



Department
for Transport

Night flight restrictions at Heathrow, Gatwick and Stansted Consultation Document

Moving Britain Ahead

January 2017

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Ministerial Foreword



A strong aviation sector is crucial for enabling trade, creating jobs and building an economy that works for everyone. But growth of the aviation sector must be sustainable. For communities living near airports, this means the impact of noise must be managed and in particular, night noise, which we know people find particularly disturbing. We also recognise that night flights have value in their own right. The scheduling of night flights is important for the business models of low cost and short haul airlines – helping to ensure their aircraft are in the right place at the right time which increases choice and reduces prices for passengers.

And night flights also play an important role in the operation of the time-sensitive freight sector whose networks require flexibility to fly throughout the night.

Given both the costs and benefits of night flights, the Government has set night flight restrictions at Heathrow, Gatwick and Stansted for many years, balancing the interests of communities, passengers and the wider economy. Our proposals for the night flight regime from October 2017 seek to maintain the status quo in terms of the number of night flights, preventing any increase in the actual number of flights outside of the spare movements the airports already have. This means changing the framework for managing night flights to ensure the growing number of exempt aircraft do not undermine the purposes of the restrictions and to create greater transparency and more certainty for communities on the number of flights that can take place. And alongside this we also want to ensure that we do all we can do to incentivise the use of quieter aircraft at night, which is why our final decision on the restrictions will be ambitious in the challenges it expects industry to meet in the coming years.

The Government has now announced a new north west runway at Heathrow as its preferred scheme for delivering new runway capacity in the south east. The night flight regime proposals set out here are for a five year period, so the question of a night flight ban associated with a new Heathrow runway is not within the scope of this consultation. We will shortly be launching two further consultations on aviation matters. The first is a consultation on the draft Airports National Policy Statement. Alongside this will be a consultation on UK airspace policy, which will include proposals on the Government's role in setting noise controls at these three airports in the future.

A handwritten signature in black ink, which reads "Tariq Ahmad of Wimbledon". The signature is written in a cursive style.

LORD (TARIQ) AHMAD OF WIMBLEDON

Minister for Aviation, Department for Transport

Executive summary

Introduction

- 1 UK aviation is a success story. We have the third largest aviation network in the world after the USA and China¹ and the largest aerospace industry in Europe - second to only the USA globally². Aviation creates jobs and supports economic growth. It directly supports around 230,000 jobs³ with many more employed indirectly and contributes over £21bn annually to UK GDP⁴. In addition, aviation connects the UK to the growing and emerging global markets - indeed, in 2015, UK airports handled around £160 billion of air freight to and from countries outside the EU⁵. Harnessing the benefits of aviation is therefore crucial for allowing us to make the most of the opportunities available as we prepare to exit the European Union.
- 2 But the benefits of aviation need to be balanced with its environmental impacts. Some of these are global, such as the climate change impacts from aircraft greenhouse gas emissions. The UK recognises the importance of addressing these impacts and has recently secured a major agreement that, from 2021, airlines will offset their emissions with reductions from other sectors and activities, with the aim of delivering carbon neutral growth of the international aviation sector from 2020⁶.
- 3 Other environmental concerns are local, and for communities living near airports, noise is often the primary concern. The Government needs to ensure that these impacts are also addressed so that the benefits offered by a strong aviation sector can be fully realised.
- 4 We have now accepted the Airports Commission's recommendation for a new north west runway at Heathrow as the preferred scheme to consult on for delivering new runway capacity in the south east⁷. We will shortly publish a draft Airports National Policy Statement (NPS) to ensure additional airport capacity plays its part in creating an economy that works for everyone while delivering a world class package of measures to mitigate the impacts for local communities. The Government expects this package to include a ban on scheduled night flights at Heathrow of six and a half hours.
- 5 Noise should not only be considered when an airport is looking to expand however and the Government wants to ensure that improvements in technology are shared with communities to create an aviation sector that is quieter, sustainable and a good neighbour. Alongside the National Policy Statement, we will also therefore be consulting on a range of new airspace policies to ensure that noise impacts are properly considered by the industry and the interests of communities are balanced

¹ Global Competitiveness Report, World Economic Forum, 2015-16, <http://reports.weforum.org/global-competitiveness-report-2015-2016>. Based on available seat kilometres

² Aerospace Defence Safety (ADS), <https://www.adsgroup.org.uk/about/our-sectors/>

³ Annual Business Survey, 2014

⁴ ONS Input-Output tables 2015

⁵ HMRC Trade Statistics, 2015

⁶ <http://www.icao.int/Newsroom/Pages/Historic-agreement-reached-to-mitigate-international-aviation-emissions.aspx>

⁷ <https://www.gov.uk/government/news/government-decides-on-new-runway-at-heathrow>

with those of passengers and the industry.

- 6 This consultation, Night Flight Restrictions at Heathrow, Gatwick and Stansted is concerned specifically with the night flight restrictions at those airports, for the period from October 2017. We are proposing to set these restrictions for a period of five years to 2022, so this will **not** therefore cover the period in which a new runway at Heathrow will be operational. The current regime expires in October 2017 and consultation on the next regime therefore has to take place now and is separate from consideration of night flight restrictions associated with Heathrow expansion, which will be consulted on at a later date. We nevertheless wish to look at options to limit night noise in this interim period before there is a new runway. We also feel the same objective should apply at Gatwick and Stansted.
- 7 Our aims therefore for the next regime are to ensure that airports are allowed to use the existing spare capacity within their movement limits, but, other than allowing for that, that there is no further increase in the number of flights that take place compared to today. Where possible, we also want to continue improvements in the noise performance of aircraft at these airports. Given changes in technology and the development of quieter aircraft, in order to ensure communities receive the same level of protection they currently do, it is necessary to make some changes to the framework itself so that the balance between industry and communities is preserved.

Summary of Proposals

- 8 We propose an environmental objective to **encourage the use of quieter aircraft to limit or reduce the number of people significantly affected by aircraft noise at night, while maintaining the existing benefits of night flights**. In order to achieve this, we propose to:
 - **Set a five year regime until October 2022, but, if there are appropriate opportunities to do so before this date, allow more bespoke arrangements to be made that reflect specific local circumstances.** The Government will provide further details on how such restrictions might be set, and Government's role in setting these, in its upcoming consultation on airspace policy.
 - **Create a new noise category to capture the majority of aircraft that are currently exempt from the night flight restrictions, and ensure all currently exempt aircraft count towards an airport's movement limit.** This will provide more certainty to communities about how much noise they can expect to be exposed to and provide greater transparency about how many flights are allowed to take place.
 - **Make no changes to the movement limits for Heathrow or Gatwick.**
 - **In order to maintain the current situation at Stansted, adjust Stansted's movement limits to reflect that movements by currently exempt aircraft will now count towards the movement limits.** Unlike at Heathrow or Gatwick, currently exempt aircraft represent a significant portion of Stansted's total movements. The uplift will be based on the number of these flights in the most recent winter and summer seasons - 600 and 1,100 respectively. This will ensure that the existing benefits of night flights are maintained, while also allowing Stansted to make use of the existing spare movements within its limits. This adjustment in combination with ending an exempt category of aircraft for movements, will provide communities around Stansted with more certainty on the number of night flights that are allowed to take place.

- **Set all three airports' noise quotas at a level which incentivises the use of quieter aircraft.** We outline possible options for this in Chapter 3, but final levels will be decided once we have taken account of any relevant evidence received through this consultation.

The consultation process

- 9 This consultation document follows focus groups with stakeholders for each airport that were held by the Department for Transport in June 2016. These focus groups considered the evidence base on night flight restrictions that has been used to inform the impact assessment published alongside our consultation document.
- 10 This stage of our consultation will take place between **12 January and 28 February** and includes proposals for our environmental objectives for the next regime and options to achieve these.
- 11 An impact assessment is published alongside this document and includes our initial assessment of the impacts of our proposals for the next regime based on our existing evidence base. This will be updated to take account of any new evidence arising from this consultation before the Government reaches a final decision on the next regime later this year.
- 12 A summary of consultation questions is provided at **Annex A** and separate questions are included within our impact assessment. Responses to both this consultation and our impact assessment should be provided, where possible, using the online web form at <https://www.smartsurvey.co.uk/s/J6KX6/>. Where it is not possible to use this response form, or your response contains commercially or otherwise sensitive information, please email your response using the form found on our webpage to night.flights@dft.gsi.gov.uk.
- 13 This consultation document is divided into 4 chapters. The first chapter of the document provides background on the night flight restrictions and how the current regime was set. It also summarises the developments with regards to airport capacity that have taken place since the restrictions were last reviewed, and the current situation at each airport.
- 14 The second chapter considers environmental objectives for the next regime and the effect other measures identified under the Balanced Approach⁸ will have on the noise climate around these airports in the coming years.
- 15 The third chapter covers our specific proposals for the next regime, in relation to the structure of the regime and the movement and noise quota limits at each airport.
- 16 The final chapter provides a brief summary of the anticipated effects of our proposals at all three airports. More detailed analysis is available in the noise contours included at **Annex F** and the impact assessment published alongside this consultation.
- 17 This consultation is taking place in accordance with the provisions of the Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003⁹, which implements Directive 2002/30/EC¹⁰ which sets out rules on the introduction of operating restrictions. The requirements set out in this Directive are included at **Annex B**.

⁸ ICAO Balanced Approach, <http://www.icao.int/environmental-protection/Pages/noise.aspx>

⁹ Statutory Instrument No. 2003/1742.

¹⁰ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0030&from=EN>

How to respond

The consultation period began on **12 January** and will run until **28 February 2017**. Please ensure that your response reaches us before the closing date. You can use the contact details below if you need alternative formats of this document (Braille, audio CD, etc.)

Please submit consultation responses using the response form at the link below:

<https://www.smartsurvey.co.uk/s/J6KX6>

Responses can also be emailed using the form provided on our webpage to Night.flights@dft.gsi.gov.uk or alternatively posted to:

Night Flights Consultation

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When responding, please state whether you are responding as an individual or representing the views of an organisation. If responding on behalf of a larger organisation, please make it clear who the organisation represents and, where applicable, how the views of members were assembled.

Freedom of Information

Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the Freedom of Information Act 2000 (FOIA) or the Environmental Information Regulations 2004.

If you want information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence.

In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information, we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

The Department will process your personal data in accordance with the Data Protection Act (DPA) and in the majority of circumstances this will mean that your personal data will not be disclosed to third parties.

1. Background

History of night flight restrictions

- 1.1 The power for the Secretary of State to set night flight restrictions for designated airports is found in section 78 of the 1982 Civil Aviation Act¹¹. This allows action to be taken to avoid, limit or mitigate the effect of noise from aircraft. Heathrow, Gatwick and Stansted airports have been designated for this purpose since 1971.
- 1.2 Night flight restrictions of some form have been in place at Heathrow since 1962, Gatwick since 1971 and Stansted since 1978. The underlying principle of the restrictions has been to balance the need to protect local communities from excessive aircraft noise at night - which the Government recognises is the least acceptable aspect of aircraft operations, with permitting the operation of services that provide benefits to the aviation industry and wider economy. Since 1993, the regime has limited the number of flights and amount of noise energy that can be emitted at each airport.
- 1.3 Given the strategic importance of these airports, and that their future was under consideration by the Airports Commission, the Government confirmed in the Aviation Policy Framework in 2013 that it would continue to designate these airports for noise control purposes, including on night flights¹². In our upcoming consultation on airspace policy, we will be considering what the Government's role should be in setting noise controls, including night flight restrictions, at these airports in the future. Without prejudice to the outcome of that process, the Government needs to provide certainty on the night flights rules which will apply at the three airports when the current regime lapses. Given the need to consult now, the restrictions from October 2017 will therefore be set in accordance with the current policy and before any decisions have been made on the future of the Government's role.

The current regime

- 1.4 The current night noise regime at Heathrow, Gatwick and Stansted was set in July 2014. The regime runs from October 2014 to October 2017. The current movement and noise quota limits for Heathrow, Gatwick and Stansted are shown in **Table 1**.
- 1.5 The current movement limits for all three airports correspond to those from the regime which was first set in 2006. That regime was originally due to expire in October 2012, but was extended for a further two years in March 2012¹³. This was to ensure that any proposals for the subsequent regime took account of the Aviation Policy Framework, which the Government was developing at the time.

¹¹Civil Aviation Act (1982) <http://www.legislation.gov.uk/ukpga/1982/16>

¹²DfT (2013) 'Aviation Policy Framework'

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/153776/aviation-policy-framework.pdf

¹³<https://www.gov.uk/government/publications/night-flying-restrictions-at-heathrow-gatwick-and-stansted-airports>

Table 1 - Current seasonal night movement and noise quota limits for Heathrow, Gatwick and Stansted*

	Heathrow	Gatwick	Stansted
Summer night movement limit	3,250	11,200	7,000
Summer noise quota limit	5,100	6,200	4,650
Winter night movement limit	2,550	3,250	5,000
Winter noise quota limit	4,080	2,000	3,310

* Currently movements by exempt aircraft do not count towards these limits. This is discussed in more detail below.

- 1.6 The current night noise regime for these airports was set in July 2014 following a two stage consultation process in 2013¹⁴. This regime is shorter than many past ones, which have usually been set for periods of around five years, as the Government wanted to wait for the Airports Commission to conclude its work on airport capacity before considering any substantial changes to the previous night flight restrictions.

Developments since the current regime was set.

- 1.7 In July 2015, the Airports Commission published its Final Report in which it recommended a new north west runway at Heathrow¹⁵. The report also included the recommendation, that if Heathrow was expanded, there should be a ban on scheduled night flights between the hours of 2330 and 0600. The recommendation was clear however that this would only be possible with the extra capacity provided by a third runway that would allow existing night flights to be retimed to the early morning period, and that further restrictions at a capacity constrained Heathrow would damage the UK's connectivity.
- 1.8 On 25 October 2016, the Government announced a new north west runway at Heathrow as its preferred scheme for consultation for delivering new runway capacity in the south east¹⁶. When announcing this decision, the Government made clear that it expects a ban on night flights of six and a half hours to be included in the package of mitigation measures for communities associated with expansion at Heathrow.
- 1.9 Heathrow has itself pledged to introduce a ban of six and a half hours. It has also indicated that a ban could be introduced before a new runway is operational if their existing movement limit is raised in the interim period and airspace changes to provide extra resilience in the early morning period are implemented¹⁷. Exact details, including on the timings of a future ban, will be subject to public consultation in the future. Furthermore, Heathrow has announced it is not seeking an increase in its current night flights limit for the next regime.
- 1.10 Gatwick has also indicated that it has no intention of seeking to increase its number of night flights at this moment.
- 1.11 Manchester Airports Group, the operators of Stansted Airport, have also indicated that they intend to seek planning permission to increase its passenger cap. The

¹⁴ DfT(2014) 'Night Flying Restrictions at Heathrow, Gatwick and Stansted'

<https://www.gov.uk/government/consultations/night-flights>

¹⁵ Airports Commission (2015) Final Report

<https://www.gov.uk/government/publications/airports-commission-final-report>

¹⁷ <http://your.heathrow.com/takingbritainfurther/wp-content/uploads/2016/05/Press-release-Heathrow-responds-to-Airports-Commission-conditions-11-May-2016.pdf>

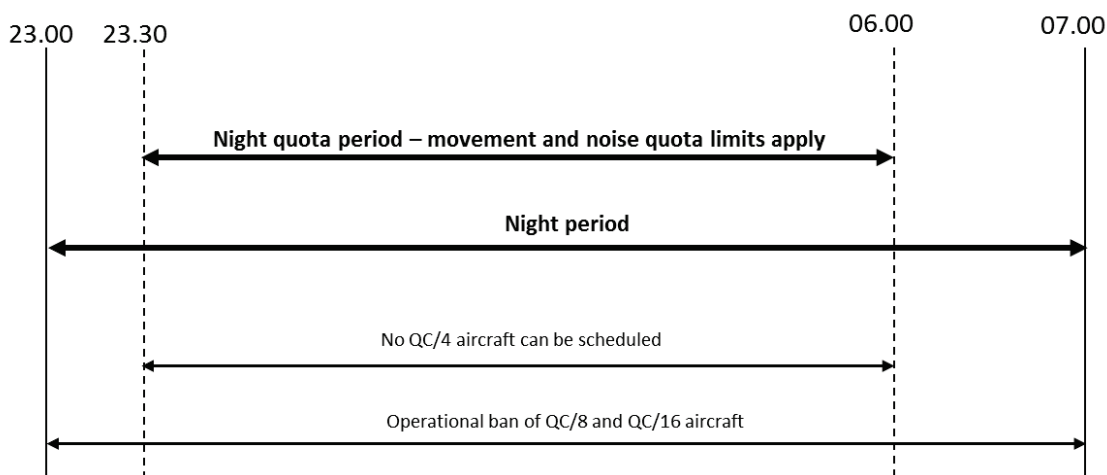
current cap is 35 million passengers per annum, though it is estimated that the capacity provided by the existing runway could allow the airport to handle 40 to 45 million passengers per annum. The airport are planning to bring forward their application in 2017 with the expectation of agreeing new planning caps for passengers and Air Transport Movements (currently 264,000 per annum).

Structure of the night flights regime

Movement and noise quota limits

- 1.12 Since 1993, the night flights regime set by the Government at Heathrow, Gatwick and Stansted has limited the number of movements that can take place between the hours of 2330 and 0600. There are also limits on the amount of noise quota that airports are allowed to use during this period, which is known as the night quota period.

Figure 1 - Structure of night flights regime



- 1.13 The movement limit refers to the maximum amount of aircraft that can take off or land during the night quota period while the quota count limit relates to the maximum amount of noise energy that can be produced. If an airport uses all its quota count, then even if it has additional movements available, no further movements can take place, and vice versa. Any flights by exempt aircraft or those subject to dispensations as described below do not count towards these limits.
- 1.14 The movement and night quota limits are seasonal and aligned with the International Air Transport Association (IATA) summer and winter scheduling seasons. These in turn are based upon the use of Daylight Savings Time (DST) in EU countries. The summer season begins on the last Sunday in March and ends on the last Sunday in October.
- 1.15 As these seasons vary in length, airports are given flexibility to manage their allowance, and may carry-over unused movements or quota from one season to another, or may over-run in one season which leads to a deduction in the following season. The rules for carrying-over or over-running are as follows:
- If required, a shortfall in use of the movements limits and/or noise quota in one season of up to 10% may be carried over to the next season;
 - Conversely, up to 10% of an overrun in movements and/or noise quota usage in one season (not being covered by carry-over from the previous season) will be deducted from the corresponding allocation in the following season;

- An overrun of more than 10% will result in a deduction of 10% plus twice the amount of the excess over 10% from the corresponding allocation in the following season; and
- The absolute maximum overrun is 20% of the original limit in each case.

- 1.16 Airports are also allowed dispensations for certain flights in the night quota period for specific reasons. There are two types of dispensations. First are those granted by the Government for various reasons, such as VIP or humanitarian flights. The second type of dispensation refers to those that may be granted by airports in the event of emergencies, widespread and prolonged air traffic disruption, and delays as a result of disruption leading to serious hardship and congestion at an airfield or terminal.
- 1.17 The government reviewed the use of dispensations when the regime was last reviewed in 2014 and issued new guidance on their use. This is included at **Annex C**.

The quota count system and restrictions on the noisiest aircraft

- 1.18 While the movement limits for each airport limit the total number of aircraft that can take off or land during the night, the quota count limit is designed to incentivise the use of quieter aircraft to maximise the number of movements that can take place.
- 1.19 Aircraft are classified separately according to the quota count (QC) classification system which was specially designed for the night restrictions at Heathrow, Gatwick and Stansted and introduced in 1993.
- 1.20 The QC classification system is based on official noise certification data derived from measurements made on actual aircraft and conducted in accordance with the conditions and standards of the International Civil Aviation Organisation (ICAO) certification process, with adjustments to take account of differences in noise measurement points. Using the agreed ICAO standards and conditions for measuring aircraft noise is a requirement made under Article 4.4 of Directive 2002/30/EC, which states that 'performance-based operating restrictions shall be based on the noise performance of the aircraft as determined by the certification procedure conducted in accordance with Volume I of Annex 16 to the Convention on International Civil Aviation, third edition (July 1993)'.
- 1.21 Aircraft are classified on the basis of their noise data (adjusted as appropriate) into seven QC bands. The bands are illustrated in **Table 2** below.

Table 2 - Current aircraft noise classifications

Noise Classification (EPNdB)	Quota Count
More than 101.9	16
99 - 101.9	8
96 - 98.9	4
93 - 95.9	2
90 - 92.9	1
87 - 89.9	0.5
84 - 86.9	0.25
Less than 84	0 (Currently exempt)

- 1.22 Under the QC system, each aircraft type, including different versions of the same model, is assigned a Quota Count according to its noise performance, separately for arrival and departure. For example, a Boeing 737-800 is classified as QC/0.5 on arrival and as QC/0.5 or QC/1 on departure (depending on its maximum certificated take-off weight), whereas a much larger Boeing 777-300ER is classified as QC/1 on arrival and QC/2 on departure. The individual classification of each type of aircraft is set out in Part 2 of the Schedule to the Notice which is published each season - in a supplement to the UK Aeronautical Information Publication (UKAIP) that gives effect to the night restrictions.
- 1.23 In the previous Stage One consultation on night flights in 2013¹⁸, it was explained that there are some small differences in the QC rating of an aircraft and the actual noise performance in real world operations. As a result some aircrafts' actual performance is slightly quieter than their QC rating suggests, while others are slightly noisier. **Annex D** compares the QC classification of aircraft in common operation at Heathrow with actual noise measurements from these aircraft on the approach to Heathrow.
- 1.24 The QC system allows each night flight to be individually counted against an overall noise quota (or noise budget) for an airport according to the QC rating (i.e. the noisiness) of the aircraft used. The noisier the aircraft used, the higher its QC rating and the fewer that can be operated within any given quota, thereby also providing an incentive for airlines to use less noisy aircraft. Airlines are allowed to decide which aircraft to use according to their operational needs, but whether they use for example, 5x QC/2s or 10x QC/1s or 20x QC/0.5s, or a combination of these, the sum of the noise energy permitted by the quota remains the same. An airport is therefore able to accommodate more movements - up to their movement limit, by using quieter aircraft.
- 1.25 The lowest QC band is currently QC/0.25. Aircraft quieter than this are currently exempt. When the regime was first introduced in its current structure in 1993, aircraft quieter than QC/0.5 were exempt. The QC/0.25 category was introduced in the regime that began in 2006 and applies to aircraft classified between 84 and 86.9 EPNdB. Part of the original rationale for having an exempt category was that in 1993, a Department of Transport sleep study had suggested that noise below 80 dB L_{max} (90 EPNdB equates to roughly 75 dB L_{max}), was unlikely to cause sleep disturbance¹⁹. These exempt aircraft are currently not caught by either the movement or noise quota limits at an airport so can in effect operate without restrictions in the night quota period. The issue of exempt aircraft, and our proposals for how these should be treated in the next regime, are discussed in Chapter 3.

The current situation at Heathrow, Gatwick and Stansted

Heathrow

- 1.26 Heathrow is the busiest airport in the UK serving 75 million passengers per year and 176 weekly destinations worldwide²⁰. It also carried 1.5 million tonnes of freight in 2015²¹. The airport has two runways, four operational passenger terminals and two cargo terminals. The airport is located approximately 13 miles (21km) west of London

¹⁸ DfT (2013) 'Night Flying Restrictions at Heathrow, Gatwick and Stansted Stage 1 Consultation' <https://www.gov.uk/government/consultations/night-flights-consultation>

¹⁹ Ollerhead J B et al (DfT) (1992) 'Report of a Field Study of Aircraft Noise and Sleep Disturbance, Department of Transport. More recent evidence relating to sleep disturbance is included in our accompanying impact assessment

²⁰ CAA data. Weekly service: at least 52 passenger flight departures a year

²¹ CAA data

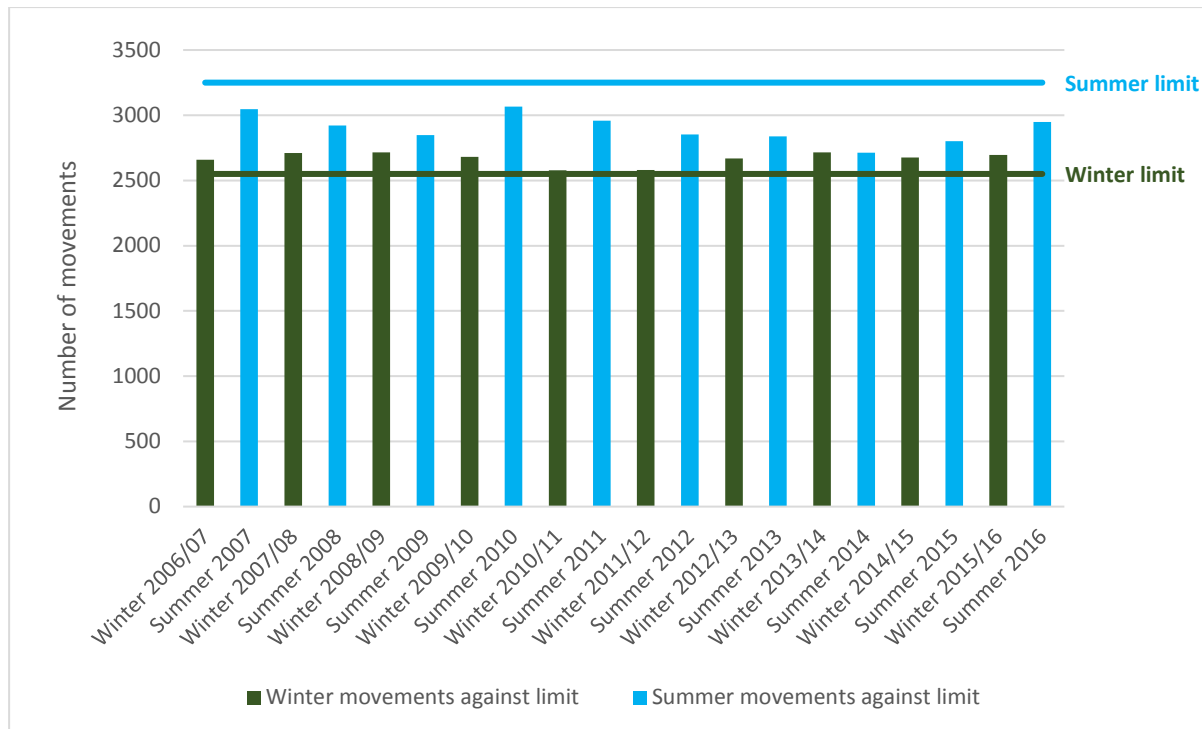
City Centre and is surrounded by: suburban housing, business premises and mixed use open land to the north and south; suburban housing and business premises to the east; and three large reservoirs, mixed use open land, housing and business premises to the west. Under Terminal 5 planning conditions, the number of air transport movements at the airport shall be limited to 480,000 each year.

- 1.27 On 25 October 2016 the Government announced that it has accepted the independent Airports Commission’s recommendation for a new north-west runway at Heathrow Airport as its preferred option to deliver airport expansion in the south-east. The new runway is expected to be operational by 2026 and it is expected there will be a ban on night flights of six and half hours as a condition on expansion and which Heathrow have indicated could possibly be introduced before a new runway is operational.

Existing night flight operations

- 1.28 Restrictions on night flights have been in place at Heathrow since 1962. Heathrow is currently limited to 5,800 night flights a year - 3,250 in the summer season and 2,550 in the winter season. This equates to approximately 16 flights per night.
- 1.29 In addition to the movement limits imposed by the Government, Heathrow also has a voluntary ban in place that sees no flights scheduled between 2330 and 0430 and prevents flights scheduled between 0430 and 0600 from landing before 0430. All scheduled night movements are therefore early morning arrivals between 0430 and 0600, mostly from destinations in the Far East. These scheduled early morning arrivals make up about 87% of all the night flights that take place, with unscheduled late running flights after 2330 the remainder. Heathrow are currently taking action to reduce the number of late running arrivals as part of their blueprint for noise reduction²².

Figure 2 - Heathrow Movement usage



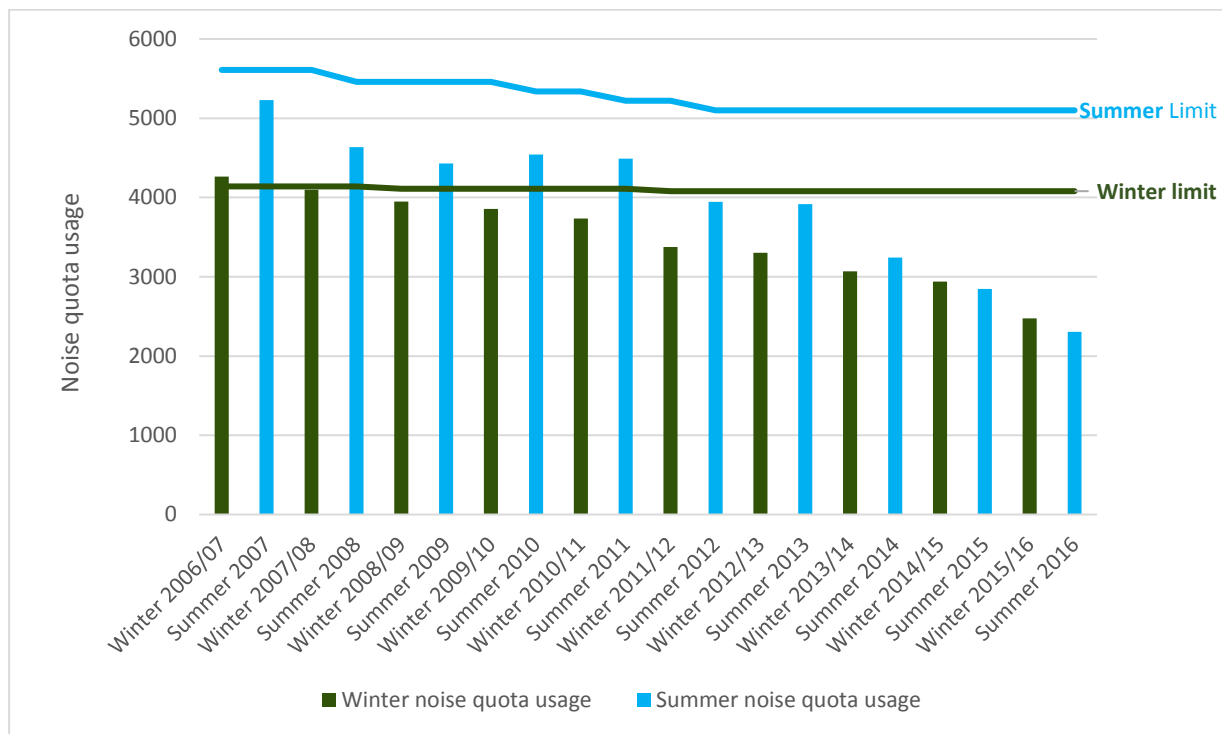
* Refers to seasonal movement limit excluding carry over from previous season and any over-run
 Source: DfT data

²²Heathrow Airport Ltd (2016) 'Heathrow's Blueprint for noise reduction'
<http://www.heathrow.com/noise/making-heathrow-quieter/our-noise-strategy/blueprint-for-noise-reduction>

1.30 Movements at Heathrow have been stable for many years. Since the winter 2009/10 season, Heathrow has used on average 89% of its summer movement limit and 104% of its winter allowance - carrying over the unused percentage of its summer allowance as permitted under the current regime. The difference between summer and winter movements over this timeframe has been small - with an average of 2,883 movements in the summer season and 2,656 movements in the winter season. The discrepancy in allowances between the two seasons is largely based on historical factors.

1.31 While Heathrow is using close to its full allowance of movements, recent years have seen a significant reduction in the amount of noise quota usage as a result of the introduction of quieter aircraft. In the most recent summer season, Heathrow used just 45% of its noise quota compared to 91% of its available movements. Further data on night flights at Heathrow, as well as Gatwick and Stansted, is included at **Annex E**.

Figure 3 - Heathrow noise quota usage



* Refers to seasonal noise quota limit excluding carry over from previous season and any over-run
Source: DfT data

Impacts of aircraft noise at night

1.32 In 2015-16 (the summer 2015 and winter 2015/16 seasons), there were approximately 105,000 people exposed to noise levels of at least 48 dB LAeq 6.5hr night between 2330 and 0600. While this number is much higher than at Gatwick or Stansted, there have been noticeable improvements in recent years - with the current population representing a 20% reduction since 2011-12 and even larger reductions since 2002-03. Contour maps for Heathrow, along with Gatwick and Stansted, for 2015-16 are included at **Annex F**. Contour maps for all three airports for previous years are included at Annex B to the previous Stage One Consultation document from 2013.²³

²³ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/66848/annexes.pdf

Table 3 - Heathrow LAeq 6.5hr night contours (actual usage)

Contour (dBA)	Area (sq km)			Population (1000s)			Households (1000s)		
	2002-03	2011-12	2015-16	2002-03	2011-12	2015-16	2002-03	2011-12	2015-16
48	53.9	41.1	33.0	123.0	132.4	105.5	50.9	49.8	40.3
51	27.9	20.8	16.7	55.8	64.9	49.9	21.8	22.3	18.8
54	14.8	11.2	8.5	28.0	33.2	21.2	10.7	11.0	7.9
57	7.8	6.2	4.3	10.2	11.7	4.1	3.6	3.6	1.5
60	4.0	3.4	2.3	3.6	3.2	1.3	1.2	1.0	0.5
63	2.2	1.9	1.4	1.4	1.1	<0.1	0.4	0.3	<0.1

Source: CAA data

Gatwick

1.33 Gatwick has one main runway, along with another runway that can only be used when the main one is not in operation, and two terminals. Gatwick handled 40.3 million passengers in 2015 and served 182 weekly destinations²⁴. It is situated in mostly lightly-populated countryside - though it does lie between the towns of Crawley and Horley, about 28 miles (45km) to the south of London and about 2 miles (3km) north of Crawley. While there are no planning restraints that limit activity at Gatwick, it is operating at over 85% of capacity and is completely full at peak times²⁵.

Existing night flight operations

1.34 Gatwick's night flights are subject to much greater seasonal variability than Heathrow due to the different business models of the two airports, with a summer movement limit of 11,200 and a winter movement limit of 3,250.

1.35 Gatwick has used close to its full movement limit in the summer for many years, and in the summer 2016 season made use of the seasonal flexibility offered by the regime for the first time - carrying over unused movements from winter 2015/16. There is still a large amount of spare capacity in the winter night quota period however, with the most recent season seeing less than 60% of the movements available utilised. Night flight activity at Gatwick therefore varied from an average of 52 flights per night in the summer 2016 season to 12 per night in the winter 2015/16 season. There is also significant in-season variability however, with the busiest week in the most recent summer season averaging 76 flights per night and certain weeks in the winter 2015/16 season averaging less than 7 flights per night.

1.36 Flights at Gatwick arrive and depart throughout the night, but over two-thirds are pre-2am arrivals. This reflects the business model of the low cost carriers based at Gatwick who rely on night flights to ensure they achieve the necessary number of rotations during a day in order to make maximum use of their assets. In 2014/15, about 46% of night flights at Gatwick were by low-cost carriers, 31% were full service carriers, and 22% were charter services such as Thomas Cook.²⁶ The most popular services in the night are those between mainland Spain, Greece and the Balearics.

1.37 As with Heathrow, Gatwick is also using proportionately less of its noise quota compared to its movement quota - for example in summer 2016 it used 101% of its movement limit but only 79% of its noise quota limit (excluding carryover allowances).

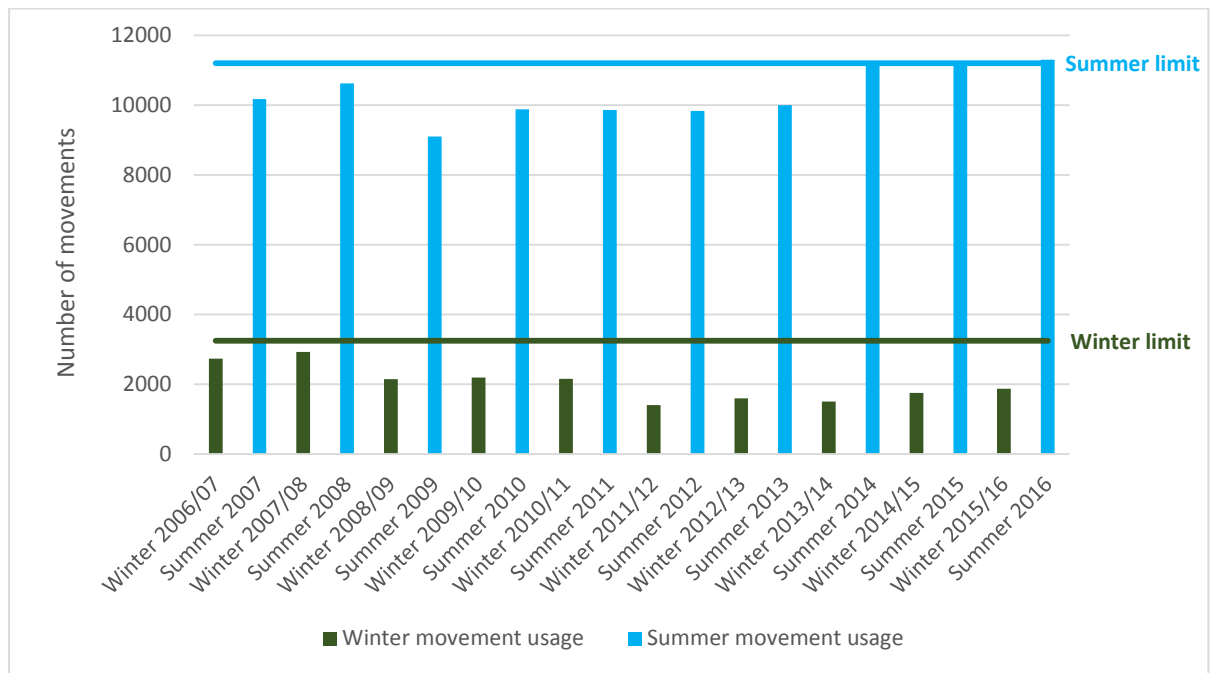
²⁴ CAA data. Weekly service: at least 52 passenger flight departures a year

²⁵ Airport Commission (2015) 'Final Report', p.78

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440316/airports-commission-final-report.pdf

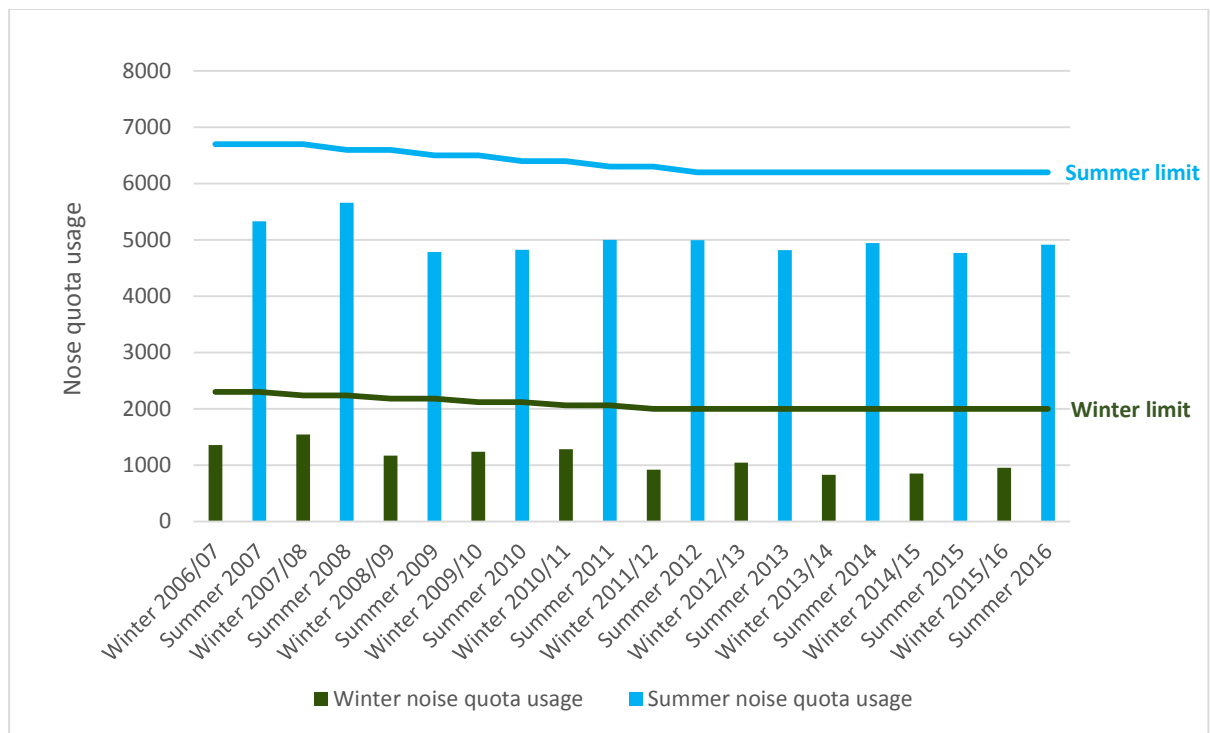
²⁶ Based on winter 2014/15 and summer 2015 data

Figure 4 - Gatwick Movement usage



* Refers to seasonal movement limit excluding carry over from previous season and any over-run
 Source: DfT data

Figure 5 - Gatwick noise quota usage



* Refers to seasonal noise limit excluding carry over from previous season and any overrun
 Source: DfT data

Impacts of aircraft noise at night

1.38 In 2015/16, there were approximately 4,300 people exposed to noise levels of at least 48 dB LAeq 6.5hr night between 2330 and 0600. This represents approximately 4% of the number at Heathrow, however the actual size of the contours at the two airports is similar with the difference primarily accounted for by differences in population density. The population within this contour at Gatwick has actually

increased since 2011-12, though it is not possible to draw any firm conclusions on this as the difference is small and will have been affected to some extent by changes in the easterly/westerly split in different years. Since 2002-03, there has been a noticeable fall in the size of the 48 dB contour, but the number of people within it has actually increased.

Table 4 - Gatwick LAeq 6.5hr night contours (actual usage)

Contour (dBA)	Area (sq km)			Population (1000s)			Households (1000s)		
	2002-03	2011-12	2015-16	2002-03	2011-12	2015-16	2002-03	2011-12	2015-16
48	41.3	34.1	35.2	3.8	4.2	4.3	1.6	1.7	1.6
51	23.7	18.1	18.0	1.2	1.2	1.3	0.5	0.5	0.5
54	13.4	9.5	9.0	0.5	0.4	0.5	0.2	0.2	0.1
57	7.3	5	4.6	0.3	0.2	0.3	0.1	0.1	0.1
60	3.9	2.5	2.3	0.1	<0.1	0.1	<0.1	<0.1	<0.1
63	2.0	13	1.2	<0.1	<0.1	0.0	<0.1	<0.1	0.0

Source: CAA data

Stansted

1.39 Stansted has one runway and one terminal. It carried around 22.5 million passengers in 2015 and also has a significant freight operation, handling 208,000 tonnes²⁷. It is situated 35 miles (56km) north east of London and is surrounded by countryside and small villages to the north, south and east and the town of Bishop's Stortford to the west. Current planning conditions restrict passengers to 35 million passengers per year, a limit of air transport movements to 264,000 per year and the area within the 57 dB LAeq 16hr noise contour to 33.9 square kilometres.

Existing night flight operations

1.40 Stansted has a movement limit of 7,000 in summer and 5,000 in winter. Like Gatwick, Stansted used its entire movement limit in summer 2016 and used carryover from the previous season. In Winter 2015/16 Stansted also used a similar percentage of its winter movements as Gatwick, approximately 60%, though Stansted's winter limit is almost twice as high. While the seasonal variation is not as high therefore as at Gatwick, the average for the winter 2015/16 season was 20 flights per night, and the summer 2016 average was 34 per night - reaching 44 per night in the busiest summer week.

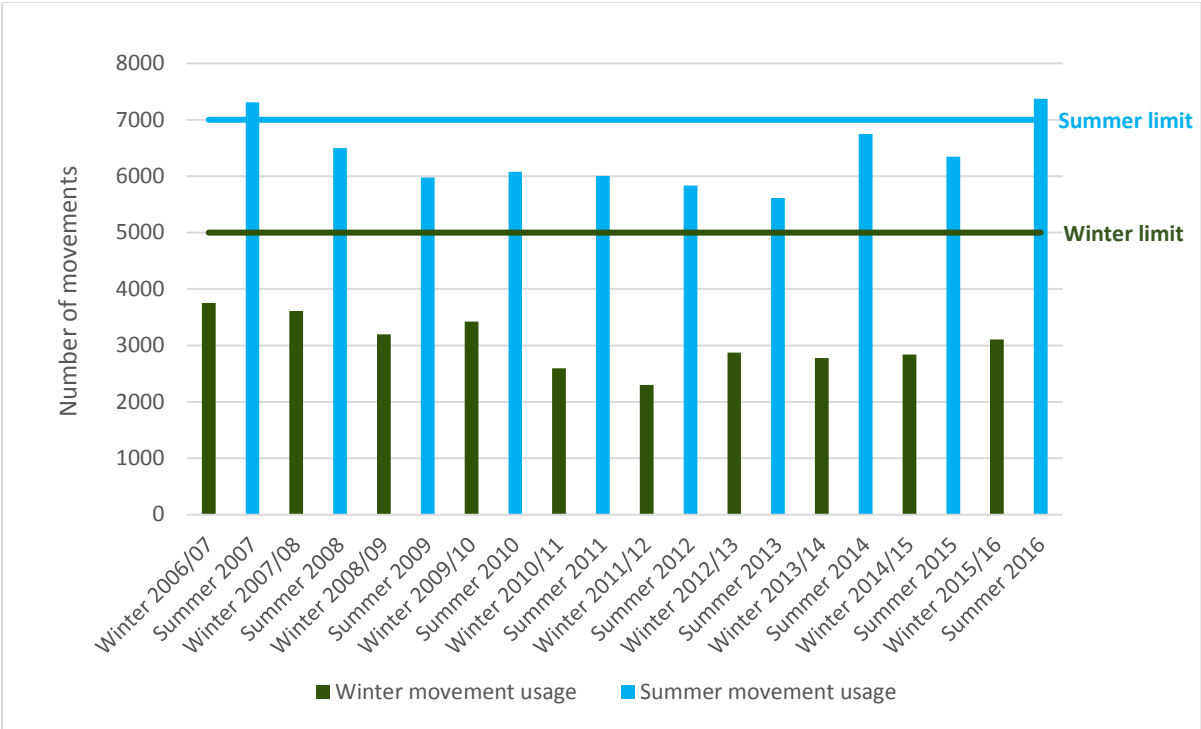
1.41 The most common night movements at Stansted are low-cost carriers, which made up approximately 45% of night movements in 2014/15 and are largely concentrated at the beginning and end of the night quota period. Stansted is also a hub for several large freight and express companies, which require the flexibility to fly throughout the night in order to ensure timely next day deliveries to key markets. Freight services make up approximately 35% of Stansted's night movements.

1.42 Unlike Heathrow and Gatwick, Stansted also has a large number of exempt aircraft operating throughout the night that are not currently counted towards the night flight restrictions. There were 1,093 of these movements in summer 2016 which equates to roughly five per night. At the current time, the majority of these exempt movements are made up of small turboprop freighters and business jets. The number of these movements has grown rapidly in recent years (see **Figure 12** in Chapter 3) and with

²⁷ CAA data. Weekly service: at least 52 passenger flight departures a year

the introduction of new larger commercial passenger aircraft which fall into this category, there could be further significant increases under the current framework.

Figure 6 - Stansted Movement usage



* Refers to seasonal movement limit excluding carry over from previous season and any over-run
 Source: DfT data

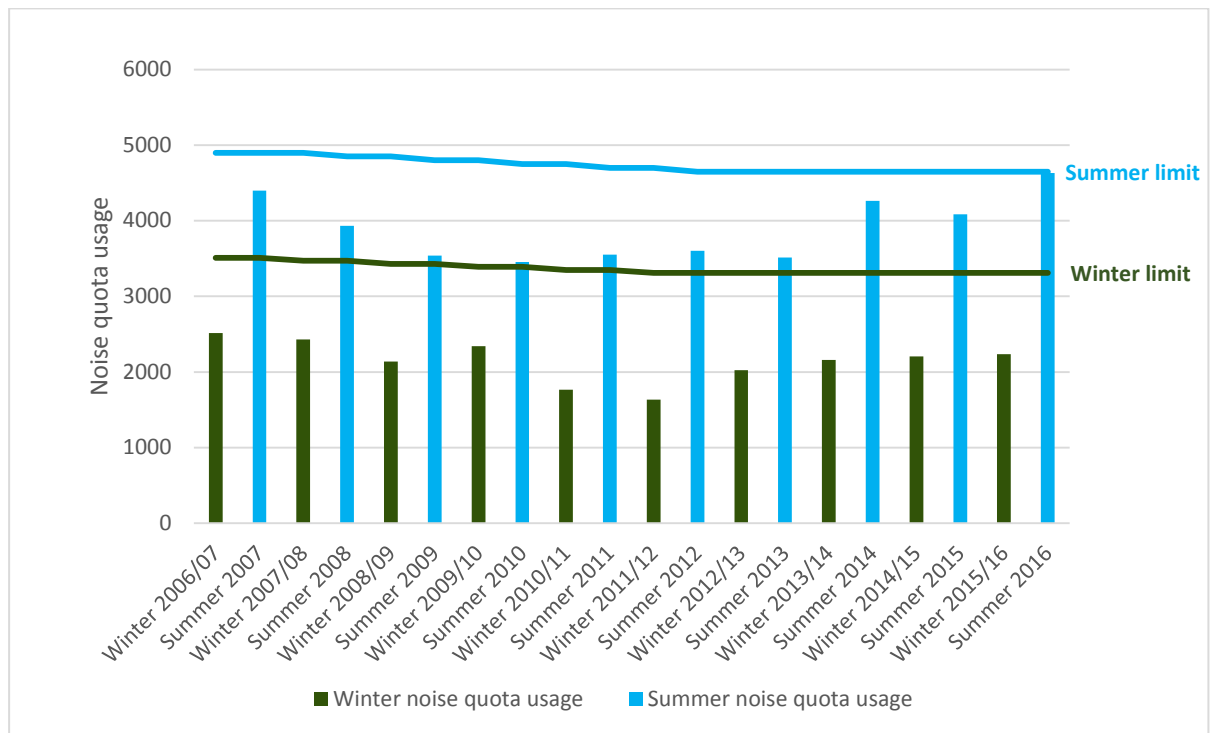
1.43 Another difference between Stansted and the other two designated airports is that Stansted is using a far higher proportion of its noise quota - approximately 100% in the most recent summer season - though as can be seen in **Tables 9 to 14** below, the average QC per movement is much quieter than at Heathrow and close to the value for Gatwick.

Impacts of aircraft noise at night

1.44 In 2015/16, there were approximately 3,800 people exposed to noise levels of at least 48 dB LAeq 6.5hr night between 2330 and 0600. This is lower than the number of people exposed to equivalent noise at Gatwick and the size of the contour is also smaller. Like at Gatwick, there has also been an increase in the size of the contour since 2011-12²⁸, though the difference is small and will be partly the result of changes in the split of easterly and westerly operations. It is not therefore possible to draw firm conclusions from these changes.

²⁸ Since the publication of the Stage 1 consultation in January 2013 an error was discovered in the Stansted 2011-12 LAeq 6.5hr night (actual usage) results reported in Annex B of that document. Because the effects of ground (terrain) height were not properly accounted for in the modelling process, the published 2011-12 LAeq 6.5hr night (actual usage) contour was slightly larger than it should have been. The 2011-12 noise contour for Stansted has now been re-run and the corrected results are reported in Table 5. The corrected 48dBA 6.5hr night contour area of 28.0 sq km is approximately 4% smaller than the area of 29.3 sq km previously reported in the January 2013 consultation.

Figure 7 - Stansted noise quota usage



* Refers to seasonal noise quota limit excluding carry over from previous season and any over-run
 Source: DfT data

Table 5 - Stansted LAeq 6.5hr night contours (actual usage)

Contour (dBA)	Area (sq km)			Population (1000s)			Households (1000s)		
	2002-03	2011-12	2015-16	2002-03	2011-12	2015-16	2002-03	2011-12	2015-16
48	30.4	28.0	30.8	3.4	2.9	3.8	1.4	1.3	1.6
51	16.8	14.8	16.2	1.0	0.6	0.9	0.4	0.2	0.3
54	9.3	7.6	8.2	0.4	0.2	0.2	0.2	0.1	0.1
57	4.9	4.2	4.3	<0.1	0.1	<0.1	<0.1	0.0	<0.1
60	2.5	2.3	2.3	<0.1	0.0	0.0	<0.1	0.0	0.0
63	1.3	1.3	1.3	<0.1	0.0	0.0	<0.1	0.0	0.0

Source: CAA data

2. Night flight restrictions and the Balanced Approach

Regulatory framework

- 2.1 The Government fully recognises the International Civil Aviation Organization (ICAO) Assembly's 'Balanced Approach' to aircraft noise management. The 'Balanced Approach' consists of identifying noise problems at an airport and then assessing the cost-effectiveness of the various measures available to reduce noise through the exploration of four principal elements (see **Figure 8** below), which are:
 - reduction at source (quieter aircraft);
 - land-use planning and management;
 - noise abatement operational procedures (optimising how aircraft are flown and the routes they follow to limit the noise impacts); and
 - operating restrictions.
- 2.2 The Balanced Approach was adopted into European law in 2002 through Directive 2002/30/EC which established rules and procedures with regard to the introduction of noise-related operating restrictions at Community airports²⁹. This was implemented in the UK through SI 2003/1742 - The Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003 ('the 2003 Regulations')³⁰.
- 2.3 Directive 2002/30/EC was replaced by Regulation (EU) No 598/2014³¹ on 13 June 2016, though this consultation and the adoption of the new night noise regime is taking place under the process required by the Directive through the transitional arrangements allowed under the Regulation.³²
- 2.4 On 23 June, the EU referendum took place and the people of the United Kingdom voted to leave the European Union. Until exit negotiations are concluded, the UK remains a full member of the European Union and all the rights and obligations of EU membership remain in force. During this period the Government will continue to negotiate, implement and apply EU legislation. The outcome of these negotiations will determine what arrangements apply in relation to EU legislation in future once the UK has left the EU.

Environmental objectives

- 2.5 The Balanced Approach requires measures to address a noise problem at an airport to be no more restrictive than is needed to meet the environmental objectives

²⁹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32002L0030>

³⁰ <http://www.legislation.gov.uk/ukSI/2003/1742/contents/made>

³¹ <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014R0598>

³² In accordance with Article 16 of Regulation (EU) No 598/2014.

determined for that airport, with operating restrictions only introduced if other measures are insufficient to address the problem. Regulation 5(4) of the 2003 Regulations requires, before the adoption of any measures under those Regulations, an environmental objective to be established and published for each airport concerned.

Figure 8 - The Balanced Approach

The Balanced Approach
 The Government’s approach to managing aircraft noise is based on the principles of International Civil Aviation Organization’s (ICAO) Balanced Approach. The goal of the Balanced Approach is to address noise problems on an individual airport basis and to identify the noise-related measures that achieve maximum environmental benefit most cost-effectively using objective and measurable criteria. The measures identified under the Balanced Approach for addressing noise are:

1 Reduction of noise at source: Much of ICAO’s effort to address aircraft noise over the past 40 years has been aimed at reducing noise at source. Aeroplanes and helicopters built today are required to meet the noise certification standards adopted by the Council of ICAO. The latest standards which the UK was instrumental in agreeing, includes the requirement for large civil aircraft, from 2017, to be at least 7dB quieter on average in total, across the three test points, than the current standard. Standards for smaller aircraft will be similarly reduced in 2020.

2 Land-use planning: Land-use planning and management is an effective means to ensure that the activities nearby airports are compatible with aviation. Its main goal is to minimize the population affected by aircraft noise by introducing land-use zoning around airports. Compatible land-use planning and management is also a vital instrument in ensuring that the gains achieved by the reduced noise of the latest generation of aircraft are not offset by inappropriate residential development around airports.

3 Noise abatement operational procedures: Noise abatement procedures enable reduction of noise during aircraft operations to be achieved at comparatively low cost. There are several methods, including preferential runways and routes, as well as noise abatement procedures for take-off, approach and landing. The appropriateness of any of these measures depends on the physical lay-out of the airport and its surroundings, but in all cases the procedure must give priority to safety considerations.

4 Operating restrictions: Under the Balanced Approach, an operating restriction is defined as “any noise-related action that limits or reduces an aircraft’s access to an airport.” Examples of operating restrictions include restrictions on the number of flights allowed during certain periods, such as at night, or those which place restrictions on noisier types of aircraft

How is it used?

Where there is a noise problem at an airport, European legislation requires it to be addressed in accordance with the Balanced Approach and to be managed in the most cost efficient manner.

Operating restrictions should only be introduced at airports if there are no other ways of achieving the desired benefits.

There may be occasions that operating restrictions are necessary, but the process for deciding on these should be performed in accordance with the Balanced Approach and EU requirements.

- 2.6 An environmental objective in relation to an airport, is defined in the 2003 Regulations as “an objective set by a competent authority [the Secretary of State for designated airports] in support of one or more of the following objectives – the promotion of the development of airport capacity in harmony with the environment, facilitating any specific noise abatement objectives at that airport, achieving maximum environment benefit in the most cost effective manner, limiting or reducing the number of people significantly affected by aircraft noise.”³³
- 2.7 The environmental objectives for the current regime are detailed below in **Table 6**. Due to the ongoing work of the Airports Commission, when the regime was last reviewed, the Government decided it should maintain a stable regulatory regime and allow growth within the existing movement limits and noise quotas, pending a decision on airport capacity. No significant changes were therefore made to the previous restrictions.

2.8 **Table 6 - Current environmental objectives**

Environmental Objective	Airport	How it will be measured
1. Limit and where possible reduce the number of people significantly affected by aircraft noise at night.	Heathrow, Gatwick & Stansted	Area and number of people within the 6.5 hour night quota period contours, and in particular the 55dB L _{Aeq} contour. Population changes due to new housing development will be taken into account in measuring changes in number of people.
2. Maintain a stable regulatory regime pending decisions on future airport capacity and, at Gatwick and Stansted in particular, to allow growth within existing night movement limits and noise quotas.	Heathrow, Gatwick & Stansted	Movements and noise quota used in night quota period.
3. Encourage the use of quieter aircraft during the night quota period so as to reduce the overall impact of aircraft noise and in particular the likelihood of sleep disturbance	Heathrow, Gatwick & Stansted	Average QC points per movement. Proportion of movements made by the noisier types of aircraft (QC/4 and QC/2) during the night quota period

- 2.9 The information in terms of the first of these objectives is summarised in the tables below. As can be seen in **Tables 7 & 8** below, the number of people in the 55dBA

³³ Article 2 of the Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003, SI 2003, No. 1742

L_{Aeq} 6.5hr night contour has fallen significantly at Heathrow since the last regime, as has the corresponding contour area. At Gatwick and Stansted, there have been far smaller changes. At Gatwick there has been a small decrease in the contour area but an increase in the number of people in that contour, while at Stansted the opposite is true.

- 2.10 The changes at Heathrow can be explained by changes to the fleet operating during the 6.5 hour period at the airport and a significant improvement in the noise performance of an average aircraft (see **Tables 9 & 10** below). At Gatwick and Stansted, these small changes are the result of a combination of factors including increases in the number of movements, changes in fleet mixes at the airports, differences in population densities around the airports, and changes in the easterly/westerly split of operations for the years that have been monitored. For these two airports therefore it is not possible to draw any firm conclusions from this data.

Table 7 - Population (1000s) in 55dBA L_{Aeq} 6.5hr night contour

Airport	2011/12	2015/16
Heathrow	21.68	13.66
Gatwick	0.27	0.4
Stansted	0.14	0.12

Source: CAA data

Table 8 - Area (km²) of 55dBA L_{Aeq} 6.5hr night contour

Airport	2011/12	2015/16
Heathrow	9.2	6.7
Gatwick	7.6	7.1
Stansted	6.2	6.5

Source: CAA data

- 2.11 In terms of the second objective, we have already discussed how both Gatwick and Stansted are now using their full summer allowance and had to rely on the seasonal flexibility to accommodate all of their summer movements in the summer 2016 season. Both airports still have significant spare capacity in the winter season though. Movements at Heathrow have remained largely the same during the course of the regime. This objective has therefore been met at all three airports though there is still unutilised capacity in the winter for Gatwick and Stansted which can be made use of.
- 2.12 Finally, in terms of encouraging the use of quieter aircraft, the performance has been more mixed across all airports. Heathrow has seen the most dramatic improvements in noise over the regime, with a 19% reduction in average QC per movement between winter 2013/14 and winter 2015/16, and a 35% reduction from summer 14 season regime to summer 2016.

Table 9 - Heathrow QC per movement (excluding QC/0 aircraft) - winter

Season	QC per movement
Winter 2013/14	1.13
Winter 2014/15	1.10
Winter 2015/16	0.92

Source: DfT data

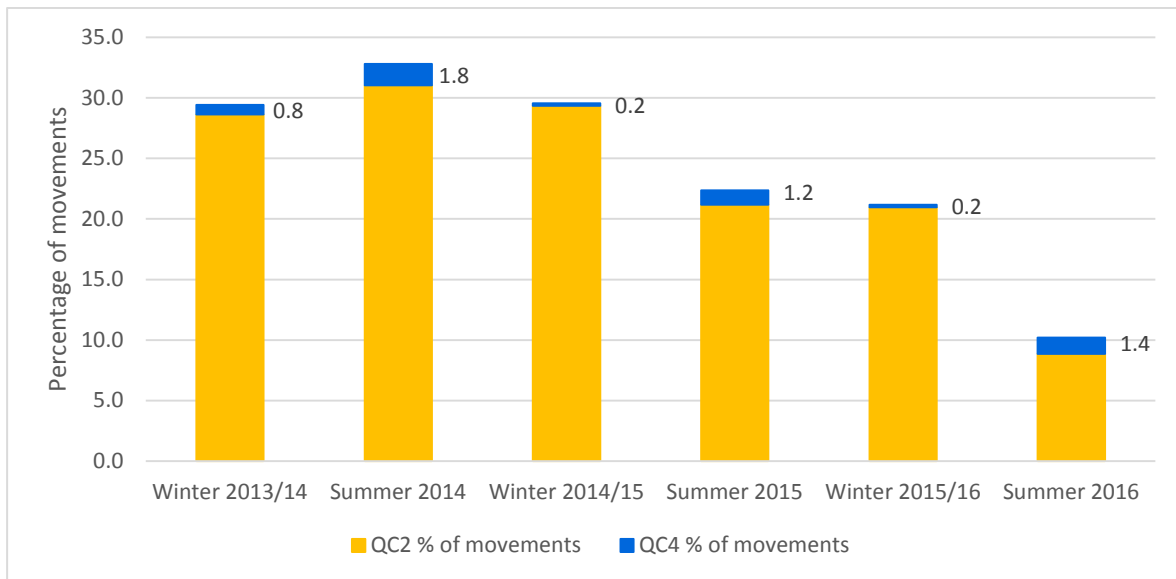
Table 10 - Heathrow QC per movement (excluding QC/0 aircraft) - (summer

Season	QC per movement
Summer 2014	1.19
Summer 2015	1.02
Summer 2016	0.78

Source: DfT data

2.13 Figure 9 below also illustrates how the proportion of QC/2 movements have fallen since the end of the last regime while the QC/4 movements made up no more than 2% of movements during the current regime.

Figure 9 - Percentage of non-QC/0 movements by QC rating - Heathrow



Source: DfT data

2.14 At Gatwick there have been smaller improvements with a 7% fall in average QC per movement over the winter seasons since 2013/14 and a 2% fall over the summer seasons over the same period.

Table 11 - Gatwick QC per movement (excluding QC/0 aircraft) - winter

Season	QC per movement
Winter 2013/14	0.55
Winter 2014/15	0.49
Winter 2015/16	0.51

Source: DfT data

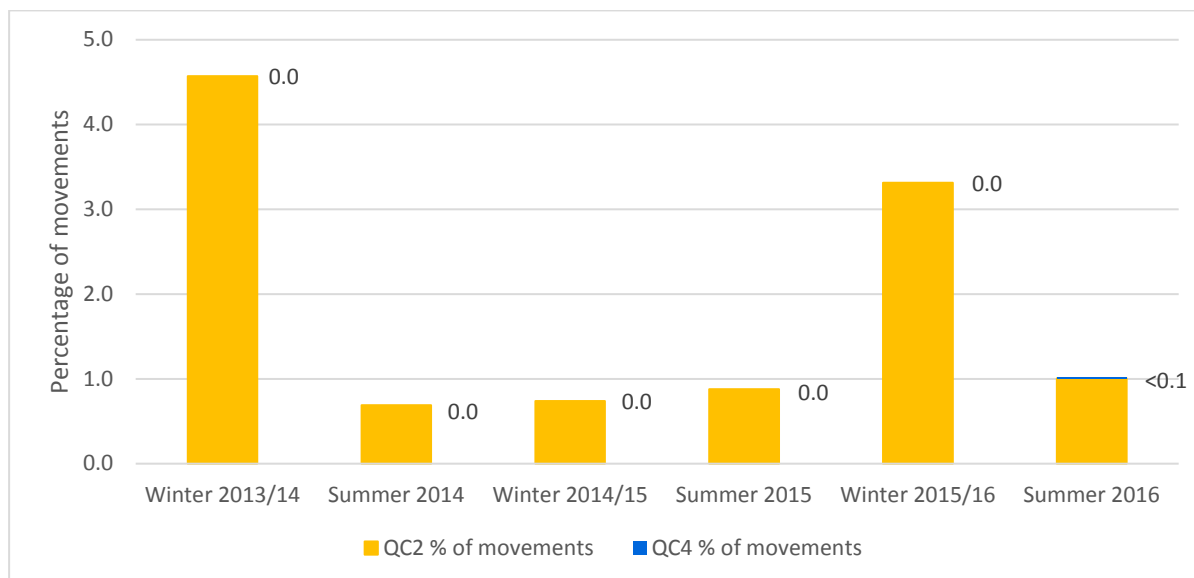
Table 12 - Gatwick QC per movement (excluding QC/0 aircraft) - summer

Season	QC per movement
Summer 2014	0.44
Summer 2015	0.43
Summer 2016	0.43

Source: DfT data

2.15 In terms of movements by QC/2 and QC/4 aircraft, these continued to make up a small percentage of overall movements though this did increase for the most recent summer and winter seasons. There were no QC/4 movements at Gatwick for several year until summer 2016 when there were eight such movements. These still made up less than 0.1% of total movements however.

Figure 10 - Percentage of non-QC/0 movements by QC rating - Gatwick



Source: DfT data

2.16 At Stansted, there was a 7% reduction³⁴ in average QC per movement between the final winter season of the previous regime and winter 2015/16, however the summer QC per movement has remained constant

Table 13 - Stansted QC per movement (excluding QC/0 aircraft)-winter

Season	QC per movement
Winter 2013/14	0.78
Winter 2014/15	0.78
Winter 2015/16	0.72

Source: DfT data

Table 14 - Stansted QC per movement (excluding QC/0 aircraft) - winter

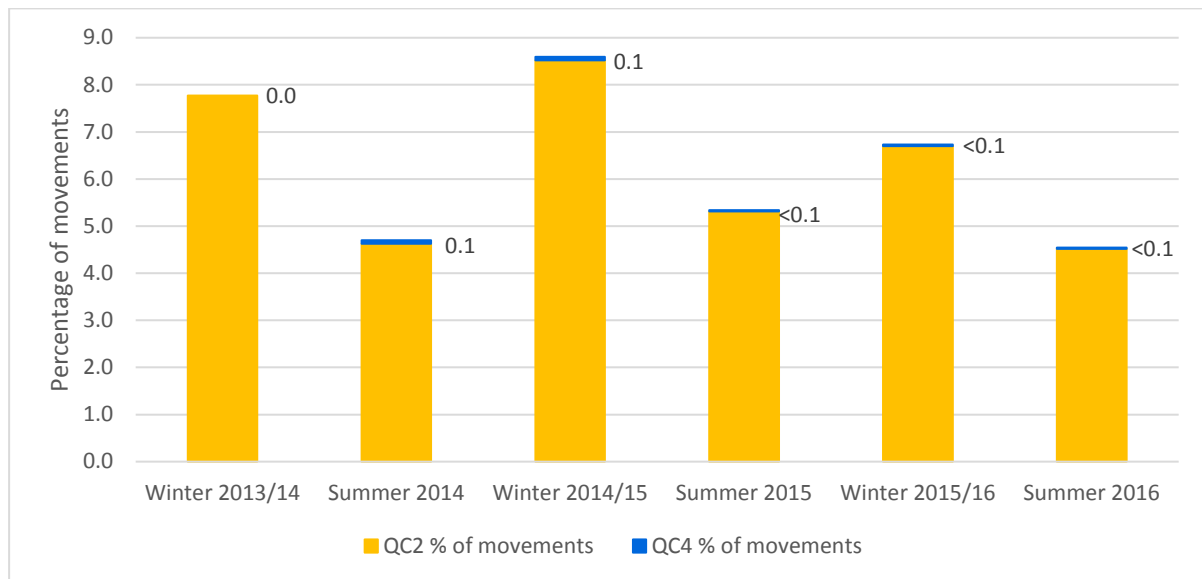
Season	QC per movement
Summer 2014	0.63
Summer 2015	0.64
Summer 2016	0.63

Source: DfT data

2.17 And at Stansted, the proportion of QC/2 movements has seen a small reduction over the current regime, while QC/4 movements continued to make up less than 0.1% of all movements.

³⁴ Reduction based on unrounded figures

Figure 11 - Percentage of non-QC/0 movements by QC rating - Stansted



Source: DfT data

New environmental objectives

- 2.18 Given the developments in relation to airport capacity that have already been summarised, and the fact there are expected to be new night flight restrictions associated with a new runway, the Government agrees with the Airports Commission's recommendation that there is no case for further restrictions on the number of night flights at a capacity constrained Heathrow. The next night flights regime at Heathrow should ensure therefore that the existing benefits of night flights at Heathrow are maintained, but also deliver the best improvement in the noise climate possible in the period before a new runway is in place - through incentives to encourage the use of the quietest aircraft in the night quota period.
- 2.19 The Government believes the same aims should apply at Gatwick and Stansted. As stated above, the number of people affected by noise at Gatwick is estimated to have increased slightly since the last regime and Gatwick already has a large number of summer night flights compared to other airports. There is however still capacity in the winter period and given the constraints on airport capacity in the south east, the Government does not think it appropriate to constrain this further. Encouraging the use of quieter aircraft would help to ensure there is improvement in the noise climate around the airport while ensuring the existing benefits of night flights are maintained while the airport considers its future strategy following the Government's decision to consult on Heathrow as its preferred scheme for delivering new airport capacity in the south east.
- 2.20 At Stansted, like Gatwick, the airport is utilising its full allowance in the summer but still has spare capacity in the winter season which is yet to be utilised. Stansted's intention to seek planning permission in the coming months will give them the opportunity to seek to reach a local agreement on night flight restrictions that is acceptable to both the airport and local communities. Maintaining the existing benefits of night flights while encouraging quieter aircraft and, at the same time, ensuring the airport is not allowed to make more noise than is currently allowed, would avoid making changes that pre-empted these future considerations.

As a result, for all three airports we propose the environmental objective:

Encourage the use of quieter aircraft to limit or reduce the number of people significantly affected by aircraft noise at night, while maintaining the existing benefits of night flights.

2.21 It is proposed that our achievements against delivering this objective would be measured by:

- The area of and number of people in the 48dB $L_{Aeq, 6.5hr \text{ night}}$ contour. This is a different measure to that used for the current regime, but reflects increased evidence about the impacts of lower noise levels on sleep disturbance and health.
- The average QC per movement.
- Number of movements in the night quota period

Q1a. How strongly do you agree or disagree with our proposed environmental objective for the next regime?

Q1b. Do you have any additional comments on our proposed environmental objective for the next regime?

Alternative measures to reduce noise

2.22 Once the competent authority for an airport has set environmental objectives for an airport, it must consider how to achieve this in line with the Balanced Approach. It must therefore consider what impact other options for noise management exist and what impact these will have before a decision to introduce operating restrictions is made.

Reduction of noise at source

2.23 Modern aircraft are considerably quieter than previous generations, with this improvement driven primarily by quieter engines. As a result the noise emissions of modern jet aircraft have reduced considerably since the first models.

2.24 The Government expects industry to continue the good progress already made in addressing the problems caused by aircraft noise. The UK was instrumental in securing an agreement on a tougher international noise standard in the ICAO Committee on Aviation Environmental Protection (CAEP). This requires new types of large civil aircraft, from 2017, to be at least 7dB quieter in total, across the three test points, than the current standard. Standards for smaller aircraft will be similarly reduced in 2020.

2.25 Several new types of aircraft will also come into service at the designated airports over the next few years that will be quieter than the aircraft they will gradually replace. This includes the introduction of the Airbus A320neo, Airbus A350, Boeing 737 MAX and Boeing 777X. While no aircraft can be completely silent, the new generation of aircraft coming into service have a noise footprint that is typically 50%

smaller on departure, and at least 30% smaller on arrival, than that of the aircraft they are replacing.³⁵

- 2.26 In addition to the introduction of quieter aircraft at the designated airports, modifications to the existing Airbus A320 family of aircraft, which are known to emit a high-pitched 'whine' 7 to 15 miles from the airport, are also expected during the period covered by the current and next night flight regimes. All new A320s produced by Airbus will have flow detectors installed to suppress the tonal noise created by these aircraft, and two airlines with a significant number of night operations at Gatwick, British Airways and easyJet, have agreed to retro-fit these modifications to existing aircraft by the end of 2017 and early 2018 respectively. Gatwick have also proposed to raise landing charges for non-retrofitted aircraft from April 2017, in response to the Independent Arrivals Review³⁶.
- 2.27 Heathrow are also working to encourage airlines to retrofit noise reducing technology to the A320 family of aircraft that use the airport. While none of these models are scheduled in the night quota period, this could lower noise from unscheduled movements that arrive between 2330 and 0600

Land-use planning

- 2.28 The second pillar of the Balanced Approach is land-use planning. Primarily this aims to ensure that new airport developments are located away from noise-sensitive areas and that only compatible land-use development takes place in areas affected by aircraft noise. Other measures include mitigating the effects of noise on development, for example through building codes and noise insulation, and making use of financial instruments such as capital improvements, tax incentives and noise-related airport charges for revenue generation to assist in funding noise mitigation efforts.
- 2.29 The Balanced Approach does recognise, that in some situations, such as locations lacking available land, the opportunity to incorporate all of the land-use planning principles that could prevent aircraft noise problems arising may be limited, but urges states to do so where possible.³⁷
- 2.30 The Government's National Planning Policy Framework (NPPF)³⁸, aims to prevent development where noise can give rise to adverse effects. Research carried out by the CAA, which will be published shortly, suggests Government policy, along with regulatory levers, have had success in preventing inappropriate residential development in the areas subjected to the highest noise impacts.
- 2.31 The Government has also asked the CAA to update its 2013 review of the impact of environmental charges at airports³⁹, to examine how the use of these charges has evolved in recent years. This is also expected to be published shortly.
- 2.32 In addition, several local authorities around the designated airports have taken steps ensure the development that takes place around airports is appropriate. Crawley Borough Council, in which Gatwick is located, adopted its local plan in 2015 which included its own noise policy that sets specific standards for development in noise

³⁵ Based on CAA modelling

³⁶Bo Redeborn & Graham Lake (2016) 'Gatwick Airport Independent Arrivals Review'

http://gatwickairport.com/globalassets/publicationfiles/business_and_community/all_public_publications/2016/independent-arrivals-review-jan2016.pdf

³⁷ ICAO (2008), 'Guidance on the Balanced Approach to Aircraft Noise Management'

³⁸ National Planning Policy Framework <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

³⁹ CAA (2013) 'Environmental charging – Review of impact of noise and NOx landing charges'

<https://www.caa.co.uk/Data-and-analysis/Airspace-and-environment/Environment/Review-of-noise-and-NOx-landing-charges/>

sensitive areas and preventing noise sensitive development above certain noise levels.⁴⁰ Around Heathrow, the London Boroughs of Richmond, Hounslow and Hillingdon are also developing a joint strategic planning policy document for noise.⁴¹

Operational procedures

2.33 Noise can also be reduced by ensuring aircraft are flown in a particular way. Example of operating procedures include:

- the use of noise preferential routes or runways to direct the flight paths of aircraft away from noise-sensitive areas (or to provide periods of respite for certain areas at certain times of day);
- the use of specific take-off or approach procedures (such as Continuous Descent Operations, or steeper landing trajectories) to optimize the distribution of noise on the ground;

2.34 The Government sets various operational procedures at the designated airports that are designed to protect residents from the impacts of noise. These include continuous climb and descent operations and minimum heights at which aircraft must join the instrument landing system (ILS).

2.35 There may be further opportunities to reduce noise for communities through the modernisation of airspace and other new operational procedures over the next few years. For instance, Heathrow recently trialled a steeper angle of descent for arriving aircraft. The results of this trial indicate these steeper approaches would have minimal, if any, negative effect on Heathrow's operation whilst exposing local residents to less aircraft noise⁴². The introduction of more accurate satellite based navigation may also offer benefits in terms of being better able to avoid populated areas.

Operating restrictions

2.36 While all of these measures will offer benefits to people living around these three airports, the failure to impose any operating restrictions would mean these communities would not be adequately protected from the harmful impacts of aircraft noise and the Government would be failing to limit or reduce the number of people significantly affected by aircraft noise. The Government therefore considers the current restrictions as a baseline for examining options for the next regime. Our proposals for what restrictions should apply from October 2017 are discussed in the next section.

⁴⁰ <http://www.crawley.gov.uk/pw/web/PUB207284>

⁴¹ An initial version of this consultation document stated that the London Boroughs of Richmond, Hounslow and Hillingdon had issued a joint strategic planning policy document for noise. This was incorrect and the document that was linked to, which has now been removed from the London Borough of Hounslow's website, was a draft which was published for public consultation purposes. It therefore has the potential to differ substantially from the final version

⁴² http://www.heathrow.com/file_source/HeathrowNoise/Static/Heathrow_Slightly_Steeper_Approach_Trial_Report.pdf

3. Proposals for the next regime

- 3.1 This section sets out the measures we propose to meet our environmental objective proposed in the previous section - to **'encourage the use of quieter aircraft to limit or reduce the number of people significantly affected by aircraft noise at night , while maintaining the existing benefits of night flights'**. These proposals have been selected not only to meet our objectives but also to ensure the next regime does not pre-empt consideration of expected future decisions that may have an impact on night flights at these airports, while incentivising the use of quieter aircraft in the coming years.

Proposal - Length of the Regime

- 3.2 While the current regime was set for a period of three years, previous night flight regimes have traditionally been set for a period of around five years. For the regime starting in October 2017, a five year regime would cover the period until October 2022. This would allow time for the night flight restrictions that will be associated with new runway capacity at Heathrow to be agreed and also for Stansted to progress its own planning application with its local planning authority.

We therefore propose that the next regime should be set for a period of five years.

- 3.3 As the Aviation Policy Framework states, however, it is Government policy that noise controls are generally best agreed locally and we will shortly be consulting on what the Government's role should be in setting controls at the designated airports in the future. However, the Government must set a regime from October 2017 to ensure it protects communities from the harmful effects of aircraft noise and that this is balanced with the benefits that night flights bring.
- 3.4 In setting a five year regime, we want to therefore ensure that this does not preclude more bespoke arrangements being put in place at each airport - either through arrangements tied to the planning process or other means. If locally agreed arrangements, which have been subject to appropriate consultation and take account of the Balanced Approach, can be put in place before the end of this proposed five year period, we believe it would in principle be appropriate for these to replace the Government controls before October 2022 and we would seek to ensure that this is possible.
- 3.5 Our upcoming consultation on airspace policy will provide further details on how the Government expects such agreements might be made in the future, as well as the role Government will have in overseeing any agreements for the designated airports.

Q2a. How strongly do you agree or disagree with our proposal for the length of the next regime?

Q2b. Do you have any additional comments on our proposal for the length of the regime?

Proposal - Structure of Regime

- 3.6 As explained in Chapter 1, some aircraft fall outside of the current regime and are therefore exempt from both the movement and noise quota limits. When the regime was first set in its current format in 1993, it was originally proposed that aircraft below QC/1 should be exempt from the regime. A Department of Transport sleep study at the time had suggested that noise below 80 dB L_{max} (90 EPNdB equates to roughly 75 dB L_{max}), was unlikely to cause sleep disturbance. After consultation, it was decided that a QC/0.5 category should be adopted, with aircraft quieter than this exempt from the restrictions.
- 3.7 Since 1993, evidence of the relationship between noise exposure and sleep disturbance has increased. This evidence informed the 1999 World Health Organization (WHO) Guidelines for Community Noise, stating that noise events exceeding 45 dBA L_{max} indoors should be limited if possible⁴³. These guidelines also noted that it should be possible to sleep with a bedroom window slightly open (a reduction from outside to inside of 15 dB), therefore equating to an outdoor L_{max} of 60 dBA.
- 3.8 Although currently exempt aircraft are quieter than those caught by the restrictions, they still create noise that could result in sleep disturbance. **Annex G** illustrates the extent of the potential impacts on sleep disturbance for one of the new models of aircraft that fall within the exempt category, the Airbus A320neo, compared to non-exempt aircraft.
- 3.9 Since the introduction of the QC/0.25 category in winter 2006/07 however, the existence of this exempt category has not resulted in a significant difference between the total number of movements compared to the number allowed under the regime. This has begun to change in recent years at Stansted (See **Figure 12** below). In summer 2016, the number of exempt operations at Stansted would not have been accommodated in the current movement limits, even with the use of carry-over and a 10% overrun⁴⁴.
- 3.10 Additionally, at Gatwick, while the number of exempt aircraft has fallen since the introduction of the QC/0.25 category, the issue has potential to become more important during the next regime. Currently the majority of exempt aircraft are small turboprop freighters and business jets. But over the next few years, several new quieter jet aircraft, such as versions of the Airbus A320neo, will come into service that are quieter than the current QC/0.25 standard and will therefore be exempt from both the movement and the quota limits under the current restrictions.
- 3.11 The largest airlines at Gatwick and Stansted, easyJet and Ryanair respectively, have a large number of these aircraft on order. It is expected that about one-third of easyJet's fleet will be comprised of Airbus A320neos by 2021 and Ryanair also have 100 confirmed orders for the Boeing 737-MAX.⁴⁵ Thus, there is the possibility for

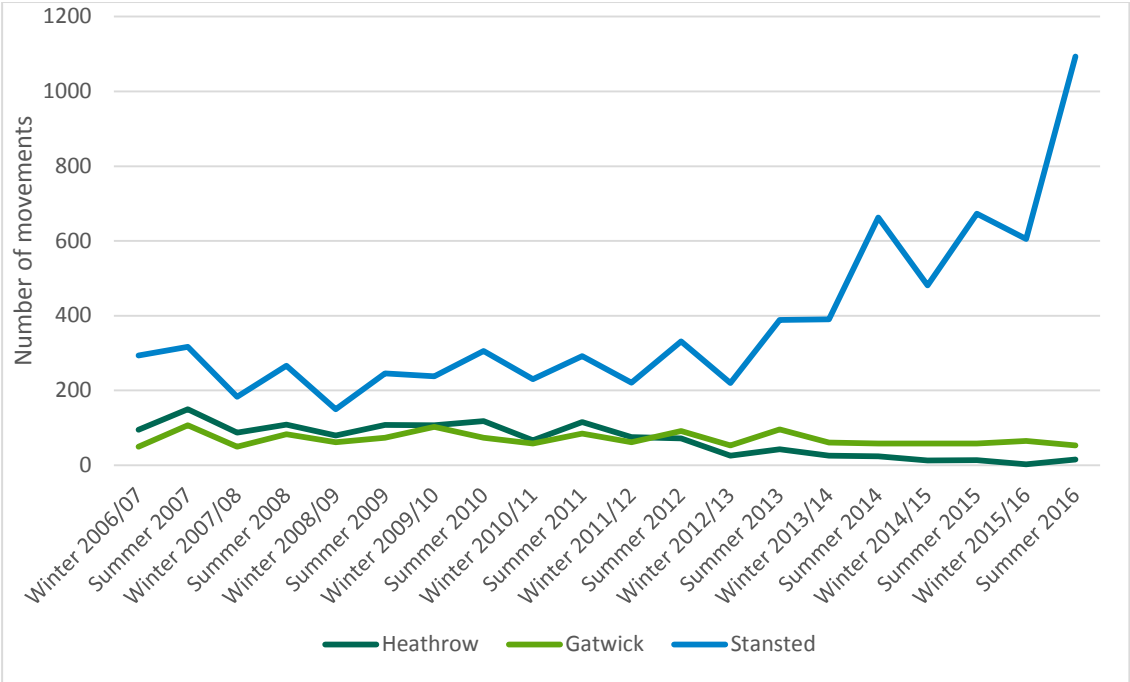
⁴³ World Health Organisation (1999) WHO Guidelines for Community Noise
<http://www.who.int/docstore/peh/noise/guidelines2.html>

⁴⁴ This is the maximum percentage overrun an airport can use without facing a penalty (losing two movements for every one over this level). Therefore, we assume airports will not exceed a 10% overrun.

⁴⁵ Boeing. Press Release. 8th Sept 2014. <http://boeing.mediaroom.com/2014-09-08-Boeing-Launches-737-MAX-200-with-Ryanair>

commercial airlines to operate a potentially unlimited number of these aircraft during the night quota period.

Figure 12 - Number of exempt movements



Source: DfT data

3.12 This could undermine the purpose of the restrictions set by the Government and would fail to prevent communities being exposed to the harmful impacts large numbers of these flights could cause. The potential for a large number of exempt operations would also mean the restrictions would fail to offer the transparency that communities around airports would expect it to, or offer any reassurance of the total number of flights that they could expect to be exposed to.

As a result, we propose that:

- 1 A new QC/0.125 category is introduced for aircraft between 81 and 83.9 EPNdB.**
- 2 To ensure greater transparency and certainty for communities, while maintaining incentives for producing and purchasing quieter aircraft, all operations by aircraft quieter than this are counted towards an airport's movement limit, but they remain exempt from the noise quota limits - i.e. QC/0.**

3.13 This proposal would obviously have an impact on the total number of flights that could take place during the night quota period, as there would be no movements that fell outside of an airport's movement limits - other than those granted a dispensation. Our initial analysis of the impact of this change, and that of our other proposals, is included in our impact assessment published alongside our consultation and these impacts are also summarised in the next chapter.

Q3a. How strongly do you agree or disagree with our proposal to introduce a new QC/0.125 category for aircraft between 81 and 83.9 EPNdB?

Q3b. How strongly do you agree or disagree with our proposal for all aircraft quieter than this to remain QC/0 but count towards the airports movement limit?

Q3c. Do you have any additional comments on proposals for the Quota Count System?

Proposal - Movement Limits

Heathrow

- 3.14 The Government has announced it expects a ban on scheduled movements of six and a half hours during the night period as a condition on expansion of Heathrow Airport. The airport has also indicated that it is willing to introduce a ban before a new runway is operational, subject to planning permission to increase its capacity in the interim. The Government agrees however with the Airports Commission's recommendation that there is no case for further restrictions on the number of night flights whilst there are the current capacity constraints at Heathrow. Heathrow has also indicated that it is not looking to increase its permitted number of night flights. The Government therefore believes it is appropriate to retain the current movement limits until any new night flight restrictions associated with expansion, including those that might be introduced early if a suitable opportunity arises, are consulted on and in place. The regime from October 2017 should therefore focus instead on encouraging the use of quieter aircraft at night in the period before any new restrictions come into effect.

We therefore propose that the current movement limits for Heathrow remain the same for the next regime. These are 2,550 in the winter and 3,250 in the summer.

Q4a. How strongly do you agree or disagree with the proposal for movement limits to remain unchanged at Heathrow?

Q4b. Do you have any additional comments on our proposal for Heathrow's movement limit?

Gatwick

- 3.15 We recognise that the number of night flights in the summer season has grown in recent seasons to a level that is very high in comparison with other airports - and has resulted both in an increase in the people affected by noise at night and the level of complaints from communities around Gatwick about night flights. In the winter season on the other hand, there is currently significant unused capacity.
- 3.16 The management of Gatwick Airport has also indicated that it is not seeking any increase to its current night flights allowances and the Government believes that given the current level of flights, and the fact that the number of people exposed to night noise has increased over the course of the current regime, there is no case for further increasing the movement limits.

- 3.17 Nevertheless, with airport capacity in the South East already under pressure, it is important that the economic benefits of making best use of existing capacity are not lost. In his statement of 25 October on airport capacity, the Secretary of State said "Gatwick, despite not being selected today, remains a key part of our national transport picture and will continue to do so in the future."⁴⁶
- 3.18 For this reason, as for Heathrow, the Government believes it is appropriate to retain the current movement limits and that the regime from October 2017 should instead focus on encouraging the use of quieter aircraft at night which will benefit affected communities.

We therefore propose that the current movement limits for Gatwick remain the same for the next regime. These are 3,250 in the winter and 11,200 in the summer.

Q5a. How strongly do you agree or disagree with the proposal for movement limits to remain unchanged at Gatwick?

Q5b. Do you have any additional comments on our proposal for Gatwick's movement limit?

Stansted

- 3.19 Stansted has recently indicated it intends to bring forward a planning application in 2017 to increase the levels of its planning caps. Like Heathrow, this offers the airport an opportunity to explore a bespoke set of locally agreed night flight restrictions in the future, as a possible condition if planning permission is granted. The Government wants to ensure therefore that it does not prejudge any local considerations at this stage by making radical changes to the number of flights that are permitted.
- 3.20 However, our proposal for the introduction of a new QC/0.125 category and for all movements to count towards an airport's limit will have a disproportionate impact at Stansted. Like at the other two airports, this will prevent next generation aircraft operating outside the scope of the current restrictions, but unlike at Heathrow or Gatwick, Stansted already has a large number of exempt aircraft already in operation that will be caught by our proposed changes to the quota count system. For the most recent summer season, these made up 13% of the total number of movements at night.
- 3.21 As explained earlier, even with the use of 10% carryover and a 10% overrun, Stansted would not have been able to accommodate all of these extra movements if they had counted towards the movement limits. As a result of the changes we are proposing to make to the regime structure, in order to ensure the current benefits of night flights are maintained, it would be necessary to make an adjustment to Stansted's movement limit.

⁴⁶ <https://hansard.parliament.uk/commons/2016-10-25/debates/4D74A7CB-8921-48BD-9960-FD15D5D1EEDF/AirportCapacity>

Therefore, to maintain the benefits of night flights at Stansted, we propose that the movement limits are uplifted to reflect the number of exempt aircraft already in operation. This would entail:

- An increase of 600 movements in the winter season from 5,000 to 5,600
- An increase of 1,100 movements in the summer season from 7,000 to 8,100

Q6a. How strongly do you agree or disagree with the proposal to raise Stansted's movement limits to reflect the current number of exempt aircraft in operation?

Q6b. Do you have any additional comments on our proposal for Stansted's movement limit?

Proposal - Noise Quota Limits

Heathrow and Gatwick

- 3.22 Both Heathrow and Gatwick are using proportionately less of their noise quota limits than their movement limits. For instance, in the summer 2016 season, Heathrow used 91% of its movement limit, but only 45% of its noise quota. For Gatwick the figures were 101% and 79% respectively - based on limits before the carryover and overrun provisions were applied.
- 3.23 As the current restrictions stand therefore, there is little to incentivise the use of quieter aircraft nor to prevent an airline from replacing an aircraft operating a route with a noisier one.

We therefore propose, that as a minimum, both airports' noise quotas are reduced to reflect the level of current noise quota usage. The reductions would be:

- For Heathrow, a reduction of at least 1,740 in the winter to 2,340 and 2,560 in the summer to 2,540.
- For Gatwick, a reduction of at least 345 in the winter to 1655 and 1,330 in the summer to 4870.

- 3.24 These new quotas are based on the average noise quota per movement at both airports in the most recent summer and winter seasons, multiplied by the movement limits⁴⁷. This will therefore ensure that, on average, movements at either of these two airports would not use more noise quota than at present, if an airport wants to utilise its full movement limit.
- 3.25 We think these values should act as starting points for the noise quota limits for the next regime. In order to incentivise the use of quieter aircraft, the Government will

⁴⁷ Since movements by exempt aircraft do not currently count towards the movement limits at these airports, these movements were not included in these calculations.

consider whether there could be further gradual reductions over the course of the regime. For instance at Heathrow and Gatwick, it is possible for the quota to be set at 100% of the noise quota we propose above in year 1 of the regime, 95% of this amount in year two, ending at 80% of this amount in year 5.

- 3.26 Our impact assessment published alongside this consultation assesses the impacts of a hypothetical reduction of 20% over five years as outlined above, and we will take into account responses to the consultation and any relevant evidence that is submitted by stakeholders before deciding on the optimal, but realistic, reduction at each airport.

Stansted

- 3.27 At Stansted, the level of noise quota usage compared to movement usage is much higher than at Heathrow or Gatwick. In the most recent summer season they used 105% of their movement quota and approximately 100% of their noise quota - based on limits before the carryover and overrun provisions are applied. In addition, the uplifts we are proposing to replace the exempt movements lost will mean Stansted have to accommodate even more night flights within their noise quota.

We therefore propose that the current noise quota limits serve as the starting point for considering reductions for the next regime. These are:

- **3,310 in the winter**
- **4,650 in the summer**

- 3.28 As with Heathrow and Gatwick, we intend to decide on final noise quota limits once we have been able to consider any further evidence received as a result of this consultation. Our impact assessment assesses the impacts of a hypothetical reduction of 20% over five years, but we will take into account responses to the consultation and any relevant evidence that is submitted by stakeholders before deciding on the optimal, but realistic, reduction, which will differ according to the individual situations at each airport.

Q7a. How strongly do you agree or disagree with our proposals to encourage the use of quieter aircraft at Heathrow?

Q7b. Do you have any additional comments on how you feel noise quotas can best be set in order to encourage the use of quieter aircraft at Heathrow?

Q8a. How strongly do you agree or disagree with our proposals to encourage the use of quieter aircraft at Gatwick?

Q8b. Do you have any additional comments on how you feel noise quotas can best be set in order to encourage the use of quieter aircraft at Gatwick?

Q9a. How strongly do you agree or disagree with our proposals to encourage the use of quieter aircraft at Stansted?

Q9b. Do you have any additional comments on how you feel noise quotas can best be set in order to encourage the use of quieter aircraft at Stansted?

- 3.29 The following section includes a summary of our assessment of the impacts these proposals will have at the three airports. More detailed analysis, along with the evidence that has been considered on the costs and benefits of these proposals, is provided in our impact assessment.

4. Summary of impacts of the proposals

- 4.1 This chapter summarises the impacts of our proposals at each of the three designated airports. The impacts on the number of night flights that would occur at each airport described below were estimated using internal DfT analysis and the impacts on the number of people affected by night noise were estimated using the CAA's ANCON model. More detailed analysis of our proposals is included with our impact assessment that is published alongside this consultation.

Heathrow

- 4.2 The proposal to introduce a new QC/0.125 category and count all currently exempt aircraft towards the movement limits is estimated to have no impact on the number of flights in the night quota period at Heathrow compared to a continuation of the current regime. This is because, assuming no growth in the overall number of flights at Heathrow during the night quota period, it is estimated that all movements by currently exempt aircraft during the next night flights regime could be accommodated within Heathrow's existing movement limits. As context for this, the airport is essentially full in both the winter and summer seasons and is taking steps to reduce the number of unscheduled aircraft operating in the night quota period. Furthermore, unlike Gatwick and Stansted, Heathrow is already very close to its absolute cap on the number of movements (which does include exempt movements) that can take place, so there is much less room for additional growth of these aircraft types.
- 4.3 Reducing Heathrow's noise quota to reflect current usage is also estimated to have no impact on the number of flights in the night quota period at Heathrow compared to a continuation of the current regime. Therefore, the costs of noise to surrounding areas are expected to be unchanged compared to a continuation of the current regime. While this change is not expected to impact on the noise experienced by local residents, it would provide additional certainty to communities about the level of noise they could expect to be exposed to and that quieter aircraft will not be replaced by louder ones.
- 4.4 Our current estimates suggest that it would be possible to reduce the noise quota from this starting point by 20% over a five year period without impacting on the number of movements that can take place in the night quota period, while giving certainty to communities that noise levels would improve compared to now. This is because of the reduction in noise quota usage during the next night flights regime that is forecasted. We will take account of any further relevant evidence received from stakeholders through this consultation before deciding on a suitable reduction in noise quota for the next regime.

Gatwick

- 4.5 Unlike at Stansted which already has a large number of exempt aircraft operating at the airport, it is estimated that there will be only a small impact at Gatwick from introducing a new QC/0.125 category and counting all currently exempt aircraft towards the movement limits. We estimate this would result in a fall in the number of night flights that will take place during the night quota period of around 750 flights in total at Gatwick over the 5 year regime, when compared to a continuation of the current regime. While Gatwick would have been able to accommodate the current number of exempt movements within its existing movement limits in the most recent summer and winter seasons (there were 53 exempt aircraft in summer 2016 as opposed to 1,093 at Stansted), counting all movements towards the limits in the future would reduce the growth that is expected to take place in both currently exempt and non-exempt aircraft. We estimate that the benefits in terms of noise would be around 50 fewer people affected in the 48 dB $L_{Aeq\ 6.5hr\ night}$ noise contour in the last year of the regime compared to a continuation of the current regime.
- 4.6 Reducing the noise quota based on current usage is not expected to have any further impact on the number of flights in the night quota period compared to the proposal above, but as with at Heathrow, it would provide additional certainty surrounding the scale of the potential noise impacts that local residents could experience. The hypothetical reduction of 20% over the course of the regime however is expected to constrain Gatwick, and is estimated to lead to around 5,380 fewer flights in the night quota period at Gatwick in total over the 5 year regime compared to a continuation of the current regime. In this 20% reduction scenario, there is estimated to be around 600 fewer people in the 48 dB $L_{Aeq\ 6.5hr\ night}$ noise contour in the last year of the regime, compared to a continuation of the current regime.
- 4.7 As part of our environmental objective relates to maintaining the existing benefits of night flights, we would only adopt a reduction in noise quota if evidence suggests this would act as a realistic incentive for airports and airlines to use quieter aircraft rather than to penalise them with unrealistic targets. Final noise quota limits will therefore be based on what it is expected can realistically be achieved in the next regime without placing too large a constraint on the airports' operations.

Stansted

- 4.8 As a result of the large number of exempt aircraft already operating at Stansted, introducing a new QC/0.125 category and counting all currently exempt aircraft towards the movement limit would result immediately in a permitted level of night flight activity beneath that which already occurs. Compared to a continuation of the current regime, we estimate this change would lead to around 5,860 fewer flights in the night quota period in total over the 5 year regime at Stansted, and result in a reduction in the number of people within the 48 dB $L_{Aeq\ 6.5hr\ night}$ noise contour of around 100 in the last year of the regime. The economic costs associated with the impacts of these changes would mean a failure to meet the aspect of our environmental objective concerned with maintaining the existing benefits of night flights.
- 4.9 Uplifting Stansted's movement limits by the number of exempt operations that have taken place in the most recent summer and winter season is expected to mitigate the impacts of the above changes to the regime structure at Stansted. However, this option, which does not involve any change to Stansted's noise quota limits, is still

expected to reduce the number of flights in the night quota period at Stansted in total over the five year regime, compared to a continuation of the current regime (though there are expected to be more night flights than compared to today due to existing spare movements in the night quota period) and lead to fewer people within the 48 dB $L_{Aeq\ 6.5hr\ night}$ noise contour. Increasing the movement limits like this and as we are proposing, maintaining the existing the noise quota limits, could lead to the noise quota limits becoming constraining - i.e. Stansted would not be able to maximise their movement allowance. If the regime was to result in the further uptake of quieter aircraft, it is expected that this would reduce the constraints of the noise quota limits, but, in any case, the noise level would be capped by the current noise quota limits.

- 4.10 While our proposal includes increasing Stansted's movement limits, in reality, the effect of our proposal would be to ensure that, compared to the total of all flights (exempt and non-exempt) over the most recent summer and winter seasons, any future growth in flights in the night quota period is limited to the existing spare capacity within Stansted's current movement limits⁴⁸. This would increase the transparency of the regime and provide certainty for local communities that there will not be an unrestricted number of flights by currently exempt aircraft in the night quota period.
- 4.11 It is estimated that, if we were to gradually reduce the noise quota limit by 20% over the regime, this would result in around 5,490 fewer flights in the night quota period in total over 5 years at Stansted compared to a continuation of the current regime. This is estimated to result in around 350 fewer people in the 48 dB $L_{Aeq\ 6.5hr\ night}$ noise contour in the last year of the regime compared to a continuation of the current regime. As explained for Gatwick, we will consider evidence before deciding what noise quota levels act as realistic targets for industry before making a final decision on these and we will only introduce changes that it is possible for airports to meet without placing too large a constraint on the number of flights that could take place.

Evidence

- 4.12 Our impact assessment also includes further questions related to the costs and benefits of our proposals and specific areas where we are seeking additional evidence. Responses to these questions can be submitted along with responses to the questions in this consultation document using the online response form, or via email or post.

Q10. Do you have any further views on our proposals, or their potential impact on the Government's ability to fulfil the requirements of the Public Sector Equality Duty?

⁴⁸ The only exception to this would be if there is any growth in the number of flights that are given dispensations from the night restrictions as such flights would continue to be outside the scope of the movement and noise quota limits.

What will happen next

The Government will consider any new evidence and feedback from consultees before making a final decision on the next night flights regime. A summary of responses, will be published alongside our decision.

If you have questions about this consultation please contact:

Night Flights Consultation

Department for Transport

Great Minster House (1/25)

Horseferry Road

London SW1P 4DR

Night.flights@dft.gsi.gov.uk

Annex A: Full list of consultation questions

Q1a. How strongly do you agree or disagree with our proposed environmental objective for the next regime?

Q1b. Do you have any additional comments on our proposed environmental objective for the next regime?

Q2a. How strongly do you agree or disagree with our proposal for the length of the next regime?

Q2b. Do you have any additional comments on our proposal for the length of the regime?

Q3a. How strongly do you agree or disagree with our proposal to introduce a new QC/0.125 category for aircraft between 81 and 83.9 EPNdB?

Q3b. How strongly do you agree or disagree with our proposal for all aircraft quieter than this to remain QC/0 but count towards the airports movement limit?

Q3c. Do you have any additional comments on proposals for the Quota Count System?

Q4a. How strongly do you agree or disagree with the proposal for movement limits to remain unchanged at Heathrow?

Q4b. Do you have any additional comments on our proposal for Heathrow's movement limit?

Q5a. How strongly do you agree or disagree with the proposal for movement limits to remain unchanged at Gatwick?

Q5b. Do you have any additional comments on our proposal for Gatwick's movement limit?

Q6a. How strongly do you agree or disagree with the proposal to raise Stansted's movement limits to reflect the current number of exempt aircraft in operation?

Q6b. Do you have any additional comments on our proposal for Stansted's movement limit?

Q7a. How strongly do you agree or disagree with our proposals to encourage the use of quieter aircraft at Heathrow?

Q7b. Do you have any additional comments on how you feel noise quotas can best be set in order to encourage the use of quieter aircraft at Heathrow?

Q8a. How strongly do you agree or disagree with our proposals to encourage the use of quieter aircraft at Gatwick?

Q8b. Do you have any additional comments on how you feel noise quotas can best be set in order to encourage the use of quieter aircraft at Gatwick?

Q9a. How strongly do you agree or disagree with our proposals to encourage the use of quieter aircraft at Stansted?

Q9b. Do you have any additional comments on how you feel noise quotas can best be set in order to encourage the use of quieter aircraft at Stansted?

Q10. Do you have any further views on our proposals, or their potential impact on the Government's ability to fulfil the requirements of the Public Sector Equality Duty?

Where possible, responses to these questions and those included within our impact assessment should be submitted using the response form available at <https://www.smartsurvey.co.uk/s/J6KX6/>

Annex B: Requirements under Directive 2002/30/EC

Table 1: SCHEDULE 2 Regulation 6 of STATUTORY INSTRUMENT 2003 No. 1742; CIVIL AVIATION The Aerodromes (Noise Restrictions)(Rules and Procedures) Regulations 2003 which shows the matters to be taken into account when considering operating restrictions at a relevant airport

Paragraph	Location in consultation
1.1. A description of the airport including information about its capacity, location, surroundings, air traffic volume and mix and runway mix.	See Chapter 1 of this consultation and Airports Noise Action Plans ⁴⁹ .
1.2. A description of the environmental objectives for the airport and the national context.	See Chapters 1 & 2 of this consultation
1.3. Details of noise contours for the current and previous years—including an assessment of the number of people affected by aircraft noise. Description of the computational method used to develop the contours.	Chapter 1, Chapter 2, Annex F and airports' Noise Action Plans. For Heathrow also see 2014 noise contours. ⁵⁰
1.4. A description of measures to reduce aircraft noise already implemented: for example, information on land use planning and management; noise insulation programmes; operating procedures such as PANS-OPS; operation restrictions such as noise limits, night flying restrictions; noise charges; preferential runway use, noise preferred routes/track-keeping, and noise monitoring	Chapter 2, airports' Noise Action Plans, Heathrow Blueprint for Noise Reduction ⁵¹ and Gatwick's response to Independent Arrivals Review ⁵²
2.1. Descriptions of airport developments (if any) already approved and in the programme, for example, increased capacity, runway and/or terminal expansion, and the projected future traffic mix and estimated growth.	Chapter 1 and Airports Commission Final Report
2.2. In case of airport capacity extension, the benefits of making that additional capacity available.	Airports Commission Final Report
2.3. A description of effect on noise climate without further measures	Chapter 4, Annex F and Impact Assessment

⁴⁹ Heathrow Noise Action Plan

<http://www.heathrow.com/noise/making-heathrow-quieter/noise-action-plan>

Gatwick Noise Action Plan

https://www.gatwickairport.com/globalassets/publicationfiles/business_and_community/all_public_publications/aircraft_noise/gatwick-airport-limited-end-noise-action-plan-2013---2018-adopted.pdf

Stansted Noise Action Plan

<http://mag-umbraco-media-live.s3.amazonaws.com/1098/noise-strategy-and-action-plan-2014.pdf>

⁵⁰ http://www.heathrow.com/file_source/HeathrowNoise/Static/Heathrow_Noise_Action_Plan_Contours_2014.pdf

⁵¹ <http://www.heathrow.com/noise/making-heathrow-quieter/our-noise-strategy/blueprint-for-noise-reduction>

⁵² http://www.gatwickairport.com/globalassets/publicationfiles/business_and_community/all_public_publications/2016/gatwick---response-document-action-plan-final-31mar2016.pdf

2.4. Forecast noise contours—including an assessment of the number of people likely to be affected by aircraft noise—distinguish between established residential areas and newly constructed residential areas.	Annex F and Impact Assessment. We do not currently have data on newly constructed areas
2.5. Evaluation of the consequences and possible costs of not taking action to lessen the impact of increased noise—if it is expected to occur.	Chapter 3, Chapter 4 and Impact Assessment
3.1 Outline of additional measures available as part of the different options mentioned in regulation 5(1) and in particular an indication of the main reasons for their selection. Description of those measures chosen for further analysis and fuller information on the cost of introducing these measures; the number of people expected to benefit and timeframe; and a ranking of the overall effectiveness of particular measures.	Impact Assessment
3.2. Assessment of the cost/effectiveness or cost/benefit of the introduction of specific measures, taking account of the socio-economic effects of the measures on the users of the airport: operators (passenger and freight); travellers and local communities.	Impact Assessment
3.3. An overview of the possible environmental and competitive effects of the proposed measures on other airports, operators and other interested parties.	Impact Assessment
3.4. Reasons for selection of the preferred option.	Chapter 3, Impact Assessment
3.5. A non-technical summary.	Executive Summary, Chapter 3, Chapter 4, Impact Assessment
4.1. When and where noise maps or action plans have been prepared under the terms of the said Directive of 25th June 2002 these will be used for providing the information required in this Schedule.	
4.2. The assessment of noise exposure (i.e. establishment of noise contours and number of people affected) shall be carried out using at least the common noise indicators Lden and Lnight, where available.	.

Annex C: Guidelines on Dispensations

This guidance reflects the updates made in July 2014 and was published alongside the Government's decision on the current night flights regime. Whilst this guidance is not intended to cover every conceivable situation which might arise, it was intended to provide greater clarity on the use of dispensations by covering situations that had arisen before the current regime.

Department for Transport Guidelines on Flights Which May Be Given Dispensation from the Night Restrictions

Under Section 78(5)(f) of the Civil Aviation Act 1982, the Secretary of State may by a notice given in the prescribed manner to the person managing an aerodrome determine that a particular occasion or series of occasions on which aircraft take off or land at the aerodrome shall be disregarded from the restrictions made under section 78(3). These may include night flight restrictions.

In addition, the Secretary of State has the power under Section 78 (4) of the Civil Aviation Act 1982 to specify in a notice circumstances in which movements may be disregarded by the airport managers or a person authorised by the airport manager from the restrictions made under Section 78(3). That person shall then determine whether a particular occasion or series of occasions on which aircraft take off or land at the aerodrome should be disregarded from the night restrictions due to these circumstances. It shall be the duty of the person managing the aerodrome or the person authorised by an airport manager to notify the Secretary of State in writing within one week of every such occasion occurring.

A: Section 78(5)(f) Dispensations under a notice given by the Secretary of State

As a general principle, dispensations issued under Section 78(5)(f) are used in relation to state matters, where dispensations are required as a result of a Government decision, or where the circumstances are so exceptional that the airport's operations become an issue of national interest (e.g. in the case of prolonged closure of the airport).

1 Flights involving VIPs

Flights would include:

- Senior members of the Royal Family;
- UK Government ministers and Service Chiefs of Staff;
- Senior members of foreign Royal Families, Heads of State, and senior ministers or Service Chiefs of Staff on an official visit or business where the person is being met by a Government representative; (status to be checked with the FCO or MoD when in doubt); but repositioning flights preceding or following the use of that aircraft for carriage of a VIP will not be disregarded and therefore not allowed if

the aircraft is classified as QC/8, QC/16, consistent with the ban on these types of aircraft in the night period.

For the avoidance of doubt, VIPs for this purpose would not include businessmen on private jets, or 'celebrities' from the world of show business or sport.

2 Relief Flights

These would include flights carrying cargoes such as medical supplies required urgently for the relief of suffering during a period of emergency, as for example, during a refugee crisis or following an earthquake. They would exclude medical or other supplies intended for humanitarian purposes where there is no particular urgency. It would also not include the carriage of the media and their associated equipment to trouble spots.

3 Military Aircraft War/Hostilities

Movements by military aircraft should not take place at night in peacetime unless the aircraft has been classified for night operation or special approval has been given by the Department for Transport in exceptional circumstances such as security from escalated threats. Dispensations have been given in the past for troop movements through Heathrow where there has been an outbreak of war or similar hostilities and this requires contingency arrangements. Dispensations would not be appropriate once airlines have had time to assess the situation and make alternative arrangements.

4 Exceptional Circumstances

In the past the Secretary of State has provided dispensations in exceptional circumstances to enable flights during the night quota period and to allow aerodromes to recover from prolonged disruption. Examples include the periods following the Volcanic Ash Crisis in 2010 and following the severe prolonged winter weather in December 2010. Dispensations will be considered in similar exceptional circumstances

5 Changes to Airspace arrangements as a result of Government Decisions

Where there is a temporary change in airspace as a result of Government decisions with consequences for airline schedules, dispensations would be granted so as to protect airports/airlines from financial consequences of matters wholly beyond their control. Past examples have included a flypast for the Queen's Jubilee Celebrations and Olympic Celebrations where scheduled flights due to land or depart during the day were pushed into the night quota period.

B: Section 78 (4) –Dispensations under a notice granted by the Airport Manager or a person authorised by him:

As a general principle, dispensations issued under Section 78(4) should be used when they relate to operational matters affecting a small number of flights and the airport manager is better placed to take the decision.

1 Emergencies

Flights involving emergencies (other than those constituting "relief flights" as described in paragraph 2 of Section A above) where there is an immediate danger to life or health, whether human or animal.

2 Widespread and Prolonged Air Traffic Disruption

Disruption to air traffic is intended to cover disruption affecting air traffic flow such as strikes by Air Traffic Controllers or from political difficulties abroad or ATC computer problems. It would also cover disruptions to air traffic from strong winds, snow and ice and fog resulting in low visibility procedures. Unscheduled landings in the night period arising from diversions from other airports due to weather conditions provided an aircraft had taken off unaware that its intended destination was unavailable would also be covered. Problems arising from snow and ice should not in themselves constitute sufficient reason for dispensations, especially for departures, when the likelihood of adverse weather conditions should be taken into account in operations planning (but see Government exemption because of exceptionally severe weather above).

3 Delays as a Result of Disruption leading to Serious Hardship and Congestion at the Airfield or Terminal

Delays would cover disruption to air traffic as set out under (2) above. It would also cover emergencies such as the fire to an aircraft on the ground at Heathrow in July 2013, which led to severe terminal disruption or disruption caused by any hijacking activity. It would not cover strikes by baggage handlers which is within the control of the airport or normally delays arising from additional security checks which should be taken into account when planning operations. Disruptions are not abnormal and we believe that adequate provision should be made within the airport's night restrictions and operational measures such as at Heathrow under Tactically Enhanced Arrivals Measures to help mitigate disruption and facilitate recovery and the need for dispensations. Operational difficulties cannot be predicted precisely but experience indicates they can be expected to occur.

Airport managers must use their own judgement as to what constitutes serious hardship or suffering for the purposes of the above. Serious hardship or suffering is intended to cover cases where passengers are subjected to long delays when the terminal buildings are overcrowded and their facilities strained and insufficient hotel accommodation is available. Only the minimum number of flights required to reduce overcrowding to a tolerable level should be disregarded. Mere inconvenience to passengers does not constitute hardship for these purposes. The same considerations should apply if serious hardship at an originating airport is to be a reason for disregarding a landing. Delayed cargo flights (other than those carrying animals and meeting one of the criteria above) and extra night shuttle flights to meet demand may not be disregarded for reasons of serious hardship and congestion and all such movements must count against the movements limit and the noise quota according to their QC classification. Dispensations would not be appropriate when aircraft operators have reasonable time to rearrange their schedules and accordingly would fall outside the scope of these Section 78(4) dispensations. All dispensations in times of air traffic disruption (whether ATC, political crisis, weather related etc.) are NET; i.e. any movements scheduled for the night period but which do not occur (or occur in the daytime) because of that disruption, must be offset against this, with only the excess counting as dispensations from the movements limits and the noise quotas

To Note:

Monitoring

All dispensations granted by the airport will be subject to monitoring.

Testing and Calibration of Instrument Landing Systems

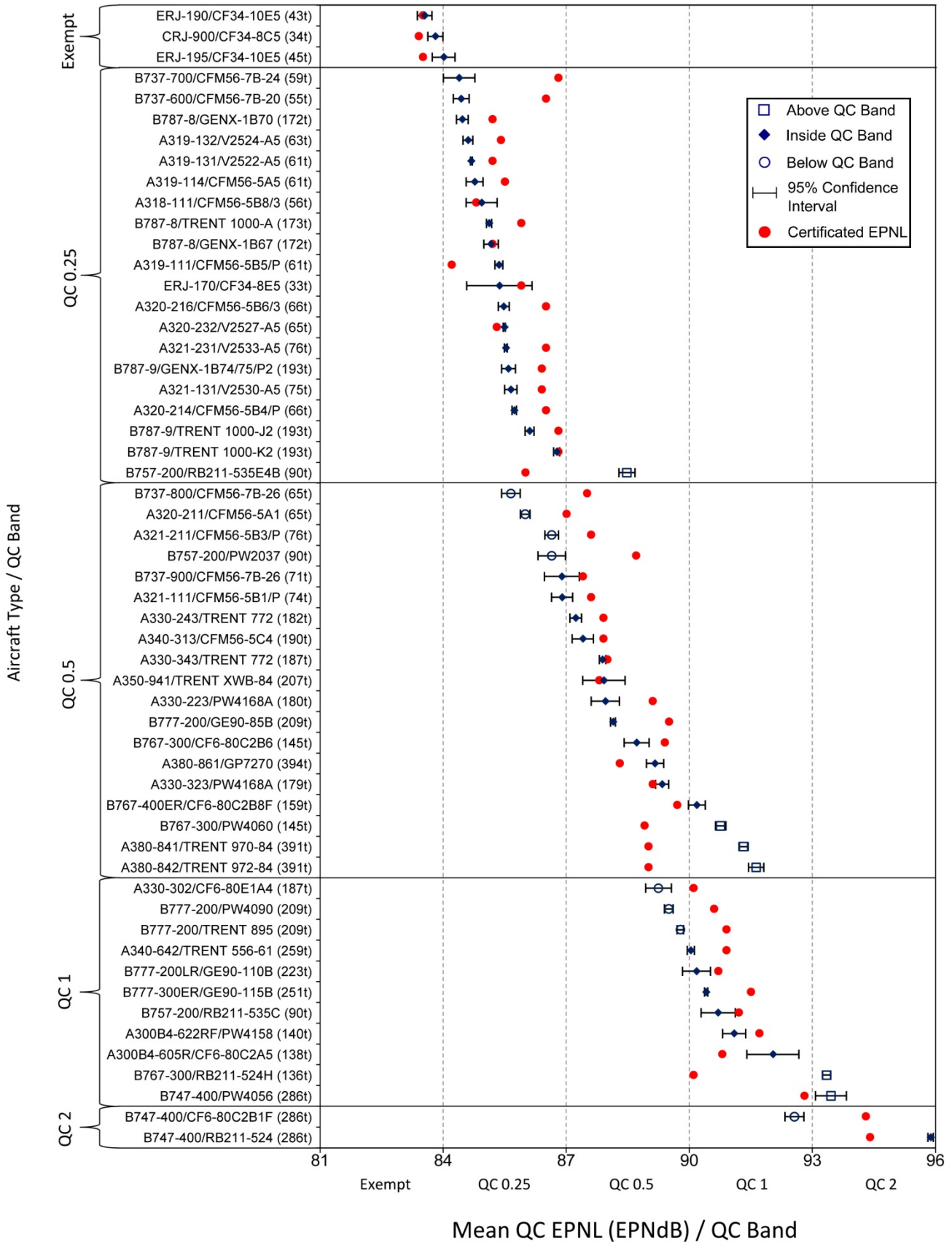
Airborne safety calibration checks of the Instrument Landing Systems (ILS) used by arriving aircraft at the three London airports are carried out on behalf of the Civil Aviation Authority usually twice a year and generally at night. Normally the aircraft used for this purpose are exempt from the night restrictions (i.e. they are classified QC/0). However, any landings and take offs for the purpose of testing the ILS or other navigation equipment, by aircraft classified QC/0.5 or above, are not given dispensations and would count against the movement limits and noise quotas. Such flights should fall outside the scope of this suggested dispensation.

Issued by Department for Transport in July 2014

Annex D: QC classification and operational noise levels

- D.1 The July 2004 Stage 1 consultation on Night Flying Restrictions identified that most aircraft have operational noise levels that accord with their QC classification. This finding was based on the results of a large-scale noise monitoring study, published by the CAA's Environmental Research and Consultancy Department (ERCD) in ERCD Report 0205. However, it also noted that some types are noisier than their classification, and some quieter.
- D.2 It is to be expected that some differences will exist between operational and certification noise and experts examining the ICAO noise certification requirements concluded that, despite some differences between certification noise and operational noise at some airports, there is no compelling need to change the certification scheme. In addition, Article 4.4 of EU Directive 2002/30/EC, implemented by Regulation 5(3) of 2003 Regulations require performance-based operating restrictions to be based on the noise performance of the aircraft as determined by the ICAO certification procedure.
- D.3 Further data was presented in the January 2013 Stage 1 consultation to examine arrivals noise at Heathrow for several new aircraft types that were previously not covered in ERCD Report 0205. The analysis indicated that whilst some aircraft were quieter than expected, the A380 with Rolls-Royce Trent 900 engines, an aircraft that is now in regular use by airlines during the night quota period, appeared slightly noisier in operation than its QC classification.
- D.4 The engine manufacturer Rolls-Royce, with assistance from the CAA where necessary, subsequently carried out an investigation to better understand the relatively high monitored arrival noise levels. Rolls-Royce has since indicated it would not be possible to resolve the arrival noise issue with the current A380/Trent 900 model without significant redesign of the engine. It should, however, be noted that operational noise levels are taken into account when estimating night quota period (6.5 hour Leq) and night period (8 hour L_{night}) contours and thus operational noise levels are reflected in the night noise objective.
- D.5 To confirm whether the operational noise levels of some recently certificated aircraft types accord with their QC classification, the CAA has carried out a new analysis of arrivals noise for a large number of different aircraft types currently operating at Heathrow airport, both during the day and at night. Figure 1 shows this data which has been analysed using the methods described in ERCD Report 0205 and includes several newer aircraft types not previously covered. These include the wide-bodied Airbus A350 (QC/0.5) and Boeing 787 (QC/0.25), in addition to existing types such as the Airbus A380 (QC/0.5) and Boeing 777 (QC/1). Whilst measurements for the A380/Trent 900 continue to fall inside the higher QC /1 band, results for many other newer types, including the A350 and several versions of the B787, fall inside their QC classification bands.

D.6 Figure 1 Measured approach EPNLs at Heathrow (July 2015 to June 2016)



Annex E: Night flights airport statistics

Heathrow

Season	QC0.25 No.	QC0.5 No.	QC1 No.	QC2 No.	QC4 No.	Quota used	Quota% limit used	Mvmnts used	Mvmnt limit	% used	Exempt aircraft
Winter 2006/07	58	361	547	1624	69	4266	103.0	2659	2550	104.3	95
Summer 2007	124	255	555	1973	138	5227.5	93.2	3047	3250	93.8	150
Winter 2007/08	55	465	646	1484	60	4100.25	99.0	2710	2550	106.3	87
Summer 2008	112	408	582	1730	90	4634	84.9	2922	3250	89.9	109
Winter 2008/09	48	569	643	1406	49	3947.5	96.0	2715	2550	106.5	80
Summer 2009	67	385	654	1701	41	4429.25	81.1	2848	3250	87.6	108
Winter 2009/10	100	656	437	1445	44	3856	93.8	2682	2550	105.2	107
Summer 2010	161	538	662	1625	80	4541.25	85.0	3066	3250	94.3	118
Winter 2010/11	77	568	554	1317	61	3735.25	90.9	2577	2550	101.1	67
Summer 2011	90	555	537	1725	51	4491	86.0	2958	3250	91.0	116
Winter 2011/12	28	657	807	1062	27	3374.5	82.7	2581	2550	101.2	75
Summer 2012	103	583	829	1276	62	3946.25	77.4	2853	3250	87.8	72
Winter 2012/13	75	734	881	937	41	3304.75	81.0	2668	2550	104.6	26
Summer 2013	96	570	838	1281	52	3917	76.8	2837	3250	87.3	43
Winter 2013/14	40	915	961	777	22	3070.5	75.3	2715	2550	106.5	26
Summer 2014	118	738	968	842	48	3242.5	63.6	2714	3250	83.5	24
Winter 2014/15	126	890	869	785	6	2939.5	72.0	2676	2550	104.9	13
Summer 2015	236	946	993	593	34	2847	55.8	2802	3250	86.2	14
Winter 2015/16	429	964	732	565	6	2475.25	60.7	2696	2550	105.7	3
Summer 2016	534	1256	855	264	40	2304.5	45.2	2949	3250	90.7	15

Source: DfT data

Gatwick

Season	QC0.25 No.	QC0.5 No.	QC1 No.	QC2 No.	QC4 No.	Quota used	Quota limit	% used	Mvmnts used	Mvmnt limit	% used	Exempt aircraft
Winter 2006/07	1529	784	263	157	1	1355.25	2300	58.9	2734	3250	84.1	50
Summer 2007	5272	2487	2087	314	13	5328.5	6700	79.5	10173	11200	90.8	107
Winter 2007/08	1519	855	375	180	0	1542.25	2240	68.9	2929	3250	90.1	50
Summer 2008	5164	3042	1984	424	4	5660	6600	85.8	10618	11200	94.8	83
Winter 2008/09	916	866	217	145	0	1169	2180	53.6	2145	3250	66.0	62
Summer 2009	4340	2961	1405	390	1	4786.5	6500	73.6	9099	11200	81.2	74
Winter 2009/10	1147	634	203	215	0	1236.75	2120	58.3	2199	3250	67.7	103
Summer 2010	5838	2085	1582	370	0	4824	6400	75.4	9875	11200	88.2	74
Winter 2010/11	1073	661	170	256	0	1280.75	2060	62.2	2160	3250	66.5	58
Summer 2011	5346	2352	1840	319	2	4998.5	6300	79.3	9859	11200	88.0	85
Winter 2011/12	651	405	155	200	0	920.25	2000	46.0	1411	3250	43.4	62
Summer 2012	4942	2792	1844	259	0	4993.5	6200	80.5	9837	11200	87.8	92
Winter 2012/13	644	544	215	198	0	1044	2000	52.2	1603	3250	49.3	53
Summer 2013	4896	3322	1627	153	0	4818	6200	77.7	9998	11200	89.3	96
Winter 2013/14	584	625	232	69	0	828.5	2000	41.4	1510	3250	46.5	61
Summer 2014	6139	3352	1579	77	0	4943.75	6200	79.7	11147	11200	99.5	58
Winter 2014/15	589	949	205	13	0	852.75	2000	42.6	1756	3250	54.0	58
Summer 2015	6202	3660	1189	98	0	4765.5	6200	76.9	11149	11200	99.5	58
Winter 2015/16	674	951	185	62	0	953	2000	47.7	1872	3250	57.6	65
Summer 2016	6137	3815	1235	114	2	4912.75	6200	79.2	11303	11200	100.9	53

Source: DfT data

Stansted

Season	QC0.25 No.	QC0.5 No.	QC1 No.	QC2 No.	QC4 No.	Quota used	Quota limit	% used	Mvmnts used	Mvmnt limit	% used	Exempt aircraft
Winter 2006/07	1017	1925	327	479	3	2513.75	3510	71.61	3751	5000	75.0	294
Summer 2007	2224	3747	712	619	5	4399.50	4900	89.78	7307	7000	104.4	317
Winter 2007/08	749	1936	583	337	4	2428.25	3470	69.97	3612	5000	72.2	183
Summer 2008	1690	3473	904	428	3	3931.00	4850	81.05	6498	7000	92.8	266
Winter 2008/09	528	1879	515	273	1	2136.50	3430	62.28	3196	5000	63.9	150
Summer 2009	1737	3058	791	392	0	3538.25	4800	73.71	5979	7000	85.4	246
Winter 2009/10	719	1734	662	305	6	2342.75	3390	69.10	3426	5000	68.5	238
Summer 2010	2021	2887	853	314	6	3453.75	4750	72.71	6081	7000	86.9	306
Winter 2010/11	541	1290	560	195	9	1766.25	3350	52.72	2595	5000	51.9	230
Summer 2011	1950	2785	876	388	5	3552.00	4700	75.57	6004	7000	85.8	292
Winter 2011/12	462	1045	596	191	4	1632.00	3310	49.30	2298	5000	46.0	221
Summer 2012	1556	2765	1202	313	1	3603.50	4650	77.49	5837	7000	83.4	331
Winter 2012/13	492	1357	832	195	0	2023.50	3310	61.13	2876	5000	57.5	220
Summer 2013	1349	2738	1255	268	4	3513.25	4650	75.55	5614	7000	80.2	389
Winter 2013/14	126	1482	954	216	0	2158.50	3310	65.21	2778	5000	55.6	390
Summer 2014	861	4334	1235	312	5	4261.25	4650	91.63	6747	7000	96.4	663
Winter 2014/15	138	1558	900	242	2	2205.50	3310	66.63	2840	5000	56.8	481
Summer 2015	954	3778	1276	337	2	4085.50	4650	87.86	6347	7000	90.7	673
Winter 2015/16	141	1951	804	208	1	2234.75	3310	67.51	3105	5000	62.1	605
Summer 2016	758	5020	1257	333	2	4630.50	4650	99.58	7370	7000	105.3	1093

Source: DFT data

Annex F: Noise Contours

- F.1 The noise contours in this annex have been produced by the Environmental Research and Consultancy Department (ERCD) of the Civil Aviation Authority (CAA) using the UK aircraft noise contour model (ANCON 2).
- F.2 A description of the method by which the contours are computed and the sources of input data, which include actual monitored data, are contained in The CAA Aircraft Noise Contour Model: ANCON Version 1: DORA Report 9120 and The UK Civil Aircraft Noise Contours Model ANCON – Improvements in Version 2: R&D Report 9842.
- F.3 The population data included in Table 1 uses data from a residential population location database developed by Extrium Limited in connection with fulfilling the Government's obligations under the Environmental Noise Directive (END) (Directive 2002/49/EC) and the domestic legislation which implements it, The Environmental Noise (England) Regulations (EN(E)R) 2006, as amended⁵³. Information about residential buildings is combined with population data based on Census Output Areas (COA) from the 2011 census to produce a residential population location dataset. That dataset is combined with the noise exposure data to produce the results shown in the tables.⁵⁴
- F.4 Contour results for subsequent years, as well as forecast noise contours, have been produced using CACI Limited data for 2015.
- F.5 All contours in this Annex are average mode contours and should be considered along with Chapters 1 and 2 of the main consultation document.

L_{den} and L_{night}

- F.6 Annex VI of the END describes how information about the number of people and the area affected by aircraft noise should be reported. The estimated number of people living in dwellings (rounded to the nearest hundred as required by Directive 2002/49/EC) exposed to the following bands of values of L_{den} in dB: 55-59, 60-64, 65-69, 70-74 and >75, and the following bands of values of L_{night} in dB: 50-54, 55-59, 60-64, 65-69, >70, should be provided. In the case of graphical representation, strategic maps must show at least the 60, 65, 70 and 75 dB contours.
- F.7 For the purposes of this consultation we have calculated contours for the following values: 55, 60, 65, 70 and 75 (L_{den}) and 50, 55, 60, 65 and 70 (L_{night} 8 hour). The corresponding areas, population and household data are also provided for each band of values in **Table 1** below. Graphic representations of these on background maps,

⁵³ Statutory Instrument 2006 No. 2238,

⁵⁴ As explained in the main consultation document, 2011-12 contours at Stansted have been re-run due to an error which was discovered. The updated contours are based on CACI data.

can be found in the previous Stage One Consultation from 2013, and in the airports Noise Action Plans.

F.8 These L_{den} and L_{night} contours were calculated using average actual recorded data for the period 2300 to 0700 for the calendar year 2011, and were produced to meet the requirements of the Environmental Noise (England) Regulations. This is also the most recent year for which a full set of data is available to produce contours from. L_{den} and L_{night} contours have been published previously for Heathrow, Gatwick and Stansted for 2006 in ERCD Reports 0706, 0707 and 0708⁵⁵ respectively to meet the requirements of the EN(E)R. More recent contours are available for Heathrow however.⁵⁶

Table 1: L_{den} and L_{night} (8 hours) data for Heathrow, Gatwick and Stansted

Heathrow 2011 L_{den}				Heathrow 2011 L_{night}			
Contour band (dBA)	Area (sq km)	Population (1000s)	Households (1000s)	Contour band (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
55-59.9	142	574.6	256.3	50-54.9	47.8	144.2	60.7
60-64.9	48	138.8	55.4	55-59.9	17.6	51.9	18.2
65-69.9	21	46.1	16	60-64.9	5.9	13.7	4.4
70-74.9	7	6.5	2.2	65-69.9	1.8	1.5	0.5
>75	3.9	0.1	<0.1	>70	1.5	<0.1	<0.1
Gatwick 2011 L_{den}				Gatwick 2011 L_{night}			
Contour band (dBA)	Area (sq km)	Population (1000s)	Households (1000s)	Contour band (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
55-59.9	53.7	9.3	3.7	50-54.9	25	3.3	1.4
60-64.9	20	1.5	0.6	55-59.9	9.8	0.5	0.2
65-69.9	7.8	0.4	0.2	60-64.9	3.4	0.2	<0.1
70-74.9	2.6	<0.1	<0.1	65-69.9	1	<0.1	<0.1
>75	1.5	<0.1	<0.1	>70	0.7	<0.1	<0.1
Stansted 2011 L_{den}				Stansted 2011 L_{night}			
Contour band (dBA)	Area (sq km)	Population (1000s)	Households (1000s)	Contour band (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
55-59.9	36.2	6.1	2.5	50-54.9	20.7	3	1.2
60-64.9	13.9	1.1	0.4	55-59.9	7.5	0.4	0.2
65-69.9	4.9	0.3	0.1	60-64.9	2.6	<0.1	<0.1
70-74.9	1.5	<0.1	<0.1	65-69.9	0.8	<0.1	<0.1
>75	1	0	0	>70	0.6	0	0

⁵⁵ ERCD reports available on the CAA website at www.caa.co.uk/publications

⁵⁶ http://www.heathrow.com/file_source/HeathrowNoise/Static/Heathrow_Noise_Action_Plan_Contours_2014.pdf

L_{Aeq} 6.5hr night

- F.9 Given that the changes being considered as part of this consultation are to the 6.5 hour period, we have only analysed the impacts of our options for L_{Aeq} 6.5hr night contours
- F.10 The contours below have been calculated using data recorded between March 2015 and March 2016 (a full summer and winter season as described in the current night restrictions regime). The areas, population and household data are also provided for each contour level, on a cumulative basis, in accordance with normal practice.

Table 2 Heathrow, Gatwick and Stansted Summer 2015/Winter 2015-16 L_{Aeq} 6.5hr night contours

Heathrow 2015-16 L_{Aeq} 6.5hr night (actual usage)			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	33.0	105.5	40.3
51	16.7	49.9	18.8
54	8.5	21.2	7.9
57	4.3	4.1	1.5
60	2.3	1.3	0.5
63	1.4	<0.1	<0.1
Gatwick 2015-16 L_{Aeq} 6.5hr night (actual usage)			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	35.2	4.3	1.6
51	18.0	1.3	0.5
54	9.0	0.5	0.1
57	4.6	0.3	0.1
60	2.3	0.1	<0.1
63	1.2	0.0	0.0
Stansted 2015-16 L_{Aeq} 6.5hr night (actual usage)			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	30.8	3.8	1.6
51	16.2	0.9	0.3
54	8.2	0.2	0.1
57	4.3	<0.1	<0.1
60	2.3	0.0	0.0
63	1.3	0.0	0.0

Figure 1 Heathrow Summer 2015/Winter 2015-16 LAeq 6.5hr night contours

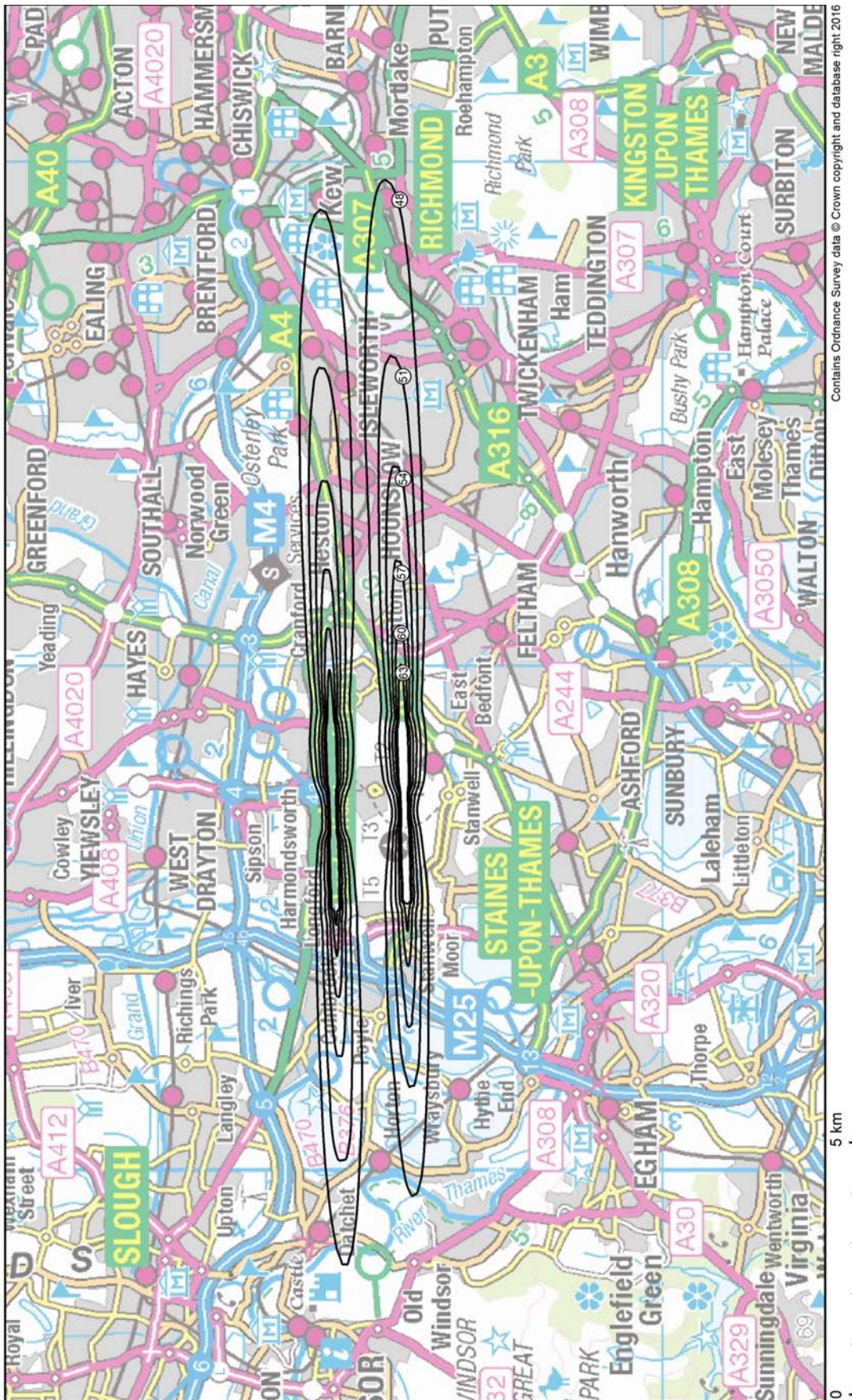
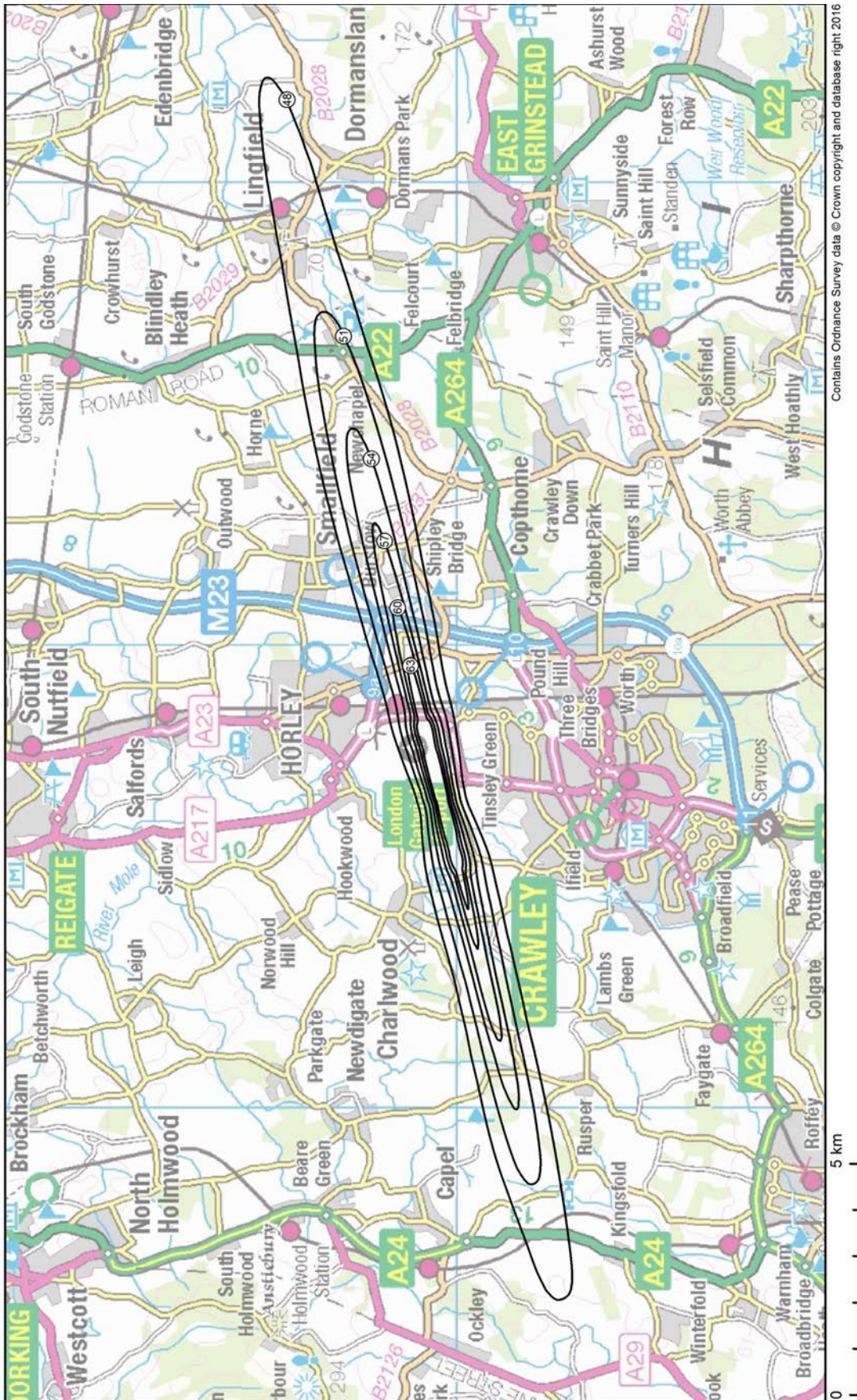
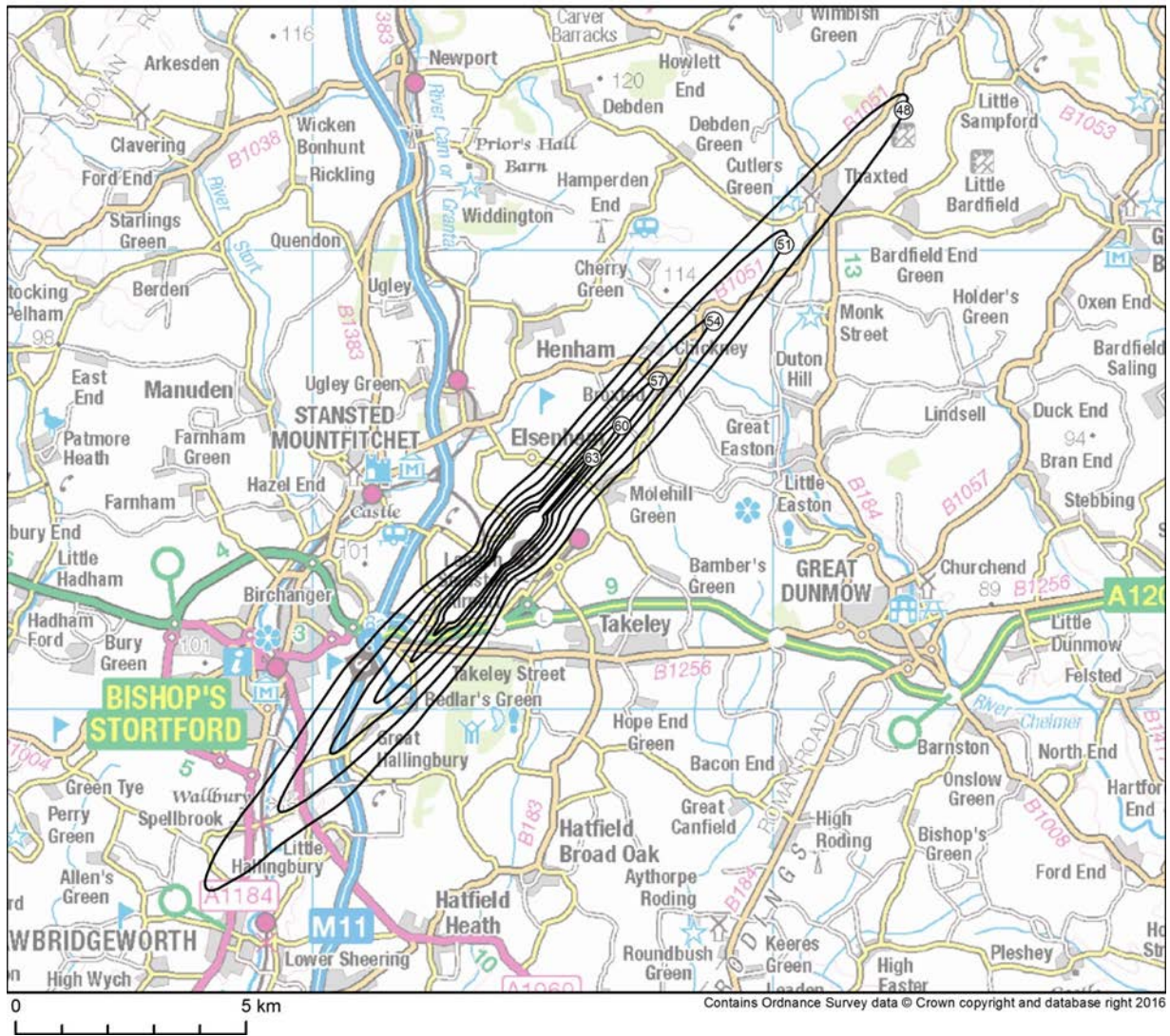


Figure 2 Gatwick Summer 2015/Winter 2015-16 LAeq 6.5hr night contours



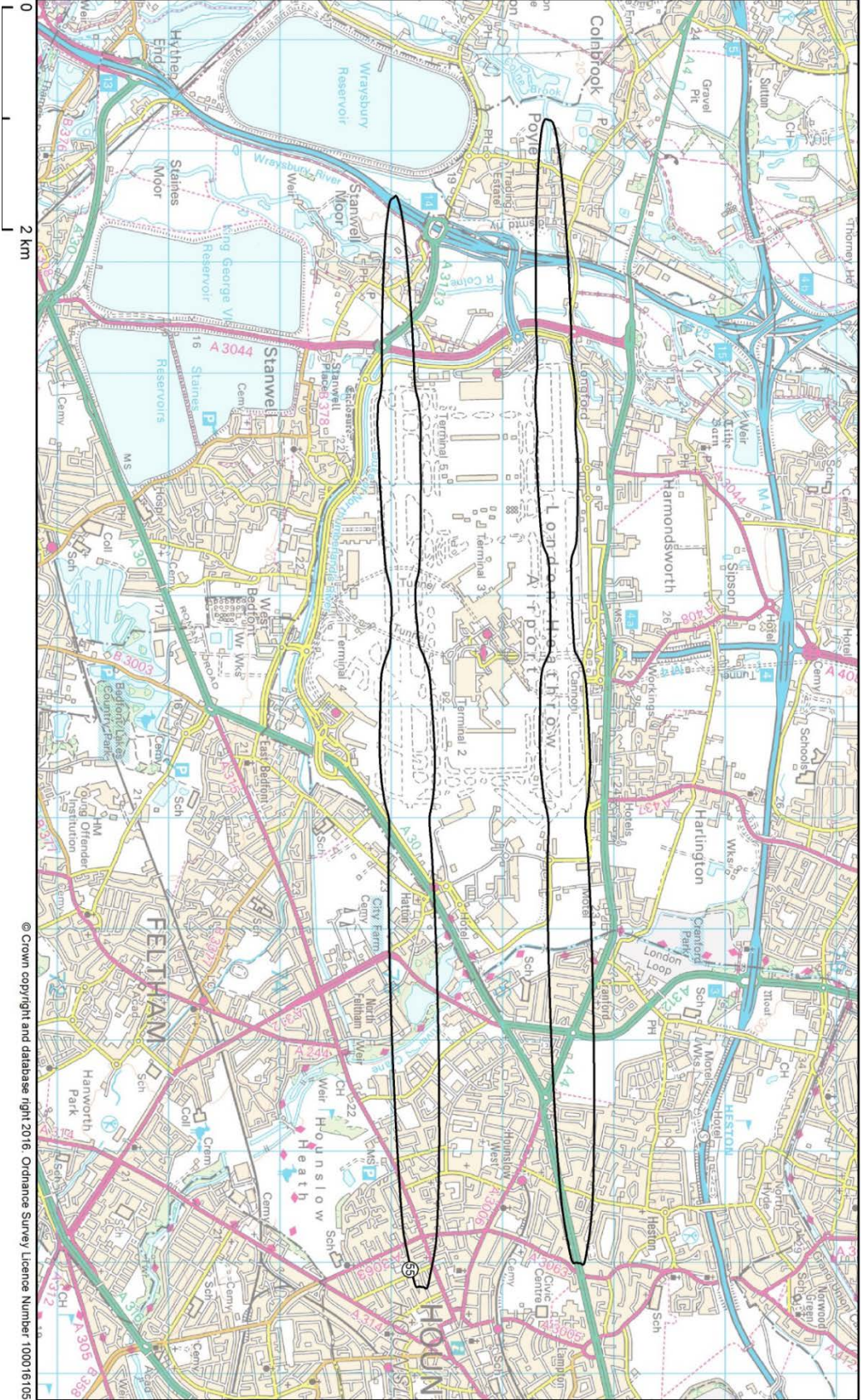
Contains Ordnance Survey data © Crown copyright and database right 2016

Figure 3 Stansted Summer 2015/Winter 2015-16 LAeq 6.5hr night contours



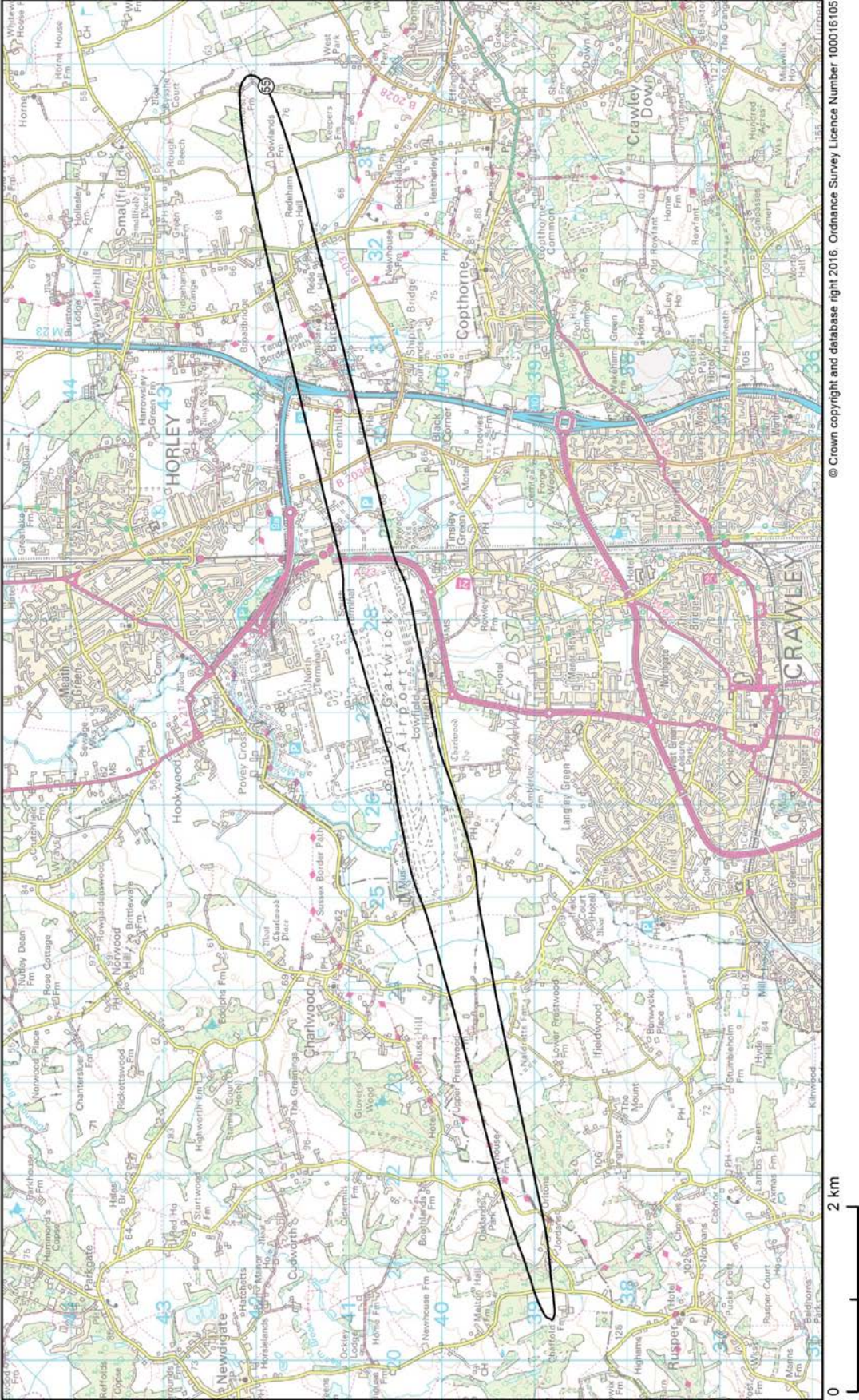
F.11 Also included for reference below are the Summer 2015/Winter 2015-16 55 dBA LAeq 6.5hr night contours, which was the measure chosen for assessing progress against the environmental objective to 'limit and where possible reduce the number of people significantly affected by aircraft noise at night' for the current regime. The corresponding area and population values for these contours are provided in Chapter 2 of this document.

Figure 4 Heathrow Summer 2015/Winter 2015-16 LAeq 6.5hr night 55dBA contour



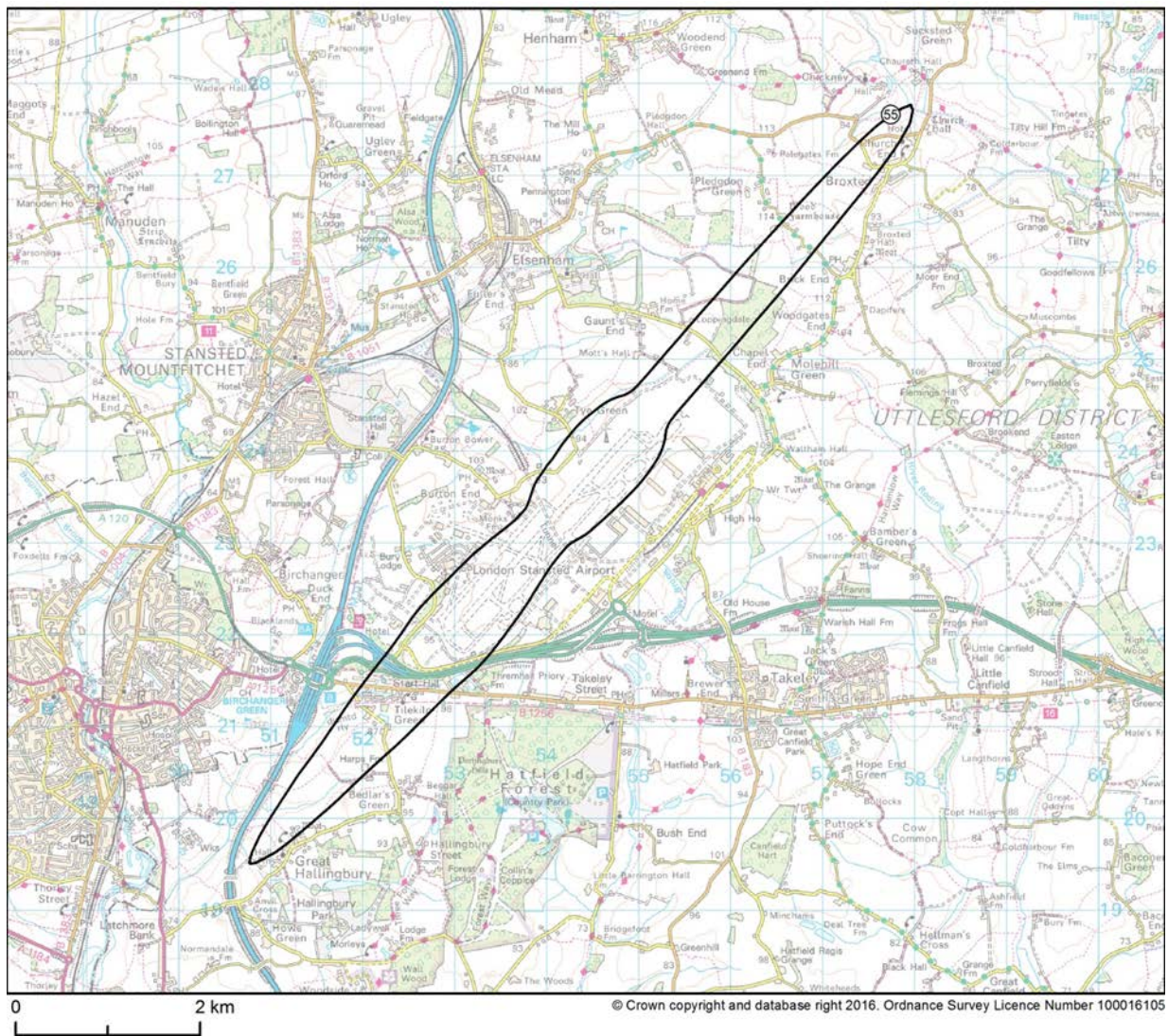
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Figure 5 Gatwick Summer 2015/Winter 2015-16 LAeq 6.5hr night 55dBA contour



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Figure 6 Stansted Summer 2015/Winter 2015-16 LAeq 6.5hr night 55dBa contour



Forecast noise contours with and without new measures.

F.12 The contours below have been calculated in 3db LAeq 6.5hr night bands, based on the estimated movement and traffic mix predicted under a continuation of the current regime and the options for night flights being considered for the next regime. Given the small differences in the contour areas under the scenarios, the results are provided in table format only as differences would not be noticeable on a map. The areas, population and household data are provided for each contour level, on a cumulative basis, in accordance with normal practice. For a more detailed explanation of this analysis, please see our impact assessment.

F.13 The contours below relate to the following options:

- **Option 1:** Continuation of the current regime
- **Option 2:** A new QC category is introduced and all movements count towards the limits
- **Option 3 (Stansted only):** A new QC category is introduced and all movements count towards the limits, and Stansted's movement limit is uplifted

- **Option 4a (Heathrow and Gatwick only):** A new QC category is introduced and all movements count towards the limits, and Heathrow and Gatwick's noise quota limits are reduced to reflect current usage.
- **Option 4b:** For Heathrow and Gatwick, as per Option 4a plus a gradual reduction in noise quota until it is at 80% of its value in Option 4a. For Stansted, as per Option 3 plus a gradual reduction in noise quota until it is at 80% of its value in Option 3.

Heathrow

F.14 Below are $L_{Aeq\ 6.5hr\ night}$ contours for Heathrow assuming a continuation of the regime in the years 2017-2018 (Winter 2017/18 and Summer 2018) and 2021-2022 (Winter 2021/22 and Summer 2022). While our proposals of introducing a new QC category and reducing the noise quota will benefit communities by providing greater certainty over the level of noise that will be experienced, they are not expected to have an impact on the number of flights or the level of noise produced. The contours for result for scenarios where a new QC category is introduced and all movements count towards an airport's limits, along with the associated proposals to reduce Heathrow's noise quota, are therefore the same as those provided below.

Table 3

Heathrow, Options 1, 2, 4a & 4b, 2017-2018 (Winter 2017/18 and Summer 2018), $L_{Aeq\ 6.5hr\ night}$			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	29.2	91.3	34.7
51	14.5	43.5	16.4
54	7.1	14.8	5.4
57	3.7	2.5	0.9
60	2.0	0.5	0.2
63	1.3	<0.1	<0.1

Table 4

Heathrow, Options 1, 2, 4a & 4b, 2021-2022 (Winter 2021/22 and Summer 2022), $L_{Aeq\ 6.5hr\ night}$			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	25.1	80.6	30.4
51	12.1	36.9	13.9
54	5.8	9.8	3.6
57	3.0	2.0	0.7
60	1.7	<0.1	<0.1
63	1.2	0.0	0.0

Gatwick

F.15 For Gatwick, reducing the noise quota limits to reflect current usage (Option 4a) is expected to have no further effect on the contour size compared to the introduction of a new QC category and counting all aircraft towards the airport's movement limits

(Option 2). The further reductions in noise quota limits in Option 4b do have an effect on contours however.

Table 5

Gatwick, Option 1, 2017-2018 (Winter 2017/18 and Summer 2018), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	37.9	4.5	1.7
51	19.1	1.3	0.5
54	9.5	0.5	0.1
57	4.8	0.3	0.1
60	2.4	0.1	<0.1
63	1.3	0.0	0.0

Table 6

Gatwick, Option 1, 2021-2022 (Winter 2021/22 and Summer 2022), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	38.0	4.6	1.7
51	19.0	1.3	0.5
54	9.5	0.5	0.1
57	4.7	0.3	0.1
60	2.4	0.1	<0.1
63	1.2	0.0	0.0

Table 7

Gatwick, Options 2 & 4a, 2017-2018 (Winter 2017/18 and Summer 2018), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	37.7	4.5	1.7
51	19.0	1.3	0.5
54	9.5	0.5	0.1
57	4.8	0.3	0.1
60	2.4	0.1	<0.1
63	1.3	0.0	0.0

Table 8

Gatwick, Options 2 & 4a, 2021-2022 (Winter 2021/22 and Summer 2022), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	37.3	4.5	1.7
51	18.7	1.3	0.5
54	9.3	0.5	0.1
57	4.7	0.3	0.1
60	2.3	0.1	<0.1
63	1.2	0.0	0.0

Table 9

Gatwick, Option 4b, 2017/18 (Winter 2017/18 and Summer 2018), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	37.7	4.5	1.7
51	19.0	1.3	0.5
54	9.5	0.5	0.1
57	4.8	0.3	0.1
60	2.4	0.1	<0.1
63	1.3	0.0	0.0

Table 10

Gatwick, Option 4b, 2021-2022 (Winter 2021/22 and Summer 2022), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	31.1	3.9	1.4
51	15.8	1.1	0.4
54	7.8	0.5	0.1
57	4.0	0.3	0.1
60	2.0	0.1	<0.1
63	1.1	0.0	0.0

Stansted

F.16 Noise contours associated with Option 3 and Option 4a at Stansted are not presented. This is because the limitations of our forecasts means that applying our methodology for estimating the number of flights provides results that are not consistent with what we expect the direction of the impacts of these options to be. Please see our impact assessment for further details on this. We plan to update our forecasts for these options and produce appropriate noise contours in the analysis that will accompany our final impact assessment and decision document later this year.

Table 11

Stansted, Option 1, 2017/18 (Winter 2017/18 and Summer 2018), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	38.2	4.2	1.7
51	20.5	1.3	0.5
54	10.5	0.4	0.2
57	5.3	0.1	<0.1
60	2.8	0.0	0.0
63	1.5	0.0	0.0

Table 12

Stansted, Option 1, 2021/22 (Winter 2021/22 and Summer 2022), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	35.5	4.1	1.7
51	18.8	1.2	0.5
54	9.5	0.3	0.1
57	4.8	<0.1	<0.1
60	2.5	0.0	0.0
63	1.4	0.0	0.0

Table 13

Stansted, Option 2, 2017/18 (Winter 2017/18 and Summer 2018), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	35.4	4.1	1.7
51	18.9	1.2	0.5
54	9.7	0.3	0.1
57	4.9	<0.1	<0.1
60	2.6	0.0	0.0
63	1.4	0.0	0.0

Table 14

Stansted, Option 2, 2021/22 (Winter 2021/22 and Summer 2022), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	33.3	4.0	1.6
51	17.5	1.1	0.5
54	8.8	0.2	0.1
57	4.5	<0.1	<0.1
60	2.4	0.0	0.0
63	1.3	0.0	0.0

Table 15

Stansted, Option 4b, 2017/18 (Winter 2017/18 and Summer 2018), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	37.9	4.2	1.7
51	20.3	1.3	0.5
54	10.5	0.4	0.2
57	5.3	0.1	<0.1
60	2.8	0.0	0.0
63	1.5	0.0	0.0

Table 16

Stansted, Option 4b, 2021/22 (Winter 2021/22 and Summer 2022), L_{Aeq} 6.5hr night			
Contour (dBA)	Area (sq km)	Population (1000s)	Households (1000s)
48	30.5	3.7	1.5
51	15.9	0.9	0.4
54	7.8	0.2	0.1
57	4.1	<0.1	<0.1
60	2.2	0.0	0.0
63	1.2	0.0	0.0

Annex G: Impact of Currently Exempt Operations

- G.1 Over the next few years, new commercial aircraft will come into operation that are below the current QC/0.25 (quieter than 84 EPNdB) category and therefore exempt under current restrictions.
- G.2 To provide an indication of the likely noise impact of the exempt-rated (QC/0) A320neo, **Figure 1** below illustrates the size and extent of the 60 dBA L_{max} arrival noise footprint for a typical westerly arrival to runway 26L at Gatwick. An outdoor L_{max} level of 60 dBA corresponds to an indoor noise level of approximately 45 dBA, in accordance with the WHO recommendation that individual noise events at night exceeding 45 dBA should be avoided.
- G.3 Also shown in **Figure 1** for comparison is the equivalent footprint for the current model of the A320 (QC/0.25), which is the most common aircraft type currently operating at Gatwick during the night quota period.
- G.4 **Figure 2** illustrates the equivalent footprints for easterly arrivals.
- G.5 Results are summarised in **Table 1**, which indicate that whilst the noise footprint of the new A320neo is significantly smaller than the current A320, the impacts of a QC/0 rated aircraft are not insignificant.

Aircraft	Arrival footprint	Area, sq km	Population	Households
A320neo	Westerly, 60dBA	49.6	7,800	3,000
	Easterly, 60dBA	48.1	2,700	1,100
A320	Westerly, 60dBA	85.4	20,300	8,300
	Easterly, 60dBA	78.3	9,900	4,200
Differences	Westerly, 60dBA	-42%	-62%	-64%
	Easterly, 60dBA	-39%	-73%	-74%

Figure 1 Illustrative 60dBA L_{max} westerly arrival footprint for the A320neo at Gatwick

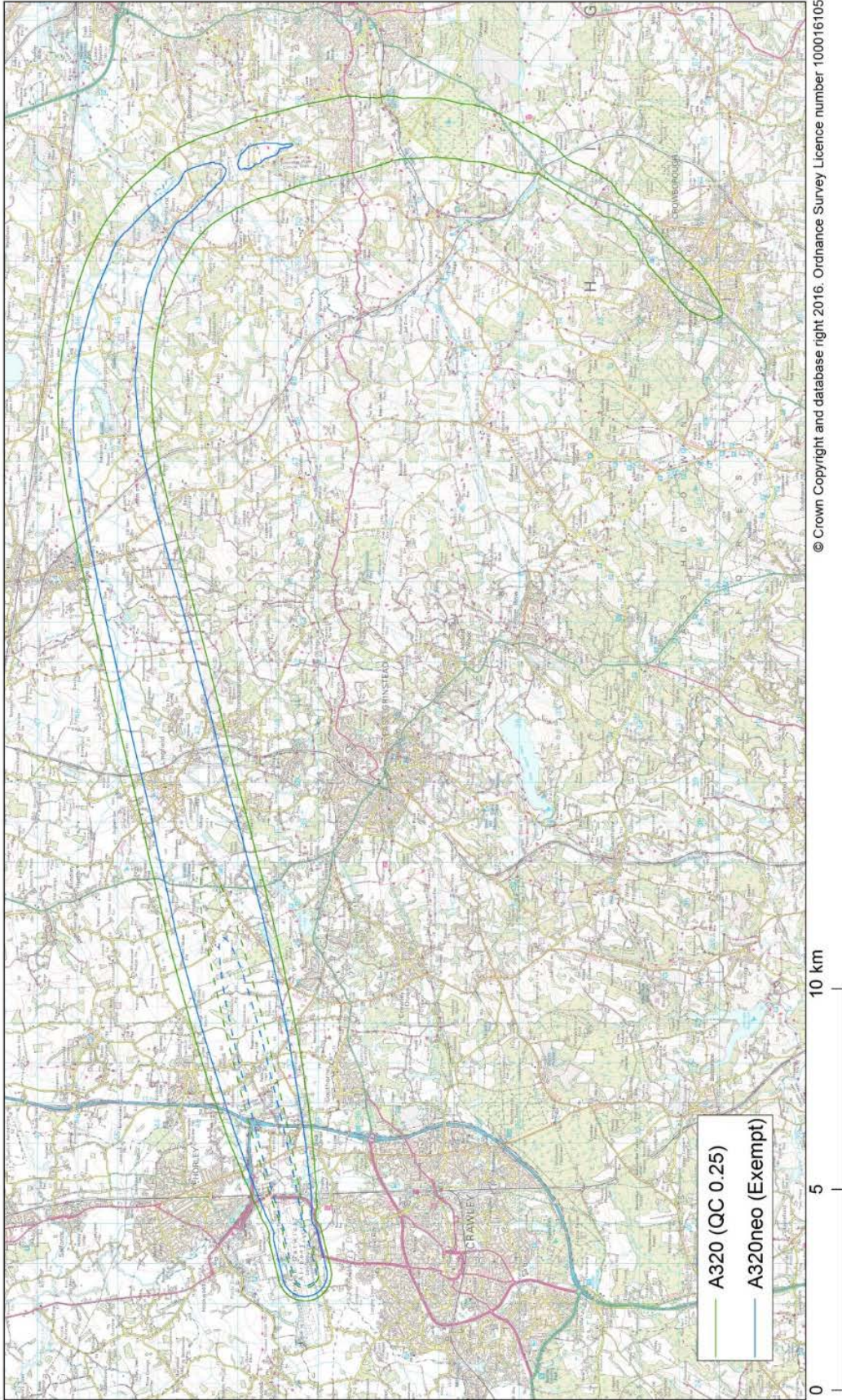
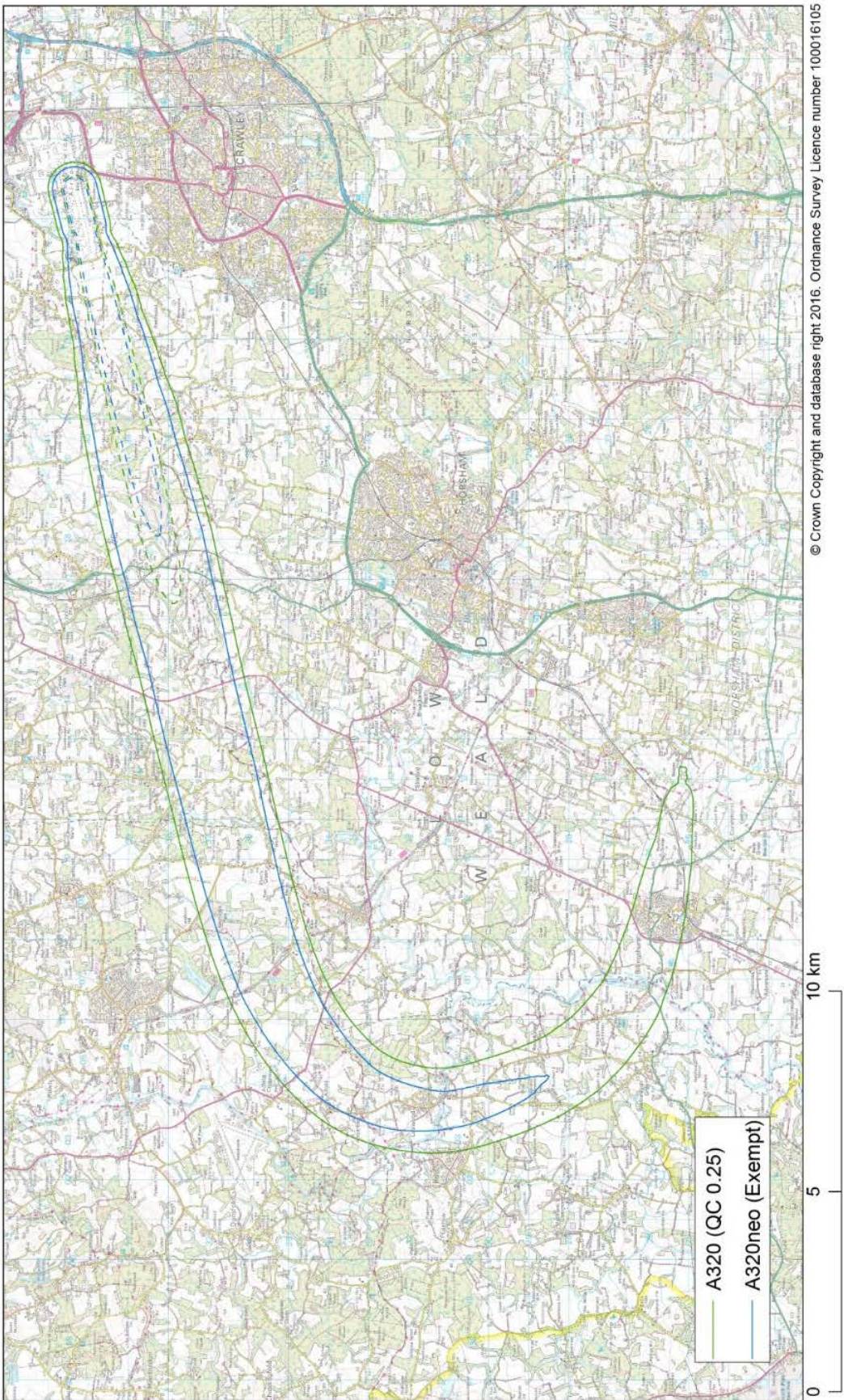


Figure 2 Illustrative 60dBA L_{max} easterly arrival footprint for the A320neo at Gatwick



Annex H: Existing exempt aircraft caught by proposed QC/0.125 category

Exempt aircraft expected to be covered under a new QC/0.125 category (81.0-83.9 EPNdB)

Arrivals	Departures
Airbus A320-251n	Airbus A320-251n
Airbus A320-271n	Airbus A320-271n
Beechcraft Premier I (Raytheon 390)	BAe ATP
Boeing 717-200	Bombardier Challenger 300 (BD-100-1A10)
Bombardier Challenger 601-3A (CL-600-2A12)	Bombardier Challenger 604 (CL-600-2B16)
Bombardier Challenger 604 (CL-600-2B16)	Bombardier Challenger 605 (CL-600-2B16)
Bombardier Challenger 605 (CL-600-2B16)	Bombardier Challenger 850 (CL-600-2B19)
Bombardier Challenger 870 (CL-600-2C10)	Bombardier CRJ-100LR (CL-600-2B19)
Bombardier CRJ-200ER (CL-600-2B19)	Bombardier CRJ-200ER (CL-600-2B19)
Bombardier CRJ-200LR (CL-600-2B19)	Bombardier CRJ-200LR (CL-600-2B19)
Bombardier Learjet 35A	Bombardier DHC-8-311 Dash 8
Bombardier Learjet 36A	Bombardier DHC-8-402 Q400
Bombardier Learjet 55ER Winglets	Bombardier Learjet 35A
Cessna 525A Citation CJ2	Cessna 525A Citation CJ2
Cessna 550 Citation Bravo	Cessna 550 Citation II
Cessna 550 Citation II	Dornier 328-110
Cessna 560XL Citation XLS	Dornier 328JET-310
Cessna 650 Citation VII	Embraer 120ER Brasilia
Cessna 680 Citation Sovereign	Embraer 120FC Brasilia
Dassault Falcon 2000EX EASy	Embraer 120RT Brasilia
Dassault Falcon 2000EX EASy Winglets	Embraer ERJ-135ER
Dassault Falcon 2000LX	Embraer ERJ-145EP
Dassault Falcon 2000S	Embraer ERJ-145MP
Dassault Falcon 7X	Embraer Legacy 600 (ERJ-135BJ)
Dassault Falcon 900C	Embraer Legacy 650 (ERJ-135BJ)
Dassault Falcon 900EX	Fokker 50
Dassault-Breguet Mystere Falcon 900	Gulfstream G280
Dornier 328JET-300	Gulfstream G300 (GIV)
Dornier 328JET-310	Gulfstream G450 (GIV-X)
Embraer ERJ-135ER	Gulfstream GIV
Embraer ERJ-145EP	Gulfstream GIV-SP
Embraer ERJ-145MP	Gulfstream G650 (G-VI)

Embraer ERJ-190BJ Lineage	Hawker 800B (BAe 125-800B)
Embraer ERJ-190SR	Hawker 800XP (Raytheon Hawker 800XP)
Embraer ERJ-195LR	Hawker 800XPi (Raytheon Hawker 800XP)
Embraer Legacy 600 (ERJ-135BJ)	Hawker 900XP (Hawker Beechcraft 900XP)
Embraer Legacy 650 (ERJ-135BJ)	Saab 2000
Gulfstream G280	Saab 340A Cargo
Gulfstream G450 (GIV-X)	
Gulfstream GIV	
Gulfstream GIV-SP	
Gulfstream GV	
Gulfstream GV-SP (550)	
Hawker 4000 (Hawker Beechcraft 4000)	
Hawker 400XP (Raytheon 400A)	

Annex I: Glossary

Airports Commission	An independent commission set up in 2012 to examine the need for additional UK airport capacity and recommend to government how this can be met in the short, medium and long term.
ANCON	The UK civil aircraft noise contour model, developed and maintained by ERCD.
Balanced Approach	Guidance developed by ICAO to address aircraft noise problems at individual airports in an environmentally responsive and economically responsible way
CAA	Civil Aviation Authority
Carry Over (and overrun)	Carry-over and overrun arrangements give the airport flexibility to defer or bring forward movements and quota allowance from one season to the next.
Certification Procedure	The ICAO aircraft noise certification procedure for subsonic aircraft over 5,700kg requires three separate noise measurements to be made at approach, lateral and flyover locations. The three certificated noise levels (measured in EPNdB) are determined within tight tolerances and normalised to standard atmospheric conditions.
dB	Unit of relative sound level or changes in sound level

dBA	Unit of sound pressure level measured on the A weighted scale, i.e. as measured on an instrument that applies a weighting to the electrical signal as a way of simulating the way a typical human ear responds to a range of acoustic frequencies.
Designated airport	Any airport designated for the purposes of section 78 of the Civil Aviation Act 1982 which allows the Secretary of State to require action to be taken to avoid, limit or mitigate the effect of noise from aircraft. Heathrow, Gatwick and Stansted are the three airport currently designated for these purposes
Environmental Noise Directive (END)	The Environmental noise directive (END) 2002/49/EC is a directive from the European Union to give information to the public about the noise levels in their living environment, and to assess and manage environmental noise.
Environmental Objective	An objective for an airport within the definition at Regulation 2 of The Aerodromes (Noise Restrictions) (Rules and Procedures) Regulations 2003 (SI 2003/1742).
EPNdB	Effective Perceived Noise Decibels. A specialised noise unit used for aircraft noise certification tests.
ERCD	Environmental Research and Consultancy Department of the Civil Aviation Authority.
Exempt Aircraft	Under the current restrictions, aircraft certified as quieter than 84 EPNdB are exempt from the night flight restrictions. This means they do not count towards movement or noise quota limits.
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation.
ILS	Instrument Landing System. 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

L_{eq}	A measure of long term average noise exposure. For aircraft it is the level of a steady sound which, if heard continuously over the same period of time, would contain the same total sound energy as all the aircraft noise events. L _{eq} is most commonly used with the A-weighted scale (as measured on an instrument that applies a weighting to the electrical signal as a way of simulating the way a typical human ear responds to a range of acoustic frequencies), expressed as L _{Aeq} . L _{Aeq 6.5hr night} is used in this consultation to refer to the noise levels in the period of the night, 2330-0600, that movement and noise quota limits apply to.
L_{max}	The maximum A-weighted sound level (in dBA) measured during an aircraft flyby
L_{night}	Usually, the eight hour L _{eq} average noise level from a specified source or sources as defined in Directive 2002/49/EC, in the UK defined to cover 2300-0700 local time; sometimes defined over other periods at night.
Movement Limit	The number of movements allowed during a season between 2330 and 0600 (the Night Quota Period).
Noise Contour	Aircraft noise maps which show lines joining points of equal noise to illustrate the impact of aircraft noise around airports.
Night Period	Defined as 2300-0700 local time.
Night Quota Period	Defined as 2330-0600 local time unless the context indicates otherwise.
Noise Quota	An aggregation of quota count for individual aircraft, used to define a seasonal limit or usage by comparison with the applicable limit.

Operating Restriction

Noise related action that limits or reduces access of civil subsonic jet aeroplanes to an airport. It includes operating restrictions aimed at the withdrawal from operations of marginally compliant aircraft at specific airports as well as operating restrictions of a partial nature, affecting the operation of civil subsonic aeroplanes according to time period

Quota Count (or QC)

The weighting attributed to the arrival or departure of a specified aircraft type by reference to its certificated noise performance, divided into 3EPNdB bands.

UK AIP

UK Integrated Aeronautical Information Publication. A manual containing thorough details of regulations, procedures and other information pertinent to flying aircraft in the UK.

WHO

World Health Organization.

Annex J: Consultation principles

The consultation is being conducted in line with the Government's key consultation principles. Further information is available at <https://www.gov.uk/government/publications/consultation-principles-guidance>

If you have any comments about the consultation process please contact:

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Email consultation@dft.gsi.gov.uk