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Environmental Statement

Enabling works to allow implementation of full runway alternation during easterly operations at Heathrow Airport

Non-Technical Summary

This is the Non-Technical Summary of the Environmental Statement that has been prepared to accompany a planning application by Heathrow Airport Limited (HAL). This summary describes the aims of the planning application, the Environmental Impact Assessment (EIA) process and the key findings and recommendations arising from the assessment. A list of frequently asked questions can also be found on page 6.

Heathrow Airport

Heathrow Airport is located about 15 miles west of Central London, within the London Borough of Hillingdon. It is situated on approximately 1,227 hectares of land and operates two parallel runways (the northern and southern runway, see inset) in segregated mode, whereby arriving aircraft are allocated to one runway and departing aircraft to the other.

The airport is either on 'easterly' or 'westerly' operations, depending on the wind conditions. Aircraft normally take off and land into the wind and the prevailing winds at Heathrow Airport are from the west (around 71% of the time). This means that aircraft movements (departures and arrivals) are in a westerly direction around 71% of the time.

To provide predictable periods of relief the runways alternate when on westerly operations. The present pattern provides for one runway to be used by landing aircraft from 06:00 until 15:00 and the other runway to be used from 15:00 until after the last departure. This is known as runway alternation.

The Cranford Agreement was ended in January 2009

The Cranford Agreement was a Ministerial undertaking given in 1952 to use best endeavours to avoid using the northern runway at Heathrow Airport for departures in an easterly direction over Cranford.

After public consultation, the previous Government ended the Cranford Agreement in January 2009, with the aim of distributing noise more fairly around the airport. Implementation of the ending the Cranford Agreement will enable runway alternation to be introduced when the airport is on easterly operations and give affected communities predictable periods of relief from over flying aircraft. The Coalition Government reaffirmed their support for this decision in September 2010. Although the Cranford Agreement has ended, Heathrow Airport Limited (HAL) has not yet implemented full runway alternation during easterly operations because physical works are required to the airfield to facilitate the operational changes.

Runway alternation is not currently possible during easterly operations (when all aircraft movements are in an easterly direction). Therefore, the northern runway is typically not used for scheduled departures (over Cranford) and the southern runway is typically not used for arrivals. This is due to an agreement given in 1952 to use best endeavours to avoid using the northern runway at Heathrow Airport for departures in an easterly direction over Cranford. This agreement is known as The Cranford Agreement and was ended in January 2009 (see inset for more information).

Background to the Application

To allow aircraft to use both runways (when on easterly operations) physical infrastructure works are required to the airfield on the northern runway.

The infrastructure required is relatively limited and includes:

- Creation of a 'Hold Area' at the western end of the northern runway;
- The construction of a new taxiway; and
- Two small areas of additional pavement to allow larger aircraft to access and exit the runway easily.

A new 5m high noise barrier south of Longford is also proposed and will generally follow the alignment of the existing 3m high timber noise barrier situated between Wright Way and the Duke of Northumberland River.

The construction programme for the Project will be over a 10 – 12 month period and is expected to be completed early in 2015. Therefore, the first year that full runway alternation on easterly operations could be implemented would be 2015.

It should be noted that these infrastructure works and the implementation of full runway alternation will not generate any increase in air traffic movements, which will remain within the limit of 480,000 movements per year.

The proposed development and the complementary works currently being constructed on Heathrow's southern runway, to enable aircraft to exit that runway more quickly while on easterly operations, will also provide the airport with more resilience in its operation and especially following periods of disruption to the usual pattern of operations allowing a quicker recovery to normal.

The Environmental Impact Assessment (EIA) Process

EIA is a process that collects information about the environmental effects of a proposed development and evaluates and presents this information in a way to assist consultation and enable decisions to be made.

The assessment of effects is undertaken in an impartial manner and the findings are presented in a systematic way in the Environmental Statement (ES), which will help to inform decisions about whether or not the Project should be approved. If the Project is approved, the EIA also helps to identify controls over the construction or operation that are needed to mitigate potential environmental effects. The ES has been prepared by independent environmental consultants.

The topics considered in the Environmental Statement were established through consultation with the London Borough of Hillingdon and other stakeholders. The topics included:

- Air and ground noise;
- Air quality;
- Cultural heritage and archaeology;
- Landscape and visual effects;
- Ecology; and
- Land quality.

There are a number of interrelationships between these topics and these are picked up within the relevant chapter of the Environmental Statement. A separate report is also available examining the health and equality impacts on community receptors. A Flood Risk Assessment has also been provided.

The requirement for some topics not to be considered was a result of consultation. In particular, the following environmental topics were scoped out of the EIA process:

- Hydrology and hydrogeology (although the effects on groundwater are assessed in Chapter 11 of the ES); and
- Traffic and transport (this is because the proposals will have no affect on future passenger numbers or the total number of air traffic movements).

Aircraft markings on a stand for B777 and A380

Air and Ground Noise

The ES has considered the likely significant operational effects from air and ground noise sources. Significant noise effects during the construction of the enabling works are also considered. The ES considers noise sensitive receptors, including residential dwellings, education establishments, healthcare facilities and community facilities. The assessments use relevant policy and guidance, along with measured and modelled noise levels to determine effects. Noise mitigation and the number of buildings eligible for noise insulation and compensation are assessed within the ES. Eligibility reflects current Government policy (set out in the Aviation Policy Framework).

Noise Definitions

Air Noise: Noise caused by departing and arriving aircraft. The consideration of noise issues at Heathrow Airport has largely focused on air noise as the main issue.

Ground Noise: All noise emitted from airside sources, including aircraft taxiing to and from the runway via taxiways. Typical airside noise sources comprise aircraft engine idling and taxiing, the running of aircraft auxiliary power units (APUs) whilst on stands, as well as ground support vehicles and airside road traffic.

LAeq, 16hr: In the UK, aircraft noise is typically measured using 'average-mode' noise contours which take account of the number of aircraft movements over an average 16 hour summer day (07:00-23:00 mid-June to mid-September).

dB(A) scale: The scale used to express the sound pressure level is the decibel (dB) scale. Most sound pressure levels encountered lie in the range 0 to 140 dB. Noise levels in dB, like the basic decibel scale, measure proportions so that a 10 dB increase is approximately a doubling of loudness and a 10 dB decrease is approximately a halving of loudness. Judgement of loudness is subjective, and dependent on the characteristics of the sound, but the '10 dB increase is a doubling of loudness' rule is a useful general guide.

During the construction phases, the assessment identified significant adverse affects at 6 properties in Longford during night-time periods as a result of the construction of the noise wall.

During the operational phase, the assessment identified that the Project would lead to a redistribution of noise around the airport. In terms of air noise, the assessment demonstrated that the number of people exposed to 57 dB LAeq, 16h would reduce by 10,500. For those exposed to air noise exposure above 57 dB LAeq, 16h, the assessment demonstrated that more dwellings would be subject to decreases of greater than 1 dB(A) than increases of 1 dB(A) by a factor of 2 to 1.

Decreases in air noise exposure were identified under the approach path to the west of the northern runway in locations such as Windsor, Dachet, Colnbrook and Poyle. Decreases in air noise were also identified in areas of Hatton. Increases in air noise exposure were found to occur in Cranford as a result of departures and under the approach path to the west of the southern runway in locations such as Old Windsor and Stanwell Moor.

Using alternative measures to assess aircraft noise effects from the Project, it has been demonstrated that for communities located under easterly approaches to the northern runway, the Project would lead to scheduled periods of respite. For some communities located under easterly approaches to the southern runway, the project would lead to a loss of relief mitigated by scheduled periods without overflights. For communities located under initial departures, there will be changes overflights with some receiving increased periods of relief, which for some, will be scheduled according to the runway alternation.

An assessment has demonstrated that the Project would not lead to any statistical increase in the population considered either 'annoyed' or 'highly annoyed' by aircraft noise. The assessment concluded that there are no significant decreases of beyond 3 dB(A) in air noise associated with the Project. Instead there would be significant adverse effects comprising of increases of at least 3 dB(A) in LAeq, 16h at around 1,700 dwellings located in Cranford and Heathrow Villages. The assessments have also considered eligibility for mitigation under HAL's mitigation schemes as a result of the Project. 175 residential dwellings were found to be eligible for HAL's Home Relocation Assistance Scheme, with a further 350 found to be eligible for the airport's Residential Insulation Scheme.

An assessment of night-time air noise has also been undertaken for residential dwellings. The assessment identifies that the number of receptors exposed to more than 45 dB Lnight would reduce by around 1,500 and that more dwellings would experience decreases of at least 1 dB than equivalent increases. No significant adverse or beneficial effects were identified for night-time periods.

For other non-residential sensitive uses, the assessment identifies significant air noise effects at 15 education establishments, 5 healthcare facilities and 3 places of worship. These facilities would not be eligible under the airports current mitigation schemes as they would not fall within the relevant noise contour..

Various aircraft queue on taxiway for take off from Northern Runway

In terms of ground noise, the assessment identifies an increase in the number of residential receptors exposed to 57 dB LAeq, 16h or more. Noise maps have illustrated that above these threshold, the Project would result in increases in ground noise of at least 3 dB(A) within Longford and decreases of up to 2 dB(A) in Stanwell and Stanwell Moor. The assessment identified that significant adverse effects would occur for 70 residential dwellings located in Longford and that there would be no significant beneficial effects. These residential dwellings would not be eligible for the Airport's Residential Insulation Scheme or Home Relocation Assistance Scheme. No other non-residential sensitive receptors were found to experience significant adverse or beneficial effects.

A qualitative assessment of noise-induced vibration from start-of-roll activities has been undertaken based on measurements taken around the western end of the southern runway. The assessment concluded that scheduled departures from the northern runway may give rise to significant noise-induced vibration effects for dwellings with light-weight constructions in Longford.

Air Quality

The assessment considered the likely effects on air quality from pollutants during the construction and operation of the Project.

The assessment has shown that at some residential receptors in Longford there is likely to be a small increase in average NO_2 concentrations over the year and that concentrations at seven residential receptors may increase above the Air Quality Objective of 40µg m^{-3} as a direct result of the Project.

In Stanwell the assessment has shown the opposite effect, with reductions in concentrations leading to concentrations at one residential receptor reducing below the Air Quality Objective of 40µg m^{-3} with the Project.

For the monitors around Heathrow (including at Harlington, Green Gates and Oaks Road) the general trend in concentrations between 2006 and 2013 has been downwards and at Harlington, Green Gates and Oaks Road the concentrations measured in 2011 and 2012 were less than 36 µgm^{-3}.

The effect of the Project on annual mean concentrations of particulate matter is small, with the greatest increase at the residential receptors considered being 0.2 µg m^{-3}. For particulate matter, PM10 and PM2.5, there are no predicted exceedences of Air Quality Objectives with (and without) the Project with concentrations being well below the Air Quality Objectives.

It was considered that there was unlikely to be any change in the reported incidences of odours.

The overall effect of the Project on local air quality is considered as not significant.

Cultural Heritage and Archaeology

The assessment considered the likely effects on cultural heritage assets during the construction and operation of the Project.

The assessment was informed by desk studies that examine each of the components of the Project, taking into account available heritage baseline data, in particular the data arising from recent large scale archaeological excavations undertaken at the airport, and established heritage management guidelines, including English Heritage (2011) *The Settings of Heritage Assets*.

The assessment concluded that:

- It is unlikely that archaeological remains will be affected by realignment and construction of taxiways within the existing airport boundary. Mitigation measures, such as developing a Programme of Archaeological Investigations are not proposed as they are likely to be unproductive and potentially compromise procedures for the safe operation of the airport.
- The character of the Longford, Norwood Green, Cranford Park and Cranford Village Conservation Areas and the setting of associated listed buildings, may be sensitive to changes to the frequency and distribution of aircraft departing on the northern runway, primarily as a result of increased noise. The proposed noise barrier will mitigate these effects on the Longford Conservation Area, without giving rise to significant visual affects to the setting of designated heritage assets.
- Changes are likely to be more sensitive at Norwood Green, Cranford Park and Cranford Village Conservation Areas, which may experience intermittent increased noise at levels of 3dB+ within the 55 Lden noise contour. This has implications for the aesthetic and communal values that contribute to the heritage significance of the conservation areas and the setting of associated listed buildings. These intermittent changes in noise levels have been assessed in the context of prevailing circumstances, where aircraft noise is already part of the experience encountered within the conservation areas.

There are no significant effects to the historic environment resulting from the construction phase of the Project within the airport boundary.

Prevailing levels of aircraft noise will increase intermittently within the Norwood Green, Cranford Park and Cranford Village Conservation Areas as a result of changes to the frequency and distribution of aircraft departing on the northern runway, with implications for the aesthetic and communal values that contribute to the heritage significance of the conservation areas and the setting of associated listed buildings. However, the heritage assets are predominantly valued for evidential and historic interests and it is therefore considered that there are no significant effects on these assets.

Landscape and Visual

A Landscape and Visual Impact Assessment (LVIA) was undertaken to understand how the Project may influence the landscape character of the site and surroundings, or people experiencing views of the area e.g. local residents, users of local roads etc.

Following a methodology described by the best practice document *'Guidelines for Landscape and Visual Impact Assessment'* certain landscape features or certain people experiencing a view are considered to be more sensitive to change than others. In order to understand which landscape features and which people were most sensitive to the proposed development, a desk based assessment and site visit were undertaken, and also discussions were held with the local planning authority. This resulted in the following landscape and visual 'receptors' being assessed as part of the LVIA:

- Potential effects on tranquility levels of open spaces and areas of 'relative tranquility' within the tranquility assessment Study Area;
- Potential effects on the local landscape character of Longford as a result of the noise barrier;
- Potential effects on visual receptors within the visual envelope of the noise barrier during the construction and operation phase. These receptors include:
  - Recreational receptors using Longford 'pocket park'
  - Residents on the southern side of Bath Road between 485 Bath Road in the east and 617 Bath Road in the west
  - office workers within the Padbury Oaks office complex.

The LVIA assessed the magnitude of change and the overall significance of the effects that these receptors would experience. It was noted that the construction of the proposed noise wall, and the changes to the direction of aircraft movement would have some effect on the landscape and visual receptors. However, as the construction of the noise wall would only take place for 10 weeks and as views of aircraft movements are already a common feature of the local area, it was concluded that there would be no significant effects on any of the receptors.

Ecology

The assessment considered the likely effects on biodiversity and ecological receptors during the construction and operation of the Project.

Potential effects on biodiversity may occur for three reasons, firstly due to impacts from the construction of the new airport infrastructure, secondly due to changes in air quality (specifically nitrogen deposition or NOx) and thirdly due to changes to the baseline noise environment caused by the redistribution of air traffic. A geographical area was identified within which these environmental changes could affect valued biodiversity.

Valued biodiversity (biodiversity receptors) that could be significantly affected by the Project, were identified through a site survey and through a collection of ecological data from Local Biodiversity Records Centres. Valued biodiversity

Various aircraft queue on taxiway for take off from Southern Runway

receptors were considered to be statutory and non-statutory nature conservation sites, UK Biodiversity Action Plan priority habitats and legally protected or otherwise notable species occurring anywhere within the defined Study Area.

The assessment of effects identified whether the environmental changes are such to cause a significant effect to occur on identified biodiversity receptors. This judgement was informed by detailed noise and air quality modelling and information about construction activities and which, if any, of the potential biodiversity receptors were of sufficient quality (for sites and habitats) or size (for sites, habitats or species populations) that an effect upon them could be significant.

The majority of biodiversity receptors assessed were identified as being at low risk from a significant effect occurring. Receptors which were identified at most risk and which were taken forward for further detailed assessment were the South West London Reservoirs SPA, Windsor Forest and Great Park SAC, Richmond Park SAC, their constituent parts, The Lower Colne Site of Metropolitan Interest (SMI) and grass snakes.

For the statutory and non statutory sites the environmental changes identified as potentially causing a significant effect were changes in the air quality and noise baseline environments. After detailed assessment using modelling data and ecological information about these sites it was considered that increases in emissions or noise were too small to cause significant effects. Grass snakes were highlighted as being potentially at risk from the construction activities associated with the new airport infrastructure, however a mitigation strategy can be employed which complies with the legislation relating to this species and as such no significant effect would occur.

Land Quality

The assessment considered the likely effects on land quality during the construction and operation of the Project.

Information on land quality (including geology and hydrogeology) at Heathrow Airport was collated from various sources. Potential receptors were then identified, including construction workers, groundwater quality and future end users. However, it was determined that there was not likely to be any significant effects on these receptors and no further assessment was required.

Therefore, no significant effects have been identified with the Project.

Frequently Asked Questions

1. I thought the Cranford Agreement had already ended?

It has. It ended in January 2009. However, planning permission is required for works to the runway before the airport can operate full runway alternation when the wind is from the east.

2. Why are additional taxiways required on the northern runway if aircraft can already take-off over Cranford?

The additional taxiways and Hold Areas are required on the northern runway so that a full schedule of flights can be delivered. This requires additional taxiways for easy access to the runways and hold areas for aircraft to queue and for them to be placed in the right sequence.

3. Who decides whether the planning application is approved?

The application is being submitted to the local planning authority for a decision. The local planning authority in this case is the London Borough of Hillingdon. However, other local authorities and stakeholders will also be consulted during the consultation period.

4. When will a decision be made?

The local planning authority should determine the application within 16 weeks from the date of receipt of the Environmental Statement and planning application. However, the period may be extended by written agreement between the authority and the applicant.

5. Will this application result in additional aircraft movements at Heathrow?

No. The movements are capped at 480,000 Air Traffic Movements (ATMs). This was a planning condition of the Terminal 5 Planning Decision in 2001 and remains unchanged by this development.

6. How can I find out if I will be affected by noise?

Visit www.heathrowairport.com/cranford

7. Where can I get more information on the environmental effects of the project?

The Environmental Statement is available to view on the London Borough of Hillingdon's website and is also available to view on Heathrow Airport's website.

If you would like a copy of the Environmental Statement on CD, please send a cheque for £5 to Heathrow Airport Ltd at the address shown below, noting reference to "Cranford ES". Alternatively, you may request one via www.heathrowairport.com/cranford.

8. How can I comment on the Environmental Statement?

Details of how to response and by when can be found on the London Borough of Hillingdon's website and on Heathrow Airport's website (www.heathrowairport.com/cranford).

If you require a copy of this document in another language please write to Heathrow Airport Ltd, The Compass Centre, Nelson Road, Middlesex, TW6 2GW.