
Quiet Night Arrivals discussion paper

Prepared for the 6th meeting of the Noise Management Board

Date: 31 May 2017

Introduction

At NMB/5 in April 2017, GATCOM papers covering the 2013 Night Noise Respite trial were presented and discussed with the aim to inform the development of other night initiatives. It was agreed that opportunities for a night initiative should be explored but required a careful balance of the interests of rural and urban areas. This paper presents background and discussion points to progress the work and a summary of the 2013 Night Noise Respite Trial is given in Annex A.

This new initiative is proposed as the “Quiet Night Arrivals” trial and thus the title of this paper.

Context

The Independent Arrivals review recommended under Aspire-21:

The adoption of carefully designed routes from the approach holding fixes used for Gatwick, to the ILS final approach tracks, provides real opportunity to reduce noise, to disturb fewer people, to deliver fair and equitable dispersal of noise, and, to deliver well defined respite measures. The London Airspace Management Programme should be developed by NATS and GAL to incorporate alternative proposals, to those published in 2013, as soon as reasonably possible, for consultation, agreement and implementation for Gatwick arrivals.

Given that this recommendation will be taken forwards into the NMB 2017/18 workplan and as the introduction of P-RNAV in the busy RMA will need to first occur in a low traffic environment, such as the night, it is logical to consider the results of the previous night noise respite trial to inform thinking. Information on the 2013 night noise respite trial is contained in Annex A.

Objectives

The main aim of the “Quiet Night Arrivals” trial is the introduction carefully designed and agreed P-RNAV arrival route(s) for use in the night period.

To support discussions at NMB/6, it is proposed that the objectives of the Quiet Night Arrivals are discussed and agreed. Some suggestions for noise-related objectives are shown below and re-use many of the aims of the previous trial:

- Maintain arriving traffic within the current swathes;
- Avoid moving aircraft overflight and noise to areas that currently are not affected;
- Increase the height profile of arriving aircraft;
- Increase the number of aircraft flying a “low noise approach”;
- Maintain or reduce the size of the arrivals night noise contour. The type of noise contour (e.g. N60 or LEQ) is to be determined.

Comments from CNGs on these objectives are welcome.

It is clear from the possible objectives that they overlap to a greater or lesser degree. The main themes are to keep noise in the currently affected areas and reduce noise overall. In the recommendations of this paper, a subset of these objectives are proposed that are measurable and encompass the main themes of these objectives.

In addition to the above noise-related aims, the trial also has the additional aim of demonstrating that the P-RNAV concept is operationally feasible for Gatwick arrivals.

Planning

To fully address the objectives in a timely manner a two-stage approach is recommended:

- **The first stage** would focus on the concept development, design, agreement, trial and analysis of Quiet Night Arrivals P-RNAV route(s) as follows:
 - **Phase 1: Agreement to proceed in principal.** This requires the high-level objectives to be set, which is the intention of this paper.
 - **Phase 2: Concept development and design.** This will require discussion of the feasibility of different solutions with NATS, ANS and the CAA along with analysis of the pros and cons of different options taking into account the agreed objectives. A monitoring and reporting regime will need to be defined.
 - **Phase 3: Engagement with NMB to review and endorse the concepts.**
 - **Phase 4: Evaluation commencement, reporting, analysis and communication with the wider area.**
- **The second stage** would take place once the Quiet Night Arrivals route(s) had been evaluated and would focus on how these routes could be used to deliver fair and equitable dispersal or respite if this is considered desirable by community noise groups. The definition and requirements for dispersal or respite would need to be assessed and agreed prior to commencing works route(s) utilisation.

Recommendations

To progress the Quiet Night Arrivals route(s), the following objectives are recommended to be applied to a “Quiet Night Arrivals” trial:

Objective	Comment
Validate the use of RNAV for arrivals at quiet times	This is a technical objective that NATS will need quantify.
Maintain arriving traffic within the current swathe	This will first require a determination of the dimensions of the night arrivals swathe. There will need to be some tolerance to the targets for this objective.
Maintain or reduce the size of the arrivals noise contour	This will require measuring/calculation. The CAA publishes night LEQ contours for Gatwick ¹ but the N60 contour might be more appropriate. An expected reduction in this contour (e.g. reduce by 10%) might be set as a success criteria.

Note that a “respite” or “dispersal” objective has not been proposed, because these objectives would form part of a secondary stage of works.

The NMB is requested to endorse the proposal for Quiet Night Arrivals route(s) to allow the progression of the concept development.

¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/582633/gatwickairport-noise-2015.pdf

Annex A: Description of the 2013 trial

In response to GATCOM and NATMAG requests for predictable respite, Gatwick and NATS developed an operational evaluation of a night-time rotational respite program. The program provided an opportunity to assess the benefits of temporary changes in the way NATS vectors arriving aircraft to the ILS in the night.

The aim of the trial was to maintain the stream of arriving traffic within the currently affected areas, but avoid overflight below 6,000ft from agreed areas of population (where possible), to alternate the affected areas or, to use a combination of these two techniques.

The concept was presented to GATCOM members in July 2013 with feedback requested. GAL developed arrivals routes based upon the following targets:

- Avoid all areas of population as much as possible, alternate these areas or provide a combination of these two respite techniques
- Maintain arriving traffic within current swaths
- Avoid moving aircraft overflight and noise to areas that currently are not affected

A 6 week consultation period aimed to review the proposed arrivals routes, to identify local factors for consideration and, the periods for alternation. The consultation resulted in a further iteration to the location of the arrivals routes with the final proposals identified below and in Figure 1.

Every Night of Trial

- No Arrivals Below 5,000ft (4,000ft)² for Tonbridge, Lodsworth.
- No Arrivals Below 6,000ft for Crowborough, Mark Cross, Wadhurst, Ticehurst, Uckfield, Maresfield, Burgess Hill, Haywards Heath, Nutley, Newick, Hurstpierpoint, Henfield.

During westerly arrivals

- Alternating Avoidance (zones A and B in Figure 1) – No Arrivals Below 6000' for Southborough, Markbeece, Penshurst, Pembury, Langton Green, Royal Tunbridge Wells, Fordcombe, Ashurst, Bells Yew Green, Frant.

During easterly arrivals

- Increased Descent Profile over Billingshurst, Adversane, Coolham, Newpound Common, Roundstreet Common, Wisborough Green, Kirdford³, Loxwood³, Plaistow³.

The trial ran for 7 periods of 8 days between 15th August 2013 and 10th October 2013. It was planned to be operational between the periods of 2300 and 0359 but this was subject to the expected traffic levels, disruption and weather. If issues were encountered or predicted, the trial could be delayed or cancelled, and if this occurred the reasons were recorded.

During the trial, information was gathered using the noise and track keeping system to record:

- Density/height of overflight
- How effectively was overflight removed from respite areas and redistributed relative to all populated
- Assess the number of people over flown during the trial verses before the trial

Qualitative feedback was collected from GATCOM members and local communities covered by the trial. The number and nature of any complaints made during the trial period was also tracked.

² Following feedback from controllers and radar analysis, this altitude was reduced to 4,000ft with an aspirational objective to maintain operations above 5,000ft.

³ May be similar to current altitude, due to proximity of final approach path

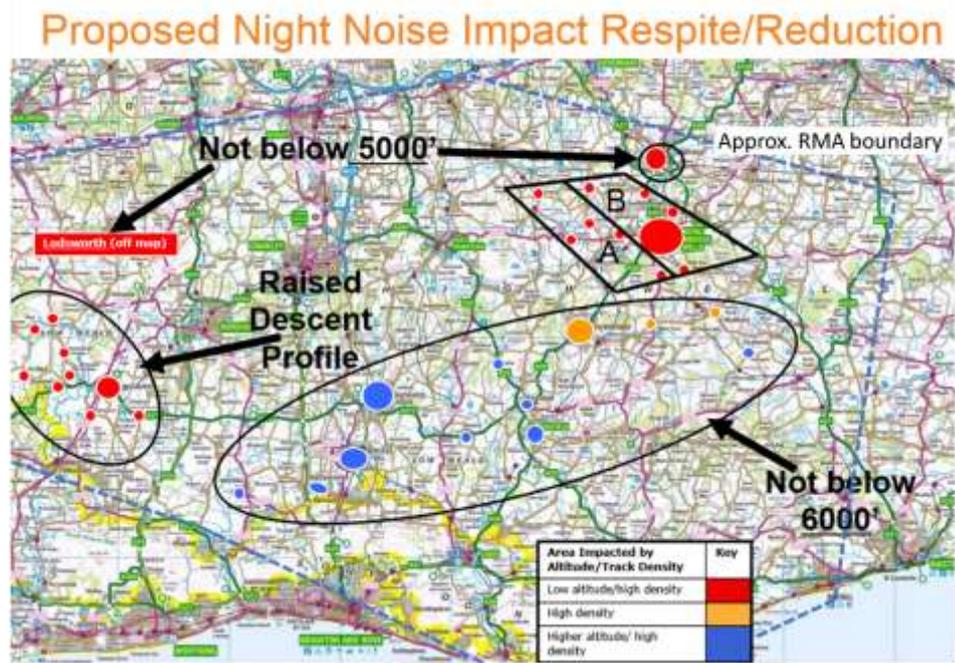


Figure 1: Areas of proposed night time noise respite.

It is not clear what the trial outcomes were as the trial report was not developed. Extracts from GATCOM and NATMAG minutes report that the trial had a good result and had shown that the respite options were operationally feasible. There had been an improvement in CDA performance due to the removal of an altitude step to avoid outbound Heathrow traffic which does not operate in the hours of the trial period. No negative comments had been received, fewer complaints were received in comparison to the previous year, and positive feedback had been received from some communities.

The GATCOM and NATMAG minutes also noted that an independent expert analysis of the trial results was requested, but collaboration with Cambridge University did not produce any result and therefore the study was proposed to be included in the Future Airspace Strategy Implementation Group (FASIIG). However, it is not clear whether the expert analysis was undertaken, or whether any conclusion was reached.