

**Mayor's Draft Environment Strategy
Consultation
Response from Richmond Heathrow Campaign (RHC)**

17 November 2017

INTRODUCTION

1. This is the written response of the Richmond Heathrow Campaign (RHC) to the *Mayor's draft London Environment Strategy (LES) and associated Integrated Impact Assessment (IIA)*.
2. RHC 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, poor air quality and road and rail congestion in west London. More generally, we are affected by the impact aviation has on climate change through carbon emissions and other contributions to radiative forcing. We acknowledge Heathrow's contribution to the UK economy and seek constructive engagement in pursuit of a better Heathrow. We are an active participant in the Heathrow Community Noise Forum.
3. RHC's principle concern is with Heathrow and the adverse economic and environmental impact of any Heathrow expansion. Our response therefore focusses on the impact Heathrow has on air quality and in particular the NOx pollution from road traffic accessing Heathrow, on noise from Heathrow's flights and the impact of Heathrow on climate change.
4. We believe it would be preferable to aim for a better Heathrow rather than bigger Heathrow and to capitalise on the world beating advantage of London's five airports, in particular by improving surface accessibility to all five airports, which would be a major benefit to users and to reducing air pollution. Our approach, as explained below, is to continue supporting the case for no new runways in the UK, which is fully supported by the Airports Commission's evidence in comparing the Do-minimum option and the Heathrow Northwest Runway Option (NWR). In addition to the economic benefits from this approach it also avoids increasing NOx emissions and concentrations that arise with expansion. In our view, a decision not to expand Heathrow is an essential step towards reducing the risk of climate change.
5. Over recent years we have undertaken extensive research on Heathrow and submitted a large number of papers to the Airports Commission (the Commission) and others - all of which can be found at www.richmondheathrowcampaign.org and www.rhcfacts.org. We responded in October to the Mayor's draft Transport Strategy for London in so far as it concerns Heathrow and we ask that our submission be taken into account when considering the LES and IIA. Our fact sheets were produced in 2015 and we are updating them but broadly they remain valid.
6. Generally, we find the LES and IIA thorough in scope and approach to environment issues with the exception of Heathrow (see para 7 below). We appreciate the way aims and objectives have been established and solutions to issues have been assessed through examining multiple options, while appreciating the integrated nature of the environment. Timetables for improvement have been addressed, although we would like to see more rapid change. On the subject of delivery of the strategy, we appreciate that responsibilities and their allocation have been considered and recognition given to the limited powers of Government, the mayor, local authorities and others. We remain concerned that vested interests overplay their power at the expense of communities and that Governments give inadequate attention to some of the issues. We would have wished to see rather more about the financial implications for both costs and benefits and the funding arising from the Environment Strategy and how these might be allocated between the stakeholders. We firmly believe the polluter should pay. Overall, we are concerned as to extent the

Environment Strategy can be delivered between now and 2050. We urge the Mayor to translate the Strategy into specific policies and plans including those for funding as soon as possible.

7. Regarding Heathrow, we have searched the approx. 1,200 pages of the LES and IIA documents and find there very few references to 'Heathrow' or 'aviation'. We appreciate the LES is about Strategy and therefore to a lesser extent about specific site issues. We also appreciate that some of the environmental issues relating to Heathrow may appear in other parts of the London Plan. For example, air quality concerns surface access and hence Transport Strategy and aircraft noise concerns housing and population growth and hence the Spatial Plan. We have already responded to the draft Transport Strategy and await the soon to be published draft London Plan. We appreciate that air quality strategy, in recognising that road traffic is a major contributor to pollution, encompasses the issues that apply to Heathrow access even if Heathrow is not addressed specifically. But at the same time, we believe Heathrow has such a major impact on the London environment that there should be a section in the Environment Strategy that more fully deals with Heathrow or defers to some such section in another component part of the emerging London Plan.
8. Our response comments on the few references to Heathrow in the LES and IIA and seeks to add further consideration to the issues. We have addressed the issues in our many other reports relating to Heathrow that can be found on our website. The fact that we have not responded to all chapters in the LES does not mean we regard them unimportant. Our focus is on Heathrow.

AIR QUALITY - Chapter 4

9. The LES and IIA make it clear Air Quality is in much need of improvement as soon as possible and that this concerns NOx and particulates, PM10 and PM2.5. The impact on people's health and especially the young and vulnerable is said to be severe and intolerable. **We agree.**
10. The LES and IIA also make clear that while limits and guidelines are important markers there are sound health reasons to reduce emissions below these levels, especially in the case of particulates where there is no safe limit. **We agree.** The LES and IIA proposal seek establishment of lower limits than those embodied in the EU Directives and currently in UK law and in this regard reference is made to the lower WHO limit values. **We agree.**
11. The LES and IIA are concerned with both polluting emissions and concentrations. The LES and IIA recognise aviation as one of several sources of NOx but they do not expect aviation emissions to reduce materially between 2013 and 2050, unlike other sources and the total of all emissions. (See Figure 16 page 114 of the LES (GLA (2017), London Atmospheric Emissions Inventory (LAEI) 2013 Update). Reading from the chart, total London NOx emissions were around 48,000 tonnes in 2013 and fall to an estimated 10,000 tonnes per year by 2050. Aviation emissions are shown in the chart as remaining at around 4,000 tonnes per year between 2013 and 2050. It is unacceptable that aviation emissions do not reduce and that by 2050 they stand at around 40% of all London NOx emissions. **We have not been able to find any proposals in the LES or IIA to deal specifically with this unacceptable outcome for aviation NOx.**
12. We assume the level of emissions from road traffic accessing Heathrow is included in the Road Transport figures rather than Aviation figures, which from Figure 16 reduce from around 28,000 tonnes in 2013 to 4,000 tonnes in 2050. We understand that Heathrow and City Airport are the two airports in Greater London area which is the area covered by the LES and IIA. **It appears from Figure 16 that the impact of Heathrow 3rd runway expansion is not included either in the LES Road Transport figures or the Aviation figures which, if it is the case, is a major omission as the impact is likely to be very significant.**
13. The impact of Heathrow expansion at a local level is surely much greater than outlined above in relation to London as a whole. The LAEI emissions Workshop April 16th 2016 data shows aviation

emissions in Hillingdon borough to be around 2,500 tonnes per annum (around 48% of the borough's total emissions), 600 tonnes in Hounslow borough and 200 tonnes in Richmond borough (the three boroughs most effected by aviation). Hillingdon's total NOx emissions of around 5,200 tonnes per annum are twice as high as Enfield borough - the next highest of the 33 boroughs shown. Hillingdon's Road Transport NOx is 1,400 tonnes per annum which is higher than in any other borough - a fact probably in part due to Heathrow access. **It is unacceptable that Hillingdon experiences these exceptionally high levels of NOx pollution due to Heathrow and yet the LES and IIA do not appear specifically to address the problem.**

14. Heathrow currently serves around 55 million terminating passengers a year and this is likely to increase to around 86 million without third runway expansion. With a third runway, terminating passengers are estimated to rise to around 105 million passengers a year and flights are expected to rise 50% from 480,000 to 740,000 a year. **The LES and IIA do not appear to recognise the potentially large increase in NOx from Heathrow aviation expansion and its surface access even without a 3rd runway and still more so with 3rd runway.**
15. The LES and IAA define aviation NOx emissions as that from the airport itself and from aircraft up to 1km high. We had been under the impression that NOx from aircraft above 1,000 feet had no impact on concentrations at ground level. The whole subject of emissions from aircraft seems rather confused. **We suggest there needs to be more research on the subject of pollution from aircraft that can be fed into the Air Quality Strategy.**
16. The LES and IIA suggest trans-boundary pollution is a sizable proportion of ground level concentrations. We know that around 70% of the time each year there are westerlies (winds from the west) so it is difficult to see where the trans-boundary pollution over London is coming from. But we understand the pollution resides in plumes at various heights which may have some relevance. **We suggest there needs to be more research on the subject of trans-boundary pollution that can be fed into the Air Quality Strategy.**
17. While emission levels are important, the impact of pollutant concentrations on people's health is ultimately what counts. The levels of NOx concentration at a significant number of 'hot spots' in London exceed the 40ugram/m³ legal limit. For example, one road side value in Richmond town is 93ugram/m³. **Several hotspots at and in the vicinity of Heathrow exceed the statutory limits for NOx and unquestionably Heathrow is a major contributor. The LES and IIA do not appear specifically to address the problem.**
18. The Airports Commission and the Secretary of State for Transport have both said Heathrow should not add to the pollution with its runway expansion. Any such restriction on the expansion could place the financial viability of the project in jeopardy. Our financial analysis of the expansion suggests the project is economically highly questionable both for the company and the wider economy. The temptation will be for corners and costs to be cut at the expense of mitigating the pollution. In addition, there will be pressure for the tax payer to contribute to the cost and the most likely area is in respect of surface access which contributes to the pollution. Heathrow is a private company 90% owned by overseas shareholders. **We urge the Mayor to undertake without delay the following:**
 - a. **Seek from the Government binding assurance that there will be no Government financial assistance for the expansion of Heathrow whether by guarantee or other means, whether or not this is to mitigate pollution.**
 - b. **Seek from the Government binding assurance that the expansion of Heathrow will not be allowed to increase the emissions and concentrations of NOx and particulates (PM10 and P2.5) compared not just with today's levels but future levels, whether or not reduced by the Mayor's actions or otherwise. Heathrow must not be allowed to use**

future improvements in air quality to offset pollution arising from expansion even to the extent Heathrow contributes to the improvements. Pollution has too great an impact on health for there to be any trade off with expansion of Heathrow.

19. **We believe the Objectives of the LES could be improved so as to require reductions in concentrations of NO₂ and to recognize a number of other issues concerning thresholds, granularity and compliance** (we recommended the following in June 2017 to the Government in regard to the UK Air Quality Plan and we suggest the comments apply equally to London and the LES):
- a. The UK Air Quality Plan says *'The focus of this plan is on government's most immediate air quality challenge: to reduce concentrations of NO₂ around roads. The aim is to achieve the statutory limit values for the whole of the UK within the shortest possible time.'* Broadly, we concur with this objective as far as it goes and note the operative word is 'reduce' so that an increase in NO₂ would be contrary to the stated objective. Also, any lengthening of time to meeting the statutory limits would be contrary to the objective. (See our comments in regard to Heathrow in para 18)
 - b. We note that the Airports Commission's stated objective in appraising air quality was *"to improve air quality consistent with EU standards and local planning requirements"* (our italics). The National Planning Policy Framework (NPPF) states that sustainable development should contribute to *reducing* pollution (our italics) . The National Policy Statement for National Networks, specific to nationally significant infrastructure projects, requires the Secretary of State to "give air quality considerations substantial weight".
 - c. Therefore, on the face of it the UK Air Quality Plan is consistent with the air quality objectives in Planning law in seeking to reduce air pollution. However, we have three important reservations with the Air Quality objective as stated and propose the following changes:
 - d. **Thresholds.** It has already been proven that particulates (PM₁₀ and PM_{2.5}) have no lower limit value that can be said to avoid harm to human health. While research has not yet proven the same causal link for NO₂, the evidence is heading towards demonstrating that NO₂ levels below the statutory limits can also be harmful, especially to the vulnerable. We do not accept that once statutory exceedences are eliminated that there is no harm to health from lower levels of NO₂. We propose that the Air Quality objectives should go further than the statutory threshold and seek to reduce NO₂ levels whatever they might be and not just those above the statutory limits. We suggest eliminating exceedences should be the first priority, reducing levels from above to below the statutory limits should be the second priority and reducing levels already below the statutory limits to still lower levels should be the third priority.
 - e. **Granularity.** The UK is divided into 43 zones for monitoring and control in order to satisfy the Air Quality objectives. The statutory limit values apply to the highest value at any location within each zone. We understand this is the Government's interpretation of the law. However, it tends to let those locations within a control zone that are below the highest exceedences off the hook. Within the London agglomeration, the highest exceedences are in the centre of London along Marylebone Road and Oxford Street. We do not agree with the Government's interpretation of the law, and we contend that lesser exceedences (and indeed lesser levels of NO₂ below limit values, given point (d) above)) also need to be the subject of a reduction objective. We see no justification at all for locations around Heathrow being allowed to increase their NO₂ levels, and especially exceedences where they occur, on the grounds that they are still below the highest exceedences elsewhere in the London zone and that it is only the latter that are subject to legal compliance.

The Air Quality objective needs to clarify this situation so that each and every location in the UK is singularly controlled and subject to a legal requirement that NO₂ be reduced in the shortest possible time. The objective should also ensure that displacement of pollution from one sensitive location to another is prohibited and only permitted where the displaced concentration does no harm. An analogous situation occurs with aircraft noise where the many people recently affected by changes in aircraft noise have voiced concern at the use of averaging metrics. In the case of air pollution the impact needs to be managed on a street by street basis and not just in terms of averages over large areas, such as the London agglomeration area. There is no attempt to apply the objectives to the granularity needed within by far the most polluted UK zone, London, which is a major failing of the UK Air Quality Plan. This needs to be remedied so that objectives and targets are defined for each location where there is an exceedence or likely to be one in the future.

- f. **Satisfying the Objective - future compliance and uncertainty.** It is not clear that when the Air Quality objective in the UK Air Quality Plan refers to reducing NO₂ in the shortest possible time what might be the base level of NO₂ against which a reduction is measured and from what date is the 'shortest possible time' measured and when might the objective be met. Presumably compliance is based on factual evidence at a particular time, whereas the satisfaction of the objective applies to both the present and predicted future. The objective would not be satisfied if compliance were not expected to be met at some future date. This is an important distinction between compliance and objective, both of which need to be satisfied.

The UK Air Quality Plan is deficient in not converting the broad objective into meaningful targets for compliance in the shortest possible time. There is no target time-table for compliance by each of the 43 zones. The UK Air Quality Plan does estimate the reduction in NO₂ for each of the proposed mitigation options - comparing the Do-minimum case with each mitigation option. But the results are far too generalised.

The UK Air Quality Plan not only fails to apply the mitigation options to the real world but also to provide estimates of the uncertainty and confidence levels. The Plan and its Technical Report do discuss uncertainty but it is not applied to the outcomes of the Plan, because there is no detailed Plan. We should remember that the Government predicted UK NO₂ compliance by 2010 and then by 2015. Even an optimistic view of the UK Air Quality Plan suggests compliance will not be before 2025 and London compliance may not be before 2030 or later. Past estimates of compliance must surely lead to scepticism with regard to current predictions.

20. Mitigation. Annex A of this response examines in some detail the impact of Heathrow expansion on surface access and resultant pollution. Given the substantial increase in terminating passengers, the mode shift from road to public transport that Heathrow forecasts is in our view wildly optimistic. If it were to occur then there would still be an increase in road traffic and pollution but also insufficient public transport capacity (even after increases in the pipeline) unless there were to be at least £10 billion invested. We just cannot see the already shaky economics of what is already the most expensive major airport in the world supporting this additional investment. **It does not appear that the LES or IIA deal with this issue, which is of major significance to London's environment. We urge the mayor to include in the Policy a provision that there should be no increase in the number of passengers and staff travelling to/from Heathrow. Reason: to reduce air pollution. Also the Policy should ensure the public transport capacity (taking account of walking and cycling by staff) is sufficient to meet the increased demand resulting from this Policy.**
21. Proposal 4.2.2b of the LES does deal specifically with Heathrow. For completeness and ease of reference we include here the key parts of 4.2.2b relevant to air quality (GHG and noise are dealt with elsewhere):

“The Mayor opposes any airport expansion in London unless it can show that there is no unacceptable impact on air quality and that GHG emissions are minimised (our underlining). This will include:

- demonstrating airport expansion will not cause new exceedances of the UK air quality standards or increase of existing areas of exceedance,*
- demonstrating airport expansion will not increase exposure to pollution where improvements in local or regional air quality have been, or will be, secured by other Mayoral, local or national policies,*
- demonstrating airport development or expansion has incorporated Air Quality Positive principles and other Mayoral policies to minimise the impact of development, including impacts during the construction phase.”*

Broadly we agree with these measures in the LES and in some respects they parallel those we suggested earlier. **However, we believe for economic and other reasons, Heathrow should not be expanded, even if the above conditions relating to air quality were met. At the moment it is unclear how the conditions will be put into effective operation and we urge the Mayor to develop legally binding wording for the conditions.**

22. The LES makes a number of recommendations that are not Heathrow specific but which could affect the air quality impact of Heathrow:
- a. *Protecting school children from harm of air pollution. We agree.*
 - b. *Using the London Plan to ensure new developments are suitably located. We agree*
 - c. *Maintain the London Atmosphere Emissions Inventory. We agree.*
 - d. *Safe guarding existing air quality monitoring networks. We agree*
 - e. *Achieving legal compliance as soon as possible. We agree.*
 - f. *Reducing taxi and private hire vehicle emissions. We agree.*
 - g. *Reducing emissions from private and commercial vehicles. We agree*
 - h. *Reduction in emissions from freight. We agree.*
 - i. *Using the LLAQM framework to require boroughs to exercise their statutory duties to improve air quality. We agree.*
 - j. *Working with Government to achieve full legal compliance with EU/UK limits. We Agree.*
 - k. *Working with European Institutions to minimise trans-boundary pollutants. We agree.*
 - l. *Setting new concentration targets for PM2.5, aiming to meet WHO guidelines by 2030. We agree.*
 - m. *Encouraging the uptake of ultra low and zero emission technologies. We agree.*
 - n. *Implementation of zero emission zones. We agree.*

CLIMATE CHANGE MITIGATION AND ENERGY - Chapter 6

23. A major constraint on expansion of air travel is the need to reduce carbon emissions and reduce the risk of adverse climate change. According to the Airports Commission the addition of the capacity of another runway in the southeast will add very significantly to the UK’s carbon footprint in the future. One effective way to constrain aviation’s impact on climate change is to bear down on demand through carbon capping. But the Aviation Commission’s evidence shows the result to be unacceptable by allowing aviation expansion in the southeast but only at the expense of growth elsewhere in the UK. In our view there is no realistic way to avoid aviation’s major negative impact on climate change other than to avoid adding runway capacity. The UK Climate Change Committee has for some time promoted the need to limit aviation growth. We very much doubt in the future there will be sufficient carbon credits in the UK, Europe or worldwide to adequately offset the carbon emitted by aviation. In our view, a decision not to expand Heathrow is a major essential step towards reducing the risk of climate change. **We urge the Mayor to take a more robust approach to resisting any new runways.**

24. The LES only deals with carbon emitted at ground level and talks about the need to reduce carbon emissions from transport from around 8.6 million tonnes of CO₂e a year to 1.5 million tonnes of CO₂e by 2050. Reference is made to Heathrow's ground emissions of 950,000 tonnes of CO₂e a year and the increase by a third from Heathrow expansion. The departing flights from the UK currently produce over 37 million tonnes of CO₂e a year and this could double by 2050 without mitigation. The Climate Change Committee has said that the UK aviation should not produce more than 37.5 million tonnes by 2050 if the UK is to meet its climate change targets. This would represent around 25% of all the UK carbon emissions. Heathrow is the UK's largest carbon emitter at over 18 million tonnes of CO₂e a year. **While the Government has prime responsibility in dealing with this issue surely the Mayor should seek to protect London's businesses from the impact of Heathrow's overwhelming demand for carbon credits and the cost of adapting London to the harm caused by climate change.**
25. The LES does say in 4.2.2b: *"The Mayor opposes any airport expansion in London unless it can show that there is no unacceptable impact on air quality and that GHG emissions are minimised (our underlining). This will include:*
- *demonstrating that any airport expansion ensures that London's contribution to aviation emissions reduce in line with recommendations to meet national GHG emission targets.*
 - *the Mayor working with airports in London to develop their climate action plans and determine how they will minimise net emissions. It may be possible to establish an offsetting fund where reductions in GHG emissions cannot be met onsite.*

The expansion of Heathrow seemingly contradicts the first bullet point and so how the Mayor will seek to implement this strategy is unclear. It is not clear whether the emissions referred to here are only the ground emissions.

WASTE - Chapter 7

26. The northwest runway expansion of Heathrow probably requires the demolition of the **Lakeside Energy from Waste facility at Colnbrook** which would be hugely expensive to replace and is a major waste facility. **As far as we are aware this issue has not been resolved. The LES and IIA do not appear to deal with the issue.**

AMBIENT NOISE - Chapter 9

27. The LES identifies noise as potentially harmful to health and identifies the sizable impact that Heathrow has on London's population. Furthermore, the LES Claims expansion will expose another 200,000 people to significant aircraft noise (at 55dB_{Lden}) in comparison to a no expansion scenario. Broadly we agree with the assessment of the noise impact from Heathrow, although it is very brief.
28. The LES says in chapter 9 that *'the Mayor will oppose expansion of Heathrow Airport unless it can be shown that no new noise harm will result and the benefits of future regulatory and technological improvements will be fairly shared with affected communities.'* The LES also says *'To minimise the adverse impacts of noise from aviation, the Mayor has, and will continue to lobby for:*
- *Reduced night flights from airports that may affect London residents,*
 - *Modernisation of airspace, in particular for changes that seek to encourage more efficient flight operations,*

- *The establishment of an independent noise regulator with powers of sanction.*

We urge the mayor to include in the Policy a timetable to reduce noise levels from Heathrow to WHO limit levels and to ban scheduled night flights between 11pm and 7am. At the very least there should be no increase in the number of flights in this period.

Modernisation is desirable in so far as it improves safety and resilience but unfortunately it is being used as a means to expand capacity for additional flights and hence noise. It potentially has major impact on communities with and without expansion by introducing flight paths over new areas, some of which may be concentrated using new PBN technology. Respite is not necessarily the answer as there is a cost of new or additional noise experienced by those over whom the flight paths are moved during respite. **So we encourage the Mayor to take a cautious approach to modernisation of airspace.**

An independent noise regulator may be useful but it is being proposed as part of the CAA and we do not believe it would be independent. **For this and other reasons we encourage the Mayor to approach the proposal with caution given that it may harm the community.**

29. We make the following points on the Government's approach to aviation noise and **we encourage the Mayor's support:**
 - a. The Government's noise objectives, as stated in the National Aviation Policy Framework, seek to limit the noise impact on communities, share the benefits of less noisy aircraft between industry and communities and balance the negative impacts of noise and the positive economic impacts of flights.
 - b. The noise impact objective is seriously flawed in its ambiguity and lack of ambition for noise reduction.
 - c. There is no assessment let alone consensus between Government, the aviation industry and communities affected by noise as to what might be the quantum of noise reduction and how the benefit might be shared.
 - d. There is no consensus between Government, the aviation industry and communities affected by noise as to what might be the benefits and environmental costs of aviation and how a balance might be struck.
 - e. It is unacceptable that Airspace Policy is being processed to adoption before the review of the National Aviation Policy Framework in 2018.

30. Currently, Land Use planning under the provisions of the ICAO's Balanced Approach is largely unworkable and is ineffective in controlling harm from aircraft noise. London's population growth is sizable (37% 2011-2050) and the ICAO Balanced approach to reducing noise impact requires Land Use planning so that homes and noise sensitive schools/hospitals etc are not exposed to excessive aviation noise. The expansion of Heathrow will make it even harder (if not impossible) for local authorities to plan additional homes. London is too densely populated for flight paths to avoid homes, other sensitive buildings and quiet areas such as Kew Gardens, Richmond Park etc. The blight over the next 35 years and more from noise will effect over a million people in an area extending at least 30 miles from the airport. Aviation Strategy should consider how the ICAO Balanced Approach on Land Use planning can be integrated effectively with local authority Local Plans for housing in the boroughs surrounding the Heathrow and for that matter any other UK airport. **We encourage the Mayor to consider how the ICAO's Balanced Approach and Land Use Planning can be applied to London.**

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encl Annex A

**London Environmental Strategy
Richmond Heathrow Campaign Response 17 November 2017
Heathrow Surface Access**

ANNEX A

The subject of air quality around Heathrow is bound up with the surface access question as follows:

1. **What is the traffic demand in the region of Heathrow?** Demand is made up of (a) background demand and (b) Heathrow specific demand. While Heathrow demand may be relatively small compared to background demand, it can be critical at peak times and when demand is near to or exceeds capacity. Heathrow demand includes terminating passengers, staff and freight.
2. Background demand is growing (based on population growth of 37% in London as a whole between 2011 and 2050 according to the London Plan). It is not clear whether the draft Plan adequately takes population growth into account.
3. With NWR expansion, Heathrow terminating passenger demand is forecast by the Airports Commission to grow from 52 million passengers per annum (mppa) in 2011 to 65 mppa in 2030, 94 mppa in 2040 and 105 mppa in 2050 (Assessment of Need carbon capped). These figures are shown in the following table.

Heathrow Passengers and Modal share - NWR Option				
	2011	2030	2040	2050
Terminating Passengers mppa note (a)	52	77	94	105
Promise 1: modal share increase:				
Modal share: public transport	40%	50%	55%	55%
Public transport (passengers)	21	39	52	58
Car (passengers)	31	38	42	47
Promise 2: no more cars than today (pax equivalent):				
Modal share: public transport Required	40%	60%	67%	70%
Public transport (passengers)	21	46	63	74
Car No more cars on the road (passengers)	31	31	31	31
<i>Note (a): Airports Commission Assessment of Need carbon capped.</i>				

4. Heathrow's first promise is to achieve 50 % public transport by 2030 and 55% by 2040. This still results in a 22% increase in road users between 2011 and 2030 and a 35% increase by 2040. We cannot see how air quality targets will be met even were this modal shift achieved. Furthermore, the figures depend on a significant shift in peoples' behaviour towards public transport. Even if they wanted to shift, we doubt there will be the public transport capacity unless considerably more is spent than the £5.7 billion estimated by the Commission.
5. The second promise is that there shall be no more cars than today. In the above table we

assume that the number of passengers per car remains little changed. The modal share of public transport would need to increase to 60% (cf 50%) by 2030, 67% (cf 55%) by 2040 and 70% by 2050. The modal shift would be unprecedented by a wide margin compared to that achieved anywhere else in the world. The public transport capacity would have to be increased by two times by 2030 and by three times by 2040, which we do not believe can be achieved without the cost of between £15 bn and £20 bn.

6. Staff numbers tend to be proportional to passenger numbers, so are likely to grow from a base of around 84,000 in 2011. Freight is also expected to grow at similar rates and be a major contributor to surface access demand.
7. The draft Plan does not consider in any detail the modal shift as a mitigation option, which given the reliance by the Government on this mitigation in the Heathrow proposal is surely a failure of the draft Plan.
8. Surface access demand depends on Heathrow's catchment area and on where people travel to and from within that area. Rail transport projects - HS2 and the Western Rail Access projects - will substantially increase the catchment area to the north and west of the country according to the Commission.
9. The way people choose to travel - the modal share of total demand - is especially important. This means the proportions travelling by road (car and bus) and by rail (network rail, over-ground and underground). Behaviour change and interventions such as congestion charging zones can have an effect on people's choices. However, the promises by Heathrow have not been fully assessed and are not binding.
10. The draft Plan's Clean Air Zones are unlikely to have much impact on controlling pollution from Heathrow surface access. Heathrow's passengers who live in a relatively low emission zone are unlikely to scrap their car or spend money on a retro-fit just because once a year they might use Heathrow to go on holiday. The draft Plan's estimates of the effect of congestion charging are not sufficient to mitigate materially the impact of Heathrow expansion. Where strategic highways are concerned it is doubtful that Highways England can achieve much through speed controls.
11. The Commission in our view significantly under-estimated surface access demand in its original analysis. Our view continues to be that the demand estimates remain unrealistically low and that the modal shift to public transport is over optimistic. It is particularly important to consider the peak hour demand and segments of the road and rail networks that are overloaded. For example, the morning peak hour 2-way Heathrow demand was estimated by the Commission in its original projections to be a total of 20,000 trips in 2030 compared to TfL's estimate, when the airport is subsequently full, of 35,000 trips, which is 75% greater. Similar disparity arose in the underlying road and rail demand. The Commission estimated 12,300 road trips, while TfL estimated 23,900 trips. The Commission estimated 7,400 rail trips while TfL estimated 11,500 trips.

12. **What is the Capacity of road and rail serving Heathrow ?** The surface access capacity predicted by the Commission and Government update comprises a Core baseline and an Extended transport baseline which together are expected to be in place by 2030. The Core baseline includes Heathrow Express, London Underground Piccadilly line, Crossrail and HS2 with Heathrow passengers connecting at Old Oak Common. For roads, it includes "smart motorway" upgrades to certain junctions on the M23, M25 and M3. The Extended baseline includes Western Rail Access (WRA) to Heathrow. Two additional schemes that are not included in the baselines are a Southern Rail Access (SRA) linking Staines to Waterloo via Richmond and increased Crossrail frequency. These are allocated to the Heathrow project rather than to background demand.
13. We conclude that the original Commission projections of capacity for Heathrow expansion projects would not be sufficient. So far our analysis of the updates by the Government suggests there is still a lack of capacity. For example, the WRA has still to be funded and the SRA (previously known as Airtrack) ran into considerable problems when last considered because of the impact on the several level crossings that would have to be closed for more of the time with consequential impact on local traffic and pollution. Demand for seating capacity on segments of the Piccadilly line and Crossrail far exceeds the available seating capacity. While this might be a lesser problem for non-airport users, Heathrow's passengers may have luggage, have long flights ahead or behind them, and include families with children. By 2030, with or without a third runway, overall rail access to Heathrow (including Crossrail, underground and Heathrow Express) does not improve for 8 London boroughs, and marginally reduces for 15 boroughs. Only 8 boroughs are likely to experience any improvement. We are concerned that the SRA will be over-crowded, especially from Richmond to Waterloo and in peak hours.
14. **Inadequate capacity leads to road congestion and pollution.** The cost of inadequate surface access is significant in terms of overcrowding on the rail system, less convenience and comfort and congestion and pollution on the road network. Furthermore, with pollution subject to statutory limits it is quite possible that Heathrow will not be able to make full use of an additional runway. It is not clear what service level is being considered in the planning - low, intermediate or high. This considerably alters the cost.
15. Depending on how quickly Heathrow's NWR fills up, the shortage of surface access capacity could become even greater after 2030. Unfortunately, modelling by Heathrow and the Commission ceased after 2030.
16. **What's the capacity cost and how can funding be shared ?** The Commission estimated the surface access investment required for servicing an expanded Heathrow would be £5.7 billion. But TfL believe the sum required will be up to £20 billion. The Commission estimated that HAL would need to find as much as £34 billion to finance a third runway and ongoing cash outflow, excluding the funding of surface access. It is not clear from the Commission, Heathrow and importantly the draft NPS and associated material who is expected to fund the surface access and what proportion can Heathrow pass on as charges. But it is clear from the Commission's reports that it thinks even without the surface access funding, the markets may find it difficult

to fund the size of investment required. It could prove unacceptable economically and politically for the State to fund the scheme as direct grants or by guarantees.

17. In our view, the draft Plan fails to deal with the Heathrow surface access use and capacity issues. The cost and who will pay for the surface access investment necessary to facilitate reduced air pollution to below legally binding limits and provide adequate service levels on road and public transport has not been dealt by the draft Plan. The mitigation steps proposed generally are not only insufficient but our confidence in their effective implementation is low.
18. Findings for the Commission on the levels of continued air quality non-compliance, as a result of Heathrow expansion that are contained in the Jacobs report for the Commission, cast doubt on the deliverability of the air quality mitigation proposed by Heathrow. Of the 8 mitigation measures proposed for Heathrow NWR, the report suggests 5 are questionable (see para 5.6.3, pages 72-76 of the Jacobs report).
19. Heathrow does not have a direct rail link so freight is transported by road. A 100% increase in freight would cause considerable road congestion and additional pollution.
20. The construction phase of a third runway and related facilities must surely add significantly to air pollution during construction.