control of ground noise at the airport and the implementation and monitoring of DfT policy.

The Airspace Office

The Airspace Office is responsible for recording, investigating and responding to aircraft noise enquiries as well as to monitor and report airline compliance to noise mitigation measures as detailed in the UK AIP. The Airspace Office can also, if requested, provide information regarding flight paths and arrival routes, for example to prospective homebuyers. The Airspace Office also manages the airport Noise and Track Keeping system ‘ANOMS’ and a number of fixed and mobile noise monitors within the local area. They are regularly relocated, the data analysed, and the findings reported.

Air Traffic Control

NATS is the main Air Navigation Service Provider in the United Kingdom and provide guidance to flights in the vicinity of Gatwick Airport. NATS' en-route business is regulated and operated under licence from the Civil Aviation Authority (CAA). The terms of the licence require NATS to be capable of meeting on a continuous basis any reasonable level of overall demand. They are charged with permitting access to airspace on the part of all users, whilst making the most efficient overall use of airspace.

The Gatwick Airport Tower is operated by Air Navigation Solutions, who oversee the runway and ground operations.

Air Navigation Solutions

ANS is responsible for aerodrome Air Traffic Control at Gatwick Airport from when the aircraft leaves its stand to when it reaches 4,000ft in the air. ANS also manages air traffic engineering services, emergency and alerting services, and meteorological services.

Department for Transport

The DfT is responsible for the formulation of noise abatement policy, the location of Noise Preferential Routes (NPRs) for departing aircraft and night flight regulations.

Civil Aviation Authority

As the UK's independent specialist aviation regulator, the CAA has responsibility for regulating airspace over the UK. This includes the new and established air traffic routes and areas which commercial aircraft use to fly into and out of airports, and the airspace used by military and General Aviation flights.

An organisation proposing a change to the design of UK airspace must follow the CAA's airspace change process. The CAA has a duty to consider a range of factors set out by government in deciding whether or not to approve the change. One set of factors is the environmental objectives set for the CAA by the Secretary of State – including consideration of noise impacts.

Annex E

Gatwick's Framework for Noise Management

Noise and Track Keeping system (NTK)

The NTK system combines radar input from ATC with data from our fleet of fixed and mobile monitors placed around the airport. The system monitors all aircraft traffic within a 50 miles radius of the airport, up to 40,000 feet, and automatically records any infringements of the departure noise limits, deviations from the departure flightpaths, as well as other noise mitigation measures. Since April 2019, Gatwick Airport uses ANOMS provided by Envirosuite, which is linked to our webservices Webtrak and Insightful. The Airport invests over £300,000 a year in noise monitoring.

Flight Operations Performance and Safety Committee (FLOPSC)

FLOPSC is made up of representatives from the Airport's operations team, the Airspace Office, our airlines, the DfT, CAA, ANS and NATS. It meets on a bi-monthly basis throughout the year to review operational performance, adherence to noise and track keeping rules and to share best practice.

Noise Management Board (NMB)

The role of the NMB is to develop, agree, oversee and maintain a co-ordinated noise management vision and subsequent strategies for Gatwick, on behalf of all stakeholders, with an aim to reduce the impact of noise on the local community.

Now in its second term, the NMB comprises of three groups: the NMB Community Forum (NCF); the NMB Executive Board (NEX); and the NMB Delivery Group (NDG). The governance structure includes a number of community action groups and local elected representatives.

Noise and Track Monitoring Advisory Group (NaTMAG)

This committee includes representatives from the Airport's Consultative Committee, local councils, the DfT, NATS, ANS, airlines and the airport. It meets every quarter to discuss the airport's performance against the range of rules and regulations pertaining to aircraft operations. It gives an opportunity for representatives of local communities to scrutinise the airport's reports and to discuss issues that may be a cause of concern.

Sustainable Aviation

Gatwick Airport Limited is a member of Sustainable Aviation, whose long-term strategy sets out the collective approach of UK aviation to tackling the challenge of ensuring a sustainable future for our industry. Sustainable Aviation brings together the main players from UK airlines, airports, manufacturers and air navigation service providers. The group produced a Noise Road-Map, which outlines the future aspirations of the industry. For more information visit: www.sustainableaviation.co.uk.

Gatwick Noise Monitoring Group (GNMG)

Gatwick Airport funds and co-ordinates a community noise monitoring programme in conjunction with local Environmental Health Officers and the Airport's Consultative Committee. Noise monitors are located throughout local communities in Sussex, Surrey and Kent in order to develop an understanding of the noise environment and assess the impact of aircraft noise on those areas. The group's activities have been paused since the onset of the COVID-19 pandemic.

Annex F

Wind and Runway Direction

It is important for the safe operation of aircraft that they both land and take-off into wind. On take-off, this will increase airspeed and the amount of lift produced and, on landing, it will again assist with the creation of lift (required until touchdown) and also help to control airspeed. It is important that aircraft are travelling at the appropriate speeds specified during these critical stages of flight necessary for safety. A tailwind could increase the airspeed and may make an approach too fast and unsafe, therefore direction of operation is something which is considered carefully by ATC.

The wind direction and speed on the ground at the aerodrome can vary from what you may experience locally. In addition to wind on the ground, wind direction and speed are also assessed at 1,000ft and 2,000ft. Generally speaking, the wind speed increases considerably with altitude and may also have a significantly different direction. It is important to take these conditions into account, as they will affect flight during the initial stages of flight directly after take-off and during the final stages of the approach just before landing.

In recent years the annual average has approximately been a third of aircraft operations taking place in an easterly direction and two thirds in a westerly direction. The direction in which the runway is operated is determined purely by the prevailing wind direction, during the summer this typically results in a long period of time operating in an easterly direction. However, this split will vary from year to year and month to month and there is no correlation between the same months in different years.

Figure F-1: Easterly Runway Directions

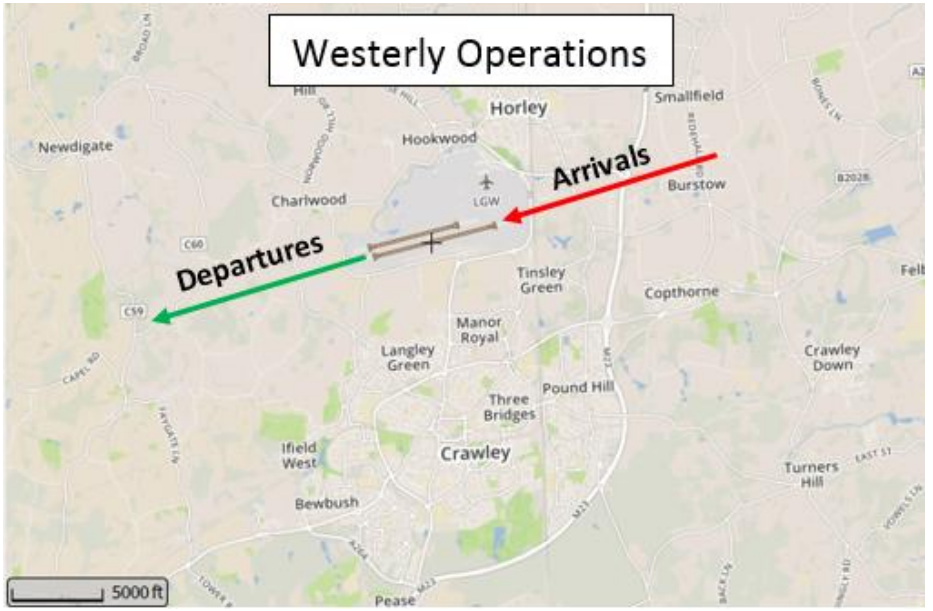


Figure F-2: Westerly Runway Directions

Annex G

Ground Noise – Background

Gatwick Airport is committed to mitigating and reducing noise disturbance caused by aircraft operating on the ground. Gatwick is a signatory to the Departure Code of Practice published in association with Sustainable Aviation. There are four key elements to this code:

1. Reducing noise on the ground
2. Reducing noise and fuel emissions in the taxi stage
3. Airport Collaborative Decision Making (A-CDM)
4. Continuous Climb Operations

There are a number of procedures aimed at mitigating ground noise.

Firstly, usage of Auxiliary Power Units (APU), small jet engines which generate electrical power for the aircraft on the ground, is restricted to a minimum to avoid unnecessary noise. Instead, electrical power is being supplied through Fixed Electrical Ground Power (FEGP) or – in case this cannot be utilised or is unavailable – by using a Ground Power Unit (GPU), which is a small diesel generator. The usage of GPUs is strictly controlled.

Secondly, there are limits in place concerning the maximum number of engine tests that can be conducted at the airport and there are strict regulations regarding when and where testing can be conducted in accordance with the S106 legal agreement. All testing must be authorised in advance by the Airfield Operations Team and there is a ban on testing during the night-time. Engine runs are an essential activity for maintenance and servicing work conducted at Gatwick.

Thirdly and lastly, A-CDM in conjunction with reduced engine taxiing ensures that aircraft only use the minimum amount of thrust whilst on the ground, and only start their engines shortly before their departure. It also helps reduce the queueing time near the runway.

Annex H

Night Flights – Definition & Quota Count

The night period at Gatwick Airport spans from 23:00 to 07:00 and during this time the loudest aircraft (QC8 & QC16) are not allowed to operate. Stricter restrictions apply during the night quota period (or core night: 23:30 - 06:00) when there is a limit on the number of movements and the sum of quota count (QC). Furthermore, QC4-rated movements are not allowed to be scheduled during this period.

The noise quota of an individual aircraft is based on its official noise certification data, with separate classifications for take-off and landing in the form of QC values. As shown below, the smaller or newer the aircraft, the lower its QC value will be. As the QC is summed up over all movements, this incentivises the use of quieter aircraft in order to avoid being constrained by the QC limit.

Certificated noise level (EPNdB)	Quota count	Example aircraft (arrival)	Example aircraft (departure)
Less than 81	0	Bombardier Global Express	Bombardier Learjet 45
81 to 83.9	0.125	Airbus A320neo	Airbus A320neo
84 to 86.9	0.25	Airbus A319	Airbus A220-300
87 to 89.9	0.5	Airbus A330-200	Boeing 737-300
90 to 92.9	1	Boeing 737-300	Boeing 737-900
93 to 95.9	2	Boeing 747-400	Airbus A330-200
96 to 98.9	4	Douglas DC-10	Boeing 747-400
99 to 101.9	8	Ilyushin IL-76T	Douglas DC-10
Greater than 101.9	16	-	Antonov An-225

Figure H-1: Aircraft Noise Certifications

Annex I

Night Flights – Limits & Dispensations

The latest restrictions set by the DfT for all the London airports on night flying came into force in October 2017 and will remain in place until 2022. These allow 11,200 movements in the Summer season (quota limit 5,150) and 3,250 movements in Winter (quota limit 1,785). Any unused allowance (up to 10% of the total limit) from a preceding season can be carried over to next to allow some additional usage.

Every scheduled night flight movement that operates during the night quota period counts towards the allowance. Unscheduled night flight movements will generally count towards the allowance as well, but may be granted a dispensation based on DfT guidelines. Examples of the extraordinary circumstances justifying a dispensation are:

- Medical emergencies
- Humanitarian flights
- Aircraft carrying heads of state or royal families
- Non-scheduled movements as a result of major Air Traffic disruption
- To alleviate serious hardship and congestion at the airfield or terminal
- Government requested dispensations

The number of potential dispensations per night is calculated as the difference between the number of unscheduled night flight movements and the number of flights that avoided the night quota period, i.e. those that were scheduled to operate at night but did not. The number of dispensations may only be as high as the “surplus” of unplanned movements.

Annex J

Departure Noise Limits

Departure noise limits are based on the assumption that the noise monitors are exactly 6.5km from the start of roll point on the runway and at the same elevation as the airfield. To judge the recorded noise levels in practice, adjustments are made to the limits to account for any variances in the monitor position.

There is also a margin of error taken into account for the microphone of +0.7dB. Details of the limits that apply to departing aircraft are shown below. In light of the more noise sensitive period, lower noise limits apply during the night and shoulder periods.

Site	Adjustments specific to monitoring sites			Adjusted Limit values at monitoring sites		
	Positional	Equipment	Total	Day	Shoulder	Night
101 Russ Hill	+5.0	+0.7	+5.7	99.7	94.7	92.7
103 Orltons	+1.9	+0.7	+2.6	96.6	91.6	89.6
105 Oaklands Farm	+1.9	+0.7	+2.6	96.6	91.6	89.6
104 Moat House	0.0	+0.7	+0.7	94.7	89.7	87.7
106 Bellwood	-0.2	+0.7	+0.5	94.5	89.5	87.5

Figure J-1: Departure noise limit adjustments

Financial penalties are applied to aircraft that exceed the noise monitor levels on departure (monitored at 6.5km from the start of roll). A minimum penalty of £500 will be applied for any departing flight that exceeds the above noise limits.

For any departure that exceeds the limit by 3 decibels or more, a fine of £1,000 is applied. All proceeds from noise fines are passed to the independently run Gatwick Airport Community Trust (GACT). Details of the work carried out by the GACT are available at www.gact.org.uk.

Glossary of Terms (1)

AAL	Above Aerodrome Level	The height of an aircraft above the elevation of the referenced aerodrome.
AIP	Aeronautical Information Publication	Essential air navigation information published by NATS on behalf of the CAA, detailing regulations applicable to the operation of aircraft, e.g. at specific aerodromes.
ANPT	Airline Noise Performance Table	A programme that ranks airlines flying into and from Gatwick Airport in relation to their overall noise performance.
ANS	Air Navigation Solutions Ltd	The air navigation service provider operating the control tower at Gatwick.
APU	Auxiliary Power Unit	A small combustion engine on an aircraft that provides energy for functions like lighting or heating/cooling when the main engines are switched off.
ATC	Air Traffic Control	An entity responsible for a safe and expedite air traffic flow. To this end they monitor aircraft and issue instructions to the flight crew, either from the airport control tower or a radar centre.
ATM	Air Traffic Movement	An aircraft operation on the airport's runway, i.e. either a departure or an arrival.
CAA	Civil Aviation Authority	The UK independent civil aviation regulator
CDO	Continuous Descent Operations	An optimised descent profile utilised to reduce noise impact and fuel consumption by avoiding prolonged periods of level flight below 7,000ft. 'For monitoring purposes, a descent will be deemed to have been continuous provided that no segment of level flight longer than 2.5 Nautical Miles (NM) occurs below 7,000ft QNH and 'level flight' is interpreted as any segment of flight having a height change of not more than 50ft over a track distance of 2nm or more, as recorded in the airport Noise and Track Keeping system.'
DfT	Department for Transport	The government department providing policy & guidance for air traffic through their work with airlines, airports, the Civil Aviation Authority and NATS.

Glossary of Terms (2)

DME	Distance Measuring Equipment	DME is a fixed radio beacon which provides information to aircraft about their distance from its position. “1 DME” denotes 1 nautical mile from the selected ground station. The distance is measured as a slant range, not as distance over ground.
EGKK	(ICAO-code for Gatwick airport)	These four-letter airport codes are used in the AIP and other aeronautical documents. This code is unique to Gatwick airport.
EPNdB	Effective Perceived Noise in decibels	A noise metric aimed to measure the relative noisiness of an individual aircraft flying by and can be calculated from the certified noise levels. It is used for the quota count classification.
FEGP	Fixed Electrical Ground Power	FEGP provides aircraft with the necessary power to operate its electrical and air conditioning systems.
FLOPSC	Flight Operations Performance & Safety Committee	An engagement committee at Gatwick Airport ensuring the development of best practice by airline operators using Gatwick. It is made up of representatives of Gatwick Airport, the DfT, ATC service providers and airlines operating at the airport.
GACT	Gatwick Airport Community Trust	An independent charity which awards grants annually to local community schemes which benefit parts of East and West Sussex, Surrey and Kent.
GAL	Gatwick Airport Limited	-
GNMG	Gatwick Noise Monitoring Group	The GNMG consists of Environmental Health Officers and associated noise professionals from the local authorities surrounding Gatwick Airport. The GNMG evaluates and discusses the data collected from the fixed and mobile noise monitors surrounding Gatwick Airport.
GPU	Ground Power Unit	An either fixed or mobile unit (usually a diesel powered generator) which can supply electrical power to the electrical system of an aircraft while on the ground.
IAR	Independent Arrivals Review	Gatwick commissioned an independent review of air traffic around the airport in. The final report has been published in 2016. Click here for more information.

Glossary of Terms (3)

ILS	Instrument Landing System	Is a precision runway approach aid based on two radio beams which together provide pilots with both vertical and horizontal guidance during an approach to land.
KPI	Key Performance Indicator	A set of metrics or values by which performance is measured and monitored.
MOTW	Maximum Take-Off Weight	The certified maximum total weight of an aircraft during take-off.
NaTMAG	Noise and Track-Keeping Monitoring and Advisory Group	NaTMAG brings together representatives from the DfT, ANS, NATS, airlines, Gatwick Airport and local authorities. The group discusses a wide range of noise and track-keeping issues.
NATS	National Air Traffic Service	NATS is the main Air Navigation Service Provider in the United Kingdom.
NMB	Noise Management Board	The Noise Management Board (NMB) is a unique body, bringing together representatives from all stakeholders in the management and mitigation of aircraft noise.
NPR	Noise Preferential Route	Departure flight paths that avoid densely populated areas and therefore reduce the noise.
NTK	Noise & Track-Keeping (System)	System used to assess flight performance and noise data, constituted by radar surveillance, noise monitoring terminals and software to process data.
QC	Quota Count	The QC is the noise quota assigned to an aircraft and is calculated on the basis of the EPNdB of that aircraft on take-off or landing. The QC is used for night flight restrictions at Gatwick, for which there is a set quota limit each season in addition to the movement limit.
QNH	(no acronym)	When set to QNH, an altimeter reads the altitude above mean sea level.
RAG	Red-Amber-Green	A tier system used to rate and categorise performance.
S106	Section 106	Refers to Section 106 the Town and Country Planning Act 1990.
TK	Track Keeping	A departure is defined as on-track if it does not deviate from the used NPR corridor before reaching the applicable minimum altitude.

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