**EIA Quality Mark Case Study**

**Applying EIA techniques to the Airspace Change Programme at Edinburgh Airport**

<table>
<thead>
<tr>
<th>Proposed westerly departure flight paths (Runway 24)</th>
<th>Proposed easterly departure flight paths (Runway 06)</th>
</tr>
</thead>
</table>

### Key Issues:

Key concerns for the project were to ensure that the Environmental Assessment satisfied Civil Aviation Authority (CAA) guidance (CAP725) for the Airspace Change Process (ACP), while providing information at a suitable level of detail to inform and engage with affected communities.

The Environmental Assessment included calculation of fuel burn and CO$_2$ emission impacts, a qualitative local air quality assessment, an economic valuation, an equalities assessment and a cumulative impact assessment.

However, with certain assessments Edinburgh Airport wanted to demonstrate going above and beyond CAA guidance, and Ricardo Energy & Environment sought to apply EIA techniques in order to better understand and communicate potential impacts.

The Environmental Assessment therefore included:

- Modelling of both average summer day ($L_{Aeq,16hr}$) and annual night ($L_{Aeq,8hr}$) noise contours, and expression of results in difference maps.
- Use of noise modelling results to conduct a quantitative health impact assessment.
- An innovative tranquility and visual intrusion assessment, in an area where baseline tranquility mapping did not exist.

### Purpose of the project:

Ricardo Energy & Environment were commissioned by Edinburgh Airport to conduct an Environmental Assessment for its ACP. The programme involves an upgrade of aircraft arrival and departure flight paths and application of new methods of operation, to take advantage of the improved navigational capabilities of aRea NAVigation (RNAV) technology, and improve the efficiency and capacity of the airspace surrounding the airport. Airspace refers to the air available to aircraft to fly in, especially the part subject to the jurisdiction of Edinburgh Airport in this instance.

### Description of the project:

Edinburgh Airport redesigned the airspace based on three key requirements (i.e. regulatory, community and operational) to ensure operational benefits with minimal impact on neighbouring communities.

Proposed changes to the existing airspace included addition of new flight paths, modification of existing flight paths, and careful scheduling of flight path use to minimise community impacts. Implementation of the airspace change if approved by the CAA will be in 2019

Key programme aims included:

- Reduction of population overflown below 4,000ft to minimise aircraft noise impacts on local communities.
- Increased runway capacity by reducing time between departures, without increasing the overall volume of the airspace.
Lessons learnt:
Information that ‘must’ be supplied to support an ACP submission may not be sufficient to satisfy increasingly well-informed community stakeholders. Our noise, health and tranquillity assessments delved deeper to provide assurance regarding impacts to all parties. We provided $L_{night}$ modelling in addition to the required $L_{eq}$ outputs, and presented the results in a series of difference maps rather than just traditional contours. The difference maps enabled easier interpretation of the model results, by identifying areas where noise exposure would change under different scenarios. This enabled us to show that increases in noise levels would typically occur in less populated areas, while population centres such as Livingston would experience decreases in noise exposure.

We also evaluated potential impacts on human health by calculating health impacts with regard to factors such as noise annoyance, sleep disturbance, heart and stroke admissions, and effects on reading age in school children. Our calculations showed that adverse health impacts were likely to be negligible, and that a minor beneficial reduction in number highly annoyed people could expected following implementation of the airspace change.

Tranquility and visual intrusion maps were produced for England and Wales in the 2000s, however have not yet been produced for Scotland. We assessed relative tranquillity in the study area by mapping the difference between positive and negative indicators of tranquillity, such as the presence of natural areas (positive) and infrastructure and built environments (negative). We then overlaid the proposed flight paths on the tranquillity map, and considered factors such as the elevation of aircraft when overflying tranquil areas while conducting the assessment. The tranquillity and visual intrusion assessment indicated that diversion of flight paths away from populated areas (to reduce noise impacts on communities) may result in adverse impacts on more tranquil areas newly overflown.

Airports need to provide clear, comprehensive information to affected communities to enable meaningful stakeholder engagement. This case study illustrates the value in applying rigorous, quantitative assessments commonly associated with EIA to other regulatory processes. The Environmental Assessment for the Edinburgh Airport ACP will be used not only to satisfy regulatory requirements, but also to inform ongoing engagement with communities regarding the ACP and potential environmental effects.

Contact details
Ben Stansfield
Head of EIA, Ricardo Energy & Environment
ben.stansfield@ricardo.com, +441235753154

For access to more EIA case studies and hundreds of non-technical summaries of Environmental Statements visit:
https://www.iema.net/eia-quality-mark/eia-quality-mark-case-studies