

**Richmond Air Quality Action Plan
Consultation
Response from Richmond Heathrow Campaign (RHC)
30 October 2017**

This is the written response of the Richmond Heathrow Campaign (RHC) to the London Borough of Richmond upon Thames (“the Council”) on its consultation titled ‘*Richmond Air Quality Action Plan 2017-2022*’.

1. 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.
2. The members of our amenity groups are adversely affected by poor air quality and road and rail congestion in west London and noise from Heathrow Airport’s flight paths,. 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. Our premise is that 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 improve air quality. Our approach is to continue supporting the case for no new runways in the UK, which is a position fully supported by the Airports Commission’s evidence in a comparison of the Do-minimum Option with the Heathrow Northwest Runway Option (NWR).
4. RHC’s response to this consultation focusses on the impact Heathrow has on air quality. Some of the issues affect the air quality in Richmond borough and we suggest these include the following:
 - a. NOx and particulate emissions from aircraft over Richmond borough,
 - b. NOx and particulate emissions from aircraft not over Richmond borough where air movements deposit the emissions over the borough,
 - c. NOx and particulate emissions from road traffic accessing Heathrow through the borough’s network of roads,
 - d. Actions taken by Government, the Mayor of London, Richmond council, other London boroughs and Heathrow to reduce the impact of Heathrow’s NOx and particulate emissions that could effect the emissions and concentrations of pollutants within Richmond borough. For example, this might be by displacement of road traffic or increased closure of railway level crossings thereby increasing vehicle emissions or extension of congestion zones that include the borough.

A large proportion of Heathrow’s emissions do not affect the air quality in Richmond borough but actions to deal with these emissions could affect Richmond borough in other ways. For example, the Government has said it will only allow Heathrow to expand if air quality targets can be met. Inability to meet whatever targets are set could mean expansion is deferred, curtailed or prevented from taking place. These outcomes in turn affect noise over Richmond

borough. In order to meet the targets there would need to be a shift from road to public transport and large expenditure will be required on rail capacity as well as road capacity. The southern rail access project for greater access capacity could pass through Richmond and in doing so, add to overcrowding on trains and increased traffic congestion at level crossings in the borough. While the Richmond Air Quality Action Plan focusses on Richmond borough and specifically the AQMA, we urge Richmond council to engage actively with others in the management of air quality in the London Agglomeration Area and in particular with reference to the impact of Heathrow, even were there to be little or no impact on air quality in Richmond borough itself.

5. We believe that Heathrow expansion has a negative impact on the UK economy, carbon, noise and air quality and accordingly is unjustified on all four counts. Efforts to improve air quality could reduce one of the constraints to expansion. It might be argued that removing the air quality constraint is counter-productive because it would allow expansion and hence even greater aggregate damage to the UK economy, carbon and noise. However, we believe this is a false argument and that efforts should be made to reduce air pollution as soon as possible but Heathrow should contribute its full share of the mitigation costs and not be allowed to take advantage of any reduction in background emissions and concentrations by slowing the reduction with its own emissions. Ultimately, this means that Heathrow does not get a free air quality ticket for its expansion paid for by others. Heathrow's full share of the cost of mitigation and residual pollution should be included in the decision on whether or not to expand the airport.

Given RHC's focus on Heathrow, our comments on air quality issues unrelated to Heathrow are limited. But that should not in any way mean the other issues are unimportant. One of RHC's members, the Kew Society, has responded in the wider sense and we fully support their response.

6. **Statutory NO2 Limit Values.** We refer in this response to the statutory limits on nitrogen dioxide (NO2) concentrations. The limit values are based on the World Health Organization (WHO)'s air quality guidelines. The Hourly mean limit value is 200 micrograms per cubic metre (ug/m3) not to be exceeded more than 18 times a calendar year. The Annual mean limit is 40 ug/m3.
7. **Air Quality Objectives and targets:**
 - a. **Reduction in pollution.** The UK Air Quality Plan states *'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.
 - 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. The objective requiring a reduction in NO_x concentrations in sensitive locations 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.
- d. We urge Richmond council to adopt an objective whereby any increase in NO_x or particulates and any lengthening of time to meet statutory limits are prohibited.
- e. **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 urge Richmond council not to 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. This aim should apply to NO_x and particulates.
- f. **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 (7e) 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. We urge Richmond Council to adopt the granular approach to Heathrow and within Richmond borough so that there are targets for reduction in impact at each and every location where there is actual or potential harm.
- g. **Satisfying the Objective - future compliance and uncertainty.** It is not clear that when the Air Quality objective 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.

- h. **Mitigation.** It is important that Richmond council establishes the feasible list of mitigations and selects those that are most appropriate for each and every “hot spot” in the borough. The combined effect of the mitigations and reduction in concentrations need to be estimated and established as targets over the next five years for each and every “hot spot”. Uncertainty and confidence levels need to be established for improving each and every “hot spot”. The costs of implementation and monitoring the results need to be established. Priority should be given to the “hot spots” causing the most harm.
- i. **Clean Air Zones (CAZ),** according to the UK National Air Quality Plan, would have by far the largest mitigation of any of the mitigation options. In the Plan’s Do-minimum case the vehicle fleet change reduces NO₂ Annual mean concentration from around 47 micrograms per cubic metre (um/m³) in 2020 to around 30 um/m³ in 2029. The statutory limit is 40 um/m³. The CAZ reduces the NO₂ by around 8um/m³ in the first year compared to the Do-minimum but the impact diminishes each year. In effect, the CAZ accelerates the reduction in NO₂ from fleet change but in the longer term has little impact. We believe it is important Richmond council bares this in mind when considering the introduction of any CAZ.

8. Heathrow

- a. **NO_x and particulate emissions from aircraft over Richmond borough.** Some Richmond borough residents claim excessive deposits and discolouration of paper and books but as far as we are aware it has not been demonstrated these issues are caused by emissions from overhead aircraft. However, we believe there is acceptance by Heathrow that emissions from aircraft below 1,000 feet can have an impact at ground level. Aircraft are known to produce significant quantities of harmful pollutants but the assumption is that these disperses and avoid harmful concentrations. We believe there is sufficient concern to warrant an independent examination.
- b. **NO_x and particulate emissions from aircraft not over Richmond borough where air movements deposit the emissions over the borough.** It is claimed a significant proportion of air pollution in Richmond borough is carried on the wind. However, it is not clear whether this contributes to harmful concentrations. At times there is a strong kerosene odour in parts of Richmond borough. The pollutants have to go somewhere and it is not clear where they go and whether subsequent concentrations arise and are harmful. There is supposedly a London plume of pollutants that hangs over the city and depending on the weather and inversions the pollutants could descend to ground level. We believe there needs to be independent examination of the transfer of pollutants - not just from aircraft in flight but from Heathrow airside and from access road traffic.
- c. **NO_x and particulate emissions from road traffic accessing Heathrow through the borough’s network of roads.** Annex A of this response examines in some detail the impact of Heathrow expansion on surface access and resultant pollution. While the concentrations near Heathrow are not the highest in London they substantially exceed the statutory limits and with the expansion of Heathrow there is the risk that any steps taken to reduce NO₂ will be more than offset by the increased road traffic accessing the airport. We believe that about 10% of road traffic in Richmond borough is

Heathrow related. But we have little evidence to support this and we believe an independent assessment is needed. We also need to know where the resultant concentrations arise and how harmful they might be. Traffic includes passengers cars and freight trucks.

First flight from a third runway at Heathrow is predicted in 2025 when the unmitigated NO₂ level is estimated in the UK Air Quality Plan to be 53 ug/m³. According to the Plan, CAZ mitigation might reduce NO_x by about 3 ug/m³ by 2025 but this is highly uncertain because the CAZ outcome is generalised and not specific to London. By 2027 the London level decreases to 48 ug/m³ with perhaps a further 2 ug/m³ from a CAZ. Our understanding of the draft Plan is that other mitigations are not expected to change these estimates significantly. It may well be that the third runway could not be used because of these exceedences above the statutory limit of 40 ug/m³. A two year delay would wreck havoc with Heathrow's project economics. We are very concerned that the UK Plan fails to address this issue but also that a draft National Policy Statement is being finalised before this matter is addressed. Indeed the Heathrow expansion may be put before Parliament before the Air Quality issues are addressed, which we believe would be wholly unacceptable. We urge Richmond Council to pursue this matter so as to ensure Heathrow's expansion does not result in an increase in air pollution whether or not the impact of concentrations is within or outside the borough. We urge the council to ensure that Heathrow pays its full share of any costs needed to mitigate the emissions from access to the airport. We also urge the council to seek to delay any Parliamentary decision on Heathrow expansion until the air quality issues are resolved satisfactorily.

- d. **Actions to reduce Heathrow pollution that increase or reduce the impact of air pollution in Richmond borough.** The introduction of a CAZ around Heathrow may displace traffic to Richmond borough. On the other hand adding road capacity in the vicinity of Heathrow or adding rail and underground capacity accessing the airport could reduce pollution in the borough. The southern rail access project that may connect Heathrow to Waterloo via Richmond could cause increased pollution on account of the increased frequency of trains resulting in more level crossing closures. We urge Richmond Council to engage with other relevant parties in the consideration of the pollution issues outside the borough that may have unintended consequences for pollution in the borough.
- e. **Actions to reduce Heathrow pollution that may have non-pollution consequences for Richmond borough.** This has been discussed in par. 4. The biggest such issue is whether failure to meet air quality standards will delay, curtail or even stop Heathrow expansion. Alternatively, the cost of mitigation may be so great that the expansion becomes uneconomic. We urge Richmond council to engage with others to ensure the borough does not suffer un-intended non air quality consequences from actions taken to reduce the impact of Heathrow's air pollution.

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**Richmond Air Quality Action Plan
Richmond Heathrow Campaign Response 30 October 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.