

Airports Commission Guidance Document 01

Proposals for making the best use of existing airport capacity in the short and medium terms

SUBMISSION BY THE RICHMOND HEATHROW CAMPAIGN

May 2013

This submission is the response from the Richmond Heathrow Campaign to the invitation by the Airports Commission - as set out in *Discussion Document 01: Submitting evidence and proposals to the Airports Commission* - to interested parties to submit proposals for making the best use of existing airport capacity in the short and medium terms. We do not consider that the contents of this submission are confidential and we have no objections to its publication.

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 2000 members.

The members of our amenity groups are adversely affected by noise from Heathrow Airport's flight paths, particularly at night. We favour a ban on air traffic at night at Heathrow. We are opposed to the introduction of mixed mode and to the development of additional runways at Heathrow.

We nevertheless recognise the importance of air transport; and the need to make provision for handling additional air passengers. We are therefore submitting three separate but mutually supporting proposals for the better use of Heathrow capacity in the short and medium term while delivering an overall improvement to the local noise climate:

- More even distribution of aircraft movements across each hour of the day at Heathrow, in order to avoid disruption and delay in peak hours and to end night flights.
- Increase the seating capacity of the Heathrow air fleet (i.e. more larger aircraft and fewer small aircraft), in order to increase the number of passengers per aircraft movement within the 480 000 movements limit operating in unbroken segregated mode.
- Reverse the strategy of attracting ever more transfer passengers to Heathrow, in order to free up terminal and aircraft capacity for more terminating passengers within the legal limit of 480 000 movements limit operating in unbroken segregated mode.

We hope to develop our second and third proposals more fully in our proposals for Heathrow in the longer term. We shall in addition propose that better co-ordinated use could be made of London's five main airports (Heathrow, Gatwick, Stansted, Luton and London City) and that better use could be made of surplus capacity at airports in other regions. The Airports Commission may wish to consider whether better co-ordination across the London airports and better use of the other regions' airports could contribute to solving capacity needs in the short and medium term.

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Proposal 1: Schedule ATMs More Evenly

Introduction

We propose that better use could be made of the existing runway capacity at Heathrow if air transport movements (ATMs) were to be re-scheduled more evenly than they are at present across each hour of the day and evening periods. A more even spread of ATMs would help to reduce the number of disruptions to flight timetables that sometimes arise in the most heavily used hours.

This proposal would help to improve airline timetable punctuality in the short, medium and longer term while continuing to operate within the existing limit of 480 000 ATMs per year in unbroken segregated mode in the day and evening periods (0700-2300). The proposal would also enable ATMs to be phased out in the night period (2300-0700).

Timetable Disruption

It is claimed that there is a lack of runway capacity (“resilience”) at Heathrow with which to manage periodic disruptions to airline timetables; and that in order to manage those disruptions as efficiently as possible it is necessary to suspend segregated mode, albeit still within the annual legal limit of 480 000 ATMs.

We accept that there may be very rare occasions - for example, when the runways are temporarily closed due to exceptional weather conditions - when simultaneous use of both runways for arrivals and departures may be necessary to enable the backlog of ATMs to recover. But in our view the suspension of segregated mode should be reserved only for the most extreme cases of disruption and not for more routine disruption.

We consider that the more routine disruptions may be caused at least in part by the timetabling of too many ATMs within certain peak hours, making those hours vulnerable to disruption if ATMs deviate even slightly from their timetable. In our view, the best solution to this problem is for the airlines to timetable their ATMs more evenly over the day and evening periods (0700-2300), thereby reducing the vulnerability of “over-subscribed” peak hours to disruption.

Daily Distribution of ATMs

5 800 ATMs are permitted per year at Heathrow between 2330-0600 ¹ with 474 200 ATMs permitted per year between 0600-2330 (i.e. the 480 000 ATM legal limit less 5 800 ATMs between 2330-0600). 474 200 ATMs per year between 0600-2330 is equivalent to approximately 1 299 ATMs per day on average and to approximately 72 ATMs per hour on average.

The largest number of ATMs per year that Heathrow has yet handled was 476 000 in both 2007 and 2011 (i.e. 4 000 ATMs below the legal limit of 480 000 ATMs per year). The daily distribution of ATMs between 0600-2330 per day in those years therefore provides the best indication of how Heathrow is handling its ATM capacity limit.

Table A below sets out the daily runway scheduling limits for movements per hour for each hour between 0600-2300 in the winter seasons in 2006/07 and 2010/11 and the summer seasons in 2007 and 2011 ². The figures are for the busiest weeks in the winter and summer seasons. The

¹ 2 550 in the winter season (Oct-March) and 3 250 in the summer season (March-Oct).

² The daily totals in Table A do not include the 5 800 ATMs permitted per year between 2330-0600.

averages for total number of daily movements (i.e. arrivals and departures combined) are therefore larger than the average 1 299 ATMs per day implied by the 480 000 ATM limit (see the first paragraph of this section): more than 2 per cent larger in the two winter season and more than 5 per cent larger in the two summer seasons ¹.

Table A shows that despite the larger than annual average number of ATMs per day between 0600-2330 the scheduling for arrivals and departures in winter and summer varied between hours: between 41-89 ATMs and 43-90 ATMs in the two winter seasons; and between 51-88 ATMs and 52-88 ATMs in the two summer seasons. A further feature in Table A is that the limit per specific hour was not constant from one year to the next ².

We conclude from this brief analysis that the scheduling limits are flexible between seasons; and that even in the busiest weeks there is scope for a more even distribution of ATMs across each hour of the day between 0600-2330. The scope for re-distribution must be greater still in the less busy weeks.

Table A

	<i>Winter seasons</i>						<i>Summer seasons</i>					
	<i>2006/07</i>			<i>2010/11</i>			<i>2007</i>			<i>2011</i>		
	<i>arrive</i>	<i>depart</i>	<i>total</i>	<i>arrive</i>	<i>depart</i>	<i>total</i>	<i>arrive</i>	<i>depart</i>	<i>total</i>	<i>arrive</i>	<i>depart</i>	<i>total</i>
0600-	35	26	61	37	28	65	36	27	63	38	25	63
0700-	36	41	77	35	41	76	40	43	83	39	46	85
0800-	34	42	76	33	43	76	38	42	80	37	43	80
0900-	39	41	80	41	42	83	39	42	81	40	43	83
1000-	41	42	83	40	42	82	39	40	79	40	41	81
1100-	38	42	80	37	42	79	42	42	84	41	42	83
1200-	42	43	85	43	44	87	40	41	81	39	41	80
1300-	39	41	80	39	40	79	43	43	86	43	43	86
1400-	42	38	80	42	39	81	41	41	82	43	42	85
1500-	44	43	87	44	43	87	44	44	88	41	44	85
1600-	43	46	89	44	46	90	42	44	86	42	43	85
1700-	41	45	86	40	45	85	42	43	85	43	43	86
1800-	40	44	84	40	42	82	43	44	87	44	44	88
1900-	40	42	82	39	43	82	43	44	87	43	44	87
2000-	38	40	78	38	40	78	39	39	78	38	38	76
2100-	40	37	77	41	36	77	44	39	83	44	38	82
2200-	20	21	41	22	21	43	21	30	51	21	31	52
Total	652	674	1 326	655	677	1 332	676	688	1 364	676	691	1 367
Hourly average												
	38.4	39.6	78.0	38.5	39.8	78.3	39.8	40.5	80.3	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". The figures in bold are the largest number of movements (arrivals and departures combined) per hour in each season. The totals are the sum of the individual hours. The hourly average is the total divided by the number of hours.

New Distribution of ATMs

We consider that a more even distribution of ATMs across each hour between 0600-2330 is feasible and could help to reduce the risk of disruptions to timetable schedules. Passengers would benefit from the enhanced punctuality. But the individual airlines may be reluctant to re-schedule in case their competitors gain an advantage from the re-scheduling. Additional incentives beyond the prospect of enhanced punctuality for their passengers may therefore be necessary in order to secure the agreement of the airlines to re-schedule.

¹ The difference in the number of ATMs per day in the busiest weeks and the less busy weeks must be wider than 2 per cent (winter) or 5 per cent (summer) because the increase above the average in the busiest weeks would have to be offset by a corresponding decrease below the average in the less busy weeks in order to stay within the 480 000 ATM limit.

² Analysis of the figures for every season since winter 2000/01 and summer 2000 confirms that the scheduling limit for the majority of hours fluctuates from year to year.

One additional incentive would be to re-schedule proportionately between airlines so that no individual airline should have to re-schedule proportionately more or less than another airline. A further incentive could be to charge re-scheduled services lower airport fees for a number of years, the cost of which would be born by the services that continue as currently scheduled.

Ending Night Flights

We accept that the primary purpose of making more efficient use of Heathrow's capacity is to enable more passengers to be accommodated. But we consider that some of the more efficient use should be set aside to deliver reductions in adverse environmental impacts. The worst impact on our members comes from air traffic at night.

There have been restrictions on air traffic at night at Heathrow since 1962, but our members are still exposed to levels of aircraft noise between 2300-0700 that exceed the World Health Organisation's recommended limit values. We therefore argue that scheduled ATMs should be banned between 2300-0700, with the slots re-distributed between 0700-2300 as part of the re-distribution that we have suggested above in order to reduce the number of ATMs in peak hours.

There are about 75 ATMs between 2300-0700 at Heathrow (about 27 375 ATMs per year), with about 20 ATMs between 2300-0600 (about 7 300 ATMs per year) and about 55 ATMs between 0600-0700 (about 20 075 ATMs per year) ¹. On the basis of the analysis in the previous section, we consider that Heathrow has the capacity to re-schedule the 75 ATMs to between 0700-2300 without jeopardising the benefits that we identified from a more even distribution of ATMs across each hour between 0700-2300 ².

Our proposed ban on movements between 2300-0700 would therefore mean that Heathrow would still be able to handle its legal maximum of 480 000 movements per year, albeit only in the day and evening periods (0700-2300); that the airlines holding slots between 2300-0700 would retain those slots, albeit re-distributed 0700-2300; and that passengers who currently use scheduled services between 2300-0700 would be able to access Heathrow between 0700-2300 as well as other passengers.

We recognise that re-scheduling 75 ATMs from between 2300-0700 to between 0700-2300 would involve a significant re-casting of the post-0700 schedule. For that reason we suggest that the ban should begin with the 20 pre-0600 ATMs which have the worst impact on our members and should be capable of re-scheduling post-0700 with relatively little disruption to the existing post-0700 slot holders. At a later date, the 55 ATMs between 0600-0700 could be re-scheduled in stages (e.g. first the ATMs pre-0630, then the ATMs post-6.30).

Assessment against Relevant Issues

This section assesses the proposal against the issues listed on page 13 of Guidance Document 01 as being relevant for the Airport Commission's consideration of short and medium term options.

Additional Capacity, Timescale and Benefits

The amount of additional traffic capacity likely to be provided The proposal is about better use of the available capacity in order to reduce delays between 0700-2300 and end night flights between 2300-0700. The proposal would not increase capacity per se.

¹ These figures are in the data supporting the strategic noise maps for Heathrow for 2001, 2003, 2006, 2009, 2010.

² 480 000 ATMs per year is equivalent to 1 315 ATMs per day and 77.4 ATMs per hour between 0600-2300 and 82.2 ATMs per hour between 0700-2300. Both hourly figures are below all the daily totals and many of the hourly averages in Table A above in the busiest weeks at Heathrow.

The timescale within which additional air traffic capacity may be available No additional capacity.

Overall benefits to the consumer and the UK economy, particularly in terms of increased connectivity No additional capacity or increased connectivity.

Operational Feasibility; Legal and Technical Barriers

Operation feasibility, with particular reference to the continued ability to operate both UK airspace and airports in a safe manner, as part of the overall air traffic system The proposal is for a more even distribution of aircraft movements across each hour of the day and evening (0700-2300) and an end to flights at night (2300-0700), which should not place any extra demand or safety risk on present operating practices. The proposal should in fact help to reduce the incidence of delays, reducing a demand and safety risk on present operating practices.

Any legal (UK or EU) or technical barriers to implementing the proposal and whether these can be overcome We are not aware of any legal or technical barriers.

Surface Access

Implications for existing surface transport networks The proposal would not increase the number of passengers and would therefore not place any additional demand on surface transport networks.

The potential for new surface transport infrastructure The proposal would not increase the number of passengers and would therefore not create or increase the potential for new surface transport infrastructure.

Environmental Considerations

Impacts of the emission of greenhouse gases covered by the Kyoto Protocol There would be a reduction in greenhouse gas emissions if the proposal results in fewer ATMs having to “stack” and/or shortening the period of “stacking”. We are not able to quantify.

Environmental impacts affecting the health of local populations, for instance in terms of air quality The proposal is likely to benefit the health of the local population from the reduction of the extra emissions which are caused by congestion of both air and surface access traffic.

Changes to the number of people exposed to aircraft noise by the proposal and the extent of the noise to which they are exposed The main benefit would be to end air traffic noise at night, which is the main noise impact of Heathrow on our members. Reducing the incidence of delays would mean that the benefit of segregated mode would not be broken in order to handle congestion bottlenecks, which would be a potential new noise impact on those who currently benefit from unbroken segregated mode.

Alignment Considerations

Alignment with local economic growth and regional development strategies No inconsistency with local economic growth and regional development strategies.

Alignment with longer term options No inconsistency with longer term options.

Cost Implications

Cost implications, including for air passengers and freight users, the aviation industry and the UK taxpayer No cost implications. An uncosted potential saving in time for passengers by reducing delays. An uncosted benefit for residents from no aircraft noise at night.

Proposal 2: Increase Seat Capacity

Introduction

We propose that better use could be made of the existing passenger capacity at Heathrow if the seat capacity of the air fleet were to be increased on at least the scale forecast by the aviation industry at the Heathrow Terminal Five Public Inquiry. In short, the replacement of aircraft with small seat capacity by aircraft with larger seat capacity would enable more passengers to be carried per aircraft movement without the need to increase the total number of movements.

This proposal would enable the number of passengers and new destinations that are served by Heathrow to increase in the short and medium term, while retaining two key noise management measures at Heathrow: the limit of 480 000 air transport movements per year and the operation of unbroken segregated mode between 0700-2300.

We have focused our proposal on Heathrow because: (a) passenger demand is larger at Heathrow than at other airports; and (b) policy makers and the aviation sector appear to have forgotten that the Terminal Five Public Inquiry identified an increase in seat capacity as part of Heathrow's future. But the Airports Commission may wish to consider whether the proposal could be applied more generally and not just at Heathrow.

The aviation industry argues that full use can be made of Heathrow's existing passenger capacity only by introducing mixed mode in order to handle an additional 60 000 movements per year above the existing 480 000 limit. But our proposal would enable full use of the passenger capacity and could be initiated immediately, without the need for an inquiry and the risks of legal challenges inherent in seeking to overturn the 480 000 limit and permit mixed mode. Our proposal would have less environmental impacts than mixed mode. Above all, our proposal is less controversial than mixed mode and is therefore likely to be supported by a wider consensus than would be the case for mixed mode.

Airport Capacity at UK Airports

The passenger and freight capacity of an airport is determined by three parameters, the first and second of which are the responsibility of the airport operator and the third of which is the responsibility of the airlines that use the airport:

- Terminal capacity, which determines the maximum possible number of passengers that the airport can handle.
- Runway capacity, which determines the maximum possible number of aircraft movements that the airport can handle.
- Passenger and freight capacity per movement, which determines the extent to which the air fleet can utilise the capacity created by the two preceding parameters.

Table A below shows how demand for the capacity at all UK airports has increased at five year intervals over the thirty-five year period between 1975 and 2010. The number of passengers increased five-fold from more than 41 million to more than 210 million. The number of air transport movements (ATMs) increased nearly three-fold from 710 000 to 2 046 000. The number of passengers per ATM increased less than two-fold from 59.7 to 103.0.

Table A shows that there was a consistent increase in the number of passengers per ATM, which explains why the rate of increase in the number of passengers exceeded the rate of increase in the number of ATMs. But it is not clear why the number of ATMs should have increased at a much

faster rate than the number of passengers per ATM: the economic incentive to carry the maximum number of passengers per ATM should have resulted in much closer growth rates.

Table A

Years	Passengers (000)		ATMs (000)		Passengers per ATM	
		%		%		%
1975	41 846	100.0	701	100.0	59.7	100.0
1980	57 823	138.2	954	136.1	60.6	101.5
1985	70 434	168.3	1 097	156.5	64.2	107.5
1990	102 418	244.8	1 420	202.6	72.1	120.8
1995	129 586	309.7	1 612	230.1	80.4	134.7
2000	180 001	430.2	2 045	291.7	88.0	147.4
2005	228 217	545.4	2 405	343.1	94.9	159.0
2010	210 656	503.4	2 046	291.9	103.0	172.5

Source: Civil Aviation Authority, *UK Airport Statistics* for the number of passengers and ATMs, from which the average number of passengers per ATM have been calculated.

Table B below has been compiled from the Department for Transport's latest aviation forecasts for constrained growth (i.e. no additional terminal or runway development) between 2010 and 2050. The number of passengers will increase by 111.9 per cent from 211 million to 447 million. The number of ATMs will increase by 81.2 per cent from 2 046 000 to 3 708 000. The number of passengers per ATM will increase by 17.1 per cent from 103.0 to 120.6.

The rates of growth in the number of passengers and the number ATMs will therefore be much closer over the next forty years than they have been over the last thirty five years. But the rates of growth in the number of ATMs and the number of passengers per ATM will continue to diverge, with growth in the number of ATMs more than four times that of growth in the number of passengers per ATM over the next forty years, compared with a growth differential of less than three times over the past thirty five years. We are not yet able to explain the reason for this continued divergence.

Table B

Years	Passengers (millions)		ATMs (000)		Passengers per ATM	
		%		%		%
2010	211	100.0	2 046	100.0	103.0	100.0
2050	447	211.9	3 708	181.2	120.6	117.1
Increase	236	111.9	1 662	81.2	17.6	17.1

Source: Department for Transport, *UK Aviation Forecasts (2013)* for the number of passengers and ATMs, from which the number of passengers per ATM have been calculated.

Table C below brings together the data since 1975 and the data projected to 2050. Over the combined period of seventy five years the number of passengers will have increased more than ten-fold, the number of ATMs will have increased more than five-fold, and the number of passengers per ATM will have been increased just two-fold.

In view of the low rate of increase in the number of passengers per ATM it is surprising that policy makers have not identified a higher rate of increase in the number of passengers per movement as one of the options for responding to increased passenger numbers, particularly as the issue was discussed at some length at the Terminal Five Public Inquiry (see next section). It is even more surprising that the aviation sector has not made better use of an increasingly scarce resource (runway capacity) by increasing more significantly the number of passengers per movement, particularly given its evidence to the Terminal Five Public Inquiry (see next section).

Table C

Years	Passengers (millions)		ATMs (000)		Passengers per ATM	
		%		%		%
1975	42	100.0	701	100.0	59.7	100.0
2010	211	503.4	2 046	291.9	103.0	172.5
2050	447	1 064.3	3 708	529.0	120.6	202.0

Source: Table A and Table B

Capacity at Heathrow: Terminal Five Public Inquiry

The Planning Inspector who conducted the Heathrow Terminal Five Public Inquiry (Roy Vandermeer QC) advised the Secretary of State ¹ that Heathrow with Terminal Five would have the terminal capacity to handle at least 90 million and possibly 95 million passengers per year, with a maximum runway capacity of 480 000 ATMs per year operating in unbroken segregated mode between 0700-2300 and within the limit (5 800) on the number of ATMs per year in the night noise quota period (2330-0600).

The airlines informed the Public Inquiry that the additional passenger capacity would be utilised partly by increasing the number of ATMs per year to the 480 000 maximum runway capacity in segregated mode; and partly by increasing the average size of aircraft across the air fleet (i.e. more seats per aircraft and therefore potentially more passengers per movement).

Heathrow averaged 120.2 passengers per ATM in the year (1993) in which the planning application to develop Terminal Five was first submitted. 90 million passengers carried in 480 000 ATMs is equivalent to an annual average of 187.5 passengers per ATM. An increase from 120.2 to 187.5 passengers per ATM is a rate of increase of more than 50 per cent which is a much faster rate of increase than the past and projected trends at UK airports as a whole (see previous section on airport capacity at UK airports).

Airline Use of Heathrow Capacity

Table D below sets out the number of passengers and ATMs and the average number of passengers per ATM at Heathrow in each year 1991-2012.

Table D

Years	Passengers (millions)		ATMs (000)		Passengers per ATM	
		%		%		%
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
2012	70.0	173.7	471	130.1	148.6	133.5

Source: Civil Aviation Authority, *UK Airport Statistics* for the number of passengers and ATMs, from which the number of passengers per ATM have been calculated. Figures in bold indicate a decrease compared with the previous year.

¹ See the report dated 20 December 2000 by Roy Vandermeer QC to the Secretary of State on the Heathrow Terminal Five Public Inquiry.

The number of passengers per year increased from 40.3 million in 1991 to 70.0 million in 2012, an increase of 29.7 million (73.7 per cent) over twenty one years. At the end of 2012 there was spare capacity to handle a further 20 million passengers per year (i.e. 90 million less 70 million). The rate of increase in the number of passengers between 1991 and 2012 was equivalent to an average annual increase of approximately 1.4 million. If the same rate of increase continues, the 20 million spare capacity would be fully utilised in 2027.

The number of ATMs per year increased from 362 000 in 1991 to 471 000 in 2012, an increase of 109 000 (30.1 per cent) over twenty one years. At the end of 2012 there was spare capacity to handle a further 9 000 ATMs per year (i.e. 480 000 less 471 000). The rate of increase in the number of ATMs between 1991 and 2012 was equivalent to an average annual increase of approximately 5 190. If the same rate of increase continues, the 9 000 spare capacity would be fully utilised in 2014.

The average number of passengers per ATM increased from 111.3 in 1991 to 148.6 in 2012, an increase of 37.3 (33.5 per cent) over twenty one years. At the end of 2012 there was spare capacity - as implied by the findings of the Terminal Five Public Inquiry - to handle a further 38.9 passengers per ATM (i.e. 187.5 less 148.6). The rate of increase in the number of passengers per ATM between 1991 and 2012 was equivalent to an average annual increase of approximately 1.8 passengers. If the same rate of increase continues, the 38.9 spare capacity would be fully utilised in 2034.

The foregoing analysis shows that at the end of 2012 Heathrow had spare capacity to handle a further 20 million passengers per year. But that spare capacity cannot be used in full at present within the legal limit of 480 000 ATMs per year because the average number of passengers per ATM has not increased at the rate forecast by the airlines at the Terminal Five Public Inquiry.

The scale of the shortfall in the forecast rate of increase the number of passengers per ATM at Heathrow is quite dramatic: the airlines expected to reach 187.5 passengers per ATM by 2016, but the analysis above suggests that this figure will not be reached until 2034, despite the present and future congestion pressures at Heathrow. Therefore, unless the airlines accelerate the rate of increase in the number of passengers per ATM, the spare passenger capacity cannot be used in full within the 480 000 ATMs legal limit until 2034.

To see how Heathrow compares with other UK airports, Table E below shows the average number of passengers per ATM in 1990, 2000 and 2010. Over the twenty year period the number of passengers per ATM increased at Heathrow and at the other UK airports. But the rate of increase was faster at the other airports than at Heathrow in absolute numbers (37.2 to 30.7) and as a percentage of the 1990 numbers (66.3 per cent to 26.5 per cent).

The reason that Heathrow has more passengers per ATM is likely to be that there are more larger aircraft (i.e. more seats across the fleet) at Heathrow than at other airports. But the congestion pressures at Heathrow over the last twenty years have been greater than at other airports, so the rate of increase in the number of passengers per ATM at Heathrow should have been ahead of rather than behind the other UK airports.

Table E

	<i>Number of passengers per ATM</i>			
	<i>Heathrow</i>		<i>Other UK Airports</i>	
		<i>%</i>		<i>%</i>
1990	115.9	100.0	56.1	100.0
2000	139.8	120.6	73.0	130.1
2010	146.6	126.5	93.3	166.3
Increase	30.7	26.5	37.2	66.3

Source: Civil Aviation Authority, *UK Airport Statistics* for the number of passengers and ATMs, from which the average number of passengers per ATM have been calculated.

Freeing up Heathrow's Surplus Passenger Capacity

There are two options for freeing up Heathrow's surplus passenger capacity in the short and medium term:

- Increase the number of passengers per ATM up to a maximum of 480 000 ATMs per year in segregated mode, as preferred by the Terminal Five Public Inquiry.
- Introduce mixed mode and increase the number of ATMs per year above 480 000, as ruled out by the Terminal Five Public Inquiry ¹.

The aviation industry argued for the first option at the Terminal Five Public Inquiry and said that the second option was not needed. But the industry is now arguing for the second option, calling for an additional 60 000 ATMs per year (i.e. 540 000 ATMs per year in total) in mixed mode.

The fact that the industry has switched to the second option may indicate that it does not think that the number of passengers per ATM (187.5) that it said at the Terminal Five Public Inquiry could be achieved by 2016 can now be achieved ². Alternatively, there may be market imperfections or regulatory disincentives that are preventing its achievement ³ (see next section).

We think that the Airports Commission should consider the option of increasing the number of passengers per ATM as an alternative to increasing the number ATMs. In our view, more ATMs would worsen the local noise climate with no compensating noise gains, whereas more passengers per ATM would enable the limit of 480 000 ATMs per year and unbroken segregated mode to be retained. Restricting the number of ATMs to 480 000 per year may also mean lower levels of local air pollution and climate change emissions.

Two other factors favour the choice of more passengers per ATM in preference to more ATMs. First, more ATMs would require a feasibility study, public consultation and a public inquiry (to set aside the 480 000 legal limit and segregated mode). This process (including the risk of legal challenges at each stage) would take time and the outcome would be uncertain, whereas increasing the number of passengers per ATM could begin immediately. Second, more ATMs would be far more divisive than more passengers per ATM, which would influence final decisions at the political level.

We therefore suggest that a program for increasing the number of passengers per ATM should be drawn up on the basis of the following short term and medium term objectives:

- Increased passenger numbers per ATM could be delivered in the short term if the airlines aim at a higher ratio of passenger numbers to passenger capacity in their existing fleet. The number of seats per ATM at Heathrow averaged about 200 over each of the last five years, with the number of passengers per ATM in 2012 averaging at 148.6, a seat capacity use of about 74.3 per cent ⁴. There is therefore scope to increase the average number of passengers

¹ Roy Vandermeer QC said in his report to the Secretary of State that the balance of benefits and disbenefits would tip against the development of Terminal Five if mixed mode and an increase in noise levels between 0600-0700 were permitted as part of the development.

² BA, the holder of the largest number of slots at Heathrow, indicated to the Terminal Five Public Inquiry that it expected an average 216 passengers per ATM across its fleet.

³ Increasing the number of ATMs per year from 480 000 to 540 000 would still require an increase in the number of passengers per ATM from 148.6 in 2012 to 166.7 in order to carry 90 million passengers. The industry must therefore still accept that an increase in the number of passengers per ATM is achievable as a response to increased passenger demand.

⁴ Data from the Civil Aviation Authority and Airports Co-ordination Limited websites.

per ATM, particularly on the most popular routes that are served by many flights per day. More passengers per ATM would enable the same number of passengers to be carried in fewer daily movements on the most popular routes, which in turn would free up slots for new destinations ¹.

- Increased passenger numbers per ATM could be delivered in the medium term 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 ². 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. A further incentive would be to introduce a slot tax that would be proportionately heavier for aircraft with a seating capacity below a specified threshold; or a congestion tax for aircraft on over-subscribed destinations.

Market Imperfections and Regulatory Disincentives

It is not clear why the rules of supply and demand (congestion pressures at Heathrow) and market forces more generally (competition between the airlines) have not resulted in the introduction of a larger passenger carrying capacity across the air fleet.

One explanation could be that the airlines fear that increasing the number of passengers per ATM would weaken the arguments for further runway capacity at Heathrow and elsewhere in the London area. The best response would be for the Government to send a clear message to the market that no additional runway capacity will be made available in the short/medium term (mixed mode operations) or in the long term (additional runway development). If this message had the support of all the main political parties, the airlines could be expected to shift their focus from expanding the number of ATMs to expanding the number of passengers per ATM.

A further explanation could be that more passengers per ATM would create unused slots which the airlines holding them under the “grandfather rights” slot rule would have to surrender under the “use it or lose it” slot rule without compensation. The airlines may wish to retain all their slots in order to open new routes in the future; or to sell slots that are surplus to their requirements at their most lucrative value; or to keep competing airlines out. All three considerations are a disincentive to increasing the air fleet capacity. The best response would be to introduce a slot tax that would be proportionately heavier for aircraft with a seating capacity below a specified threshold or a congestion tax for aircraft on over-subscribed destinations.

The Airports Commission should investigate the extent to which market imperfections and/or regulatory disincentives may be hindering an increase in the number of passengers per ATM at Heathrow at the rate envisaged at the Terminal Five Public Inquiry. The investigation should focus particularly on the most popular routes, on which there are many daily ATMs where the scope for larger passenger loads appears to be most obvious and pressing.

¹ Our analysis - incomplete at the time of preparing this proposal - 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.

² In 1991 39.1 per cent of the Heathrow air fleet had 200 or more seats and 60.8 per cent had less than 200 seats. In 2011 only 35.6 per cent of the fleet had 200 or more seats and 64.3 per cent had less than 200 seats.

Assessment against Relevant Issues

This section assesses the proposal against the issues listed on page 13 of Guidance Document 01 as being relevant for the Airport Commission's consideration of short and medium term options.

Additional Capacity, Timescale and Benefits

The amount of additional traffic capacity likely to be provided Increasing the number of passengers per ATM would enable full use to be made of Heathrow's terminal capacity of 90 million passengers per year (i.e. 20 million more passengers than were handled in 2012).

The timescale within which additional air traffic capacity may be available Fairly immediate timescales, depending on when the airlines: (a) begin to increase the number of passengers per ATM on the most popular routes within the existing fleet seat capacity; and (b) begin to increase the fleet seat capacity.

Overall benefits to the consumer and the UK economy, particularly in terms of increased connectivity With more passengers per ATM than at present, particularly on the most popular routes, fewer slots would be needed per route which would free up slots for new routes. For example, BA has announced that a proportion of the slots that it acquired at Heathrow from BMI 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 will presumably be accommodated on the ATMs that BA already undertakes to those destinations, thereby reducing the number of ATMs on some routes but increasing the number of passengers per ATM and creating new connectivity.

Operational Feasibility; Legal and Technical Barriers

Operation feasibility, with particular reference to the continued ability to operate both UK airspace and airports in a safe manner, as part of the overall air traffic system Increasing the number of passengers per ATM and replacing small aircraft with larger aircraft within the existing 480 000 ATMs per year limit in unbroken segregated mode should be feasible within existing operational and safety procedures.

Any legal (UK or EU) or technical barriers to implementing the proposal and whether these can be overcome The rules on slot holding and possibly anti-competitive considerations may act as disincentives to increasing the number of passengers per ATM. They can be best overcome by introducing a slot duty or charge that would make small aircraft less economic to operate, particularly on the heavily subscribed routes.

Surface Access

Implications for existing surface transport networks We comment in the section below on the problems of surface access at Heathrow.

The potential for new surface transport infrastructure It is not clear what can be done in the short term to reduce the volume of road traffic at Heathrow other than a reduction in the public transport costs and a charge or other restriction on private and hire car access. In the medium and long term there will be the opportunity to upgrade surface access not just at Heathrow but across the South East catchment area for all London's other major airports, where surface access is also a problem.

Environmental Considerations

Impacts of the emission of greenhouse gases covered by the Kyoto Protocol An increase in the number of passengers per ATM is likely to increase the weight and therefore the fuel consumption per ATM which in turn would increase the quantity of greenhouse gas emissions. We are not able to say by how much the increase in emissions would be but we consider that it would be less than the increase from 60 000 additional ATMs per year.

Environmental impacts affecting the health of local populations, for instance in terms of air quality An increase in the number of passengers per ATM is likely to increase the weight and therefore the fuel consumption per ATM which in turn would increase the quantity of polluting emissions to the local environment. We are not able to say by how much the increase in emissions would be but we consider that it would be less than the increase from 60 000 additional ATMs per year. We comment on the local air quality problems in the section below on surface access to Heathrow.

Changes to the number of people exposed to aircraft noise by the proposal and the extent of the noise to which they are exposed Increasing the size of aircraft in order to carry more passengers per ATM may affect the noise per ATM because larger aircraft tend to be noisier than smaller aircraft, notwithstanding assurances from the aviation industry that the next generation aircraft will be less noisy than the present generation. But the proposal would at least maintain the existing noise measures that limit the number of ATMs to 480 000 per year operating in segregated mode.

Alignment Considerations

Alignment with local economic growth and regional development strategies The proposal would permit Heathrow to continue in operation to the benefit of the local economy.

Alignment with longer term options We consider that carrying more passengers per ATM should form part of any longer term option because of its intrinsic merits and because it is an option that provides great flexibility in responding to demand.

Cost Implications

Cost implications, including for air passengers and freight users, the aviation industry and the UK taxpayer There should be no infrastructure costs at the airport because we are not proposing an increase to either the terminal or runway capacity. There would be investment costs to the airlines in changing the fleet composition which the airlines would have to recover from their customers, but fleet replacement is already an on-going cost. The replacement costs could be further defrayed by increasing code sharing between airlines. There should be no cost to the tax payer. The tax payer would benefit from the increase in the yield from air passenger duty (APD) from the additional 20 million passengers. The tax payer would also benefit - at the expense of passengers and freight users - if APD was supplemented by a duty on slot holdings in general or on slots to over-subscribed destinations.

Surface Access at Heathrow

Heathrow has the terminal capacity to handle 90 million passengers per year. Assuming a continuation of the ratio of two terminating passengers to one transferring passenger (a ratio that has been roughly constant at Heathrow since the mid 1990s) then there would be an additional 14 million terminating passengers per year at Heathrow by the time that its passenger capacity is fully utilised. How would those additional 14 million passengers get surface access to Heathrow?

Table F below sets out the different modes of transport that have been used by terminating passengers for surface access to Heathrow between 1972 and 2010. In 2010 (the most recent year for which the detailed data was available at the time of drafting this response) 30.8 million passengers accessed by road (private car, hire car, taxi/minicab, bus/coach) and 10.8 million passengers accessed by rail (including underground), a ratio of three road accesses to one rail access that has been roughly constant at Heathrow since the opening of the Paddington connection in 2000 (prior to 2000 the ratio was 4 : 1).

Assuming the future continuation of the 3 : 1 ratio, then 10.5 million of the additional 14 million terminating passengers would use road access, an increase to 41.3 million in the total number of

road access users per year. Increased passenger numbers would in turn increase the quantity of consumer goods and other supplies that are delivered to Heathrow primarily by road.

The roads around Heathrow already experiences significant levels of road traffic congestion, in part because of the high volume of road traffic to and from Heathrow. In many of these areas the air quality is already poor, with road traffic emissions identified as the main pollutant source. Reducing these related adverse impacts is proving difficult even with the present level of Heathrow road traffic.

If the number of terminating passengers accessing Heathrow by motor vehicles continues to increase then local road traffic congestion would worsen still further and surface access to Heathrow would become even more time-consuming for passengers than at present. There would also be serious implications for local air quality - see below.

Table F

Year	Car/taxi		Bus/coach		Tube/rail		Other		Total	
	Millions	%	millions	%	millions	%	millions	%	millions	%
1972	-	59	-	32	-	0	-	2	14.3	93
1978	-	63	-	14	-	20	-	1	20.8	98
1984	14.9	66	3.3	14	4.5	20	0.2	1	22.6	101
1987	17.2	64	4.0	15	5.4	20	0.2	1	26.8	100
1991	19.7	66	3.9	13	6.0	20	0.2	1	29.8	100
1996	25.0	67	6.0	16	6.0	16	0.3	1	37.3	100
1997	25.3	66	6.2	16	6.6	17	0.4	1	38.5	
1998	27.2	67	5.7	14	6.3	18	0.4	1	40.6	
1999										
2000	28.4	63.7	6.2	13.9	9.8	22.1	0.3	0.4	44.6	
2001	26.6	64.7	5.4	13.1	8.9	21.5	0.3	0.7	41.2	100
2002	25.9	65.3	4.9	12.3	8.8	22.1	0.1	0.3	39.7	
2003	25.9	64.3	5.1	12.6	9.2	22.9	0.2	0.3	40.2	
2004	27.8	63.7	5.4	12.4	10.2	23.5	0.3	0.3	43.6	
2005	27.3	62.7	5.7	13.0	10.4	23.9	0.2	0.4	43.6	
2006	28.5	64.4	5.8	13.1	9.9	22.9	0.0	0.0	44.2	100
2007	27.2	61.5	5.8	13.2	11.0	24.9	0.1	0.3	44.1	
2008	25.7	59.8	6.1	14.1	11.1	25.7	0.1	0.3	43.0	
2009	24.5	59.6	5.7	14.0	10.6	26.0	0.2	0.5	40.9	
2010	25.2	60.5	5.6	13.4	10.8	25.9	0.1	0.3	41.7	

Source: Civil Aviation Authority *Passenger Survey Reports*. The surveys have been undertaken annually from 1996 at Heathrow; at less frequent intervals before 1996. The report for 1999 had not been consulted at the time of preparing the table. The Passenger Survey Reports indicate the use of each mode of transport shown in the table ¹ as a percentage ² of the total number of terminating passengers ³. The reports from 2007 onwards indicate the percentage use of private, public and other surface modes of transport. The number of passengers using each mode has been calculated by applying the individual percentages to the total number of terminating passengers in each year from 1984 onwards ⁴ The column car/taxi includes private hire cars and minicabs.

Air Quality

The Terminal Five Public Inquiry found that the air quality in areas around Heathrow exceeded what were at the time voluntary World Health Organisation (WHO) limit values for exposure to nitrogen dioxide; and that the exceedences would continue in future with or without Terminal

¹ The reports since 2007 indicate the percentage use of public, private and other surface modes of transport, but not the percentages for the individual modes of transport published in the reports prior to 2007. The percentages for the individual modes since 2007 have been supplied by BAA Heathrow to the local authorities.

² Rounded percentages prior to 2000, percentages to one decimal point since 2000. The individual percentages for 1972, 1978 and 1984 sum to 93 per cent, 98 per cent and 101 per cent respectively. For the subsequent years, the individual percentages sum to 100 per cent (or to one decimal point for 2000, 2003 and 2004).

³ Transfer passengers are excluded because they do not arrive at or depart from Heathrow by surface transport.

⁴ 1972 and 1978 are excluded because the data are evidently incomplete for those years - see footnote 2.

Five. By the time the Secretary of State authorised the development of Terminal Five the WHO limit values had been made mandatory within the European Community.

In paragraphs 77 and 78 of the letter dated 21 November 2001 authorising the development of Terminal Five the Secretary of State took issue with what he regarded as an unduly relaxed attitude towards the prospect of continued nitrogen dioxide exceedences around Heathrow:

He [the Secretary of State] considers that the Inspector placed too little weight on the European Community law aspects of the air quality issues and he recognises the obligations that Community law imposes on the UK Government ... The Secretary of State reaffirms his recognition of the UK Government's obligations under the EU Directive. It remains the Government's intention to meet the requirements of the Directive .

Although road traffic in the Heathrow area is considered to be the main source of nitrogen dioxide (and also of particulates, another cause of local pollution for which limit values have been set), much of that road traffic is Heathrow bound; and aviation emissions (particularly take offs) make an additional contribution to the overall nitrogen dioxide and particulate levels. Any significant increase in passenger numbers using road access in future would make compliance with the limit values even more difficult.

Quite apart from the legal obligations on the Government to comply with the EU Directive, the nitrogen dioxide and particulate levels pose a health threat to adults living and working near Heathrow and to children living and attending schools near Heathrow. Recent research by the Massachusetts Institute of Technology has confirmed the health risks from air pollution in areas around Heathrow.

Proposal 3: Reduce the Number of Transfer Passengers

Introduction

We propose that the number of transfers passengers at Heathrow should be reduced in order to free up terminal and aircraft capacity for terminating passengers. The evidence we discuss below suggests that transfers have become a problem for Heathrow rather than a benefit.

Although Heathrow represents 31.9 per cent of all passengers using UK airports it represents 82.4 per cent of transfers and hence our focus on Heathrow in this Proposal. Also, we focus on international transfers rather than the relatively small number of domestic-international transfers.

Our proposal is to replace over several years the international transfer passengers at Heathrow, which for example were 18 million in 2010 and 20.9 million in 2011. This frees up around 30 per cent of Heathrow terminal and aircraft capacity to fill with additional terminating passenger demand allocated between destinations and frequencies as the market determines. In practice there will be a residue of transfers (international and domestic) similar to the levels at other London airports.

Connectivity Benefits of Transfer Passengers

The main benefit from transfer passengers is said to be the enhancement of Heathrow's connectivity by enabling airlines operating from Heathrow to serve a larger number of destinations, including marginal routes otherwise not viable, and with greater frequency than would be the case with just terminating passengers. This benefit is said by some to be at risk if the transfer model is not supported and grown in the future. But our analysis questions whether this benefit is supported by recent trends and the distribution of transfer passengers on destinations served by Heathrow.

The table in Annex 1 to this proposal sets out the number of passengers at Heathrow between 1972 and 2011. The total number of passengers has increased overall, with similar rates of growth between terminating and transferring passengers up to 1987. But since 1991 the rate of growth for transfers has been faster than for terminating passengers, with transfers accounting for one or more passengers in three since 2002 compared with less than one in four passengers prior to 1991 ¹.

Table A below sets out the number of destinations per listed region served by air transport movements from Heathrow in the years 1990, 2001 and 2011. 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.

Thus the period of exponential growth in transfers since 1991 coincided with a fall in the number of destinations served by Heathrow, whereas under the transfer model there should have been an increase in the number of destinations. The trend towards fewer destinations cannot be explained by a lack of runway capacity: the largest decrease in the number of destinations served by Heathrow occurred between 1990 and 2001, during which period there was considerable spare runway capacity ².

¹ The number of air transport movements at Heathrow increased from 362 000 in 1991 to 476 000 in 2011.

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

Table A

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). 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.

Table B below is a summary of the list of 191 destinations served by Heathrow in 2011. Analysis of the table raises a number of doubts as to benefit of transfer aggregation on frequencies and the viability of destinations.

Number of Destinations. 121 destinations (i.e. over 63%) had at least one daily arrival and departure (i.e. 2 or more movements) and these served 61.9 mppa (i.e. over 95% of Heathrow international passengers). We suggest that the minimum daily service provided should enable business people to conduct their business reasonably effectively and not disadvantage the locating of operations in the UK and not discourage tourists to the UK, all of which are important to the UK economy.

High Frequency Routes. While connectivity improves with service frequency, arguably there are increasing diminishing returns as the frequencies rise. In the case of Heathrow we believe there is no great need to increase the frequencies to the majority of destinations as can be seen from the high frequencies in Table B. Cessation of international transfers will dampen ever higher frequencies resulting from demand that is estimated by the DfT Demand Forecasts to double over the next 40 years. Also, in the case of short haul destinations connectivity extends beyond just Heathrow to access by other UK airports (operating largely without transfers) and in some cases, such as Dublin, up to 28 routes. The high frequency destinations are far from needing transfers to aggregate to some minimum critical load to make the routes viable. Table C below illustrates the case of the five most frequent services.

Table B

Service Frequencies ATMs Per day	Destinations	Average Distance km	Total International Passengers '000 per yr	Percent of Total Passengers	International Transfer Passengers '000 per yr	Transfer Passenger %	UK Airport Routes
30-35	5	1475	8384	13.0%	2584	30.8%	95
20-29	8	1016	7703	11.9%	2076	27.0%	125
10-19	27	3539	22518	34.8%	8098	36.0%	180
2-9	81	5268	23344	36.1%	7712	33.0%	355
Below 2	70	4619	2737	4.2%	465	17.0%	338
Total	191	4508	64686	100%	20935	32.4%	1093

Source: CAA

Table C

Destination	Distance km	Passengers '000 per yr	Transfer passengers '000 per yr	Trnfrs	Frequency ATMs per day	Aircraft Passenger Loads	UK Airport Routes
Frankfurt Main	653	1470	244	17%	33.2	152	16
Amsterdam	370	1407	418	30%	34.4	112	27
New York (JFK)	5547	2679	893	33%	34.0	216	4
Dublin	449	1556	572	37%	33.5	127	28
Paris (CDG)	354	1272	457	36%	30.8	113	20

Source: CAA

Low Frequency Routes. The number of transfers for the 70 destinations with less than a daily service is only 0.5 mppa or 2% of all transfers and the average transfer per destination is 17% or around half that for all the other destinations with higher frequencies. Examination of the individual destinations shows that only 9 out of the 70 destinations had any transfers at all. Of the 61 low frequency services without transfers 37 were over 3,500 kms from Heathrow and can be regarded as long haul. Put in another way, only 7 low frequency long haul destinations had transfers (see [Table D below](#)). One of these, Islamabad, had relatively high loads of 333 passengers and if the 13 transfers per ATM were not available then it seems unlikely the service of once every 2 days would be at risk. In most of the other cases if there were no transfers there could be a service at least weekly.

Table D

	Destination	Distance km	Passengers '000 per yr	Transfer passengers '000 per yr	Trnfrs	Frequency ATMs per day	Aircraft Passenger Loads
USA	Raleigh	6218	111	48	43%	1.9	157
Argentine	Buenos Aires	11140	155	91	59%	1.9	220
USA	Phoenix	8465	179	104	58%	1.7	288
India	Chennai	8304	115	67	58%	1.4	220
India	Hyderabad	6391	96	76	79%	1.4	184
Uganda	Entebbe	6499	71	47	67%	1.4	137
Pakistan	Islamabad	6068	136	13	10%	1.1	333

Source: CAA

From the evidence examined above it seems that the number of destinations needing critical loads to justify viability is small and that to rely on a large number of international transfers to provide a few passengers for critical load destinations is an inefficient use of scarce resources. We believe it preferable to support critical load destinations with the growing terminating passenger demand from the substantial catchment area in the south east. The evidence also suggests the service frequencies at Heathrow are already high. We believe higher frequencies in many cases will result in diminishing returns. Future growth in demand can only increase these frequencies and they are not in need of support from increasing numbers of transfers as well.

Capacity Disbenefits of Transfer Passengers

The main disbenefit of transfer passengers is that they place a demand on terminal capacity at Heathrow that would otherwise be available for terminating passengers. The scale of this disbenefit depends partly on the level of demand from all passengers (terminating and transfers combined) and partly on the proportion of transfers to terminating passengers.

The [table in Annex 1 to this proposal](#) shows that overall passenger numbers at Heathrow have grown by nearly 29 million per year in the twenty-one year period between 1991 and 2011 (from 40.4 million to 69.2 million). The 2011 total is twenty million short of Heathrow's terminal capacity of 90 million passengers per year, but that spare capacity will be filled over the next ten to fifteen years if total passenger numbers continue to increase at the rate they have since 1991.

The table in Annex 1 also shows that the number of transfer passengers per year at Heathrow have increased from 10.6 million in 1991 to 23.3 million in 2011, an increase of 12.7 million. This rate of increase is faster than the rate of increase for terminating passengers. As a consequence, transfer passengers accounted for one passenger in three at Heathrow in 2011, whereas they accounted for one passenger in four in 1991. That is to say, transfers have been using up Heathrow's diminishing terminal capacity at a faster rate than the terminating passengers.

An ever-increasing number of transfers in future as forecast by the Department for Transport (see [Table E in the next section](#)) will increase the demand that transfers already place on Heathrow's capacity to the exclusion of terminating passengers. That is to say, large numbers of

transfer passengers have become and will continue to be a major cause of the capacity difficulties at Heathrow.

Are Transfers Inevitable?

Table E below shows that the Department for Transport expects that the number of transfer passengers to increase at Heathrow by 2030 and again by 2050. In the constrained case international transfer demand is forecast to grow 1.7 times by 2050. In the unconstrained case the international transfer demand at UK airports is forecast to grow 1.9 times between 2010 and 2050. While we do not dispute the mathematics of these calculations, we do question the basic proposition that the number of transfers will continue to increase.

Table E

Mppa	<i>Constrained</i>			<i>Unconstrained</i>	
	2010	2030	2050	2030	2050
Domestic – International:					
Heathrow	5.5	0.5	0.2		
Gatwick	1.5	2.2	0.1		
Stansted	0.3	1.4	0		
Other UK	0.2	0.1	0.1		
Sub-total	7.5	4.2	0.4		
International – International:					
Heathrow	18.0	23.3	26.9		
Gatwick	1.7	2.6	1.1		
Stansted	1.2	0.8	0.0		
Other UK	0.2	0.3	8.2		
Sub-total	21.1	27.0	36.2	28.2	40.5
Total Transfers	28.6	31.2	36.6		
Total Demand central case	210.6	312.6	447.5	319.6	482.2
Heathrow:					
Total Demand	67.2	81.8	92.9	109.4	170.1
Long-haul UK & Foreign Business	5.8	9.5	12.0		
International transfers:					
Low sensitivity case		31.0	37.2	31.8	39.7
High sensitivity case		24.0	Na	25.8	39.3

Source: Department for Transport Demand Forecasts (2013)

Viewed from the perspective of passengers, it is likely that they would prefer in most cases to fly direct to their ultimate destinations rather than transferring at an intermediate airport, because direct flights should be quicker and cheaper than transfers. What is stopping the airlines from meeting this likely passenger preference?

In the early days of civil aviation there were relatively few passengers. Transferring at intermediate airports such as Heathrow was therefore often the only economically viable option for destinations for which there was insufficient direct demand. But the growth in passenger numbers over the last two decades and the projected future growth should mean that an ever increasing number of direct services have become or will become economically viable between an ever increasing number of airports.

As more direct services develop between more airports, there should be a corresponding decrease in the number of transfers at intermediate airports. But the [table in Annex 1 to this proposal](#) shows that transfers have increased at Heathrow over the last twenty years at a faster rate than terminating passengers. The Terminal Five Public Inquiry was informed that the increase in transfers reflected a new airline strategy. The adoption of this strategy, which diverges from the likely passenger preference for direct flights over transfer flights, may have been influenced by two state interventions in the early 1990s:

- In 1993 the “use it or lose it” rule was introduced for airlines holding slots at Heathrow and other major airports, whereby slots have to be used for not less than 80 per cent of the allocation or surrendered (with no compensation) for re-allocation to competing airlines.
- In 1994 Air Passenger Duty was introduced with an exemption for transfer passengers for the specific purpose of encouraging transfers at UK airports (primarily Heathrow) ¹.

The airlines may have been induced by these interventions to run more frequent services than are necessary for the level of demand from terminating passengers, in order to retain all their existing slots at Heathrow (and to acquire slots that had not yet been allocated) at the expense of competing airlines, with the costs of “over supply” mitigated by an increase in the number of transfer passengers stimulated by the exemption from Air Passenger Duty.

Scope of Proposal

Our proposal is to reduce the number of transfer passengers at Heathrow. In evaluating the impact of our proposal we have used details from the Civil Aviation Authority Passenger Survey for 2011 as a starting base rather than 2010 data reported above from the Department for Transport Demand Forecasts (2013).

Table F below focuses on Heathrow’s international destinations. The sum of 427 942 international ATMs and domestic ATMs is close to the 480 000 legal limit in unbroken segregated mode. Removing the 20.9 million passengers per year (mppa) of international transfer passengers leaves 43.7 mppa of terminating passengers to be transported in 289 289 ATMs, which is a reduction in both cases to 67.6 per cent of the 2011 levels. This significant headroom in capacity would be available for new passenger demand allocated to destinations and at frequencies that the market best determines.

We envisage the reduction in transfers occurring roughly in parallel with take up of the capacity created so that the ATMs of 427 942 remain constant at full capacity during the process (albeit with some minor adjustment to allow for changes in domestic demand). The growth in passengers and ATMs to satisfy the replacement of 2011 international transfers is around 1.5 times and based on DfT Demand Forecasts would be completed around 2030. This still leaves passenger headroom between 64.6 mppa and the 90mppa estimated to be available at Heathrow for further growth of around 1.4 times.

Table F is the summary of our modelling the changes for each of the 191 destinations. We have removed the transfers and assumed the new demand is spread evenly across all destinations. In practice there are likely to be some differences at the destination level. As it stands, overall frequencies change very little.

High frequency destinations experience a small reduction in frequency but Heathrow would still remain a high frequency airport with a range of destinations best suited to demand. For example, there would be 138 653 replacement ATMs or 380 per day (190 arrivals and departures) which could add 38 destinations with daily service to each of China, India, the rest of the Far East, Africa and South America or some lesser number but with higher frequencies.

Low frequency destinations would benefit overall because many of these destinations have few or no transfers at present (see the section above on the benefits of transfers) and would benefit from additional terminating passenger demand.

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.

Table F

	Passengers - International destinations mppa				International ATMs	
	Terminating	Trnsfrs	Total	% change	ATMs	% change
2011 Actual	43.7	20.9	64.6	100%	427942	100%
Less transfers		(20.9)			(138653)	
	43.7	0	43.7	67.6%	289289	67.6%
Passenger Growth 1.5	20.9		20.9		138653	
	64.6	0	64.6	100%	427942	100%

Source: CAA Passenger Survey 2011

We consider that passengers would prefer to fly direct to their destinations rather than via an intermediate airport. We would therefore expect the number of direct services to increase and the number of transfer to decrease as total passenger numbers make more direct services between more airports economically viable. The Treasury should therefore abandon its strategy of stimulating the number of transfer passengers at Heathrow. Liability for Air Passenger Duty should be extended to transfer passengers in order to give a stimulus instead to more direct services.

Assessment against Relevant Issues

This section assesses the proposal against the issues listed on page 13 of Guidance Document 01 as being relevant for the Airport Commission's consideration of short and medium term options.

Additional Capacity, Timescale and Benefits

The amount of additional traffic capacity likely to be provided. Freeing up (a) terminal capacity to handle 20.9 million additional terminating passengers per year instead of that number of international transfer passengers; and (b) runway capacity to redeploy in whole or part around 138 653 ATMs per year from over-subscribed destinations to new destinations.

The timescale within which additional air traffic capacity may be available. Phased in as UK passenger demand grows to replace international transfers and based on central DfT Demand Forecasts over the period 2011 to 2030.

Overall benefits to the consumer and the UK economy, particularly in terms of increased connectivity. International transfers do not benefit UK residents or visitors to the UK or the UK economy except to the extent they provide business for airlines and airports; our Proposal replaces this business with growing UK demand. International transfers increase frequencies but examination of the frequencies at Heathrow suggests by and large they are already high so that higher frequencies are of diminishing value. It would also seem that the number of destinations possibly needing critical loads to justify viability is small and that to rely on a large number of international transfers to provide a few passengers for critical load destinations is an inefficient use of scarce resources. We believe it preferable to support critical load destinations with the growing demand from the substantial catchment area in the south east.

Operational Feasibility; Legal and Technical Barriers

Operation feasibility, with particular reference to the continued ability to operate both UK airspace and airports in a safe manner, as part of the overall air traffic system. Feasible.

Any legal (UK or EU) or technical barriers to implementing the proposal and whether these can be overcome. The exemption of transfer passengers from Air Passenger Duty.

Surface Access

Implications for existing surface transport networks. Replacing international transfers with local demand will result in an equivalent increase in passengers using surface access. But then if the local demand is to be satisfied at Heathrow in some other way, e.g. with new runways, mixed mode, etc there would be similar impact.

The potential for new surface transport infrastructure. Improving surface access to the five London airports we believe is essential to our Proposals, partly to avoid the access being a constraint on grounds of congestion and pollution but also as an opportunity to provide improved connectivity (getting to and from an airport is part of connectivity) and extending the catchment areas.

Environmental Considerations

Impacts of the emission of greenhouse gases covered by the Kyoto Protocol The replacement of two stage routes with direct routes should reduce distances travelled and halve the landings and take-offs with commensurate reduction in fuel burn and hence CO2 attributable to the UK. However, some of the international transfer reduction at Heathrow will be offset by an increase at overseas airports.

Environmental impacts affecting the health of local populations, for instance in terms of air quality. The proposal is neutral to the extent that the additional capacity would be taken up by terminating passengers.

Changes to the number of people exposed to aircraft noise by the proposal and the extent of the noise to which they are exposed. In theory the noise energy related to international transfers is around one third of the aviation noise from Heathrow. Replacement of international transfers with UK demand resulting in the same number of ATMs will leave the noise unchanged but at least the passengers will be linked to the local catchment area instead of having no UK link and a substantial increase in demand will have been met without any increase in noise.

Alignment Considerations

Alignment with local economic growth and regional development strategies. Heathrow's activity will be more closely aligned with the UK and less dependent on international travel by passengers with no UK link. The move away from a single hub at Heathrow should diversify aviation around the regions.

Alignment with longer term options. The Proposal can be implemented alongside other options for no additional runway development at Heathrow.

Cost Implications

Cost implications, including for air passengers and freight users, the aviation industry and the UK taxpayer. Cost neutral. We are not proposing to develop an additional infrastructure or to reduce the number passengers who fly.

Heathrow: Terminating and transfer passengers 1972 - 2011

<i>Years</i>	<i>Terminating passengers</i>		<i>Transfer passengers</i>		<i>Total passengers</i>	
	(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*. At the time of preparing the table the Report for 1999 had not been consulted. The surveys have been undertaken annually at Heathrow since 1996, and at less frequent intervals prior to 1996. 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.