

## The Mayor of London's response to the Airports Commission consultation on shortlisted options

### Noise

#### Supplementary Note 05

February 2015

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#### Key findings

- According to the Commission's assessment, both Heathrow options will expose several hundred thousand people to potentially harmful levels of aircraft noise, 20-30 times more people than exposed by an expanded Gatwick in 2050.
- A range of assumptions have been employed specifically for modelling the potential noise impacts of the Heathrow northwest runway (NWR) option, many of which are either uncertain in their deliverability or unrelated to a third runway. This calls into question the validity of the Heathrow NWR noise exposure figures. Moreover, the inconsistency of the Heathrow NWR assumptions with the two other shortlisted options means it is impossible to make a fair comparison of the total population exposed by each option.
- The Commission's Appraisal Framework called for the consideration of noise from surface access and impact on tranquil areas, ecosystems and quality of life; these have not been covered either within the noise topic or the respective subject specific reports.

#### Key recommendation for further work

- The Commission must model the airport expansion scenarios on a consistent basis using assumptions that can be justified as deliverable and linked to airport expansion. This is essential if the results are to underpin key decisions.

## **A: Key observations**

- 1. The Commission's noise modelling work use a good range of noise metrics**
  - 1.1. The Commission's local noise modelling was carried out by the CAA robustly using its Aircraft Noise Contour (ANCON) model and the results were presented across a good range of noise metrics. An extensive set of maps have been provided, which are useful in assessing the different areas affected by each scenario. The modelling has, however, been undone by the assumptions applied and scenarios tested.
  
- 2. A three-runway Heathrow will continue to have dire noise impacts**
  - 2.1. According to the Commission's assessment, both Heathrow options will expose several hundred thousands of people to noise, and 20-30 times more than the number of people who will be exposed by an expanded Gatwick in 2050.
  - 2.2. This also contrasts with previous assessments conducted by the Commission which demonstrate that alternative options – such as a 4-runway hub away from populated areas – could lead to a dramatically reduced noise footprint.
  - 2.3. Unsurprisingly, all three options result in an increase in population exposed locally in 2050 compared to the Do Minimum scenario.
  
- 3. Key assumptions are inconsistent across the options: for Heathrow NWR, the improvements assumed are unrelated to a new runway and undermine the results**
  - 3.1. Heathrow Airport Limited has invested substantial resource in fine tuning flight routings to try to minimise numbers exposed. With the Commission reliant on what the promoters have provided, this has meant the data for Heathrow NWR is not consistent with that for Gatwick second runway or for Heathrow extended northern runway (ENR), nor is it aligned with how Heathrow operates today.
  - 3.2. The achievability of such optimisation measures as have been used for the Heathrow NWR modelling is not certain; moreover, given many of these measures are largely independent of a third runway, it is not at all clear that they should have been assumed.
  - 3.3. Furthermore, with several scenarios for Heathrow NWR having been tested – and results that vary widely – the Commission gives no guidance as to which is the likeliest scenario.
  - 3.4. The result of this is to flatter the Heathrow NWR option, particular in comparison with the Heathrow ENR option, and to suggest that expansion in the former case will lead to a reduction in people exposed to noise compared to today.

- 3.5. While the assumptions used for modelling Heathrow NWR call into question the validity of its noise exposure figures, the difference in assumptions between the three options also means it is impossible to make a fair comparison of the total population exposed by each option.
- 3.6. What is clear, however, is that, any Heathrow expansion option, even with extensive flight route optimisation, cannot escape exposing hundreds of thousands of people to aircraft noise.

#### **4. The Commission's analysis underplays the wider impacts of noise with substantial uncertainty about its cost**

- 4.1. Beyond monetisation there does not appear to be any discussion about the link between number of people exposed and impacts on quality of life – for example sleep deprivation, annoyance and public health; similarly tranquil areas and ecosystems have not been assessed. This is despite having been identified in the Commission's Appraisal Framework.
- 4.2. Regarding the 'cost' of potential noise impacts, there is much uncertainty in the noise valuations presented. A low, mid and high cost scenario is provided. For example, total noise impact costs for Heathrow NWR are reported to be £0.91 billion, £1.5 billion and £25 billion for the low, mid and high cost scenarios over a 60 year period – a range of £24 billion. This variation emphasises the uncertainty in what the 'value' of the impact of noise upon the population is and could be easily over- or underestimated in the business case.

#### **5. The assumptions used by the Commission in its national review of noise need to be better understood – and appropriate sensitivities tested**

- 5.1. The Commission's assessment of noise emissions on a net national basis utilised the US Federal Aviation Authorities Integrated Noise Model (INM). It concluded that the proposed Heathrow northwest runway (NWR) scheme would reduce the population exposed to aviation noise across the whole nation when compared to the Do Minimum, primarily due to a reduction in noise at regional airports. The Heathrow extended northern runway (ENR) and Gatwick second runway proposals would see an increase in population exposed to noise across the nation. These conclusions are based on specific presumptions about the dynamic of the aviation market which are at best uncertain. It raises doubt about the meaningfulness of such a measure.

Details on flights schedules from the proposed airports were provided but were not in a format that is easily digested or analysed. In the Do Minimum scenario the Commission predict a steady increase in exposure to noise from regional airports. However, when modelling proposed expansion options, noise exposure at regional airports reduces. An explanation on assumptions would be useful to understand this.

## B: Does the Commission’s assessment constitute a robust approach?

To be robust, the option appraisal must entail a complete assessment. It must also be consistent across all the options, with the Commission’s previous analysis, with best practice in the appraisal of large infrastructure projects – including principles of HM Treasury Green Book – as well being aligned with the Commission’s own Appraisal Framework. The table below sets out a summary of the extent to which the Commission’s assessment meets these requirements.

Table 1: Does the Airports Commission’s assessment constitute a robust approach

Criteria	Met?	Comments/examples
<b>Approach to Assessment</b>		
Aligned with Airports Commission Appraisal Framework?	Partial	<p>Areas such as surface access noise, quality of life and quiet/tranquil areas not assessed.</p> <p>The Commission’s report does not reference existing sound environments in and around the noise contour footprint areas. While a detailed assessment against existing ambient noise levels may not be required at this stage of optioneering; due consideration should be given to the existing environment particularly within new areas/populations that are predicted to be affected. Other large UK infrastructure schemes have used ambient levels as a guideline in the assessment of noise impact.</p> <p>Similar to above, ‘quiet’ or ‘tranquil’ areas, as defined in the European Noise Directive and National Planning Policy Framework, have not been referenced within the Commission’s Noise or Place reports. Such areas have been considered within the other major infrastructure schemes in the UK, such as HS2.</p> <p>No reference could be found regarding impacts relating to surface access noise. The Appraisal Framework recommends that predicted traffic increases &gt;25% should be studied for impact from noise. However, no evidence of this was found.</p>
Consistent approach to assessment: <ul style="list-style-type: none"> <li>• Between options?</li> <li>• With previously considered options?</li> <li>• With best practice/Green Book?</li> </ul>	No	<p>Different assumptions used for each option, therefore, not directly comparable. No reference to previously considered options.</p> <p>The Do Something schemes, where possible, have assumed the displacement of the touchdown thresholds which reduces the size of the arrival noise contour. This enhancement is not related to the provision of an additional runway so should be</p>

		<p>considered in the Do Minimum baseline scenarios.</p> <p>The Heathrow NWR option has used the flight routes developed by the promoter. It is to be expected that the promoter will have optimised these routes to achieve the minimum noise impacts without necessarily considering the achievability of the massive scale of change required. Five runs were developed to test various options including respite and minimising population exposed. The Gatwick option only tests one set of routes developed by the promoter. Heathrow ENR implements two, crude, outdated flight route sets developed in 2007 for Heathrow's Project for Sustainable Development at Heathrow (PSDH). This suggests that the Commission has not modelled flight routes that have been subject to the same level of design and fine tuning as the other schemes.</p> <p>A 3.5 degree glide slope scenario has been included for Heathrow NWR option (2040-2050 years only) but has not been applied in the modelling for Gatwick or Heathrow ENR, thus negating the additional noise reduction benefits from such a strategy for these options. Implementation and operation of a 3.2 degree or 3.5 degree glide slope is related to the capability of the navigation approach aids and the aircraft performance can be delivered equally at Heathrow or Gatwick and are not related to the delivery of an additional runway.</p>
<p>Assessment complete (evidence gaps addressed, suitable geographic/temporal scope)?</p>	<p><b>No</b></p>	<p>Gaps in assessment include surface access noise, quality of life and explanation of assumptions.</p> <p>The level of detail included, when compared to other large UK infrastructure projects (HS2, Crossrail, Thames Tideway Tunnel) is less than would be expected.</p> <p>Maps showing the arrival and departure flight tracks are provided but to a local scale. The full extent of the routes are therefore unknown e.g. where stacking, point merge or tromboning would be, and what areas, albeit outside the noise contours, would be overflown.</p>
<p><b>Assumptions</b></p>		
<p>When multiple scenario/assumption sets used, has the most appropriate been identified – or worst case scenario tested?</p>	<p><b>No</b></p>	<p>Multiple sensitivities including mitigation tested for Heathrow NWR only – but no clarity as to which is most appropriate. Different sets of data applied to each option.</p>

**Analysis: impacts and conclusions**

Risks fully stated and impact reflected in conclusions?	<b>No</b>	Risks in unreliability of data and assumptions not fully clarified or that the results are not directly comparable.
Understanding of net/cumulative impacts?	<b>Partial</b>	National impacts are outlined but lack of detail around assumptions used in regional airports.