London Assembly Transport Committee

INVESTIGATION INTO AIRPORT CAPACITY IN LONDON

SUBMISSION BY THE RICHMOND HEATHROW CAMPAIGN

January 2013

This submission is made in response to the invitation by the London Assembly Transport Committee to submit written evidence relevant to the Committee's investigation into airport capacity in London.

The Richmond Heathrow Campaign represents three amenity groups in the London Borough of Richmond upon Thames: The Richmond Society, The Friends of Richmond Green and The Kew Society, which together have over 2,000 members.

Our members are affected adversely by noise from Heathrow's flight paths, particularly in the night period. We oppose the use of mixed mode on the existing runways at Heathrow and the development of additional runways at Heathrow. We nevertheless recognise the importance of air transport for London and we seek to make a positive contribution to the Committee's investigation.

In the time available since the invitation to submit evidence, we have concentrated on responding to the Committee's question on the options in the short, medium and long-term for addressing the issue of airport capacity for London.

In addition to the options identified by the Committee, we consider that the forecast additional passenger numbers could be handled, and the resilience and connectivity needs met, by increasing the number of passengers per aircraft movement, as was envisaged at the Heathrow Terminal Five Public Inquiry. We consider that this option - applied to London's five main airports, and supplemented by abandoning the hub model at Heathrow in favour of more direct services - would mean that there would be no significant increase in the existing number of aircraft movements and that there would be no need for additional runway capacity at Heathrow or elsewhere in the London area.

We consider that this alternative approach would be less controversial and less costly than the development of additional runway capacity at Heathrow or elsewhere in the London area. Moreover, increasing the number of passengers per aircraft movement could be introduced incrementally, and could begin within a very short timescale.

Larger passenger numbers per aircraft movement may result in fewer CO_2 emissions than the increase in the number of aircraft movements implied by the provision of additional runways. But the sheer increase in the number of passengers will nevertheless have adverse local environmental impacts even if the number of aircraft movements remains unchanged.

We would be happy to provide additional information and would welcome the opportunity to give oral evidence. We are content for our response to be published.

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<u>What are the options in the short, medium, and long-term for addressing the issue of airport capacity?</u>

1. The aviation industry argues that an increase in passenger numbers over the next thirty years will mean an increase in the number aircraft movements in order to handle the additional passengers; and that an increase in runway capacity is required in order to handle the additional aircraft movements. The industry's preference in the London area is for a third runway at Heathrow and a second runway at one of London's other main airports (Gatwick, London City, Luton, Stansted).

2. We argue below that additional runway capacity at Heathrow and elsewhere in the London area is not necessary if better use is made of the existing runway capacity by carrying significantly more passengers per air transport movement at Heathrow and at London's other main airports. We also argue that good international aviation connectivity from the London area does not depend now on the existence of a dedicated hub airport; and that the sheer increase in the number of passengers in future should result in an increased demand for more direct routes at more airports, with a reduced demand for transfers.

A. Increase the number of passengers per aircraft movement at Heathrow

3. We consider that better use could be made of existing capacity at Heathrow to improve resilience in the short term and to increase passenger numbers (including to new destinations) in the medium term, while continuing to operate in unbroken segregated mode and within the existing limit of 480 000 air transport movements per year. We also consider that the efficient use of this capacity would also enable movements to be phased out in the night period.

4. The Terminal Five Public Inquiry found that Heathrow - operating in unbroken segregated mode and with Terminal Five in full use - would have the capacity to handle 480 000 air transport movements (ATMs) per year carrying 90 million passengers (equivalent to an annual average of 187.5 passengers per ATM). The number of ATMs at Heathrow in 2011 (476 000) virtually reached the forecast maximum number of ATMs per year with unbroken segregated mode, while the number of passengers (69.4 million, equivalent to an annual average of 145.8 passengers per ATM) was 20.6 million short of the forecast maximum number of passengers per year.

5. In view of the fact that Heathrow is operating within its forecast ATM and passenger capacity, it must follow that the apparent lack of spare runway capacity - with which (a) to manage promptly periodic disruptions to flight schedules (particularly for arriving aircraft) and (b) to serve new destinations - is not due to the number of ATMs or passengers exceeding their forecast capacity. In our view both problems have arisen from a failure to utilise the capacity efficiently, with the disruption problem due to over-scheduling the number of ATMs in particular hours of the day; and the new destinations problem - in so far as it can be said to exist in reality at present [1] - due to the shortfall between the number of passengers per ATM anticipated at the Terminal Five Public Inquiry and the actual number of passengers per ATM.

6. We consider that the disruption problem could be resolved by giving the airlines incentives (e.g. differential airport charges) to spread their slots more evenly across the day in order to avoid spikes in the number of slots in particular hours that are vulnerable to disruption. We set out in Annex 1 to this response more details of the scheduled movements per hour at Heathrow. The simultaneous use of both runways for arrivals should be reserved only for the most extreme cases of disruption and not for routine disruption.

7. As regards new destinations and passenger numbers, we estimate that Heathrow's 90 million passenger capacity would not be fully utilised until 2027 if the airlines increase the number of passengers per ATM to

[1] Business leaders have complained in the media in recent months that direct flights are not available from Heathrow to certain destinations in the Far East. But BA has acquired additional slots at Heathrow from BMI and has indicated that a proportion of these slots will be re-directed from existing short haul destinations to new long haul destinations as they become commercially viable. (The displaced passengers on the short haul routes can presumably be accommodated in the flights that BA already undertakes to those destinations). A more immediate route development has been the announcement by Virgin Atlantic that it will run six additional flights per day between Heathrow and Manchester from next spring, presumably a reflection that at present there is more actual demand on that route than on the Far Eastern routes to which the business leaders drew attention.

the level envisaged at the Terminal Five Public Inquiry and assuming a similar rate of increase to the annual average since 1991 [1]. We set out our analysis in more detail in Annex 2 to this response.

8. Increased passenger numbers per ATM in the short term could be delivered if the airlines aimed at a higher ratio of passenger numbers to passenger capacity in their existing fleet. The number of seats per ATM at Heathrow averaged at about 200 over each of the last five years, with the number of passengers per ATM in 2011 averaging at 145.8, a seat capacity use of about 73 per cent [2]. There is therefore scope to increase the average number of passengers per ATM, particularly on the most popular routes that are served by many flights per day [3].

9. Increased passenger numbers per ATM in the medium term could be delivered if the airlines replace much of their existing fleet at Heathrow with aircraft with larger passenger capacities. This would not mean switching every aircraft to Jumbo size; but it would mean more aircraft with seats for more than 200 passengers and fewer aircraft with seats for less than 200 passengers [4]. This could be done incrementally in line with routine fleet replacement, with the option of code-sharing between airlines to further defray the costs of switching to larger capacity aircraft. The additional costs of increasing fleet passenger loads over routine fleet replacement costs would arise gradually over time and compare favourably with the large up-front investment and risk inherent in runway development.

10. More passengers per ATM would enable the same number of passengers to be carried in fewer daily movements, particularly on the most popular routes, which in turn would free up slots for new destinations.

11. It is not clear why market forces and the rules of supply and demand - congestion pressures at Heathrow and competition between the airlines - have not resulted in larger passenger numbers per ATM. But carrying more passengers per ATM would create unused slots that would have to be surrendered without compensation under the European Union “use it or lose it” rule. The airlines may wish to retain the slots that they currently hold in order to open new routes in the future; or in order to keep competing airlines out; or in order to sell slots at their most lucrative value [5].

12. The authorities should investigate the extent to which market imperfections are hindering an increase in the number of passengers per aircraft movement at Heathrow at the rate envisaged at the Terminal Five Public Inquiry, particularly on the most popular routes for which there are many daily movements and where the scope for larger passenger loads appears to be most obvious and pressing.

13. **Environmental impacts** Carrying more passenger numbers per aircraft in the existing number of movements may result in fewer emissions CO2 than would be the case from the increased number of aircraft movements for which additional runway capacity is proposed. But the sheer number of additional passengers is likely to aggravate the existing adverse local environmental impacts at Heathrow, regardless of whether the additional passengers are carried in larger numbers per movement or in more movements. Air quality close to Heathrow and air traffic noise (particularly at night) already fall short of what can be considered acceptable. Road congestion from the access of passengers, cargo and supplies to Heathrow (with knock-on implications for air quality) is approaching the limits of acceptability.

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[1] Assuming also the continued growth in transfer passengers at Heathrow and no loss of terminating passengers from Heathrow to other UK airports. We argue below that the UK should abandon the hub model, with its emphasis on attracting large numbers of overseas passengers to transfer at Heathrow.

[2] Data from the Civil Aviation Authority and Airports Co-ordination Limited websites.

[3] Our analysis - incomplete at the time of preparing this response - suggests that the ratio of passenger numbers to passenger capacity is lower on the most popular routes from Heathrow than the aggregated ratio on all routes from Heathrow.

[4] At present about 65 per cent of ATMs at Heathrow have a passenger capacity of less than 200 seats (data from Airports Co-ordination Limited website).

[5] The sale value would presumably by higher from a gradual release of spare slots rather than a sudden flooding of the market with all the available spare slots.

14. **Other London Airports** Passenger numbers at each of London's other main airports (Gatwick, Stansted, Luton, London City) have increased steadily over the last forty years and in aggregate at a faster rate than at Heathrow [1]. We consider that the arguments that we have put forward about making better use of Heathrow's capacity by increasing the number of passengers per ATM could apply to London's other main airports [2].

15. We consider also that existing capacity at London's five main airports could be put to better use if there was more co-ordination and less duplication of the destinations served by those airports. Between 1977 and 1991 air traffic distribution rules were in operation at Heathrow and Gatwick in order to ease congestion at Heathrow and to assist the development of Gatwick. None of London's five main airports needs development assistance now, but the consequence of past development has been that many of the most popular destinations are now served by three or more of the airports. There may be a case for introducing new air traffic distribution rules across the region in order to promote larger passenger numbers per movement but with an overall reduction in the number of movements to the most popular destinations, thereby freeing up capacity for additional routes at all the airports.

(B) Abandon the obsolete hub model at Heathrow

16. At most airports the great majority of passengers (described as terminating passengers) fly direct to or from their destinations, while a small number of passengers (called transfer and transit passengers [3]) are on flights between two other airports. At the so-called hub airports such as Heathrow there is the much higher proportion of transfer and transit passengers relative to terminating passengers [4].

17. Those who continue to argue for the hub model at Heathrow do so on the assumption that airports handling a large number transfer passengers have the best connectivity profiles. The transfers are said to enable more destinations to be served and with a greater frequency than would be economically viable with only terminating passengers. But the hub model theory and the reality at Heathrow have diverged over the last twenty years. Given the centrality of the hub model in the debate about the UK's future aviation strategy, the Heathrow experience merits close analysis.

18. The number of transfer passengers at Heathrow has increased since 1991 in absolute terms and at a faster rate than terminating passengers [5]. Also, over the same period the number of air transport movements increased from 362 000 in 1991 to 476 000 in 2011. According to the hub model, Heathrow should have served more destinations in 2011 than it did in 1990, but the data show that in fact Heathrow served fewer destinations in 2011 than in 1990 [6].

19. It is also the case that Gatwick now serves more destinations than Heathrow [7], even though: (a) the total number of passengers at Gatwick is half the total number at Heathrow; and (b) the number of

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[1] See Annex 3 to this response which shows the steady increase in passenger numbers at London's main airports since 1972, with a diminishing proportion at Heathrow from a peak of 75 per cent to around 50 per cent in recent years.

[2] See Annex 4 to this response which gives number of passengers per ATM at the five airports in 1991, 2001 and 2011.

[3] Transfer passengers arrive at the hub in one aircraft and depart in a second. Transit passengers arrive at and depart from the hub in the same aircraft. Transfer passengers greatly outnumber transit passengers.

[4] See Annex 5 to this response for a breakdown of the number of terminating and transfer passengers at Heathrow in 2010, further sub-divided into business and leisure on international and domestic flights.

[5] See Annex 6 to this response for fuller details on the numbers of terminating and transferring passengers at Heathrow since 1972. The breakdown between terminating and transferring passenger numbers has been published annually only since 1996. 1991 has been taken as the base year for this exercise partly to review the trend over twenty years and partly because 1991 is the earliest year in which the proportion of transfer passengers began to increase relative to terminating passengers compared to the years prior to 1991 (i.e. 1972, 1978, 1984, 1987) for which data have been published.

[6] See Annex 7 to this response for fuller details on the number of destinations served by Heathrow in 1990, 2001 and 2011. 1990 has been taken as the base year for this exercise because air travel was depressed in 1991 and it is assumed that 1990 would have been more representative of Heathrow's destinations approximately twenty years ago. A comparison has not been made between 1990 and 2010 because air travel in 2010 was still in recession in line with the global economic downturn.

transfer passengers are far fewer at Gatwick than at Heathrow, both in absolute numbers and in proportion to their respective number of terminating passengers.

20. A closer examination of the changed destination profile at Heathrow since 1990 indicates that the lost destination were in declining order: (i) within the UK; (ii) to Western and Central Europe; and (iii) to the Near East and Africa. The great majority of lost destinations were on routes carrying less than 2 000 passengers per year. Some of these low demand destinations and the majority of lost destinations carrying larger passenger numbers (e.g. Antwerp, Corfu) are now served by one or more of London's other main airports (Gatwick, Stansted, Luton, London City), so the loss of destinations at Heathrow has not meant a loss of destinations for London.

21. Over the same period Heathrow has opened new destinations to Eastern Europe, the Far East and the Americas. But the largest impact of the net loss of destination connectivity appears to have been an increase in the frequency of services to destinations for which there was already a demand in 1990. Thus many popular destinations now have multiple daily services across the day, evening and night periods on long haul (e.g. New York) and short haul (e.g. Manchester) which have squeezed out services to less popular destinations.

22. The trend towards fewer destinations at Heathrow cannot be explained by a lack of capacity. As we have argued above, Heathrow has now reached virtually its runway capacity in unbroken segregated mode, but there is still has considerable unused actual terminal capacity and potential passenger capacity per aircraft movement. Moreover, the largest decrease in the number of destinations served by Heathrow occurred between 1990 and 2001 [1], during which period there was considerable spare runway capacity [2].

23. The foregoing considerations suggest that: (a) there is no law of aviation economics that a hub airport will always have better connectivity than a non-hub airport; (b) enhanced destination connectivity is possible without enhanced runway capacity; and (c) the provision of extra runway capacity would not automatically translate into enhanced destination connectivity but could translate into increased (arguably excessive) frequency to the most popular destinations.

24. Turning to the question of passenger preference (something that the supporters of hubs rarely consider), it is likely to be the case that most passengers would - if given the choice - prefer to fly direct to their ultimate destination rather than transferring at a hub, because direct flights should be quicker and cheaper than transfers [3].

25. In the early days of civil aviation there were relatively few passengers, so transferring at hubs emerged as the only economically viable option for destinations for which there was insufficient direct demand. But the projected growth in future passenger numbers should mean that many more direct services between many more airports will become economically viable. If the airlines respond to passenger preference, there should be a gradual decrease in the number of transfers; and hence a diminished need for hub airports at Heathrow or elsewhere.

26. It is not clear why the number of transfers at Heathrow should have increased at a faster rate than the number of terminating passengers over the last twenty years. BAA said in its evidence to the Terminal Five Public Inquiry that the increase in transfers reflected a new airline strategy. But this strategy seems counter-intuitive, given the likely consumer preference for direct flights over transfer flights. The strategy may therefore have been stimulated by a combination of two state interventions and anti-competitive considerations between the airlines.

27. In 1993 the European Union adopted the "use it or lose it" rule for holders of slots at major airports, whereby slot holders had to use their slots for not less than 80 per cent of the allocation or surrender them (with no compensation) to competing airlines [4]. In 1994 the UK Government introduced Air Passenger

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[7] According to the respective websites for Heathrow and Gatwick.

[1] See Annex 7 to this response.

[2] The number of air transport movements increased from 362 000 in 1991 to 458 000 in 2001.

[3] Direct flights should also have a lower environmental cost per return journey (i.e. two ATMs instead of four ATMs).

[4] Council Regulation (EEC) No 95/93 of 18 January 1993 on common rules for the allocation of slots at Community airports.

Duty, but with an exemption for transfer and transit passengers for the specific purpose of encouraging transfers and transits at UK airports (primarily Heathrow) [1].

28. The desire by the airlines to hold onto their highly coveted existing their slots at Heathrow (and to acquire the remaining slots that had not yet been allocated) at the expense of competing airlines may have prompted them to run more frequent services than would be strictly justified economically, with transfers and transits (helpfully exempt from the new Air Passenger Duty) stimulated in order to mitigate the costs of "over supply".

29. But despite these market distortions, the airlines will start to take account of passenger preference for direct flights. The number of transfers at hubs will begin to diminish, freeing up additional capacity for the increasing number of terminating passengers [2].

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[1] *We are concerned to maintain the international position of the British air transport industry particularly that of Britain's hub airports, such as Heathrow, and to help the airlines serving them, by preventing the tax from acting as a disincentive to passengers changing planes in Britain*: Sir John Chope MP (Paymaster General), Hansard, 31 Jan 1994, Col. 643.

[2] The number of transfers at Heathrow fell slightly in 2010 and 2011 compared with the number of terminating passengers (see Annex 6 to this response). It is too soon to say whether this is a short term consequence of the economic recession or the beginning of a more permanent reversal of the twenty year trend.

ANNEX 1

Heathrow: Runway scheduling limits - movements per hour

	2006/07			*2007*			*2010/11*			*2011*		
	arrive	*Depart*	*total*	*arrive*	*depart*	*total*	*arrive*	*depart*	*total*	*arrive*	*depart*	*Total*
0600-	35	26	61	36	27	63	37	28	65	38	25	63
0700-	36	41	77	40	43	83	35	41	76	39	46	85
0800-	34	42	76	38	42	80	33	43	76	37	43	80
0900-	39	41	80	39	42	81	41	42	83	40	43	83
1000-	41	42	83	39	40	79	40	42	82	40	41	81
1100-	38	42	80	42	42	84	37	42	79	41	42	83
1200-	42	43	85	40	41	81	43	44	87	39	41	80
1300-	39	41	80	43	43	86	39	40	79	43	43	86
1400-	42	38	80	41	41	82	42	39	81	43	42	85
1500-	44	43	87	44	44	88	44	43	87	41	44	85
1600-	43	46	89	42	44	86	44	46	90	42	43	85
1700-	41	45	86	42	43	85	40	45	85	43	43	86
1800-	40	44	84	43	44	87	40	42	82	44	44	88
1900-	40	42	82	43	44	87	39	43	82	43	44	87
2000-	38	40	78	39	39	78	38	40	78	38	38	76
2100-	40	37	77	44	39	83	41	36	77	44	38	82
2200-	20	21	41	21	30	51	22	21	43	21	31	52
Total	652	674	1 326	676	688	1 364	655	677	1 332	676	691	1 367
Hourly average												
	38.4	39.6	78.0	39.8	40.5	80.3	38.5	39.8	78.3	39.8	40.6	80.4

Source: Airport Co-ordination Ltd (ACL), seasonal reports for Heathrow, unnumbered tables entitled "Runway Scheduling Limits - Movements per Hour".

Notes: The table shows the scheduled number of aircraft arrivals departures in each hour at Heathrow between 0600-2300 in the winter seasons Oct-March 2006/07 and 2010/11 and the summer seasons March-Oct 2007 and 2011.

Comment: Heathrow handled its largest number of ATMs (476 000) in 2007 and 2011, so the seasons in the table reflect the near-capacity scheduling of movements. It can be seen that the number of scheduled arrivals and departures varies depending on the hour. A more even spread of the traffic across the day and evening would produce a scheduling in each hour that is closer to the hourly average, which would reduce the risk of disruption in "over-subscribed" hours from movements ahead of or behind schedule.

ANNEX 2

Heathrow: Number of passengers per aircraft movement 1991 - 2011

Years	*Passengers*		*Movements*		*Average per movement*	
	(millions)	%	(thousands)	%		%
1991	40.3	*100.0*	362	*100.0*	111.3	*100.0*
1992	45.0	*111.7*	388	*107.2*	116.0	*104.2*
1993	47.6	*118.1*	396	*109.4*	120.2	*108.0*
1994	51.4	*127.5*	412	*113.8*	124.8	*112.1*
1995	54.1	*134.2*	421	*116.3*	128.5	*115.5*
1996	55.7	*138.2*	428	*118.2*	130.1	*116.9*
1997	57.9	*143.7*	431	*119.1*	134.3	*120.7*
1998	60.4	*149.9*	442	*122.1*	136.7	*122.8*
1999	62.0	*153.8*	451	*124.6*	137.5	*123.5*
2000	64.3	*159.6*	460	*127.1*	139.8	*125.6*
2001	60.5	*150.1*	458	*126.5*	132.1	*118.7*
2002	63.0	*156.3*	460	*127.1*	137.0	*123.1*
2003	63.2	*156.8*	457	*126.2*	138.3	*124.3*
2004	67.1	*166.5*	470	*129.8*	142.8	*128.3*
2005	67.7	*168.0*	472	*130.4*	143.4	*128.8*
2006	67.3	*167.0*	471	*130.1*	142.9	*128.4*
2007	67.9	*168.5*	476	*131.5*	142.6	*128.1*
2008	66.9	*166.0*	473	*130.7*	141.4	*127.0*
2009	65.9	*163.5*	460	*127.1*	143.3	*128.8*
2010	65.8	*163.3*	449	*124.0*	146.6	*131.5*
2011	69.4	*172.2*	476	*131.5*	145.8	*131.0*

Source: Civil Aviation Authority, *UK Airport Statistics*

Notes: The source gives the number of passengers and air transport movements, from which the number of passengers per movement have been calculated. The percentage columns are calculated from 1991 as the base year.

There are minor discrepancies in the passenger numbers given in *UK Airport Statistics* compared with the Civil Aviation Authority's *Air Passenger Surveys*. The *Air Passenger Surveys* are published later in the year than *UK Airport Statistics* and presumably contain the more accurate data. But the *Air Passenger Surveys* have been published annually for Heathrow only since 1996, so *UK Airport Statistics* have been used to compile this table.

Comment: The report to the Secretary of State on the Heathrow Terminal Five Public Inquiry advised that Heathrow would have an annual runway capacity of 480 000 air transport movements operating in unbroken segregated mode and would be able to handle 90 million passengers per year with Terminal Five fully operational. 480 000 movements carrying 90 million passengers is equivalent to an annual average of 187.5 passengers per movement.

The number of air transport movements (ATMs) per year increased from 362 000 in 1991 to 476 000 in 2011, an increase over twenty years of 114 000 ATMs (31.5 per cent). At the end of 2011 there was spare capacity to handle a further 4 000 ATMs per year (i.e. 480 000 less 476 000). The rate of increase in the number of ATMs between 1991 and 2011 was equivalent to an average annual increase of approximately 5 700. If the same rate of increase continues, the 4 000 spare capacity would be fully utilised by late 2012.

The number of passengers per year increased from 40.3 million in 1991 to 69.4 million in 2011, an increase over twenty years of 29.1 million (72.2 per cent). At the end of 2011 there was spare capacity to handle a further 20.6 million passengers per year (i.e. 90 million less 69.4 million). The rate of increase in the number of passengers between 1991 and 2011 was equivalent to an average annual increase of approximately 1.45 million. If the same rate of increase continues, the 20.6 million spare capacity would be fully utilised by early 2027.

The average number of passengers per movement increased from 111.3 in 1991 to 145.8 in 2011, an increase over twenty years of 34.5 passengers per movement (31.0 per cent). At the end of 2011 there was spare capacity - as implied by the findings of the Terminal Five Public Inquiry - to handle a further 41.7 passengers per movement (i.e. 187.5 less 145.8). The rate of increase in the number of passengers per movement between 1991 and 2011 was equivalent to an average annual increase of approximately 1.7 passengers. If the same rate of increase continues, the 41.7 spare capacity would be fully utilised by early 2036.

In view of the legal limit of 480 000 on the permitted number of ATMs per year and the impending arrival at that number of ATMs, the only way that Heathrow can make full use of its 90 million annual passenger-handling capacity is to increase significantly the number of passengers per ATM.

Passenger numbers at London airports 1972 - 2011

	Gatwick		Heathrow		London City		Luton		Stansted		Total	
	millions	*%*	*millions*	*%*	*millions*	*%*	*millions*	*%*	*millions*	*%*	*millions*	*%*
1972	5.3	*20*	18.3	*68*	-	-	3.1	*11*	0.3	*1*	27.0	*100.0*
1973	5.7	*19*	20.3	*69*	-	-	3.2	*11*	**0.2**	*1*	29.4	
1974	**5.1**	*19*	**20.1**	*73*	-	-	**2.0**	*7*	0.2	*1*	27.4	
1975	5.3	*18*	21.3	*74*	-	-	**1.9**	*7*	0.2	*1*	28.7	
1976	5.7	*18*	23.2	*75*	-	-	**1.8**	*6*	0.3	*1*	31.0	
1977	6.6	*20*	23.4	*73*	-	-	1.9	*6*	0.3	*1*	32.2	
1978	7.8	*21*	26.5	*72*	-	-	2.1	*6*	0.3	*1*	36.7	
1979	8.7	*22*	28.0	*71*	-	-	2.2	*6*	0.3	*1*	39.2	
1980	9.7	*24*	27.5	*69*	-	-	**2.1**	*5*	0.3	*1*	39.6	
1981	10.7	*27*	**26.4**	*67*	-	-	**2.0**	*5*	0.3	*1*	**39.4**	*100.0*
1982	11.2	*28*	26.4	*66*	-	-	**1.8**	*5*	0.3	*1*	39.7	
1983	12.5	*30*	26.8	*65*	-	-	**1.7**	*4*	0.3	*1*	41.3	
1984	14.0	*31*	29.2	*64*	-	-	1.8	*4*	0.5	*1*	45.5	
1985	14.9	*31*	31.3	*65*	-	-	**1.6**	*3*	0.5	*1*	48.3	
1986	16.3	*32*	31.3	*62*	-	-	2.0	*4*	0.5	*1*	50.1	
1987	19.4	*34*	34.7	*60*	-	-	2.6	*4*	0.7	*1*	57.4	
1988	20.7	*33*	37.5	*60*	0.1	-	2.8	*4*	1.0	*2*	62.1	
1989	21.1	*32*	39.6	*61*	0.2	-	2.8	*4*	1.3	*2*	65.0	
1990	**21.0**	*31*	42.6	*63*	0.2	-	**2.7**	*4*	**1.2**	*2*	67.7	
1991	**18.7**	*30*	**40.2**	*64*	0.2	-	**2.0**	*3*	1.7	*3*	**62.8**	*100.0*
1992	**19.8**	*29*	45.0	*65*	0.2	-	**1.8**	*3*	2.3	*3*	69.1	
1993	20.1	*28*	47.6	*66*	0.2	-	**1.7**	*2*	2.7	*4*	72.3	
1994	21.0	*27*	51.4	*66*	0.5	*1*	1.8	*2*	3.2	*4*	77.9	
1995	22.4	*27*	54.1	*65*	0.6	*1*	1.8	*2*	3.8	*5*	82.7	
1996	24.1	*28*	55.7	*64*	0.7	*1*	2.4	*3*	4.7	*5*	87.6	
1997	26.8	*28*	57.8	*61*	1.2	*1*	3.2	*3*	5.3	*6*	94.3	
1998	29.0	*29*	60.4	*59*	1.4	*1*	4.1	*4*	6.8	*7*	101.7	
1999	30.4	*28*	62.0	*57*	1.4	*1*	5.2	*5*	9.4	*9*	108.4	
2000	31.9	*28*	64.3	*56*	1.6	*1*	6.2	*5*	11.8	*10*	115.8	
2001	**31.1**	*27*	**60.5**	*53*	1.6	*1*	6.5	*6*	13.6	*12*	**113.3**	*100.0*
2002	**29.5**	*25*	63.0	*54*	1.6	*1*	6.5	*6*	16.0	*14*	116.6	
2003	29.9	*25*	63.2	*53*	**1.5**	*1*	6.8	*6*	18.7	*15*	120.1	
2004	31.4	*24*	67.1	*52*	1.7	*1*	7.5	*6*	20.9	*16*	128.6	
2005	32.7	*24*	67.7	*51*	2.0	*1*	9.1	*7*	22.0	*16*	133.5	
2006	34.1	*25*	**67.3**	*49*	2.4	*2*	9.4	*7*	23.7	*17*	136.9	
2007	35.2	*25*	67.9	*49*	2.9	*2*	9.9	*7*	23.8	*16*	139.7	
2008	**34.2**	*25*	**66.9**	*49*	3.3	*2*	10.2	*7*	**22.3**	*16*	**136.8**	
2009	**32.4**	*25*	**65.9**	*51*	**2.8**	*2*	**9.1**	*7*	**19.9**	*15*	**130.1**	
2010	**31.3**	*25*	**65.7**	*52*	2.8	*2*	**8.7**	*7*	**18.6**	*15*	**127.2**	
2011	33.6	*25*	69.4	*52*	2.9	*2*	9.5	*7*	**18.0**	*13*	133.6	*100.0*

Sources: Civil Aviation Authority, *Passengers at London Airports in 1991 (*published in 1993), Table 1, for the years 1972 - 1991. Civil Aviation Authority, *UK Airports - Annual Statements of Movements, Passengers and Cargoes*, for the years 1992 - 2007. Where the totals do not sum this is due to rounding.

Note: The entries marked in bold indicate a decrease in the number of passengers compared with the previous year.

Comment: The table shows that the number of passengers have increased significantly at all of London's main airports in the period between 1972 and 2011.

As regards the distribution of the total number of passengers between the individual airports, Heathrow accounted for more than 70 per cent between 1974 and 1979, reaching a peak of 75 per cent in 1976. Since then the general trend has been for the other airports to account for an increasing proportion of passengers, with Heathrow's share decreasing to 49 per cent in the years 2006 - 2009, before increasing to 52 per cent in 2010 and 2011.

ANNEX 4

Number of passengers per aircraft movement at London's main airports

	1991	2001	2011
Heathrow			
Passengers	40 245 000	60 453 000	69 391 000
ATMs	362 000	458 000	476 000
Passengers per ATM	111.2	132.0	145.8
Gatwick			
Passengers	18 690 000	31 097 000	33 644 000
ATMs	163 000	244 000	245 000
Passengers per ATM	114.7	127.4	137.3
Stansted			
Passengers	1 685 000	13 654 000	18 047 000
ATMs	36 000	151 000	137 000
Passengers per ATM	46.8	90.4	131.2
Luton			
Passengers	1 957 000	6 540 000	9 510 000
ATMs	28 000	56 000	72 000
Passengers per ATM	69.9	116.8	132.1
London City			
Passengers	172 000	1 619 000	2 993 000
ATMs	10 000	54 000	61 000
Passengers per ATM	17.2	30.0	49.1

Source: Civil Aviation Authority, *UK Airport Statistics*

Notes: The source gives the number of passengers and air transport movements, from which the number of passengers per movement have been calculated.

Heathrow: Passenger Profile in 2010 (1)

Passenger Categories	*Terminating*		*Transfer*		*Total*	
	000's	%	000's	%	000's	%
1. International flights						
Business passengers						
- UK resident	6 402	*9.7*	549	*0.8*	6 951	*10.6*
- Non-UK resident	6 159	*9.4*	4 798	*7.3*	10 957	*16.7*
Business passenger total	**12 561**	***19.1***	**5 347**	***8.1***	**17 908**	***27.3***
Leisure passengers						
- UK resident	15 440	*23.5*	1 468	*2.2*	16 908	*25.7*
- Non-UK resident	12 059	*18.4*	13 952	*21.2*	26 011	*39.6*
Leisure passenger total	**27 499**	***41.9***	**15 420**	***23.5***	**42 919**	***65.3***
International total	**40 060**	***61.0***	**20 768**	***31.6***	**60 828**	***92.6***
2. Domestic flights						
Business passengers						
- UK resident	1 143	*1.7*	346	*0.5*	1 489	*2.3*
- Non-UK resident	59	*0.1*	341	*0.5*	400	*0.6*
Business passenger total	**1 202**	***1.8***	**687**	***1.0***	**1 889**	***2.9***
Leisure passengers						
- UK resident	768	*1.2*	1 293	*2.0*	2 061	*3.1*
- Non-UK resident	107	*0.2*	783	*1.2*	890	*1.3*
Leisure passenger total	**875**	***1.3***	**2 076**	***3.2***	**2 951**	***4.5***
Domestic total	**2 077**	***3.2***	**2 763**	***4.2***	**4 840**	***7.4***
3. Combined total	**42 137**	***64.2***	**23 531**	***35.8***	**65 668**	***100.0***

Source: Compiled from data in the Civil Aviation Authority's *Passenger Survey Report 2010*. The percentages are calculated from the total number of passengers (terminating and transferring combined) at Heathrow in 2010. Where the totals do not sum this is due to rounding.

Comment: Heathrow is often described as the businessman's airport, but an analysis of the different categories of passengers indicates a significant preponderance of leisure passengers among both terminating and transferring passengers:

- For terminating passengers, the split between business and leisure passengers was 1 : 2 on international flights, with business passengers outnumbering leisure passengers 3 : 2 on domestic flights.

- For transferring passengers, the split between business and leisure passengers was 3 : 7 on international flights and 2 : 3 on domestic flights.

Leisure passengers are therefore more responsible for present levels of congestion at Heathrow than business passengers. With no expansion in capacity at Heathrow, it might be expected that in future the proportion of business passengers would increase, with a corresponding decrease in the proportion of leisure passengers, reflecting the fact that: (a) business tickets are generally more expensive than leisure tickets and therefore provide the airlines with greater scope for profit; and (b) the most popular leisure destinations may not be a priority destination for business passengers [1]. To some extent this has already started to happen, with many leisure destinations - including Bologna, Corfu, Dubrovnik, Innsbruck, Marseille, Alicante, Las Palmas, Palma and Tenerife - now served by one or more of London's other main airports (Gatwick, Stansted, Luton, London City) rather than Heathrow (see table 9 for fuller details).

[1] Oxford Economic Forecasting, in its study for the aviation industry *The Contribution of the Aviation Industry to the UK Economy* (1999), commented that one of the consequences that might be expected from not developing a third runway at Heathrow would be that airlines would aim to concentrate the loss of potential passengers on those who yield the least revenue - transfer passengers, followed by some leisure passengers (page 45).

ANNEX 5 (part 2)

Heathrow: Passenger Profile in 2010 (2)

Passenger categories	***Passenger numbers***	
	000's	%
1. UK resident leisure passenger on terminating international flight	15 440	*23.5*
2. Non-UK resident leisure passenger on **transfer** international flight	13 952	*21.2*
3. Non-UK resident leisure passenger on terminating international flight	12 059	*18.4*
4. UK resident business passenger on terminating international flight	6 402	*9.7*
5. Non-UK resident business passenger on terminating international flight	6 159	*9.4*
6. Non-UK resident business passenger on **transfer** international flight	4 798	*7.3*
7. UK resident leisure passenger on **transfer** international flight	1 468	*2.2*
8. UK resident leisure passenger on **transfer** domestic flight	1 293	*2.0*
9. UK resident business passenger on terminating domestic flight	1 143	*1.7*
11. Non-UK resident leisure passenger on **transfer** domestic flight	783	*1.2*
10. UK resident leisure passenger on terminating domestic flight	768	*1.2*
12. UK resident business passenger on **transfer** international flight	549	*0.8*
13. UK resident business passenger on **transfer** domestic flight	346	*0.5*
14. Non-UK resident business passenger on **transfer** domestic flight	341	*0.5*
15. Non-UK resident leisure passenger on terminating domestic flight	107	*0.2*
16. Non-UK resident business passenger on terminating domestic flight	59	*0.1*
Total	**65 668**	***100.0***

Source: The data in the table Heathrow Passenger Profile in 2010 (1) has been re-ordered above according to the descending number of passengers per category of passenger.

ANNEX 6

Heathrow: Terminating and transfer passengers 1972 - 2011

Years	*Terminating passengers*		*Transfer passengers*		*Total passengers*	
	(millions)	%	(millions)	%	(millions)	%
1972	14.3	*76.4*	4.4	*23.6*	18.7	*100.0*
1978	20.8	*77.2*	6.1	*22.9*	26.9	
1984	22.6	*76.6*	6.9	*23.4*	29.5	
1987	27.0	*76.9*	8.1	*23.1*	35.1	
1991	29.8	*73.8*	10.6	*26.2*	40.4	
1996	37.3	*66.8*	18.5	*33.2*	55.8	*100.0*
1997	38.6	*66.6*	19.1	*33.0*	57.9	
1998	40.6	*67.4*	19.6	*32.5*	60.3	
1999	?	?	?	?	?	
2000	44.7	*70.2*	19.0	*29.8*	63.7	
2001	41.1	*68.6*	18.8	*31.4*	59.9	*100.0*
2002	39.6	*64.0*	22.3	*36.0*	61.9	
2003	40.1	*63.7*	22.8	*36.3*	62.9	
2004	43.6	*65.2*	23.3	*34.8*	66.9	
2005	43.6	*65.3*	23.2	*34.7*	66.8	
2006	44.2	*65.9*	22.9	*34.1*	67.1	*100.0*
2007	44.0	*65.8*	22.9	*34.2*	66.9	
2008	43.2	*64.6*	23.6	*35.3*	66.8	
2009	40.9	*62.1*	24.9	*37.9*	65.8	
2010	42.2	*64.2*	23.5	*35.8*	65.7	
2011	45.9	*66.4*	23.3	*33.6*	69.2	*100.0*

Source: Civil Aviation Authority *Passenger Surveys Reports* [1]. Where the totals do not sum this is due to rounding. At the time of preparing the table the Report for 1999 had not been consulted.

Note: The Reports for the years 1972 to 1998 give the number of terminating and transfer passengers only as percentages of the annual total number of passengers. The numbers in the table for the years to 1998 have therefore been calculated from the percentages and the total number.

Comment: The table shows consistent growth in the total number of passengers at Heathrow between 1972 and 2004, with stabilisation between 2004 and 2010 and renewed growth in 2011. Within this overall growth there were increases in the absolute number of terminating and transferring passengers throughout the period. But since 1991 the rate of growth has been faster among transfers, who have accounted for one or more passengers in three since 2002 compared with less than one passenger in four prior to 1991. The number of air transport movements (ATMs) at Heathrow increased from 362 000 in 1991 to 476 000 in 2011.

The large number of transfer passengers increase the present levels of congestion at Heathrow. It is argued that transfers enable the airlines at Heathrow to serve a wider range of destinations than would be economically viable with only terminating passengers. But the period of exponential growth in transfers since 1991 coincided with a fall - rather than an implied increase - in the number of destinations served by Heathrow (see separate table for details).

[1] The surveys have been undertaken annually at Heathrow since 1996, and at less frequent intervals prior to 1996.

ANNEX 7

Heathrow: Number of destinations in 1990, 2001 and 2011

Region	***1990***			***2001***			***2011***		
United Kingdom	24	(18)	(6)	14	(10)	(4)	11	(7)	(4)
Western Europe	54	(40)	(14)	33	(32)	(1)	35	(29)	(6)
Central Europe	53	(41)	(12)	33	(31)	(2)	35	(32)	(3)
Eastern Europe	16	(13)	(3)	26	(23)	(3)	21	(21)	(-)
Near East	20	(17)	(3)	18	(17)	(1)	15	(14)	(1)
Africa	29	(24)	(5)	24	(21)	(3)	23	(23)	(-)
Far East	25	(25)	(-)	29	(28)	(1)	30	(30)	(-)
Americas	43	(33)	(10)	35	(34)	(1)	41	(36)	(5)
Totals	***264***	***(211)***	***(53)***	***212***	***(196)***	***(16)***	***211***	***(192)***	***(19)***

Source: Civil Aviation Authority, *Aviation Statistics*, Table 12.1 (International Air Passenger Traffic to and from Reporting Airports) and Table 12.2 (Domestic Air Passenger Traffic to and from Reporting Airports)

Notes: The table sets out the number of destinations per listed region served by air transport movements from Heathrow in the years 1990, 2001 and 2011. The first column of numbers is the total number of destinations. The second column of numbers is the number of destinations to which 2 000 or more passengers (arrivals and departures) were transported. The third column of numbers is the number of destinations to which less than 2 000 passengers (arrivals and departures) were transported.

The number of passengers at Heathrow increased from 45.6 million in 1990 to 60.4 million in 2001 (an increase by 32 per cent compared with 1990), and to 69.4 million in 2011 (an increase by 52 per cent compared with 1990). The number of air transport movements (ATMs) increased from 368 000 in 1990 to 458 000 in 2001 and to 476 000 in 2011.

Comment: The table shows that the total number of destinations served by Heathrow decreased by approximately 20 per cent in 2001 compared with 1990, with a further decrease of less than one per cent in 2011 compared with 2001, despite the increase in the number of ATMs in 2001 and 2011.

The number of destinations that carried less than 2 000 passengers in 1990 decreased by approximately 65 per cent. The number of destinations that carried 2 000 or more passengers in 1990 decreased by approximately 5 per cent.

The table shows that changes in the number of services to destinations carrying more than 2 000 passengers in 1990 varied between regions, with five regions experiencing net decreases and three regions experiencing net increases.

The largest decreases in destinations served affected the United Kingdom (down from eighteen destinations to seven), Western Europe (down from forty destinations to twenty nine) and Central Europe (down from forty one destinations to thirty two), with smaller decreases in the Near East (down from seventeen destinations to fourteen) and Africa (down from twenty four destinations to twenty three).

There were increased services to Eastern Europe (up from thirteen destinations to twenty one), the Far East (up from twenty five destinations to thirty) and the Americas (up from thirty three destinations to thirty six).

Analysis of the individual destinations within the regions served by Heathrow shows variation between regions and within countries, with some destinations closed and others newly opened. The data upon which the table is based indicate that the majority of destinations that are no longer served by Heathrow (e.g. Antwerp, Corfu, Las Palmas) are now served by one or more of London's other major airports (Gatwick, Stansted, Luton, London City).