Richmond Heathrow Campaign



Night Flights

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Presentation to NACF Wednesday 29 November 2023

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Heathrow Night Flight Regime

Current and Next Regime 2025 - 2030

Current and Next Regime 2025 - 2030

October		Regime	Proposed Changes	Unchanged
2017 - 2022	5yrs	Previous Regime		
2022 - 2025	3yrs	Current Regime (initial 2yrs extended to 3yrs)	QC4 (e.g. 747-400) Night Quota Period ban on scheduled extended to unscheduled	Night Quota Period Flights Quota Count Unscheduled flights Time-shift from night to day
2025 - 2030	5yrs	DfT Proposals & Consultation 2024	?	?

The DfT decided in July 2021 not to adopt any proposals for the 2022/25 Regime that had been made by communities and others in response to 2 consultations in 2021 on the grounds that the industry needed to recover from Covid and more evidence was needed on night flight health impact costs and economic benefits. Communities found this deferral and then a 1 yr extension deeply disappointing.

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Heathrow Noise Context

Metrics
Noise Contour
Population
Longitudinal Noise 2006-2023

Metrics

	Day-time 0700-2300	Night-time 2300-0700
Adverse Effect Level	dB LAeq 16h	dB Laeq 8h
LOAEL – lowest observed	>51	>45
SOAEL – significant observed	>63	>54
UAEL - unacceptable	>71	>66
WHO Guidance 2018	>45	>40

Additional Noise Metrics needed include N60 8-hour

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Noise Contour

- The outer contour is the 45dB LOAEL
- 40dB WHO Guidance would be much bigger
- N60 8-hour would be much bigger

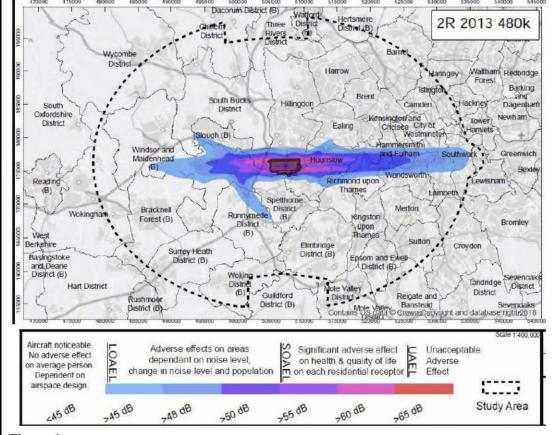


Figure 1 Heathrow Night Flight Contours 8 hour LAeq 2013. Source Heathrow Master Plan August 2019

Population

 40dbA WHO contour is estimated to impact 2.5 million people

Heathrow Night Noise 2018-19

LAeq 8hr night 23:00-07:00

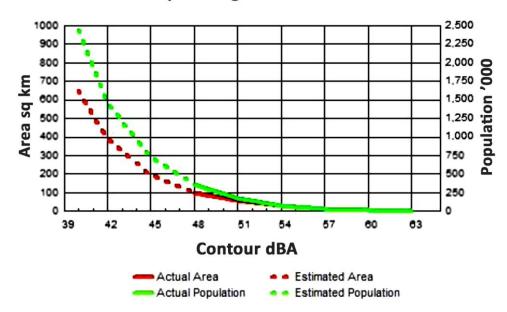


Figure 2 Source: Actuals-DfT consultation Annex G; RHC Estimates-Doubling of area for 3dB reduction and uniform population density

Longitudinal Noise 2006-2023

Over the last 16 years,

- Size of population impacted by 50dbA Lnight noise has not improved
- Population impacted by N60 8-hour noise has increased by 33%

Heathrow 50 dBA Lnight Contour. Source 2024/28 NAP

	2006	2016	2019	Predicted
	Actual	Actual	Actual	2023 NAP 2019-23
Area Km²	84.4	74.0	72.2	70.4
Population	207,200	221,200	228,500	207,500

Heathrow N60 8 hr Contour N>10. Source ERCD 2001 p54

	2006	2019	
	Actual	Actual	
Area Km²	184.4	207.6	
Population	837,200	1,119,700	

UK Noise Policy, Guidance and Evidence

Noise Objective
Noise Objective - Concerns
Dispensation
Outstanding Actions and Evidence

Noise Objective

UK Noise Policy, Guidance and Evidence - NOISE OBJECTIVE (DfT Night-time noise abatement consultation May 2023)

- 2022 2025 Noise Objective.
 - "Limit or reduce the number of people significantly affected by aircraft noise at night, including through encouraging the use of quieter aircraft, while maintaining the existing benefits of night flights."
- 2025 2030 DfT Proposed Noise Objective.
 - "Whilst supporting sustainable growth and recognising the importance to the UK of maintaining freight connectivity, to limit and where possible reduce, the adverse effects of aviation noise at night on health and quality of life."

Noise Objective - Concerns

Communities are very concerned by the current and proposed noise objectives:

- 1. "Sustainable Growth" supports more night flights and increased noise impact.
- 2. Words "Limited" and "Where possible reduce" do not prevent increased noise and do not seek to reduce noise.
- 3. "The Polluter pays" principle is ignored and communities pay through the cost of noise impact for airlines to invest in less noisy aircraft but it should be the travelling public that pays. Night flight ticket prices and the APD exemption for International-to-International transfer passengers fails to pay for the pollution.
- 4. There is no target to reduce night flight noise over time.

Dispensation Guidance

- Table shows RHC response with reason to DfT 2021 Dispensation Consultation. DfT feedback is awaited.
- There should be target maximum dispensations per month.
- Dispensations should be included in Noise Quota Count and charged as "late runners" or moved to the day.
 - Exception: Safety is paramount.

Local Weather	No	Not a community cost
En-route Weather	No	Not a community cost
Foreign Airport Weather	No	Not a community cost
Industrial Action Air Traffic Control	No	Not a community cost
Industrial Action Airport	No	Not a community cost
Industrial Action Airlines	No	Not a community cost
Net-work capacity Delays	No	Not a community cost
Serious Criminal or Terrorist Action	No	Except as state decision
Medical Emergency	Yes	
Police Emergency	No	Not a community cost
Repositioning of emergency service aircraft	Yes	
Reducing carbon emissions	No	Noise cost > CO2 benefit
Pre-emptive dispensations	No	Not a community cost
Information technology failures	No	Not a community cost

Outstanding Actions and Evidence

Due	UK Policy, Guidance and Evidence	Comments
2024	Heathrow Noise Action Plan 2025-28 Consultation June 2023	 Quieter Planes Quieter Procedures Land-Use Planning Operating restrictions
2022	Flightpath to the Future DfT	
2024	Overarching Noise Policy DfT	
2024	Airspace Modernisation Consultation Heathrow	Flight path options including night flight PBN and curved approaches.
2024	"Anne" Study: Aviation night noise effects DfT	
Ongoing	WHO 2018 guidelines on noise Review of the evidence with more recent evidence on Costs and Benefits.	

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Heathrow Night Flights

Summary - Number of flights per night 2018
Arrival Times (Stand) & Airlines Summer 2018/19
Arrival Times (Stand) & Airlines Winter 2018/19
Departure Times from Originating Airports

Number of flights per night 2018 Summer and Winter

	Total	Detail A						
Time Period		Arrivals	Departures	Scheduled	Un-Scheduled	Total Quota	Dispensed	Move back to
23:00-23:30	8.0	1.7	6.3	0.2	7.8			Evening
23:30-04:30	2.4	0.8	1.6	0.0	1.1	1.1	1.3	Reduce
04:30-06:00	14.7	14.7	0.0	13.9	0.3	14.1	0.5	to Zero
06:00-07:00	55.7	23.2	32.5	44.8	10.9			
		Time-shift to Day						Move forward
Nt Quota Period	17.1	15.5	1.6	13.9	1.3	15.2	1.8	to Day
Night Period	80.8	40.4	40.4	58.9	20.1		1.8	

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Arrival Times (Stand) & Airlines Summer 2018/19

Route		Airline							
	BA	CX	VS	OF	MH	SQ	UA	WY	ВІ
Hong Yong	04:50	05:40	05:30						
Hong Kong	05:30								
Los Angeles	05:25								
Singapore	05:05					05:55			
	05:50								
Riyadh	05:35								
Johannesburg	05:30								
Kuala Lumpur	05:25				05:55				
Chicago							05:55		
Dubai	05:55 ¹								05:55 ¹
Perth	05:05								

Superscript numbersⁿ indicate Flights per week - all others are 7 days per week

Some flights from Australia fly via Hong Kong or Singapore

Summer only destinations are marked in orange

Source: SDR 5 page 45 Figure 7

Arrival Times (Stand) & Airlines Winter 2018/19

Route					Airline				Airline				
	ВА	CX	VS	QF	МН	SV	SQ	UA	WY				
Hong Kong	04:50		04:55										
Hong Kong	04:55	05:00											
Cape Town	04:45												
Lagos	04:50												
Sydney	04:55												
Melbourne				05:05									
Singapore	05:15						05:55						
Riyadh	05:25					05:55 ¹							
Johannesburg	05:25												
Accra	05:30												
Kuala Lumpur	05:35				05:35								
Jeddah						05:45 ³							
Bahrain	05:55 ¹												
Washington	05:55 ¹												
Chicago								05:55 ⁴					
Muscat									05:55				

Superscript numbersⁿ indicate Flights per week - all others are 7 days per week

Some flights from Australia fly via Hong Kong or Singapore

Winter only destinations are marked in blue

Source: SDR 5 page 45 Figure 8

Departure Times from Originating Airports

Originating Airport	Local Arrival Time minus Local Departure Time (Hours)
Hong Kong	5.7
Singapore	6.6
Kuala Lumpur	6.3
Johannesburg	10.2
Nairobi	6.6
Lagos	6.8
Riyadh	5.0
Chicago	14.1
Boston	11.5
Accra	7.7

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Heathrow Night Flying Restrictions

Number of Flights, Quota Points, Noisy Aircraft
Aircraft Types
Frequency of Flights 2018: 2300-2330, 2330-0430, 0430-0600, 0600-0700
Dispensations 2330-0600
Night Period 2300-0700

Heathrow Night Flying Restrictions - 1

	Late Evening Shoulder 23:00-23:30	Night Quota Period 23:30-06:00	Early Morning Shoulder 06:00-07:00
Movement Limits	None	Winter 2018/19: 2,550 (used 2,713) Summer 2019: 3,250 (used 2,766) 2025-2030: Staged time shift to day	2025-2030: Staged time shift to day
Noise Quota Points- Limit	None	Winter 2018/19: 2,415 (used 2,297) Summer 2019: 2,735 (used 2,123) 2025-2030: Staged time shift to day	2025-2030: Staged time shift to day
Carry-over between seasons - Movements		Yes	
Carry-over between seasons - NQ Points		Yes	
Dispensations	Yes	Yes	Yes
Runway preference	Westerly	No Preference	Westerly
Runway Rotation	Yes	Yes	No (TEAM)

RHC Proposals in Red

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Heathrow Night Flying Restrictions - 2

	Late Evening Shoulder 23:00 – 23:30			ota Period - 06:00	Early Morning Shoulder 06:00 – 07:00		
Ban on Noisiest Aircraft:	Schedule	Operational	Schedule	Operational	Schedule	Operational	
QC/16 & QC/8 0 0	Ban	Ban	Ban	Ban	Ban	Ban	
QC/4 2 10	Ban	No Ban <mark>Ban</mark>	Ban	Ban	Ban	No Ban <mark>Ban</mark>	
QC/2 521 365	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	
QC/1 558 617	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	
QC/0.5 1,125 1,175	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	
QC/0.25 503 587	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	
QC/0.125 4 2	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	
QC < 0.125 0 0	No Ban <mark>Ban</mark>	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	No Ban	No Ban <mark>Ban</mark>	

Aircraft Movements: Winter 2018-18, Summer 2019

RHC Proposals in Red

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Aircraft Types

Heathrow 2019 Annual Average 24-hr Movements by Noise Class Source ERCD 2001 (note rounding). Aircraft type examples						
Noise Class	Aircraft Description	ATMs				
A,B,C			24.3	1.9%		
C3	3rd generation narrow-body	Airbus A319 Boeing 737-800	658.1	50.1%		
C4	4 th generation narrow body	Airbus A320neo Boeing 737 MAX 8	122.7	9.3%		
D3	3 rd generation wide body twins	Airbus A330 Boeing 777-200	254.7	19.4%		
D4	4 th generation wide body twins	Airbus A350 Boeing 787-9	143.0	11.1%		
E3	3 rd generation wide body 4-engine	Boeing 747-400	62.1	4.7%		
E4	4 th generation wide body 4-engine	Airbus A380	45.1	3.4%		
Total			1,313	100%		

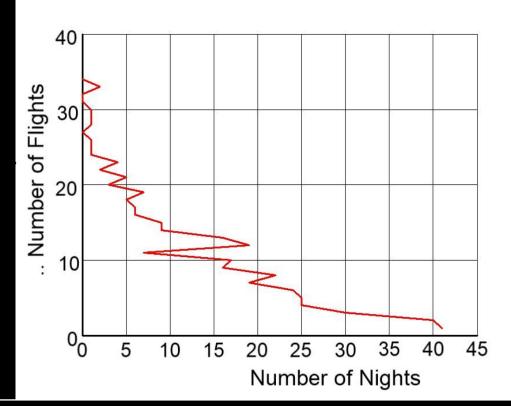
Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Heathrow Frequency of Night Flights

Shoulder Period Flights 2300-2330 Year 2018 Frequency

Frequency of Flights 2018: 23:00-23:30

Flights/Night Average is 8.0



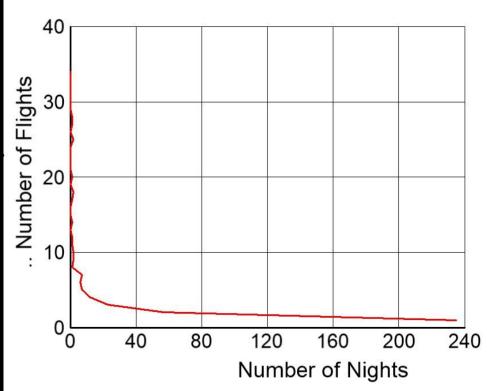
Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Flights Voluntary Ban 2330-0430 Year 2018

Frequency

Frequency of Flights 2018: 23:30-04:30

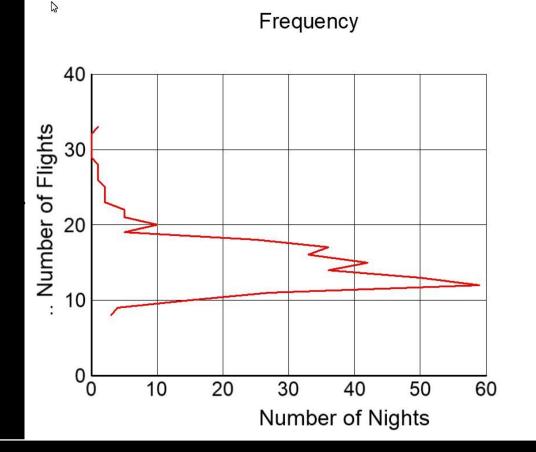
Flights/Night Average is 2.3



Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Frequency of Flights 2018: 04:30-06:00

Flights/Night Average is 14.7

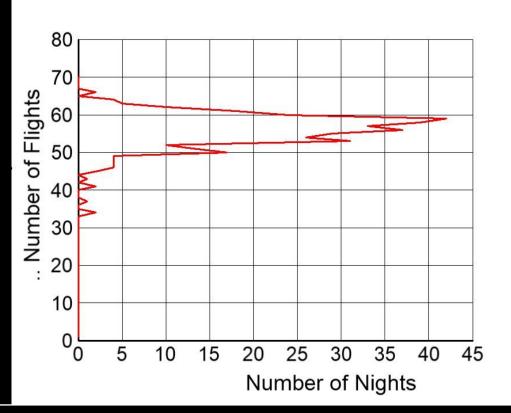


Early Morning Flights 0430-0600 Year 2018

Morning Shoulder Flights 0600-0700 Year 2018 Frequency

Frequency of Flights 2018: 06:00-07:00

Flights/Night Average is 55.7

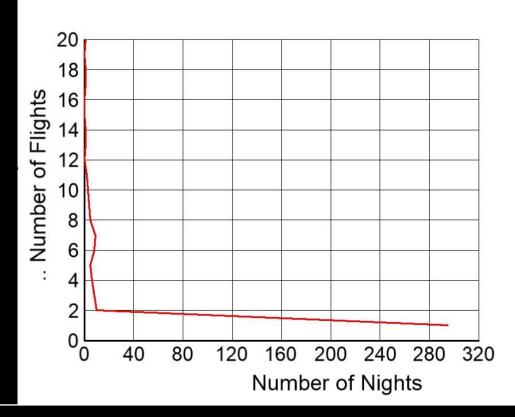


Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Dispensation Flights 2330-0600 Year 2018 Frequency

Dispensation Flights 2018: 23:30-06:00

Flights/Night Average is 1.8



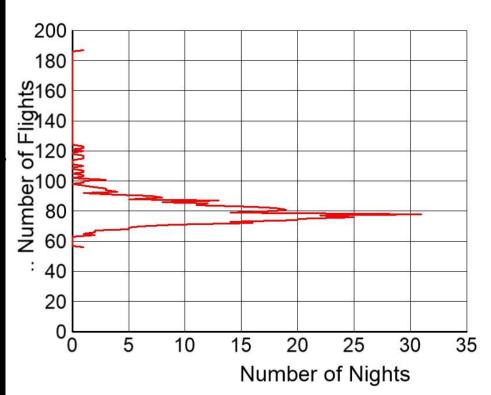
Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Flights During Night Period 2300-0700 Year 2018

Frequency

Flights during
Night Period 2018:
23:00-07:00

Flights/Night Average is 80.8



Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Respite

Night Flight Runway Alternation

Night Flight Runway Alternation

Night Flights - Runway Alternation Respite from Scheduled Flights Existing 2 Runways

	Evening Shoulder 23:00-23:30	Night Quota 23:30-06:00	Morning Shoulder 06:00-07:00		
		Wind permitting	Westerlies	Easterlies	
East of Airport					
Arrivals	Respite	3 wks respite out of 4 wks 15.5 flts/nt	1 wk out of 2 wks but with TEAM 23.2 flts/nt	Respite	
Departures	Respite	Respite Respite		1 wk out of 2 wks but with TEAM 32.5 flts/nt	
West of Airport					
Arrivals	Respite	3 wks respite out of 4 wks 15.5 flts/nt	Respite	1 wk out of 2 wks but with TEAM 23.2 flts/nt	
Departures	Respite	Respite	1 wk out of 2 wks but with TEAM 32.5 flts/nt		

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Heathrow Timeshift from Night to Day

No Reason for Night Flights
Time-Shift Consultation
Time-Shift by Airport
Other points

No Good Reason for Night Flights

- What is so special about the 18 originating airports that they require night flight arrivals between 04:30 and 06:00 whereas 174 originating airports are without night flights? No Good Reason.
- Why do only six airports in the Far East need pre-06:00 access to Heathrow whereas more than 26 originating airports do not? No Good Reason.
- Why do the 18 originating airports require night time arrivals when many denser routes do not?
 No Good Reason.
- Of the 18 routes why do 7 not operate in the summer and 3 not in the winter seasons?
 No Good Reason.
- Why do some airlines operate night flights less than seven days a week?
- Are late departure curfews the reason for some of the early arrivals at Heathrow? Curfews do not
 explain night arrivals from US airports and others, which depart in the local daytime.
 Curfews are No Good Reason.
- The only reason for night flights is that the DfT allows them.

Time-Shift Consultation

Time-shift from Night Period to Day time - Capacity.						
ATMs per year	Night 8hr 23:00-7:00	Day 16hr 7:00- 23:00				
Operating Scheduled Capacity (1)		520,000				
Actual Use Pre-covid 23:00-6:00 (2)	9,100 (4,000)					
Actual Use Pre-covid 6:00-7:00 (2)	20,300 (3,980)					
Actual Use Pre-covid 7:00-23:00 (2)		450,600				
Time-shift of Night Flights to Day (3)	nil -minimal dispensations	480,000				

Notes:

- 1. 90 arrivals and departures an hour = 526,000 flights a year less 6,000 non -ATMs. Allows for unscheduled contingencies. No mixed mode.
- 2. Scheduled (unscheduled in brackets). Restricted to legal limit of 480,000 ATMs per year.
- 3. After Time-shift of all night flights, unused day capacity = 40,000 ATMs or 7.6% of max capacity available for resilience.
- 4. In September 2016 Heathrow said it wished to unlock the 480,000 ATM legal limit and add 25,000 flights a year before a 3rd runway is opened and without mixed mode. It said 'Overall flight numbers will rise by 25,000 a year with four million more passengers. The airport says new technology will allow this without causing more delays for existing flights' We strongly resist unlocking the planning limit of 480,000 ATMs a year but point out that Heathrow believes there is operating spare day-time capacity for at least 25,000 ATMs.

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Night & Day Passengers and Flights

Night Quota Period 23:30-6:00	Night Flights 23:30-6:00			Day 7:00-23:00		
	Pax (note 1)	ATMs (note 1)	(note 1)	Pax	ATMs	
Hong Kong	480,755	1,507	53%	426,330	1,336	
Singapore	387,319	1,214	52%	357,525	1,121	
Kuala Lumpur	180,310	565	50%	180,310	565	
Johannesburg	158,264	496	28%	406,965	1,276	
Nairobi	123,858	388	54%	105,509	331	
Lagos	109,021	342	34%	211,629	664	
Riyadh	107,483	337	51%	103,268	324	
Dubai	69,489	218	4%	1,667,736	5,229	
Chicago	67,664	212	9%	684,158	2,145	
Cape Town	55,487	174	24%	175,709	551	
Boston	45,540	143	8%	523,710	1,642	
Accra	41,758	131	32%	88,736	278	
Jeddah	22,853	72	12%	167,589	525	
Total	1,849,801	5,800		5,099,173	15,988	
Early morning Shoulder 6:00-7:00		160			160	
Various	2,616,320	16,352		70,434,706	440,217	
Total	4,466,121	22,152		75,533,879	456,205	

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Time-Shift by Airport

	Day 7:00-23:00 Time Shift				Total Day after Time Shift 7:00-23:00	
	Pax	Pax	Pax	ATMs	Pax	ATMs
	Existing Flights Increased load factor 5%	Additional Day slots	Total Time shifted	Additional Day slots		
Hong Kong	21,316	438,122	480,755	1,374	907,085	2,710
Singapore	17,876	351,566	387,319	1,102	744,844	2,223
Kuala Lumpa	9,016	162,279	180,310	509	360,620	1,074
Johannesburg	20,348	117,568	158,264	369	565,229	1,645
Nairobi	5,275	113,307	123,858	355	229,367	686
Lagos	10,581	87,858	109,021	275	320,650	939
Riyadh	5,163	97,156	107,483	305	210,751	628
Dubai	83,387	-97,285	69,489	-305	1,737,225	4,924
Chicago	34,208	-752	67,664	-2	751,822	2,143
Cape Town	8,785	37,916	55,487	119	231,196	670
Boston	26,186	-6,831	45,540	-21	569,250	1,621
Accra	4,437	32,884	41,758	103	130,494	381
Jeddah	8,379	6,094	22,853	19	190,442	545
Total	254,959	1,339,884	1,849,801	4,201	6,948,974	20,189
Various			2,616,320	16,352	73,051,026	456,569
Total			4,466,121	20,553	80,000,000	476,758

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Notes to Time-shift Tables

- 1. Passenger data. Airports Commission Final report Table 14.2 Core (23:00-6:00) night flights with more than 10,000 seats annual scheduled capacity Heathrow Airport 2014. The % are core to total scheduled seat capacity (day and night). The average seats per ATM is assumed to be 319 for the Night Quota Period and 160 for other Heathrow flights.
- Load Factors. It is assumed airlines can increase the load factors by time shifting to the same routes during the day with improved efficiency. This is not assumed for the Early Morning Shoulder Time-shift.
- 3. International-to-International (I-I) transfers. Around 30% of time shifted passengers are I-I transfers and they provide little if any economic value to the UK and are exempt from APD. Evidence: There are just 300,000 I-I transfer passengers a year on thin long haul routes out of 23 million I-I transfers (CAA/DfT data for Heathrow for 2011 and 2016). None of the routes would be unviable without I-I transfers and the capacity could be used instead for UK terminating passengers.
- 4. Freight. The argument that Night Flights are needed for just-in-time freight does not stack up since rescheduling the just-in-time process can be integrated with flights in the day time. Many major overseas airports with freight do not use Heathrow in the Night Quota Period.
- 5. Business Passengers. Updated figures needed post-Covid taking account of video conferencing

Recommendations

Night Flights. Peter Willan & Neil Maybin (Richmond Heathrow Campaign). Heathrow Community Noise Forum 29/11/2023.

Recommendations - 1

- 1. Update Noise Objective
- 2. Place WHO Guidance Targets on statute
- 3. Introduce night noise metrics for 45 dBA 8hr LOEL, 40 dBA 8hr night WHO, N 60 8hr
- 4. Update evidence on health impacts of night flights
- 5. Assess costs and benefits of night flights
- 6. Update webTag evaluation tool

Recommendations - 2

- 7. Ban QC2 aircraft (scheduled and operational) 23:00-7:00
- 8. Update Dispensation Guidance to eliminate most dispensations and treat as unscheduled flights applying unscheduled charges & include remaining dispensations in Night Quota
- 9. Plan for bringing unscheduled late runners forward to evening
- 10. Plan for deferring unscheduled early morning flights to day
- 11. Time-shift all scheduled Night Flights 23:00 to 7:00 to Day.
 - Introduce in stages during next regime 2005-2030.

Richmond Heathrow Campaign



QUESTIONS?