

**The Mayor of London's Response to the  
Night Flying Restrictions  
at Heathrow, Gatwick and Stansted:  
Stage 1 Consultation**

**April 2013**

# Foreword

It has been unambiguously demonstrated that the noise from night flights has severely detrimental health impacts on hundreds of thousands of Londoners every year. Yet it is also patently clear that there is economic benefit in accommodating night flights for passengers and freight. They maximise our global connectivity and support our economic activity and international trade capability.

But let us be in no doubt: there is no trade-off to be made, no happy balance to be struck at Heathrow. Both the noise and economic considerations are vitally important and to compromise one or the other - or both - would constitute a serious error of judgement. We must not let ourselves be forced into an unsound bargain by our years of collective indecision.

The only credible solution, that would allow these seemingly conflicting priorities to be reconciled, is to establish a new hub airport, away from densely populated areas: a location that could support night flying and the economic benefits that brings without inflicting misery on hundreds of thousands of local residents. Only such a long-term strategy can ensure that the UK will be able to accommodate the growth in night flights that we will need in the future if we are to maintain our economic competitiveness.

In principle, there should be an end to all night flights at Heathrow, between 2300 and 0700, when most people are sleeping. This much we owe to the local communities around the airport who, for far too long, have had to suffer the nightly impacts of aircraft noise.

With a strategy in place for construction of a new hub airport at a different location, a transition period at Heathrow could be deemed acceptable, on condition that there was absolutely no increase in night flying over current levels.

# Chapter 1. Introduction

## 1.1. Context

1. In January 2013 the Department for Transport (DfT) launched their 'Night Flying Restrictions at Heathrow, Gatwick and Stansted' Stage 1 consultation. This is the first of two consultations on night flying restrictions, which will inform the development of the next night noise regime. It focuses upon the effectiveness of the current regime, other options that may be considered as part of the next regime, and how the costs and benefits of future options may be measured.
2. The Stage 2 consultation will be published later this year and will include specific proposals for the new regime (e.g. number of permitted flights) and a proposed framework for assessment of impacts.
3. The Government has stated that it has no preferences for the next regime at this stage, other than that it will need to be consistent with the high level noise policy and framework for managing noise in the recently published Aviation Policy Framework (APF).
4. The draft of the APF, published in July 2012, rightly had a strong focus on the harmful impacts of noise on those living around airports. The noise impacts of night flying are perhaps the most pernicious element of this.
5. It is, however, regrettable that the final APF, published in March 2013, in stating that "it is inevitable that aircraft noise will be a particular issue" (owing to England's population density), is resigned to exposing many thousands of people to aircraft noise at night. Examining the alternatives, and indeed, the opportunities around new airport locations, must be a key objective of the Government and underpin the thinking being undertaken by the Airports Commission.

## 1.2. The Mayor's role

6. This document, which constitutes the Mayor of London's response to the Stage 1 consultation on Night Flying Restrictions, contains detailed answers to all of the questions in which the Mayor both has a keen interest and is well-positioned to respond; and in relation to airports within London. It also builds upon and reiterates the pertinent aspects of his response to the Government's Draft APF last year. In responding, the Mayor is fulfilling two primary roles:
  - **Seeking to protect the health and well-being of Londoners** – and here, specifically, those who are affected by the adverse impacts of night noise arising from airport operations. The Government acknowledges in the APF the health costs associated with noise disturbance. The Mayor will not

accept any policy approach that does not seek to minimise absolutely the impact of noise, and particularly night noise, on local communities.

- **Securing London's future economic growth and prosperity** – London is the driving force of the UK economy, producing 21.5% of the UK's Gross Value Added in 2010. Aviation connectivity is key to making the city successful as a place to do business, to live, study in and visit, both now and in the future. Night flights, for both passengers and freight, can make a valuable contribution to maximising that connectivity and so the benefits to the London economy.
7. Both these issues are statutory priorities for the Mayor and any solution which seeks to compromise either the noise or economic impacts – or both – will do Londoners a grave disservice.

### 1.3. The response

8. The Mayor's response follows the structure of the Night Flying Restrictions consultation, responding to questions posed by the Government directly, and setting out the key policy messages associated with the issues and questions. In certain instances, it made sense to answer a cluster of consecutive questions in a single response.
9. Chapters 2 and 3 respond to those questions (in sections 2, 3 and 4 of the Stage 1 consultation document) which relate to the nature and scope of the consultation, and the wider context within which it is being conducted. They set out the Mayor's views on the assessment of the extent to which the current regime has met its objectives, and raise a challenge over the appropriateness of the measures adopted.
10. Chapters 4 and 5 turn their attention to questions (in sections 5 and 6 of the stage 1 consultation document) relating to future changes to the regime, and the ways in which the Government proposes to assess the costs and benefits of such changes. The Mayor reiterates the importance of excellent connectivity, but not at the cost of the health and well-being of Londoners.
11. Chapter 6 draws out the key conclusions, relating to the noise and economic impacts of night flying.
12. Beyond the consultation response, the Mayor will continue to work with the Government and the Airports Commission to understand the impacts of night-time aviation noise and the options for securing the economic benefits of night flying through airport capacity in a new location.

# Chapter 2. Process and objectives

## 2.1. The second stage consultation

### Q1: Are there any other matters that you think we should cover in the second stage consultation?

13. The Government acknowledges within the APF that noise from aircraft at night is widely regarded as the least acceptable aspect of aircraft operations. The Government has committed to ensuring that separate night noise contours are produced for the eight hour night period (2300–0700) at the noise designated airports. The Mayor agrees that this is an appropriate period over which night noise should be assessed, but this is inconsistent with the night period as currently defined for aviation in this country (2330-0600). It is not clear how the Government intends to reconcile this discrepancy.
14. It is essential that appropriate noise metrics are adopted and that these are adequately measured and monitored. Noise threshold levels should be set at UK airports based upon definitive guidance – from either the EU, the UK, or both. The Mayor expects the second stage of the consultation to set out in detail the metrics which are proposed to be used for producing night noise contours.
15. This must also take account of the combined and cumulative impact of airports. Noise maps for Heathrow and London City, for instance, are drawn separately. This results in London residents being exposed to higher noise levels than are reported.
16. On issues such as the appropriate noise metric and the curfew in place at Heathrow before 0430, the APF and night noise consultation documents seem to emphasise its ‘voluntary’ nature. This is a concern. Given the severity of impacts, the Mayor is of the view that the second stage consultation must consider placing airport-related night noise (and indeed noise more generally) on a sounder, more legitimate footing, backed up by strengthened measures for monitoring. The Mayor has previously argued that an independent panel would be well placed to oversee noise monitoring and ensure its effectiveness. That remains his view.
17. It is worth noting that there are three airports located in Greater London not covered by this consultation, but which are pertinent to the Mayor’s concern for minimising the impacts of night noise on Londoners. Two of these airports are operational within the 2300-0700 night period. The three airports are set out in Figure 1 below.

**Figure 1: Operating hours and other London airports**

<b>Airport</b>	<b>No night flights</b>	<b>Other restrictions</b>
London City	2200-0630	0630-0659: Limited to 6 movements
Biggin Hill	2200-0630	0630-0730 and 2130-2200: with prior permission
RAF Northolt	2000-0800	n/a

**Q2: Do you have any comments on our assessment of the extent to which the current objectives have been met?**

**Q3: Do you have any views on how these objectives should change in the next night noise regime?**

18. The Mayor fully supports the principle of establishing clear objectives with respect to the environmental and noise abatement at individual airports. He notes the assessment of current performance, but believes that the next night noise regime should set objectives which include explicit time frames for reducing noise impacts on local communities. The benefits of reduced noise through improved aircraft technology should be transferred to affected communities as soon as they become available.
19. The opportunities created by new aircraft technology should also be reflected in more stretching night movement quotas, and airports should be required to show a commitment to regular night noise monitoring. This should be supported by transparent reporting of results, with data used to validate the noise modelling outputs on which noise contour mapping is based. There should be independent verification that there are enough monitors, and that they are in the right places.
20. While the Civil Aviation Authority (CAA) and its Environmental Research and Consultancy Department (ERCD) calculate noise exposure for the three main London airports, there are concerns that the degree of monitoring and measurement of noise is not sufficient – in terms of the quality and extent of monitoring – to analyse accurately the negative noise impacts on local communities.

# Chapter 3. The Current Night Noise Regime

## 3.1. The operation of the existing regime

**Q4: Do you have any views on whether noise quotas and movement limits should apply only to the existing night quota period or to a different time period?**

- 21. The standard 8 hour night period applied for different types of noise (including road and rail traffic) is 2300-0700; this is in line with World Health Organisation guidelines and the EU Environmental Noise Directive and, as such, is used for most official purposes in the UK. The exception is for aviation, where, in response to strong lobbying by the aviation industry some decades ago, a compromise night quota count period of 2330-0600 was determined by Government.
- 22. Figure 2 below sets out overview of the noise regime at Heathrow.

**Figure 2: Heathrow noise regime in context of different night periods**

Time	Night period: Standard	Night quota count period: UK aviation	Quasi-curfew period: LHR	Movements at Heathrow
2230	<b>2300-0700</b>	<b>2330-0600</b>	<b>2330-0430</b>	<b>No movements scheduled as per voluntary agreement (in practice some flights do arrive and depart during this period)</b>
2300				
2330				
0000				
0030				
0100				
0130				
0200				
0230				
0300				
0330				
0400				
0430				
0500				
0530				
0600				
0630				<b>16 movements per night on average</b>
0700				<b>60+ movements per night on average</b>

- 23. Compromising the standard night noise period definition in this way does not change the fact that people sleep at certain times. UK data from the Office for

National Statistics suggests that 90% of people are sleeping at 0600 and around two-thirds are still asleep at 0700. This suggests that, even accounting for shift workers, the majority of local residents are likely to be sleeping when the night noise period at Heathrow ceases at 0600.

24. Our aspiration must be to apply 2300-0700 as the aviation night period – to do otherwise is to deny Londoners their right to a good night’s sleep.
25. If the period from 0600 to 0700 were to continue to be treated differently – recognising the importance of longhaul arrivals during this time – it would only be acceptable as part of a transition period to a new hub airport, after which all night flying around Heathrow (i.e. before 0700) would be eliminated. This would have to be coupled with even stricter measures between 0600 and 0700 during the transition period than are applicable today.

**Q5: Do you have any new evidence to suggest we should amend or move away from the current QC classification system?**

26. The QC classification system allows for a transparent evaluation of different aircraft and their noise impacts. As such it is fair to both residents and operators and is a useful tool for directly addressing those aircraft which cause the greatest noise disturbance.

**Q6: Do you have any views on the optimum length of the next regime and how this should align with the work of the Airports Commission?**

27. In principle there should be no change to the current regime until the Airports Commission reports in Summer 2015. Local communities, as well as airlines, need stability in terms of future arrangements. Frequent change will bring unwelcome uncertainty to both. Should any proposals from the Airports Commission carry any risk of uncertainty in terms of impacts on local communities, more frequent reviews would be required.

**Q7: Do you have any views on how dispensations have been used?**

28. Dispensations can arise for a range of reasons. Some, such as those arising out of emergencies and severe weather conditions are unavoidable. However, by far the largest number of dispensations are due to flight delay, and this is treated by the Government as an operational inevitability at an airport such as Heathrow which is operating at close to full capacity.
29. A dispensation is, by definition, for dealing with unforeseen occurrences; the majority of dispensations at Heathrow are applied for delays; these are a direct

result of its operating at full capacity and in that regard are highly predictable. As such, they stretch considerably the purpose of the dispensations.

**Q8: Do the dispensation guidelines still adequately reflect current operational issues?**

30. The extensive use of dispensations to cover delays need to be addressed, possibly with a tighter interpretation of the rules to force airlines to take steps to reduce reliance on them.
31. Wider use of dispensations – such as to support operational trials – should only be adopted following full public consultation, within clear, unambiguous parameters and with full presentation of the data collected. There should be a strong presumption against the wider use of dispensations.

**Q9: Would you favour adding greater contingency to the seasonal movement limits (within any overall movement cap for the airport) in order to avoid large numbers of dispensations?**

32. Local people are affected by aircraft noise whether the aircraft is permitted as part of an increased contingency or a dispensation; steps should be taken that limit the use of dispensations caused by delays, rather than seeking to normalise them.

**Q10: Do you consider there is still a need to retain the principles of carry-over and overrun? If so, please give reasons why.**

**Q11: If we retain the principles do you think we should change the percentage of movements and noise quota which can be carried over or overrun?**

33. The use of carry-over and overrun erodes the transparency of the setting of limits for movements and noise. It would certainly be inappropriate to allow an increased percentage of movements and noise quotas to be carried over or overrun.
34. A detailed explanation needs to be sought as to why it would not be possible to better correlate the limits more closely to usage.

**Key Message: The standard 8-hour night noise period must apply to Heathrow**

35. Aviation should be brought in line with the 2300-0700 noise period applied near universally in the UK and beyond, helping to reduce the sleep disturbance for thousands of Londoners.
36. If the period 0600-0700 is to continue to be treated differently, this is only acceptable during a transition period until a new hub airport away from populated areas is constructed, ultimately enabling the complete elimination of night movements around Heathrow.

# Chapter 4. The Next Night Noise Regime

## 4.1. Operational and Planning assumptions

**Q12: Do you have any comments on our analysis of fleet and operational trends?**

**Q13: In the absence of any new restrictions, what changes in operations and fleet mix do you expect in the period between now and 2020 (and beyond 2020 if possible)?**

37. The Mayor has no reason to doubt the validity of the assumptions around fleet and operational trends.
38. It is likely that, as the impact of capacity constraints at Heathrow worsen over the coming decade, the airport will see airlines shift towards larger aircraft, to maximise the capacity per slot. Government and regulators will need to be vigilant to ensure this does not have detrimental noise impacts.

**Q14: Please set out how you expect local land use planning policies to impact upon the numbers of people exposed to night noise in the next regime. Please give details of any housing developments planned to take place within the current night noise contours (see Annex B).**

39. According to GLA projections, the population of London is forecast to increase from 8.2m in 2012 to reach 10 million in 2031. This 22% increase over two decades will place significant pressure on London's housing.
40. The Mayor of London is responsible for preparing the London Plan which outlines Londonwide policies to help achieve the Mayor's vision for London. Policy 7.15 'Reducing Noise and Enhancing Soundscape' sets out that the spatial and design policies of the plan will be implemented in order to reduce noise and noise impacts as well as supporting the objectives of the Mayor's Ambient Noise Strategy. It is then the responsibility of London's boroughs to ensure that this is implemented at a local level.
41. While planning policies can endeavour to limit the areas earmarked for new development which would be significantly affected by noise, the pressure for land across London is increasing. It would be highly challenging from both a political and a planning perspective to try to render large swathes of London unable to support further residential growth. The only credible solution is to locate our hub airport capacity away from areas of high population density.

## 4.2. Operational procedures

**Q15: Please provide any information on the feasibility of increasing the angle of descent into Heathrow, Gatwick or Stansted, particularly within the next seven years.**

42. The issues relating to increasing the angle of descent should be noted; in particular, this is not an option for all sizes of aircraft and there are complications from different aircraft using different angles of descent off the same runway. The emissions impacts of such a measure would also need to be carefully examined.
43. Any change would need to be thoroughly trialled for its noise effects.
44. Such measures amount to little more than tinkering with capacity; they do not address the fundamental constraints at Heathrow, which can only be sustainably addressed with a new hub airport location.

**Q16: What are your views on the analysis and conclusions in annex H? Would you favour changing the current pattern of alternation in favour of an easterly preference during the night quota period?**

45. It is paramount that the distribution of night noise is equitable to all the communities around the airport – and that no one community is asked to shoulder a disproportionate amount of noise.
46. Though the current arrangements were designed with this in mind, they have, by not taking account of prevailing winds, ensured that, at night, the airport's runways are used in a westerly direction 72% of the time.
47. The system must be adapted to address this and ensure that, once periods of strong wind are taken into account, there is a more balanced split between easterlies and westerlies.
48. It should be noted that Table 12 in the consultation annex shows those affected by an increase in noise of up to 6dB but only those affected by a decrease in noise of up to 3dB. This could be construed as misleading by understating the number of people who might benefit from a change to current patterns of alternation.
49. Displaced landing thresholds have the potential to provide some reduction in night noise impacts, particularly for those living closest to the airport. Subject to the relevant safety parameters being complied with, this merits pursuing.
50. Though the limited positive impact of such measures is welcome, they are only acceptable as part of the transition to a long-term solution that eliminates night flying around Heathrow altogether.

**Q17: Do you have any views on the costs and benefits of a night-time runway direction preference scheme at Gatwick or Stansted?**

51. This will affect the local communities that live around Gatwick and Stansted who are smaller in population than those around Heathrow. Local authorities around the airports will be best placed to articulate the considerations around the local noise impacts.

**Q18: Please provide any information about the feasibility of using displaced landing thresholds in the next seven years for arrivals from the east at Heathrow and from the north east at Stansted.**

52. No comments to add.

**Q19: Please provide any information about airspace changes or other operational procedures which could mitigate the impact of night noise in the next regime period.**

53. No comments to add.

**Key Message: Equitable distribution of night noise impacts around Heathrow**

54. The distribution of night noise must be equitable to all the communities around the airport. By not taking account of prevailing winds, the current night pattern of alternation leaves the runways operating in a westerly direction 72% of the time.
55. The night time pattern of runway alternation must be adapted to ensure that, once the impact of prevailing winds has been taken into account, the use of the runways at night for easterlies and westerlies is, as a minimum, more balanced. This would mean Londoners were no longer shouldering a disproportionate share of the night noise.

### **4.3. Night quota period**

**Q20: Do you have any comments to make on the figures relating to movement limits and usage?**

56. As raised in answer to questions 10 and 11, a detailed explanation needs to be sought as to why it would not be possible to better ensure the limits correspond more closely to usage.

**Q21. In the absence of any new restrictions, how do you expect demand for movements in the night quota period over the course of the next regime to change?**

57. Demand is likely to increase over time, particularly as the world economy picks up. However, even in the absence of new restrictions, the existing constraints at Heathrow will serve as a limit to demand growth.
58. Over time, however, these limits will also impact economic growth as the ability of businesses in Britain to operate is undermined, which will in turn have a negative impact on demand.

**Q22: Do you have any comments to make on the figures relating to noise quota limits and usage?**

**Q23: Do you agree with our initial assessment of the scope for reducing the noise quota in the next regime without imposing additional costs?**

59. It is welcome that the noise quota points accrued at Heathrow have been reducing over time, implying a lessening of night noise impacts for local communities. However, the continuing under-utilisation of the noise quotas – sometimes by as much as 20 per cent – suggests that the quotas are not fulfilling their primary purpose; namely, they should be serving as an effective limit on – and incentive for decreasing – aircraft noise.
60. Given Heathrow's growth profile in traffic over this period, it would suggest that this trend is primarily driven by airlines' changing fleet mix. If the quota system is to be meaningful, it must reflect this evolution. Ultimately, we must not be afraid to set the pace of change as we encourage more sustainable airline behaviour, and around more challenging timescales.
61. A strategy of reducing the noise quota over time is the right one, but it must be more ambitious in its scale. We should not shy away from a such a strategy because of the risk of imposing limited additional costs on airlines. We would simply be reflecting the noise nuisance externalities that directly result from night-time operations. Moreover, given fleet mix trends, it is likely that such a strategy would, at most, mean airlines bringing forward the date at which they replaced their older, noisier – often less fuel-efficient – fleet with newer, quieter aircraft.

**Q24: Do you have any views on the relative disturbance caused by the noise of an individual aircraft movement against the overall number of movements in the night quota period?**

62. Average aircraft noise is currently measured using an average noise energy indicator such as  $L_{Aeq}$ . However this does not take into account the particular value that individuals attach to the night period or noise peaks from single aircraft noise events (ANEs).
63. Both ANEs and overall aircraft movements cause disturbance to residents surrounding airports. As set out in the ERCD report, ANEs greater than 90 dBA SEL cause 'arousal' for 1 in 30, corresponding to a 'wakening' rate of 1 in 75. This means that where these events occur a large number of residents are being disturbed or woken by night flights.

This does not capture the changes in sleep levels – and thus the quality of sleep – triggered by noise events. Considering the overall number of movements in the night quota period, the WHO considers that the onset of the effects of noise on sleep occurs at an aircraft noise event level of 32 dB  $L_{Amax}$  indoors. This would imply that any aircraft movement is likely to have some impact on residents' sleep.

**Q25: What are your views on the feasibility of a QC/8 and QC/16 operational ban in the night period? Please set out the likely implications of such a ban and the associated costs and benefits.**

64. Given that QC/8 and QC/16 aircraft movements have been all but phased out, there is no reason not to proceed with a complete operational ban on QC/8 and Q/16 aircraft arrivals and departures.

**Q26: How many QC/4 aircraft do you expect to be in operation over the next seven years during the night quota period? Is the downward trend at Heathrow expected to continue?**

**Q27: What are your views on the feasibility of a QC/4 operational ban in the night quota period at any or all of the three airports? Please set out the likely implications of such a ban and the associated costs and benefits.**

**Q28: Are there more cost-effective alternative measures (such as penalties) to reduce the number of unscheduled QC/4 operations during the night quota period?**

**Q29: What are your views on the feasibility of an operational ban of QC/4 aircraft at any or all of the three airports during the shoulder periods? Please set out the likely implications of such a ban and the associated costs and benefits.**

65. It is clear from the data that QC/4 aircraft movements only play a small part of night time movements at Heathrow – and are limited to longhaul departures by 747-400s, delayed from their scheduled departure time before 2330 (747-400s being rated QC/4 for departure and QC/2 for arrival). Once the queen of the skies, today's airline fleet replacement strategies are bringing about the gradual phasing out of these aircraft; Singapore Airlines, the launch carrier of the A380, flew its last ever 747-400 over a year ago. As such, these QC/4 movements should decrease over time.
66. The 747-400s are by far the noisiest aircraft departures at Heathrow during night hours. While they were once unique in terms of the range and capacity, today airlines have several alternative options, including the 777-300ER and the A380, as well as the direct replacement for the 747-400, the 747-8; all of these aircraft have a lower QC value on both departure and arrival.
67. If continued night movements at Heathrow are to be tolerated for a limited period until a new hub airport is opened, all reasonable steps must be taken to minimise the night noise impacts in the interim. As such, given there are reasonable alternatives, an operational ban on QC/4 movements should be introduced. This could be phased, initially covering 2330-0600 and subsequently 2300-0700.
68. However, it is clear that if one is to make a significant improvement in night flight noise, one must address the arrivals, which constitute 92% of night movements. Again, the 747-400 stands out, as the only arriving aircraft type at QC/2 – yet it constitutes 45% of night movements.
69. Given the existence of satisfactory alternatives – and indeed, the overall phasing out of the 747-400 from airline fleets, we further propose the introduction of complete operational ban on QC/2 night arrival movements. An appropriate phasing approach will give airlines time to adjust and hasten their fleet replacement schedule and/or switch quieter planes to their London routes.

70. In the future, those airlines who wish to continue to fly a 747-400 into Heathrow will be able to do so, but not between 2300 and 0700 – helping substantially reduce the noise impacts on sleeping Londoners.
71. It should be noted that, should bans of specific QC movements be implemented, the total night time quota should also be reduced correspondingly, lest the ban pave the way for a significant increase in lower level QC movements.
72. In general, the policy around night-time operational bans of aircraft based on their QC value should seek to lead rather than simply lag industry developments. It is simply not acceptable to say that the pattern of aircraft usage is as it is, when certain interventions, broadly in line with industry trends, could deliver substantial benefits for local communities.

**Key Message: A more stringent night time ban of the noisiest aircraft is needed**

73. If continued night movements at Heathrow are to be tolerated for a limited period until a new hub airport is opened, all reasonable steps must be taken to minimise the night noise impacts in the interim.
74. Every reasonable step to reduce the night noise impacts for local communities should be pursued. A complete operational ban on QC/4 aircraft and on arrivals of QC/2 aircraft between 2300 and 0700 would have a material positive impact.
75. Given fleet replacement trends, this is a realistic measure and one that could be phased in, to facilitate compliance by the airlines. At the same time, the total night time quota would need to be reduced accordingly.

#### **4.4. Guaranteed respite period**

**Q30: What is the rationale for operating services at precise times during the night quota period (as they do now)?**

76. Most, if not all, passenger flights scheduled for the 2330-0600 period are arrivals from longhaul destinations between 0430 and 0600, that result primarily from passenger preference as well as airline's operational considerations (including operational restrictions at the departure airport).

**Q31: What is the scope for introducing a respite period at Gatwick or Stansted? Please set out the associated costs and benefits.**

77. This will affect the local communities, albeit smaller in number, that live around Gatwick and Stansted. Local authorities around the airports will be best placed to articulate the considerations around the local noise impacts. But as set out below, the benefits of a night respite period that is anything less than a full eight hours are not clear.

**Q32: What is the feasibility of making Heathrow's voluntary curfew mandatory?**

**Q33: If you favour a guaranteed respite period, what would be the minimum period which you would consider to be worthwhile?**

**Q34: What are your views on the principle of trading off a complete restriction on movements in one part of the current night quota period against an increase in flights in another part of the night quota period?**

78. A period permanently free from aircraft noise would be welcomed by residents – the longer the better – and were this to be backed by statute, this would provide added reassurance to local communities.
79. However, were the enshrinement and/or extension of the night respite period be used to justify an increase at other times during the night period, this would be unacceptable and mark an abuse of the respite concept.
80. Respite periods during the daytime are valued by local residents because they allow them to modify their behaviour according to noise patterns – for example helping a pensioner decide when to do the gardening.
81. The same logic does not apply at night, when the scope for modifying behaviour to fit with a respite/non-respite schedule is limited. The majority of people have only one activity they wish to undertake, namely sleep, for the entire 8 hours.
82. In principle, the Mayor is clear that there should be an end to all night flights at Heathrow, between 2300 and 0700, to allow locals undisturbed sleep. With a strategy in place for a new hub airport which would achieve this, a transition period at Heathrow could be deemed acceptable, on condition of no increase in night noise impacts. As such, any suggestion of an increase in movements in any part of the night quota period could not be tolerated.

**Q35: What are your views on the possibility of fewer unscheduled night flights arising from an increase in daytime arrivals 'out of alternation' or vice versa?**

**Q36: What value do you place on day time respite compared with relief from noise in the night quota period?**

83. This is a trade-off between two wholly unpalatable options, namely eroding relief from flight noise impacts during the day or during the night. Both have significant health impacts for hundreds of thousands of Londoners and the suggestion that one respite period may be compromised for the other is wholly unacceptable.

**Key Message: Reductions in noise cannot be conditional on increases at other times**

84. The local communities around Heathrow value each and every period when currently the intensity of flights is reduced and the noise impacts are lessened.

85. It would be objectionable to offer to trade fewer flights in one part of the night quota period for more flights at another time – whether another part of the night or during the daytime respite period.

86. The Mayor is adamant that there should be a reduction in flights at Heathrow across all periods – including a complete end to all night flights, between 2300 and 0700. With a strategy in place for a new hub airport which would achieve this, a transition period at Heathrow could be deemed acceptable, on condition of no increase in night noise impacts.

87. Any suggestion of an increase in movements in any part of the night quota period – or by eroding the daytime respite period – could not be tolerated.

#### **4.5. Economic incentives and compensation**

**Q37: Do you have any views on the extent to which landing fees can be used to incentivise the use of quieter aircraft during the night period?**

88. Differential landing fees have a part to play in encouraging airlines to use quieter aircraft as part of a wider package of measures to reduce noise impacts.

89. The consultation document identifies the limited scope for differential landing fees to date, as a direct result of the restrictions of the economic regulatory regime and its imposition of an overall cap on charges. The structuring of this cap should be addressed, in order to allow a more substantial differential in the landing fees to be imposed for noisier aircraft, one which might be better able to shape airline behaviour.

**Q38: Please provide comments and evidence on the extent to which the noise insulation scheme criteria have been met. Where possible please include figures for numbers of properties insulated under the scheme and numbers which are still potentially eligible.**

90. We would expect it to be the responsibility of the airport operator to provide timely, clear information regarding the operation of the noise insulation scheme.

**Q39. Do you have any suggestions for changes to current compensation schemes or for new compensation schemes that might be introduced to help offset the impact of night noise on those exposed to it? For new schemes, please explain the parameters that you would suggest for the scheme and the rationale for choosing those parameters.**

91. The Draft APF indicated that airport compensation schemes must be reasonable and proportionate. The Mayor concluded in his response that the current regime was neither, however the final published APF does not change the noise metric for insulation applied at Heathrow, already amongst the least generous in Europe.
92. Most local communities are affected significantly by noise during both the night and day, and the advantages to the community around Heathrow of having separate night and day schemes is not clear.
93. The Mayor remains concerned that the current regime excludes a significant number of households who are severely affected by noise at Heathrow, and would strongly support a reassessment of airport compensation schemes which must ensure they are indeed reasonable and proportionate. This should be underpinned by a combination of metrics, at the appropriate level, reflecting the impact of ANEs and average noise impacts across both the day and night periods.

**Q40. Do you have any proposals for new or improved economic incentives that could be deployed to incentivise the use of quieter aircraft during the night period?**

94. No comments to add.

# Chapter 5. Costs and benefits of night flying

## 5.1. Direct economic impacts

### **Q41: Is there any other evidence we should consider in assessing the response of airlines and air transport users to changes in the night flights regime?**

95. The Government acknowledges that the behavioural responses of airlines and air transport users is “critical” to assessing the scale of impacts associated with a change in the night time regime. There is some considerable uncertainty in this area, with proposed approaches based typically upon use of a range of potential behavioural responses, reflecting that this is, as described in the consultation material a “challenging aspect of the analysis”. For airline passengers this range might typically include changing time of flight, using alternative airports or not travelling at all. The Mayor acknowledges that the evidence base is not conclusive in this area, however some consideration of the operational impacts of changes of night flying regimes overseas may be helpful in fully understanding the responses of airlines.
96. The recent ban on night flying at Frankfurt – introduced to balance an increase in daytime movements as a result of a new runway – is an example that might be instructive. The move was heavily criticised by Lufthansa, who have stated publicly that they would reconsider major investments at the airport which could be diverted to the airline’s other hubs. They have also cited significant impacts on their freight operations and that scheduled passenger routes have been lost. Any appraisal approach needs to take full account of such connectivity impacts.

### **Q42: Is there any reason why we should not seek to ensure consistency with the Aviation Appraisal Guidance approach to assessing air passenger impacts?**

97. WebTAG – the DfT’s multi-modal guidance on appraising transport projects – was originally designed to address road and later rail schemes. Nonetheless, the Aviation Appraisal Guidance seeks to apply the good practice principles set out in WebTAG more broadly to the aviation context and as such it would seem a sensible starting point to ensure consistency with this guidance. WebTAG provides a well established structure for welfare appraisal, capturing relevant impacts and avoiding the risks of double counting.
98. The consultation document rightly acknowledges that additional detail and approaches are required in some areas to provide suitable quantification of issues associated with night-flights (such as valuation of the impact on passengers of retimed flights).

**Q43: What are your views on how we should assess the impacts on air passengers associated with a change in night flights regime, if we are unable to use the Department's aviation models?**

**Q44: Do you think there is merit in applying the approach employed by CE Delft? If so, do you agree that it is reasonable to assume that business passengers and transfer passengers prefer to arrive on a night flight, if they would choose to do so if one were available? What are your views on what we should assume about terminating passengers' preferred arrival times and about passengers' preferred departure times?**

**Q45: Do you agree that the impacts on passengers who decide not to travel (or become able to travel) as a result of the change in night flights regime could be critical to the balance of costs and benefits?**

**Q46: Are you aware of any evidence that we could use to value the impacts on passengers who decide not to travel or (become able to travel) as a result of the change in night flights regime?**

99. The CE Delft methodology seeks to place a value on the inconvenience experienced by those UK-resident passengers who accepted a rescheduling in the event of a night flight ban at Heathrow. Their approach raises a number of concerns.
100. The overarching concern is that, in focusing on individual passenger preference, they may have lost sight of the bigger issue of route viability. That is to say, the primary economic loss is that a particular service, now operated at a sub-optimal time, ceases to be viable and as such this element of connectivity is lost.
101. What constitutes a sub-optimal time for a longhaul flight is determined by several factors. First and foremost, this is driven by passenger preference – and particularly business passenger preference – and is based around maximising the time available for business engagements: by departing at the end of the business day, by arriving in time for the start of the business day and/or travelling on a 'red eye' service during the night that minimises daytime wasted that could be used for business engagements.
102. While it is true that leisure passenger preferences will not necessarily be aligned with those of business travellers, to disaggregate them as CE Delft do is to fly in the face of the standard aviation business model – that both are required to sustain a longhaul service. That flight timings tend to more closely match business travellers' needs likely reflects their higher time sensitivity.
103. The particular value of longhaul night arrivals is demonstrated in the example of the Hong Kong-London Heathrow route, as per Figure 3 below.

**Figure 3: Hong Kong-London Heathrow, Summer 2013**

Airline	Flight Number	Dep HKG	Arr LHR
British Airways	BA 026	2315	<b>0450</b>
Virgin Atlantic	VS 201	2325	<b>0525</b>
British Airways	BA 028	2345	<b>0540</b>
Cathay Pacific	CX 521	2355	<b>0540</b>
Cathay Pacific	CX 255	0035	<b>0620</b>
Cathay Pacific	CX 257	1005	1600
Cathay Pacific	CX 253	1440	2030

104. It is striking that of the 7 flights a day from Hong Kong to Heathrow, five flights arrive between 0430 and 0630. The main carrier on the route, Cathay Pacific is the only airline with flights arriving at Heathrow outside this window; but it operates as many arrivals in those 2 hours as it does for the rest of the day. On a highly competitive route such as this, the evidence points to a very strong passenger preference to fly at this time.

105. Airline operational requirements will also be a factor in determining the optimal flight schedule. However, the length of time an airline will sometimes leave an aircraft sitting on tarmac to ensure a particular flight time, in spite of the implications for fleet utilisation, suggest this is a secondary factor in determining the flight schedule; the London Heathrow-Sydney route is a case in point as demonstrated in Figure 4 below.

**Figure 4: London Heathrow-Sydney v.v. schedules, Summer 2013**

	Dep LHR	Arr SYD	Dep SYD	Arr LHR	Dep LHR	Arr SYD
British Airways	2115	<b>0510</b>	<b>1540</b>	0530		
Virgin Atlantic	2130	<b>0510</b>	<b>1425</b>	0525		
Qantas			1605	<b>0635</b>	<b>2230</b>	0635

106. In the case of the British carriers, their aircraft are lying idle for 10 hours in Sydney, while Qantas has its aircraft waiting 16 hours between flights at Heathrow. Operationally, this constitutes very poor aircraft utilisation and could only be justified if it was to enable an optimal schedule for passengers. This is reinforced by the fact that all three carriers are departing within two hours of each other in both directions (and even though each airline is serving a different market en route – Singapore, Hong Kong or Dubai).

107. Early morning arrivals in London are particularly important for several longhaul routes in both important established and emerging markets, including the Far East and North America. Figure 5 below sets out the time window for departures to

London from certain key cities is a complete ban on longhaul arrivals between 2300 and 0700 was in place at Heathrow.

**Figure 5: Impact on longhaul departure times from ban on early LHR arrivals**

Key longhaul origin point	Flight duration	Time difference	Period unavailable for local departures (if no LHR arrivals 2300-0700)
NE Asia (Hong Kong)	13hr	+8	1800-0200
US West Coast (Los Angeles)	10hr	-8	0500-1300
Australia (Sydney)	24hr	+11	1000-2200
Africa (Johannesburg)	11hr	+2	1400-2200
SE Asia (Singapore)	14hr	+8	1700-0100

108. If there is a strong passenger preference to fly at these times – and Heathrow cannot meet that preference – then those passengers will quite likely switch to an alternative foreign hub airport without such restrictions, while London-bound passengers will have a longer journey time from having to change planes.
109. The loss of demand this implies would risk undermining the profitability – and potentially the viability – of the route, and so the passenger and freight connectivity that such a route brings. This connectivity loss is an essential economic impact and one which is not captured in the CE Delft methodology. The impacts of night flying restrictions should be understood both for current destinations served from European hubs and those routes which might emerge as viable in the future in line with global economic developments.
110. Frankfurt-Cape Town is an example of a route being lost due to night restrictions. Lufthansa cancelled the route and switched it to Munich because it says it could not reliably ensure the flight’s departure each night before the start of the curfew period.
111. As such, the switching of passengers to other, non-UK, airports, or choosing not to fly at all to/from the UK constitutes a very important consideration in assessing the economic impact of night flying restrictions, one not assessed by the CE Delft approach.
112. The CE Delft methodology is also flawed in that it excludes demand from non-UK residents. The CE Delft inability to value freight impacts and their differing treatment of payments to UK/foreign airlines also raise concerns.

**Q47: Do you think that the method used by Oxford Economics (2011) to assess the impacts on productivity of changes in business usage of aviation (the approach is described in paragraphs J22-23 of Annex J) would adequately take account of the impact on air freight service users of changes in the current night flights regime?**

**Q48: Do you think that, were we to employ the method used by Oxford Economics (2011) to assess the impacts of changes in business usage of aviation on UK productivity (the approach is described in paragraphs J22-23 of Annex J), we would need to isolate the impact on business air passengers in our assessment of air passenger impacts in order to avoid double-counting of business air passenger impacts?**

**Q49: Is there any other evidence or information that we should consider in assessing the impact on air freight service users of a change in the night flights regime?**

113. Air services are key to the transport of freight, which in turn is vital to supporting the UK economy. Air freight accounted for 0.5% of the UK's international goods movements by volume – but 25% by value (in 2005). For UK trade with non-EU countries, that figure was 35%, while for UK manufactured exports outside the EU, air freight accounted for 55%. The annual import of components for just-in-time manufacturing in the UK was valued at £19.5bn.
114. Several elements of the freight market rely on overnight movements, including just-in-time deliveries of high-value goods. Were restrictions to limit the ability to offer such night movements, such goods would require a longer journey via other European airports – or the competitive disadvantage would be such the business was lost to a location which could support just-in-time deliveries.
115. As such, the concern is that the approach outlined for capturing the economic benefits specifically of night freight flights would seem to be too crude and does not factor in the very specific challenges entailed or capture the freight-related productivity impacts.
116. The importance of being able to operate night freighter flights from the hub airport – underpinned by daytime passenger bellyhold capacity – should not be underestimated. Following the ban on night movements at Frankfurt, Lufthansa had moved its night freighter services to Cologne; but the airline described this as a 'flop' precisely because it prevented easy transfers between its freighter and passenger bellyhold capacity.

**Q50: Is there any reason why we should not seek to ensure consistency with the Aviation Appraisal Guidance approach to assessing airline and airport impacts?**

117. This issue is addressed in response to question 42.

**Q51: What are your views on how we should assess the impacts on profits, if we are unable to use the Department's aviation models?**

118. No comments to add.

**Q52: Do you agree that there is merit in our applying a similar approach to that employed by Oxford Economics to estimate the economic value of night flights at Heathrow? If so, are you able to provide any evidence of how much freight is carried on night flights at the designated airports? What factors should we consider in assessing the applicability of the available profits data to night flights at the designated airports?**

119. For the reasons stated in answer to questions 43-46, the impact on the viability of routes – together with the erosion of yield if flying at less desirable time for passengers – will have an impact on airline revenue passenger kilometres (RPKs) and thus on airline profits. Further to the issues raised in response to questions 47-49, similar issues arise with regard to freight. As such, an effective appraisal needs to take this dynamic into account or it will underestimate the impacts.

**Q53: Is there any other evidence we should consider in assessing the impacts of a change in the night flights regime on airlines and airports?**

120. This issue is addressed in response to question 41.

**Key Message: Night flights – both passenger and freight – are key for connectivity**

121. The longhaul passenger flights that arrive early in the morning do so primarily because of strong passenger preference. Without the ability to land at this time, these routes – and many of the passengers – would switch to other European hubs, undermining UK connectivity.

122. Many freighter movements into a hub airport also prefer night operation, to support the demand for overnight and just-in-time deliveries; the freight carried can support both freighter and daytime passenger (bellyhold) movements. Constraints on night freight movements erode UK connectivity and the ability of UK companies to trade.

123. Both passenger and freighter night flights by enhancing UK connectivity are valuable in supporting economic growth and should be allowed to develop without constraint. This is only achievable at a new hub airport away from population centres, if it is not to result in ever worsening night noise impacts.

## 5.2. Quantifying Noise and air quality impacts

**Q54: Do you agree that the approach proposed by the Civil Aviation Authority (CAA) for estimating the cost of sleep disturbance from aircraft noise reflects the available evidence? If not, how do you think it should be changed?**

124. The CAA approach reflects the level and depth of evidence which is available in an area where quantification of impacts is difficult. The conclusions about the levels at which severe health impacts are triggered is clear: above 55 dB  $L_{\text{night}}$  there is an increased risk of heart attacks while above 45 dB  $L_{\text{night}}$  there is an increased risk of high blood pressure.

125. But the approach to monetising these health impacts must be treated with caution. The severity of these health impacts mean that we cannot simply trade them off against the defined economic benefits. Our objective must be to eliminate the sleep disturbance from aircraft noise for Londoners – and to secure the economic benefits – and this can only be achieved in a new hub location.

**Q55: Is there any other evidence, not considered by the CAA in their literature review, which we should consider in assessing the noise impacts of a change in the night flights regime?**

126. The Mayor believes that noise impacts should be given particular weight when balanced against other environmental factors affecting communities living near airports. Local communities are acutely aware of the noise they experience and from analysis of community consultations and complaint databases they will always rate noise as their number one concern. Not only does noise affect quality of life, but there is also strong evidence that it can affect learning and general health and wellbeing.

127. The cost to human health of sleep disturbance associated with night flights is substantial. While aircraft noise is measured at an average level, each and every flight impacts upon those affected, even if they are not woken. Disrupted sleep is proven to have a wide range of adverse impacts on health and Heathrow is an airport surrounded by hundreds of thousands of homes.

128. Heathrow airport is already responsible for more than a quarter of all those affected by aircraft noise above 55 dB  $L_{\text{den}}$  in Europe – some 766,100 people. As such, Heathrow accounts for a substantial proportion of the 160,000 disability-

adjusted life years (DALYs) lost across Europe each year by individuals who are 'highly sleep disturbed' and 'highly annoyed' by aircraft noise. The Mayor is particularly concerned about recent studies that have linked aircraft noise to significantly reduced reading comprehension and memory recall in school children.

129. The impacts of aircraft noise on health and education are also of particular concern with regards to areas of social deprivation. The Mayor is keen to understand the extent to which noise impacts obstruct social inclusion objectives and would expect due regard be paid to this, drawing on social deprivation indices.

**Q56: Do you agree that we should ensure that the method used to assess air quality impacts should be proportionate to the proposals under consideration?**

**Q57: Is there any other evidence we should consider in assessing the air quality impacts of changes in the night flights regime?**

130. The Mayor is concerned that any assessment of the air quality impacts of changes in the night flying regime should take full account of all health impacts. An approach proportionate to the scale of the impact is welcome. NO<sub>2</sub> is a critical pollutant and concentrations impact upon the health of local residents. The impact of night flights could be disproportionate in NO<sub>2</sub> terms, both in terms of the effect of different chemistry at night on NO<sub>2</sub> formation and in terms of the reduced emissions from other sources leaving aviation as a more material source of NO<sub>2</sub> at that time.
131. Current methods, including WebTAG unit 3.3.3., do not adequately allow for these NO<sub>2</sub> effects, nor does the approach suggested use the local air quality methods in WebTAG. The proposed approach's use only of NO<sub>x</sub> emissions will not reflect any issues with NO<sub>2</sub> and will not address statutory bodies' concerns on the effects of exceedances. Monetisation of NO<sub>x</sub> results in a small value which in no way reflects the scale of monetary value associated with avoidance of NO<sub>2</sub> health impacts. WebTAG use would not allow a diurnal profile of air quality (to look at NO<sub>2</sub> formation rates) and so would not, for example, allow determination of whether any increase in night flights relieves daytime pressures on NO<sub>2</sub> formation.
132. The technical panel report from Project for the Sustainable Development of Heathrow (PSDH), chapter 3, suggests that the implied use of certification data will not reflect actual emissions and clearly shows that a range of adjustments and factors need to be applied to use such data realistically at specific airports.
133. The Mayor is concerned that the approach proposed carries an unacceptable risk that it will not take adequate account of the full health impacts on local communities changes in local air quality.

**Q58: Do you agree with our proposed approach? Is there any evidence on non-CO<sub>2</sub> climate change impacts we should consider?**

134. The methodological approach on climate change impacts set out in the consultation document would appear to be sound. Any assessment of non-CO<sub>2</sub> equivalent emissions should either be considered qualitatively or via a sensitivity test given the current levels of uncertainty.

**Key Message: The noise and air quality impacts of night flying are severe**

135. The cost to human health of night aviation noise is grave. Sleep disturbance can lead to increased risk of high blood pressure and heart attacks. NO<sub>2</sub> is a critical pollutant whose impact may be heightened during the night period. Changes in the night flying regime must take full account of these health impacts.

136. In principle, the Mayor is clear that the local communities around Heathrow should no longer have to suffer these health impacts associated with night flying. This could be achieved with the construction of a new hub airport away from populated areas.

### 5.3. Public account impacts

**Q59: Is there any reason why we should not seek to ensure consistency with the Aviation Appraisal Guidance approach to assessing public accounts impacts?**

137. This issue is addressed in response to question 42.

**Q60: What are your views on how we should assess the impacts on the public accounts, if we are unable to use the Department's aviation models?**

**Q61: Do you agree that there is merit in our applying a similar approach to that employed by Oxford Economics to estimate the impact on APD revenues?**

138. This is a reasonable approach, provided that the operational impact on airlines, and consequently their behaviour in the market, can be adequately reflected.

**Q62: Do you agree that the impact of any change in the night flights regime is unlikely to have a significant impact on employment, and therefore any impact on employment taxes will be minimal?**

139. Given the scale of operations at the relevant airports, it is unlikely that there will be a significant impact on employment but this is at least partly dependent on what is assumed to be the impact on traffic. If significant volumes were to be lost completely then there could be some impact on employment.

**Q63: Is there any further evidence we should consider in attempting to assess the indirect impact of a change in the night flights regime on indirect taxation revenue across the rest of the economy?**

140. No comments to add.

#### **5.4. Wider Economic impacts**

**Q64: What are your views on our employing a similar approach to that employed by Oxford Economics and Optimal Economics in assessing the impact of a change in the regime on UK productivity? Do you agree that if we were to employ this approach there would need to make adjustments to avoid double counting the benefits to business passengers and freight service users?**

141. The connectivity impacts of night flights, set out above in the response to questions 43-46, are significant. With routes and frequencies potentially unviable if not allowed to operate in the night period, night flights directly support UK connectivity which in turn supports UK productivity by maximising access to markets globally, for passengers and freight.

142. Although Oxford Economics have been able to identify a statistical relationship between business aviation usage and productivity, isolating the unambiguous causal relationship is difficult, thanks to the influence of other factors on both and the potential for reverse causality (i.e. whereby increased productivity results in increased aviation).

143. An alternative approach for estimating wider productivity impacts which might be considered is that adopted in WebTAG for domestic schemes. This would involve identifying productivity impacts on a bottom up basis, identifying a clear causal link between the productivity impact and the changes to the night flight regime and clear evidence that the effect is additional to the business user benefits captured through the WebTAG appraisal (see also answer to questions 47 & 48).

**Q65: Is there any further evidence we should consider in attempting to assess the impact of a change in the night flights regime on UK productivity?**

144. No comments to add.

**Q66: Do you agree with our proposal to assess the impact of a change in the night flights regime on tourism qualitatively? If not, why not, and what would you suggest as an alternative?**

145. The quality of connectivity has an important role in supporting tourism; hub airport connectivity has a particularly key role in enabling inbound tourism from longhaul destinations, including those such as China with a high spend per visitor per visit (£1,690). It is important to recognise that night flights restrictions would have a disproportionate impact on such tourism markets.

Nonetheless, the potential impact on tourism is highly complex and it remains difficult to estimate welfare impacts effectively. As such, it might be that the impact on tourism will need to be assessed qualitatively, albeit subject to further research.

**Q67: Is there any further evidence we should consider in attempting to assess the impact of a change in the night flights regime on UK productivity?**

146. This issue is addressed in response to question 65.

**Q68: Do you agree with our proposed approach to considering the potential impact of a change in the night flights regime on UK employment? If not, why not, and what would you suggest as an alternative?**

147. The connectivity impacts of night flights, set out above in the response to questions 43-46, are significant, supporting growth and employment.

148. Without more research, it is possibly premature to assume that net impact on employment would be limited, given the increased economic and trading opportunities that enhanced connectivity to key business destinations around the world can bring.

**Q69: Is there any further evidence we should consider in attempting to assess the impact of a change in the night flights regime on UK employment?**

149. No comments to add.

**Q70: Are there any other impacts, not considered above, that we should consider in assessing the impacts of a change in the night flights regime (e.g. impacts related to the way people travel to and from the airport)? If so, what evidence should we consider in assessing these impacts?**

150. Passenger and freight movements at night will give rise to a demand for night time surface access movements. Typically, public transport provision at night dictates that disproportionate use is made of private cars and taxis for access to the airport. Though smaller relative to the impacts of the aircraft movements themselves, the noise and air quality impacts of these flows are non-trivial and should be borne in mind.
151. The Mayor, however, notes that a new airport location, built from scratch could be designed in conjunction with its transport infrastructure provision, to ensure sustainable night time surface access, with rail and bus infrastructure optimised for night operation. This would help minimise the environmental impact.

**Key Message: There is no trade-off between economic benefits and noise impacts**

152. Night flights deliver considerable economic benefits, both in terms of longhaul passenger arrivals and night time freighter movements. Together, they boost UK connectivity and support our economic growth and prosperity.
153. However, calculating these benefits of night flights is not the first step in striking a compromise between economic benefits and noise impacts. We must seek both to maximise the economic benefits of night operations – and eliminate the harmful night noise impacts on local communities around Heathrow, between 2300 and 0700. This can only be credibly achieved through a new hub airport.
154. With a strategy in place for construction of a new hub airport at a different location, a transition period at Heathrow could be deemed acceptable, on condition that there was absolutely no increase in night flying over current levels.

# Chapter 6. Conclusions

## Night flights at Heathrow result in severe impacts for thousands of Londoners

155. The cost to human health of sleep disturbance associated with night flights is substantial. While aircraft noise is measured at an average level, each and every flight impacts upon those affected, even if they are not woken. Disrupted sleep is proven to have a wide range of adverse impacts on health and Heathrow is a suburban airport, surrounded by hundreds of thousands of homes. Heathrow airport is already responsible for more than a quarter of all those affected by aircraft noise in Europe – some 766,100 people. As such, Heathrow accounts for a substantial proportion of the 160,000 disability-adjusted life years (DALYs) lost across Europe each year by individuals who are ‘highly sleep disturbed’ and ‘highly annoyed’ by aircraft noise. Recent studies that have linked aircraft noise to significantly reduced reading comprehension and memory recall in school children only serve to heighten concerns.
156. The Mayor would also like to draw attention to the definition of the ‘night’ period. The Government’s recently published APF acknowledges that the eight hour night period for measuring night noise is 2300 to 0700; this is the standard used for other official purposes and is in line with WHO and EU guidelines. However, at Heathrow, the night ‘quota period’ only runs from 2330 to 0600. The 60+ flights that freely use the airport every morning between 0600 and 0700 are doing so while people under the flightpaths are wishing to sleep.

## Night restrictions limit airline flexibility and attractiveness to passengers and have an overall negative impact on connectivity to and from the UK

157. A variety of factors determine the optimal schedule for a longhaul flight, not least the journey time and time difference, and how these interact with passenger preference and airlines operational requirements. For example, there are 7 flights a day from Hong Kong to Heathrow on 3 airlines; of these 7 flights, five arrive at Heathrow between 0430 and 0630 in the morning. Early morning arrivals in London are particularly important for several longhaul routes in both important established and emerging markets, including the Far East and North America. To further restrict them in the future risks undermining the profitability – and potentially the viability – of the routes; this is particularly so if European rivals are free to receive flights at the most optimal times.
158. Only an airport located away from populated areas can offer the requisite degree of operational flexibility that would enable the connectivity benefits of night flights to be maximised, without disrupting the sleep of hundreds of thousands of residents. Heathrow simply cannot offer these benefits because of its proximity to residential areas.

## **Night flights in the right location, support freight activity which is valuable to the UK economy**

159. Air freight plays a vital role for the UK economy, accounting for 25 per cent of goods moved by value, 35 per cent of UK trade with outside the EU and 55 per cent of the value of UK manufactured exports to non-EU countries. Heathrow alone accounts for a quarter of the UK's non-EU trade by value.
160. Night flights have an important part to play by optimising the UK's access to global supply chains, particularly for just-in-time and express deliveries. Many dedicated freighter routes also benefit from the connections with passenger flights carrying bellyhold flight departing and arriving during the day. Freight thus requires an effective hub airport – with the capacity to provide a wide range of longhaul passenger flights during the day – but without large populations in close proximity that would require restricting night-time freighter operations.
161. The added benefits of freight connectivity that arise through a hub airport cannot be fully realised at Heathrow because of the necessary night flight restrictions. A new hub airport that is far less restricted in this way could be developed as a significant freight and logistics hub for the UK.

## **The night noise impacts on Londoners caused by Heathrow must not be allowed to worsen**

162. The economic need for night flights cannot be used to excuse putting the health of hundreds of thousands of people at risk. Improvements in aircraft technology may make aircraft quieter, but we cannot pretend that a jumbo jet will ever be able to tiptoe into Heathrow. It is imperative that the impacts of aviation noise do not worsen.
163. Every reasonable step to reduce the night noise impacts for local communities should be pursued. Phasing in a complete operational ban on QC/4 aircraft movements and on QC/2 aircraft arrivals between 2300 and 0700 would have a material positive impact. The night-time pattern of runway alternation must be adapted to ensure that it takes into account prevailing winds and is more balanced – so that Londoners are no longer shouldering a disproportionate share of night noise.
164. Local communities around Heathrow value each and every period when currently the intensity of flights is reduced and the noise impacts are lessened. It would be unacceptable to trade fewer flights in one part of the night quota period for more flights at another time – whether another part of the night or during the daytime respite period.
165. More work needs to be done to ensure we are using the right noise metrics, ones that accurately reflect the exposure of people to noise and its potential impacts on

their health. Sticking with the current measure, as your new APF does, simply because it is the one that we have used for years, is just not good enough.

**A new hub airport located to allow night flights without unacceptable noise impacts on local people, could maximise economic benefits for the UK**

166. Destinations that will be vital to the UK's future economic success – be they the US, China or South East Asia – require early morning flight arrivals in London to meet the needs of passengers and airlines alike. If the UK is to maintain and develop such destinations and compete with its European rivals to secure these services, access to night-time slots at the right airport will be essential.
167. Moreover, unconstrained 24-hour operations could enable the UK to establish a world-class logistics cluster which transforms the way we do business and handle goods here in the UK, and the appeal of doing so.
168. But these objectives cannot be strived for without any regard to their potential social and health costs. Such benefits cannot be realised at Heathrow because of the significant noise impact on hundreds of thousands of local people that would occur.
169. With a strategy in place for construction of a new hub airport at a different location, a transition period at Heathrow could be deemed acceptable, on condition that there was absolutely no increase in night flying over current levels.
170. But, ultimately, there must be an end to all night flying at Heathrow, between 2300 and 0700, when most people are sleeping.