



Gatwick Arrivals Review

Overview and Final Action Plan

June 2016

YOUR LONDON AIRPORT
Gatwick

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1. Executive Summary

The purpose of the Independent Arrivals Review was to consider, in relation to arrivals at Gatwick, whether:

- a) Everything that can reasonably be done to alleviate the problems which local communities are raising is in fact being done, whether this involves action by the airport or by other parties most closely involved – National Air Traffic Services (NATS), UK Civil Aviation Authority (CAA), Department for Transport (DfT), Air Navigation Solutions (ANS) the tower air traffic provider, or the airlines; and
- b) The mechanisms which Gatwick has adopted for providing information to the local community and for handling of complaints have been fully adequate for the task

The report of the findings and recommendations of the Review was published on 28th January 2016 and is available at www.gatwickairport.com/arrivalsreview

On 31st March 2016, Gatwick Airport Ltd (GAL) published its initial response to the Arrivals Review with a Proposed Action Plan for discussion and further review with stakeholders during a six week period of engagement that ran from 31st March to 16th May 2016. This is available at www.gatwickairport.com/arrivalsreview.

GAL has accepted all of the recommendations of the Independent Arrivals Review.

The period of community engagement has confirmed that the responses to the findings and recommendations of the Independent Arrivals Review, as well as feedback on the resulting Proposed Action Plan, have been largely positive. Even so, feedback suggested that further analysis was necessary to quantify the full impact of implementation of some recommendations, and to understand better the effects of Recommendation Imm-10 in particular.

Considerable feedback was also received on the composition of the proposed Noise Management Board (NMB). These views were taken into account in the proposed Terms of Reference for the NMB that were developed and agreed by community representatives and other airport stakeholders at the NMB planning meeting held on 18th May 2016. These proposed Terms of Reference are included as an Annex to the action plan for Recommendation Imm-18. As an example, in response to feedback received, it was agreed that community representation on the NMB should be increased from two representatives to four.

This Final Action Plan report reflects a wide range of constructive feedback on the Independent Arrivals Review, and on GAL's Proposed Action Plan, that has been received from communities and other stakeholders, as well as the results and conclusions of additional analysis. A summary report of feedback received through the engagement period, is in Section 3.

Although the Independent Arrivals Review was commissioned by GAL, other parties including the CAA, NATS, ANS and the DfT, as well as airlines and local Government, have key roles which are identified in the recommendations and in this Final Action Plan. Each of these organisations has cooperated fully in the Independent Arrivals Review and the subsequent engagement process, and GAL looks forward to their continued collaboration and engagement. This will be important for the achievement of the steps recommended as a result.

2. Key Actions

The wide range of measures proposed to reduce aircraft noise on arrival at Gatwick is aligned with the principles of aircraft noise management established at the global level by ICAO and adopted by the UK Government. Action on some of the Review recommendations falls entirely within the responsibility of GAL, while others have required that GAL initiates discussions and works with one or more of the other stakeholders involved in delivering the improvements. In some cases, further analysis and community engagement has been necessary to ensure that any decisions on the precise steps to be adopted take into account the views fed back to GAL.

Actions have been further defined, together with associated target timescales for the initiation of the tasks and the ultimate delivery of the outcomes sought by each recommendation. The Review actions fall under four main headings:

a) Reduction of Noise at Source

Measures to improve engine and airframe technology and have already greatly reduced the noise emanating from aircraft and further significant reductions are planned for new build aircraft from 2017. That said, in the context of Gatwick today, in order to reduce existing disturbance, the installation of a modification on some Airbus aircraft is desirable. This particularly applies to some Airbus 320 series aircraft which have a high pitch whine that is currently disturbing some local residents.

- GAL will pursue the acceleration of the airframe noise modification of Airbus 320 series aircraft using Gatwick, and will use financial mechanisms to secure this end

b) Noise Abatement through Operational Procedures

Noise abatement procedures address the operation of aircraft to reduce noise generation and to reduce flight over populated areas. To achieve low noise arrivals, a variety of techniques can be employed to reduce the noise impacts of aircraft as they approach an airport, including:

- Keeping the aircraft high for as long as possible (increasing the distance from the aircraft noise sources to the ground)
- Keeping the aircraft at low engine power for as long as possible (reducing engine noise)
- Keeping the aircraft in a clean aerodynamic configuration for as long as possible (reducing airframe noise), and
- Minimising over flights of highly populated or sensitive areas

GAL will pursue implementation of the range of recommendations intended to further reduce arrivals noise disturbance, including through the improved use of Continuous Descent Arrival (CDA) techniques.

Gatwick arrival routing scenarios have been developed for the short and medium term. These offer dispersal of flights, or respite measures, as means of ensuring a fair and equitable distribution of aircraft noise over neighbouring communities.

This action includes taking steps to:

- a) Reduce the level of concentration of arrivals flight paths at Gatwick that began in 2013 with a reduction in the width of the ILS joining point (the so-called arrivals swathe). This reduction will be achieved by widening the (arrivals swathe) distance through which flights can safely join the final approach ILS centreline, thereby more closely emulating the greater dispersal of aircraft that previously existed. The implementation of this recommendation will alter the current ILS joining point minimum distance of 10 nautical miles (nm) from touchdown, to a minimum of 8nm.

This measure will extend the distance over which aircraft may safely be permitted to join the ILS, recreating a dispersal closer to that seen before 2013.

- b) Utilise the potential for additional noise benefits, by increasing the proportion of flights using higher, straight-in and continuous descent arrivals when reduced traffic levels enable controllers to apply greater operating flexibility. More detail is provided in the plan described for Recommendation Imm-10.

Longer term, Gatwick, like every other airport subject to EU aviation regulation, will be obliged to adopt Precision RNAV (PRNAV) approach procedures agreed by Governments at the global level within ICAO.

GAL acknowledges that preparation for this change should commence well in advance, through discussions with NATS, ANS, CAA and airlines, with full consideration being given to two main aspects:

- a) Establishing multiple RNAV approach paths to join the final approach centreline, spaced sufficiently to ensure a significant degree of noise dispersal and/ or respite for communities affected; and
- b) Adopting clear and associated arrivals noise reduction strategies (reducing noise at source and land use planning) for Gatwick by CAA, NATS, ANS, GAL and planning authorities.

c) Land Use Planning

Land Use Planning (LUP) is the process whereby approval is granted by planning authorities for noise sensitive developments such as houses, hospitals and schools. This should be on the basis of minimising, as much as possible, the impact of current and planned aircraft operations so as to limit the disturbance of residential communities by aircraft noise. With the aim to prevent new housing developments in the vicinity of agreed flight routes, GAL will actively encourage and support:

- A review of the application of Land Use Policy by planning authorities for areas in southern England impacted by noise from aircraft using Gatwick; and
- Further steps to encourage more effective consideration of flight routes by planning authorities.

d) Community Engagement

Community feedback on the Review recommendations has been important. Many residents and organisations concerned about aircraft noise have responded to Gatwick following the publication of the Independent Arrivals Review. In turn, GAL, in its Proposed Action Plan response, set out a period of community engagement of six weeks from 31st March to 16th May 2016, which has also generated helpful responses that have contributed to the refinement of this Final Action Plan. This feedback has also informed the further analysis work that has been undertaken since March to quantify the potential consequences arising from some of the more complex recommendations.

Further details of the feedback received, together with a summary of further analysis work, is set out in Sections 3 and 4 below.

In line with Independent Arrivals Review recommendations, GAL will actively encourage and support:

- Improved and jointly coordinated Noise Management, Community Engagement and Communications Strategies for NATS, CAA, ANS and GAL for noise issues affecting Gatwick communities, through the establishment of the Noise Management Board;
- Improvement to the noise complaints handling process for Gatwick; and
- Increased Gatwick resources allocated to Community Engagement.

3. PPS Feedback Report from Community Engagement

GAL appointed specialists, PPS Group, to analyse the responses and produce a summary report of the findings. This section, prepared by PPS, explains the public engagement that has been undertaken in relation to *GAL's Overview and Proposed Action Plan (OPAP)* and the key themes identified from the engagement response.

PPS Group and Engagement

PPS Group is an independent communications company that specialises in community engagement and has 25 years of experience of working with communities up and down the country.

PPS Group is an accredited member of the Consultation Institute, which helps all those engaged in public or stakeholder consultation to absorb best practice. As a founder member, PPS also adheres to ethical standards as set out by the Association of Professional Political Consultants.

Purpose of Engagement

Gatwick Airport Ltd (GAL) wished to continue to engage local stakeholders and residents in a spirit of openness and transparency by actively seeking feedback on the action plans of how GAL will deliver the 23 recommendations. A dedicated project email address (ArrivalsReview@gatwickairport.com), as well as a Freepost address, to which stakeholders and members of the community were able to send their feedback to were set up. For the purposes of this report, this feedback has been split into two stages: pre-publication of the Overview and Proposed Action Plan (OPAP) (henceforth 'pre-publication'), and post-publication of the Overview and Proposed Action Plan (OPAP) (henceforth 'post-publication').

GAL carried out a six week period of community engagement following the publication of its OPAP. This took place between 31st March 2016 and 16th May 2016. The purpose of this was to allow residents, community representatives and

elected representatives the opportunity to meet with GAL face-to-face; to discuss the action plan and; to influence how the action plans evolve.

617 responses were received to the dedicated project email address (ArrivalsReview@gatwickairport.com) and Freepost address: 89 pre-publication of the OPAP (received until 31st March 2016), and 116 during the six week period of community engagement following the publication of the OPAP (between 31st March and 16th May). 412 emails from individuals nominating representatives to the Noise Management Board have also been received. All responses have been logged and analysed and the key themes identified have been outlined in this document.

Community Event (Tuesday 26th April)

GAL held a community event on Tuesday 26th April specifically for stakeholders and those individuals who had participated in the engagement for the Arrivals Review. 320 personal invitations were issued ahead of this event, in addition to sharing details in local press notices and on the website (www.gatwickairport.com/arrivalsreview).

In total, 58 people attended this three hour event, which included inputs from NATS, CAA and easyJet representatives. Attendees had the opportunity to raise specific questions and present their thoughts. The Independent Arrivals Review Panel and members of the Gatwick Community Engagement team were on hand to answer any questions.

Community Groups and Key Stakeholders

A significant number of local community groups have participated in the engagement for the Arrivals Review. Though some share a common purpose, they each represent different geographic areas and varying perspectives. These groups include (this list is not exhaustive):

- GACC (Gatwick Area Conservation Group)
- GON (Gatwick Obviously Not)
- CAGNE (Communities Against Gatwick Noise Emissions)

- CAGNE EAST (Communities Against Gatwick Noise Emissions – East)
- TWAANG (Tunbridge Wells Anti-Aircraft Noise Group)
- ESCCAN (East Sussex Communities for the Control of Air Noise)
- PAGNE (Pulborough Against Gatwick Noise and Emissions)
- APCAAG (Association of Parish Councils Aviation Group)
- HWCAAG (High Weald Councils Aviation Action Group)
- TWANSG (Tunbridge Wells Area Noise Study Group)

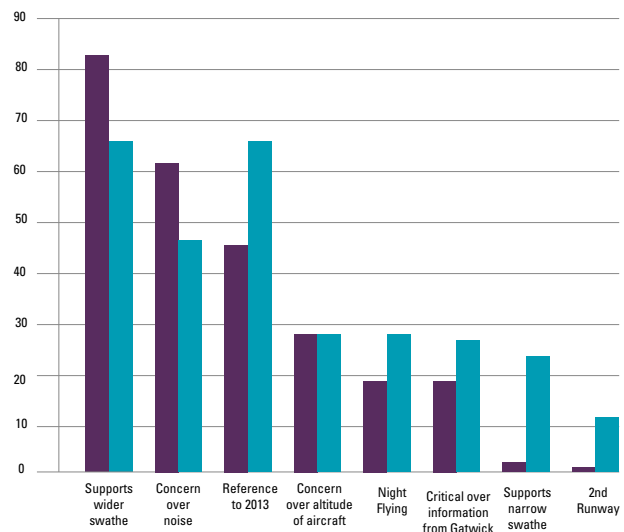
Local political representatives have also taken the opportunity to engage including (again, this list is not exhaustive):

- Tom Tugendhat, MP
- Nus Ghani, MP
- Greg Clark MP
- Jeremy Quinn MP
- Nick Herbert MP
- Henry Smith MP
- Cllr Paul Carter, Leader of Kent County Council
- Cllr John O’Brien, West Sussex County Council, Cabinet Member for Highways and Transport
- Cllr Keith Glazier, East Sussex County
- Cllr Rupert Simmons, East Sussex County
- Cllr Jeanette Towney, Wealden District
- Cllr Alex Horwood, Reigate and Banstead District
- Cllr Pete Lamb, Crawley Borough
- Cllr Peter Flemming, Sevenoaks District
- Cllr Victor Broad, Reigate and Banstead District
- Cllr Robert Standley, Wealden District
- Cllr James Friend, Mole Valley District

Feedback Themes

Chart 1, below, compares the key themes of feedback over the two engagement phases – in purple is feedback received pre-publication, and in turquoise is feedback received post-publication. This shows that the top four comment themes were: support for the wider swathe; concern regarding noise; the change of protocol in 2013; and concern regarding the altitude of approaching aircraft. The four most frequently commented upon topics are outlined further.

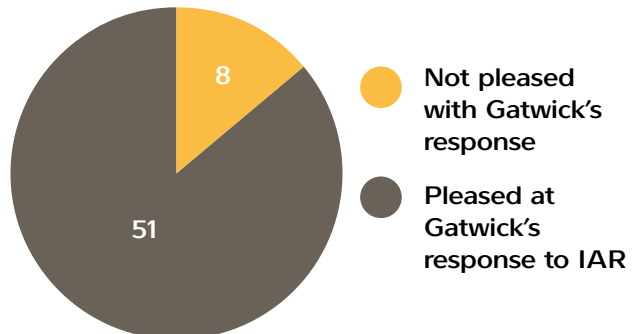
Chart 1



Additionally, once the OPAP had been published, 50% of respondents explicitly stated whether or not they were satisfied with Gatwick’s response.

Chart 2, below, indicates the proportion of those who were pleased compared with the proportion of those who were not.

Chart 2



Supports wider swathe

- Pre-publication of the OPAP, 84 of the 89 respondents made reference to the arrivals swathe; post-publication, 67 of 117 respondents referenced the swathe.
- Post-publication, 34 of 41 respondents stated that they approve of Recommendation Imm-10, which recommends widening the arrivals swathe so it is between 8nm and 14nm.
- Throughout the feedback period, 17 respondents stated that they disapprove of the widening of the arrivals swathe out of a total of 205 respondents.

Comments on the widening of the swathe were, as indicated above, largely supportive. Respondents cited the principle of “fair and equitable dispersal”, a term coined by campaign groups to express their preference for spreading flight paths across a wider area to dilute impact on communities under the flight path.

Some residents were critical of the content of the Independent Arrivals Review, noting in particular that a review of departures procedures should have been undertaken at the same time as the review of arrivals, to avoid the outcome of the review causing excessive impact on some communities than at present.

Concern over noise

- 70% of pre-publication responses made reference to aircraft noise; 40% of post-publication responses made reference to aircraft noise
- 21% of post-publication responses expressed support for Recommendation Imm-01 (modifications to Airbus 320 family aircraft)
- 9 respondents expressed concern that Gatwick did not acknowledge noise as a significant issue

Key areas of discussion within this theme included: angles of descent; Airbus A320 family ‘whine’; and the frequency of flights, particularly at night, and during the peak summer season.

Respondents to the survey, as well as attendees at the Community Event, were generally pleased to hear that easyJet, Gatwick’s largest customer, is already carrying out a ‘vortex generator refit’ to solve the whine created at certain angles of descent by the Airbus A320 family. Three email respondents expressed concerns about the ‘sunset date’ by which all aircraft in this model will be required to be altered, querying whether the refit process could be completed more swiftly.

The 2013 change

Underpinning the remarks of the 2013 change have been comments expressing frustration at the perceived lack of information received from Gatwick - 21% of pre-publication responses explicitly stated that they were displeased with Gatwick’s apparent lack of engagement.

Concern over altitude

- Overall, 28% of respondents expressed concern over the altitude of aircraft
- One resident sent an analysis into airports across the world confirming their Continuous Descent Approach (CDA) procedures and angles of descent by way of a comparison with Gatwick
- That CDA has been set as an aspirational objective by the International Civil Aviation Organisation

A quarter of post-publication respondents cited altitude as an area of concern, expressing frustration that the language of the recommendations is not stronger – residents would prefer the CDA to be enforced rather than encouraged.

Responding to recommendations

It has not been the case that all recommendations have received the same level of interest during this engagement period (see Chart 3). However, three recommendations were explicitly mentioned more frequently: Imm-01, Imm-10 and Imm-18.

Imm-10 – widening of swathe (42 mentions)

This recommendation is regarding the wider arrivals swathe. As outlined on page 32 of this document, the vast majority of respondents support this approach.

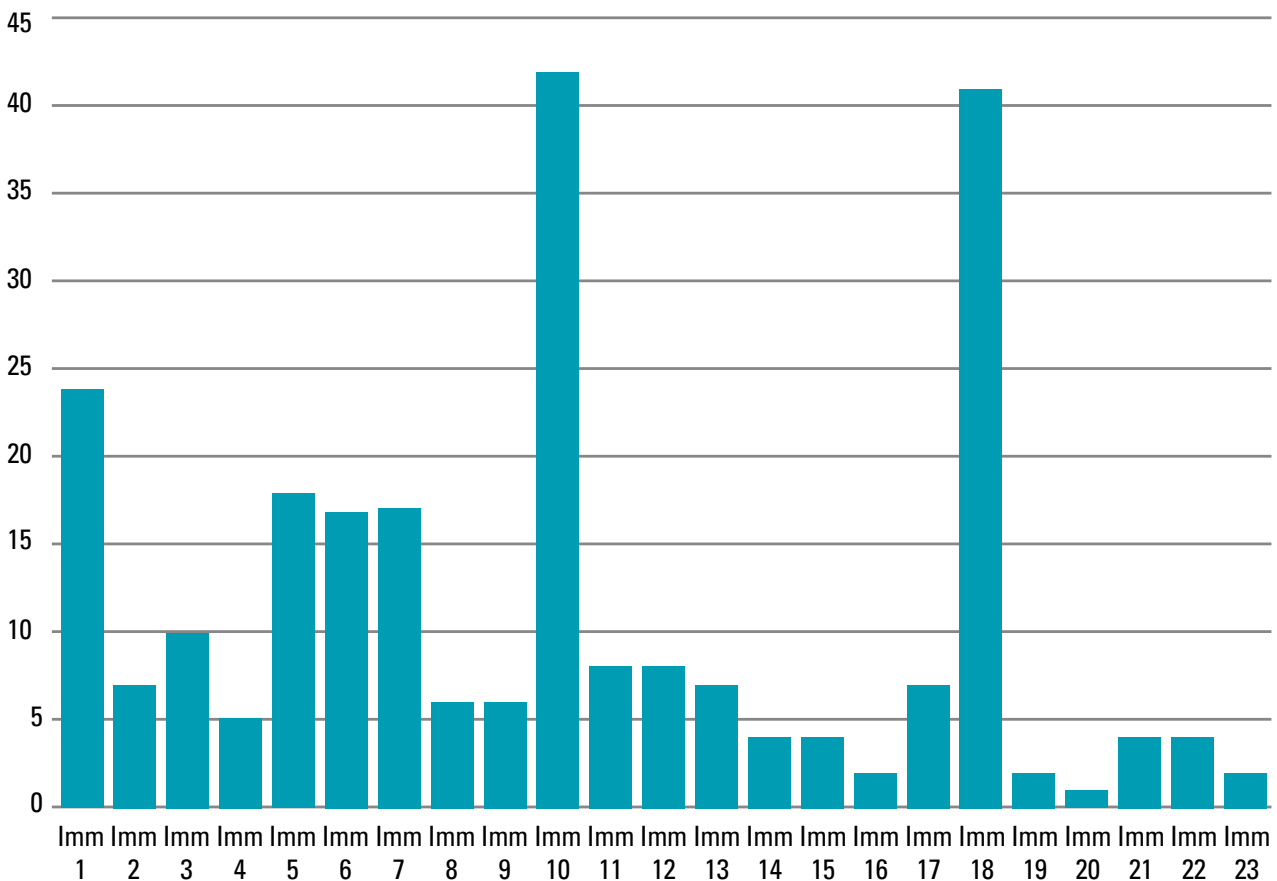
Imm-18 Noise Management Board (41 mentions)

Imm-18 proposed the coordinated consideration and oversight of possible implementation of all of the recommendations will be the responsibility of the proposed Noise Management Board. During the engagement period, a template email was issued by a campaign group, nominating a different Board composition (2 Parish Councillors instead of 2 County Councillors) and specific members to the NMB roles. GAL received 361 responses in this format, with a small number of variations regarding the individuals represented to the Board. Whilst this is not the process by which the Board representatives will be determined, nevertheless, it has indicated that special consideration must be taken when pressing forward with Board appointments.

Imm-01 A320 retrofit (24 mentions)

Imm-01 is regarding modifications to A320 Airbus family model and the sunset date for aircraft without the vortex generator alteration. Members of the local community expressed concerns that the refit programme could not be completed earlier. A number of Gatwick’s biggest airline customers are already undertaking the refit; once complete, it will be much more reasonable to penalise other airlines who do not comply.

Chart 3



4. Further Analysis Undertaken

Some recommendations of this review on arriving aircraft are complicated by the effects of departing, as well as arriving, aircraft and by the normal variable nature of approach radar vectoring techniques used at Gatwick and other airports¹. GAL has, together with other stakeholders including NATS, therefore undertaken further analysis in order to better quantify the implications of these recommended changes. This further analysis work is summarised below:

- a) Analysis of the implications of any overlap of arrival and departure routes near to the airport and below 4,000 ft altitude (Recommendations 10 & 11)
- b) A review of the fair and equitable use of the approach swathe, and the potential for concentration of aircraft at the nearest joining point – 8nm (Recommendation 10)
- c) Consideration of altitude of flights over built up areas (Recommendations 05 – 08, and Recommendation 10)

The findings and conclusions of this additional analysis are reflected in the narrative for the associated recommendations.

¹ Arrivals Review report section 1.9

5. Priorities

The implementation of the Independent Arrivals Review recommendations, taken as a whole, will contribute to reducing the noise impact of Gatwick, and the strengthening of the airport's dialogue with its neighbours through improved communications and information. The recommendations will also enable better coordinated noise strategies, more transparent accountability for noise, the acceleration of planned longer term efficiencies to reduce noise impact and, through the Noise Management Board, create a much more transparent process for regular review and update. Nevertheless, some of the individual measures identified are expected to be able to deliver, as standalone initiatives, meaningful near term noise improvements that residents have been seeking. The following recommendations are therefore considered to be particularly important in the short term:

- Imm-01, modifications to Airbus 320 series aircraft
- Imm-05, raising the commencement height and other improvements to CDA procedures
- Imm-10, broadening the approach arrival "swathe" to extend between 8-14nm

The governance and oversight of noise matters at Gatwick by concerned stakeholders, including relevant institutions and community representatives is another important priority. The coordinated consideration and oversight of all of the recommendations and other noise strategies, such as for departures and ground noise, will be the responsibility of the proposed Noise Management Board (NMB) Recommendation Imm-18. Its early constitution is a priority.

On 18th May 2016, a planning meeting was held at Gatwick in order to decide on Terms of Reference, membership and other constitutional aspects for the NMB. This has led to the development of a final draft Terms of Reference, for consideration and adoption at the first meeting of the NMB, which is planned to be held on 21st June 2016. These draft Terms of Reference are contained within the Annex of IMM18.

6. Monitoring Progress

Continued improvements to aircraft noise at Gatwick will require the collaboration and cooperation of GAL, NATS, CAA, ANS, DfT and airlines. The NMB will bring these organisations together, with the chair of GATCOM and elected community representatives, to jointly monitor and report progress on this Final Action Plan, as well as to discuss and develop further enhancements to noise management strategy at Gatwick.

The work of the NMB will extend to include oversight of a wide range of noise strategies and related issues. The draft Terms of Reference developed by the NMB planning meeting held on 18th May and which will be submitted to the NMB for approval in June, are provided as an Annex to the IMM-18 plan.

Meanwhile a dashboard report will be developed for the Final Action Plan, to inform the NMB and to enable progress to be monitored. It is expected that the NMB will meet bi-monthly and will publish its agenda and minutes.

Final Action Plan Implementation Programme

The Gantt chart below sets out each of the 23 recommendations against their associated target timescales for completion.

Action Plan Implementation Programme

Recommendation	Q1 16	Q2 16	Q3 16	Q4 16	Q1 17	Q2 17
Imm-01 A320 modification sunset					Jan 17	
Imm-02 DfT engagement on A320			Jun 16			
Imm-03 Joint review of land use policy			Jun 16			
Imm-04 Information booklet				Aug 16		
Imm-05 CDA to 7,000 ft					Dec 16	
Imm-06 CDA improvement						May 17
Imm-07 CDA to 8,000 ft					Dec 16	
Imm-08 CDA taxonomy					Jan 17	
Imm-09 Route spacing design criteria			May 16			
Imm-10 Arrival swathe					Dec 16	
Imm-11 Landing direction protocol					Dec 16	
Imm-12 Night arrivals KPI					Dec 16	
Imm-13 XMAN					Dec 16	
Imm-14 TBS					Jan 17	
Imm-15 Research on low-flying aircraft perception						Dec 17
Imm-16 Additional community engagement manpower			Jun 16			
Imm-17 Enhanced complaints policy				Sep 16		
Imm-18 NMB			Jun 16			
Imm-19 Response to Arrivals Review			May 16			
Imm-20 Progress report					Jan 17	
Aspire-21 RNAV arrival routes				Q1 17		
Aspire-22 Changes to holding areas			Q3 16			
Aspire-23 AMAN and DMAN	Q2 16					

Key: Start | End | Interim milestone |

7. How to find out more information

As at 1st June 2016, the publication date of this document, the NMB has yet to hold its first meeting (planned for 21st June 2016). When it does, it is expected to include four community representatives, allowing for fair representation of communities around Gatwick. It is expected that contact details of these representatives will be available online through a dedicated NMB webpage. These arrangements are to be confirmed, but are expected to be within www.gatwickairport.com/arrivalsreview which will also contain the final Terms of Reference, membership, agendas and minutes of meetings.

For individual noise complaints and enquiries, please visit www.gatwickairport.com/noise.

Another resource is the Gatwick Airport Consultative Committee (GATCOM), the purpose of which is to advise the Airport's Chief Executive and his management team about issues which concern the local communities, travellers, businesses and other users of the airport and to stimulate interest both within the airport community and local people. The website is www.gatcom.org.

8. Final Action Plans

RECOMMENDATION Imm-01

“That as an indication of GAL commitment to noise reduction, and a further tangible indication to local communities that the noise impact of the airport is taken seriously, and to incentivise an accelerated noise modification by all airlines using A320 family aircraft at Gatwick, GAL should establish an earlier sunset date for unmodified Airbus 320 family aircraft using the airport of December 31st 2017. With an appropriate noise penalty applied for non-compliant aircraft immediately thereafter.”

Accept/Reject

This recommendation is accepted.

Benefits/Issues

This action will expedite the process to reduce the number of aircraft that generate the disturbing noise from the Fuel Over Pressure Protector (FOPP) cavities under the wing.

Eventually all Airbus 320 series aircraft will be modified or replaced.

Implementation Plan

1. GAL having accepted the recommendation, to engage with airlines to discuss the analysis of the processes and obligations that are to be undertaken relative to the phase out date of 31st December 2017.

Responsibility: GAL

Complete: April 2016

2. To identify the relevant commercial and legal steps necessary in order to deliver a workable solution.

Responsibility: GAL

Complete: June 2016

3. GAL will be engaging with airlines through the next statutory airport charges consultation in October 2016.

Responsibility: GAL

Complete: October 2016

4. Publish the rules of application for all operators.

Responsibility: GAL

Complete: January 2017

RECOMMENDATION Imm-02

“That GAL to engage with DfT, consider proposing to the European Commission the establishment of a sunset date of December 31st 2020 for the operation in Europe of Airbus 320 series aircraft without the Fuel Over Pressure Protector (FOPP) cavity vortex generator noise modification”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

Since this Airbus 320 series characteristic is understood and a technical solution is available, it would make sense to address this issue for all airlines in a European context. Setting an end date for the operation of non-modified aircraft would provide noise improvements at all airports used by these aircraft, as well as ensuring that “occasional” visitors to Gatwick will be retrofitted.

This is a policy issue and, accordingly, DfT should consider bringing the proposal for evaluation in the appropriate European fora.

Implementation Plan

1. GAL to write to DfT and propose that this recommendation be adopted as UK policy, and that the UK should then seek support at EASA for the introduction of a rule of this type in the EU and for the European Common Aviation Area, with the aim to discontinue the operation of non-modified aircraft.
2. GAL to follow up with DfT, who in turn will be requested to report regularly to the NMB.

Responsibility: GAL

Complete: June 2016

RECOMMENDATION Imm-03

“That planning authorities for communities impacted by aircraft noise from Gatwick, coordinate to conduct their own joint review of the application of land use policy in context of Gatwick aircraft noise, with the objective of identifying steps that will enable the increase of its effective use and the improvement of the aircraft noise awareness for existing and potential land users.”

Accept/Reject

This recommendation is accepted. Our proposed action plan included exploring the potential role of the Gatwick Officers Group (GOG) in taking this issue forward. An initial discussion was held with the GOG representative at Crawley Borough Council in April 2016. It was also noted that land use planning policy was a matter for each individual council to address and therefore may need to be taken forward separately, however it is proposed that an initial discussion could be included on the GOG agenda in June. It was agreed that for any local authorities that are not part of the GOG, Gatwick would make contact regarding Imm03 separately. Officers at Crawley Borough Council also offered to share their recent experience through the Local Plan examination, leading to the incorporation of an upper noise limit for residential development in their new Local Plan.

Benefits/Issues

This action will help to raise the profile of this issue with local planning authorities and it will be useful to explore this in more detail with them, for example to understand whether there are any specific underlying factors which contribute to this issue.

This action relies on the commitment of local authorities to embark on a joint review of this issue, therefore early agreement with them on the best process and structure to deliver this joint working will be a priority. Improved planning of new noise sensitive development can, in the longer term, reduce the number of residents and noise sensitive uses in the relevant areas affected by aircraft noise.

Implementation Plan

1. GAL has written to all relevant local planning authority contacts, setting out the arrivals review findings for Land Use Planning and encouraging their feedback. This letter from GAL, and a progress report will be included in the report of review in January 2017.

Responsibility: GAL

Complete: June 2016

2. Make contact with the GOG representative at Crawley Borough Council to explore a proposal for a working group to address this issue. GOG membership includes officer representatives from Crawley; Reigate and Banstead; Mole Valley; Mid Sussex; Horsham; Tandridge; West Sussex; East Sussex and Surrey.

GAL will also ask GOG for advice on the best route for the involvement of Kent County Council and the Districts/Boroughs of West Kent.

Responsibility: GAL

Complete: June 2016

3. Review current land use planning guidance on noise (including Planning Noise Advice Document Sussex, March 2013) and liaise with councils to advise on additions to set specific standards for new housing affected by Gatwick Airport.

Responsibility: GAL

Complete: June 2016

4. Include on the Agenda for the NMB.

RECOMMENDATION Imm-04

“That Gatwick develop, publish and maintain with annual updates, an information booklet intended for planning authorities, home buyers, estate agents and conveyancing solicitors, to provide reference information on flight routes, terminology and other aspects of the airport operation relevant to communities. NATS and the CAA should also be encouraged to participate and to verify those elements of the content that reflect their own areas of activity”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

A simple and easy to understand source of noise information will be useful for anybody having an interest in understanding the impact of the airport. A repository of noise material, including maps, which clearly show where air traffic is actually flying, dedicated community information, contacts, and reference material. A booklet of this kind has been found useful elsewhere and GAL considers that this could be helpful for planning purposes.

Implementation Plan

1. Following a desktop review of best practice at other airports, a booklet will be developed and published by GAL in accordance with the recommendation. NATS, ANS and CAA will be given the opportunity to provide any relevant input from their side to make the information as complete and accurate as possible.
2. In addition, GAL will liaise with GOG and will seek contact with The National Association of Estate Agents (NAEA) so as to establish a) what information would be useful to homebuyers and tenants, and b) how to distribute the booklet effectively to these groups.
3. GAL will consult NMB about the content of the booklet periodically.

Responsibility: GAL

Complete: August 2016

RECOMMENDATION Imm-05

“That as soon as possible, the altitude for commencement of CDA at Gatwick should be increased to 7,000 ft (FL070)”.

Accept/Reject

GAL accepts this recommendation. It will also seek formal confirmation of NATS agreement, as this is required for implementation.

Benefits/Issues

Keeping aircraft at altitude for as long as possible and applying a CDA with low thrust reduces noise on the ground. Adopting this recommendation and closely monitoring its use is, in general, expected to increase the altitudes at which aircraft operate. Feedback indicates that this issue has been of particular concern for some communities; implementation of this recommendation will help to reduce the noise generated by arriving aircraft.

This recommendation, taken together with recommendations 6, 7 and 8 are expected to combine to increase the actual altitude of aircraft in the arrivals swathe, over both urban and rural areas further from the airport, such as Crowborough, Tunbridge Wells and Billingshurst.

The improved reporting of CDA performance through the NMB should be able to demonstrate these changes over the long term, reducing noise disturbance from Gatwick bound aircraft.

The historical altitude profiles of aircraft approaching Gatwick are illustrated in Figures 1, 2 and 3 below.²

²Charts in this Action Plan depicting aircraft positions, tracks and altitudes, are based on information provided by the Casper real-time location based monitoring and analysis service.

Implementation Plan

1. GAL will continue to collaborate with NATS as part of a request to take the necessary measures to raise the commencement of CDA to 7,000 ft by November 2016.
2. GAL to approach CAA to seek their guidance on any related implementation requirements, such as changes to approach charts.

Responsibility: GAL

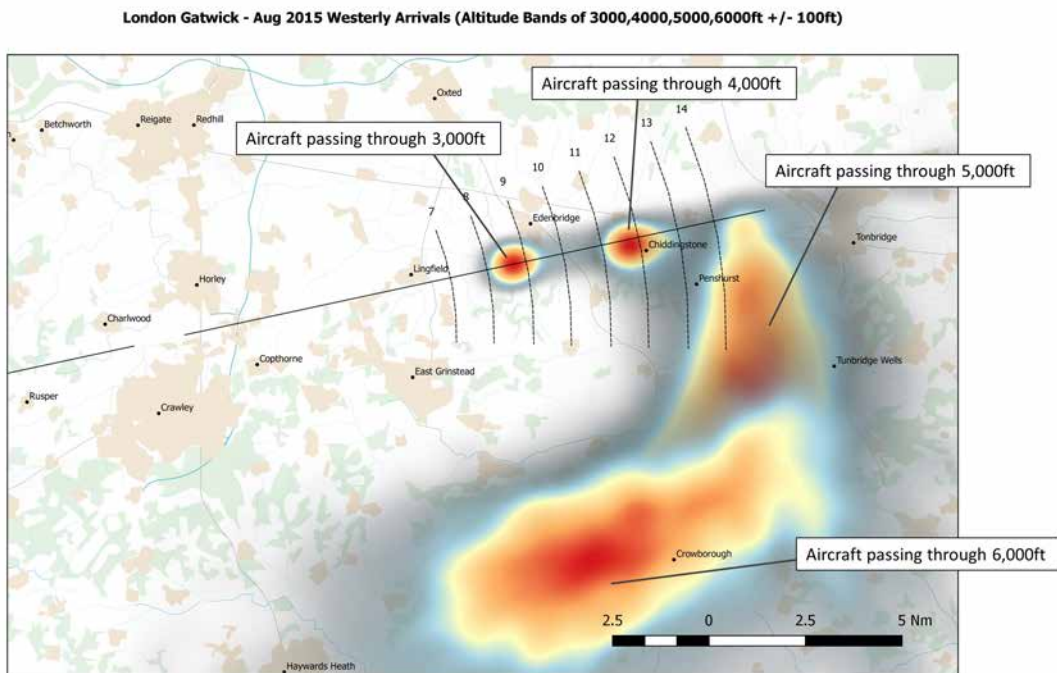
Complete: July 2016

3. NATS to initiate CDAs at 7,000 ft or above.
4. Include on the agenda of the NMB.

Responsibility: GAL/NATS

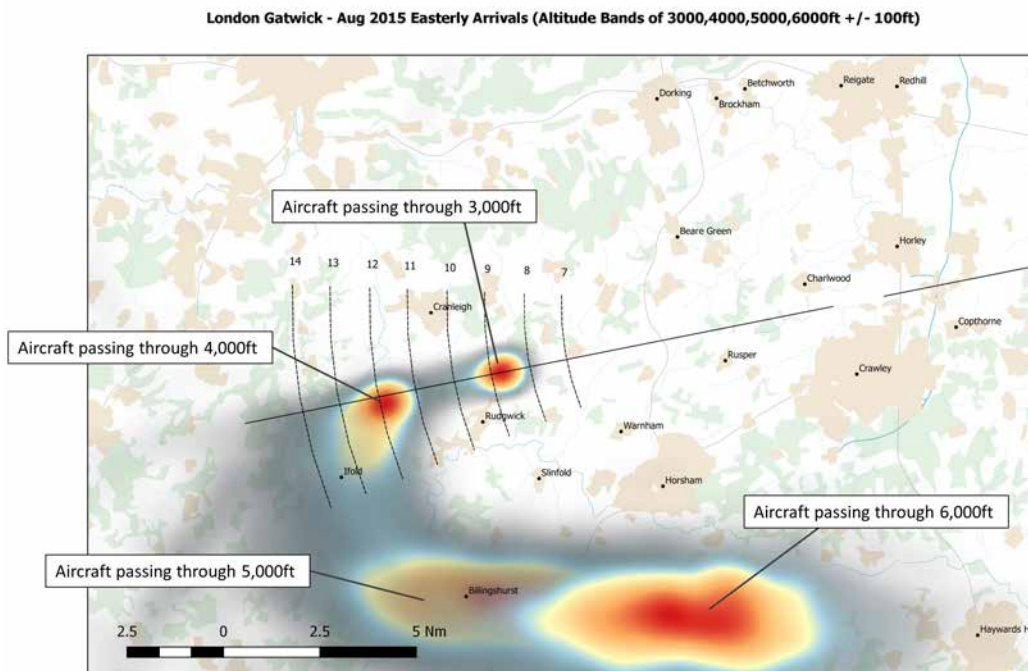
Complete: 2016

Figure 1 Arriving Aircraft Altitudes East of Gatwick



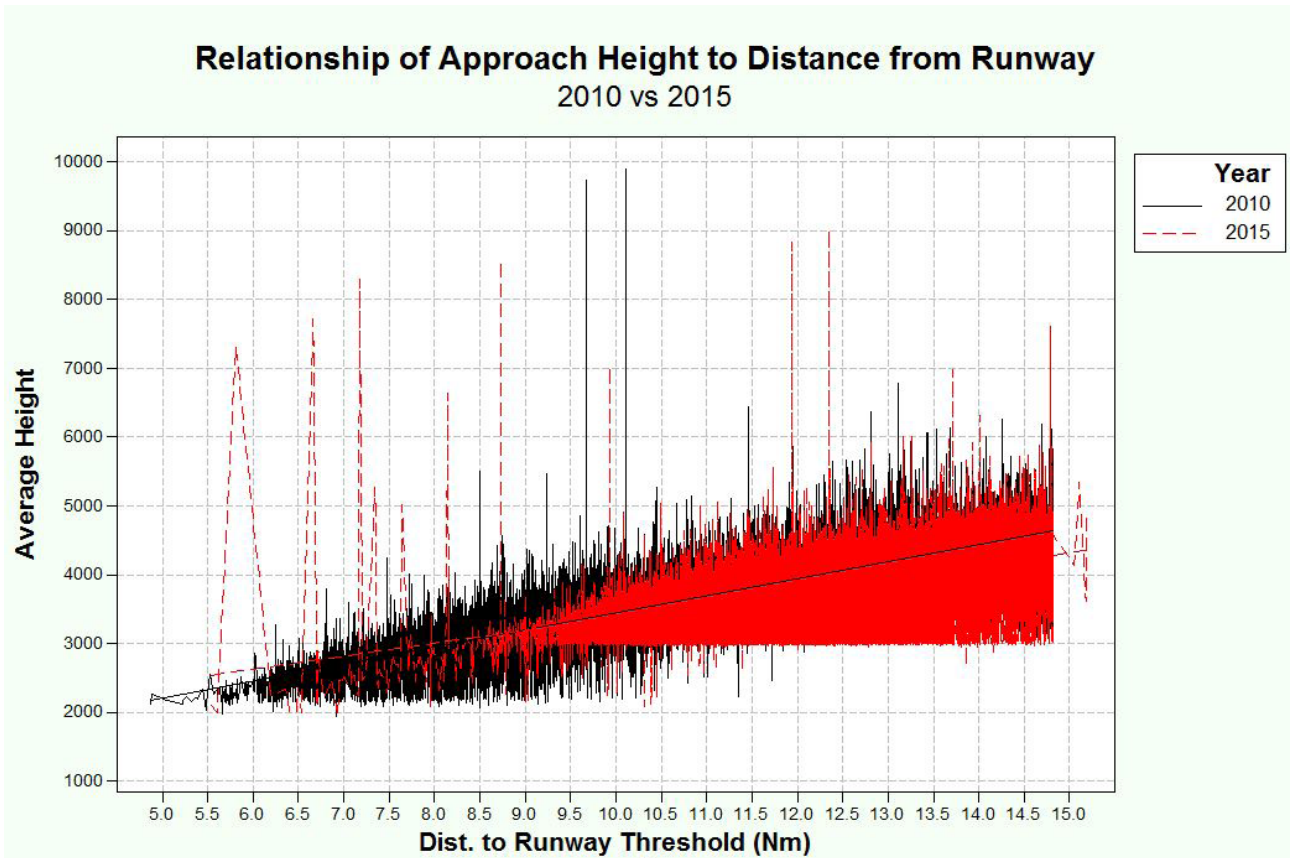
This graphic shows the distribution of aircraft on westerly arrivals, moving through different altitudes. At the bottom of the graphic are aircraft passing through 6,000 ft, then 5,000 ft, to aircraft on their final approach toward the west at 3,000 ft.

Figure 2 Arriving Aircraft Altitudes West of Gatwick



This graphic shows the distribution of aircraft on easterly arrivals, moving through different altitudes. At the bottom of the graphic are aircraft passing through 6,000 ft, then 5,000 ft, to aircraft on their final approach, toward the east, at 3,000 ft.

Figure 3 The Relationship of Approach Heights to the Distance from Runway



This graphic shows aircraft heights in 2010 (black) and aircraft heights in 2015 (red), in relation to the joining point (in nm). Most aircraft joined in 2010 at between 2,000 ft and 4,000 ft, compared to between 3,000 ft and 5,000 ft in 2015.

RECOMMENDATION Imm-06

“That GAL collaborates with NATS, CAA and airlines, within 12 months, to agree incremental improvements to the application of CDA procedures at Gatwick.”

Accept/Reject

This recommendation is accepted.

Benefits/Issues

CDA procedures can deliver important noise reduction benefits through use of Low Power and Low Drag by pilots in the approach phase. Proactive contributions from both air traffic controllers and pilots are important to get the best possible noise results. Incremental steps to deliver further improvements are possible. Identifying, defining and implementing these potential noise improvement steps for Gatwick is the on going intent of this recommendation.

Implementation Plan

GAL will invite NATS, ANS, CAA and airlines to collaborate in finding ways to improve the way CDAs are initiated and flown. Progress will be overseen by the NMB.

1. Complete a feasibility study on possible improvements by December 2016.
2. Agree an ideal end state for CDA.

Responsibility: GAL

Complete: December 2016

3. Progressive implementation of agreed improvements.

Responsibility: GAL to agree with, Airlines, NATS, ANS, CAA

Complete: May 2017

4. Include on the agenda of the NMB.

RECOMMENDATION Imm-07

“That GAL coordinates with NATS and CAA to raise the Gatwick CDA commencement altitude to 8,000 ft when feasible”.

Accept/Reject

GAL accepts this recommendation and will continue to coordinate with NATS and CAA to identify options for implementation.

Benefits/Issues

Note the linkage with Imm-05 and Imm-06. It is desirable to raise the CDA commencement altitude to 8,000 ft, so as to further improve the opportunity for CDA operation, at the same time reducing the number disturbances arising from level flight segments below this altitude.

Implementation Plan

1. Raise in parallel with Imm-06 as a means to, as soon as possible, further improve the manner in which CDAs are executed.

2. Commence analysis of the options available.

Responsibility: GAL

Complete: June 2016

3. Agree an implementation plan.

4. NMB to receive reports of implementation.

Responsibility: GAL/NATS

Complete: plan to be agreed by December 2016

RECOMMENDATION Imm-08

“That GAL proposes a subsidiary CDA taxonomy, which includes the commencement altitude of the procedure, e.g. CDA 6,000, be established by the CAA to improve the lay understanding and to better benchmark later improvements”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

An improved description of the type of CDA being flown, measured and reported will enable the establishment of a better baseline measure of current practice and enable a broader understanding of the benefits derived from any future changes.

Implementation Plan

1. GAL to write to CAA and request a new and updated description of CDA in line with the recommendation.

Responsibility: GAL

Complete: May 2016

2. The new definition to be used when available to benchmark further CDA improvements and to measure progress.

Responsibility: GAL

Complete: June 2016

3. NMB to receive reports of implementation.

Responsibility: GAL

Complete: January 2017

RECOMMENDATION Imm-09

“That GAL considers proposing to the CAA, the establishment in airspace design criteria of a minimum distance between arriving tracks for aircraft, to deliver for arrivals both a meaningful dispersal and an opportunity for respite. This is likely to apply to aircraft before they have joined the final approach track, which for Gatwick will therefore be at 3,000 ft or above.”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

Dispersal and respite are clearly important to a large number of residents around Gatwick and this issue will need to be addressed in preparation for PRNAV arrivals routes, which have been mandated for UK airspace and are expected for Gatwick by 2022. In order to provide respite between arrival routes, it is necessary to establish how far apart PRNAV routes will need to be. This information will support the design process to facilitate optimum route selections for Gatwick.

Implementation Plan

1. GAL understands that both CAA and DfT are consulting on modifications to airspace change process and other policies. GAL proposes to contribute to this review by suggesting that a minimum distance between routes from a noise dispersal point of view could be developed. This new guidance could then be used to inform future airspace design.
2. CAA have now published CAP 1378 providing PBN Airspace Design Guidance for Noise Mitigation Considerations for Arrivals and Departures.
3. NMB to receive a report by January 2017 of how this new guidance will inform the planning and analysis work for Recommendation Aspire 21.

Responsibility: GAL

Complete: May 2016

RECOMMENDATION Imm-10

“That GAL explores with NATS the potential for aircraft to be vectored to be established on the ILS at a minimum of 8nm from touchdown outside of night hours, rather than the current 10nm. This adaptation to vectoring methodology will extend the arrival swathe 2nm further to the west for Runway 26, and east for Runway 08, and will increase the arrivals dispersal to more closely emulate the circumstances prior to 2013 change. Hence the arrival swathe would normally extend from a minimum of 8nm to 14nm, with aircraft joining on a straight in approach when traffic permits”.

Accept/Reject

GAL accepts this recommendation. Following coordination with airlines, NATS, ANS and the CAA, further analysis and quantification of this proposed change and the expected consequences are now much more fully understood. GAL has been able to confirm that the proposal to widen the arrivals swathe will create a fairer and more equitable distribution of aircraft noise, more closely emulating that experienced by communities prior to 2013. As a part of the implementation process, new monitoring procedures will be developed to quantify the extent and volume of actual flight distribution for regular review by the NMB.

Benefits/Issues

To address the concerns arising from the increased concentration of arrivals that occurred in some locations after a change of radar vectoring methodology in early 2013, the planned adjustment of the present swathe is expected to reduce the concentration of aircraft that resulted from that change.

The intended impact of this action is to recreate a greater geographical dispersal of arriving aircraft tracks, so that they are more closely aligned with the arrivals tracks which existed at Gatwick prior to 2013.

The benefit is expected to be a reduced concentration of arriving aircraft in the swathe, prior to joining the final approach track, supporting the fairer and more equitable dispersal of aircraft sought by many communities.

Because the associated considerations are complex, a more detailed explanation of the issues is provided in the Annex that follows.

Implementation Plan

1. Complete a thorough analysis of the issues associated with this action item.
2. Assess findings of analysis against feedback from the period of community engagement.
3. GAL to request NATS to utilise the increased swathe from minimum 8nm to 14nm when straight in approach is not applied, for arrivals to both Runway 26 and Runway 08.
4. NATS and ANS to complete the associated Safety Case for review and approval by CAA.
5. Confirm planned implementation date
6. The NMB will monitor the impact to verify that the intended fairer and more equitable dispersal is being achieved.

Responsibility: GAL

Complete: May 2016

Responsibility: GAL

Complete: December 2016

RECOMMENDATION Imm-10 Annex

This recommendation is intended to reverse much of the aircraft concentration and noise consequences of the approach stabilisation initiative taken by GAL and NATS in 2013, thereby more closely emulating the distribution of arriving aircraft that occurred previously.

Changes to the Arrivals Joining Point in 2013

The approach stabilisation initiative of 2013, adopted for both safety and operational reasons, extended the daytime ILS final approach minimum joining point of aircraft from 7nm to 10nm from touchdown. The core night time minimum joining point has been located at 10nm (23:30-06:00 local time) since before 2004.

The effect of this 2013 change was to concentrate daytime arrivals distribution into a narrower swathe, increasing the number of aircraft above particular areas. The effect of the reduced dispersal of aircraft tracks is discernible in Figures 4-7 below, which depict the actual arrivals track density for Runway 08 and 26, as measured in the summer of 2012, and contrasted with measurements for the same period in 2015.

Many requests were made to the Independent Arrivals Review by residents seeking to reverse the 2013 change in the Instrument Landing System (ILS) minimum joining point change, which is described in the previous section. Residents making these requests explained that the prior arrangement (with a wider spread of joining points, and more random radar vectors to the ILS final approach track, both east and west of Gatwick) was a much more acceptable means of fairly and equitably dispersing aircraft noise.

The Independent Arrivals Review recommendation

This recommendation calls for an adaptation to NATS radar vectoring methodology to use an ILS joining point located between a minimum of 8nm from touchdown and 14nm, which should, in effect, largely recreate both the locations and the width of the arrival swathes seen at Gatwick before 2013.

In addition, when traffic conditions permit, aircraft from the east for Runway 26 will join on a straight in approach even further east, and for 08, straight-in further from the west.

The changes made in 2013 were subject to a safety assessment, which precludes a return to the even closer 7nm minimum joining point previously used. An updated safety case is required, for approval by the CAA, before any reduction to the current 10nm ILS joining point can be made. This safety case work is currently underway.

Feedback on this recommendation

A summary of the feedback on this recommendation and the principal issues raised is provided at the end of this Annex. Although feedback to the Independent Arrivals Review regarding the proposed change has been largely positive, a number of concerns were raised. The main issues are set out below, together with a discussion of the points raised.

Figure 4 Easterly Arrivals April to September 2012, 7nm Minimum Joining Point

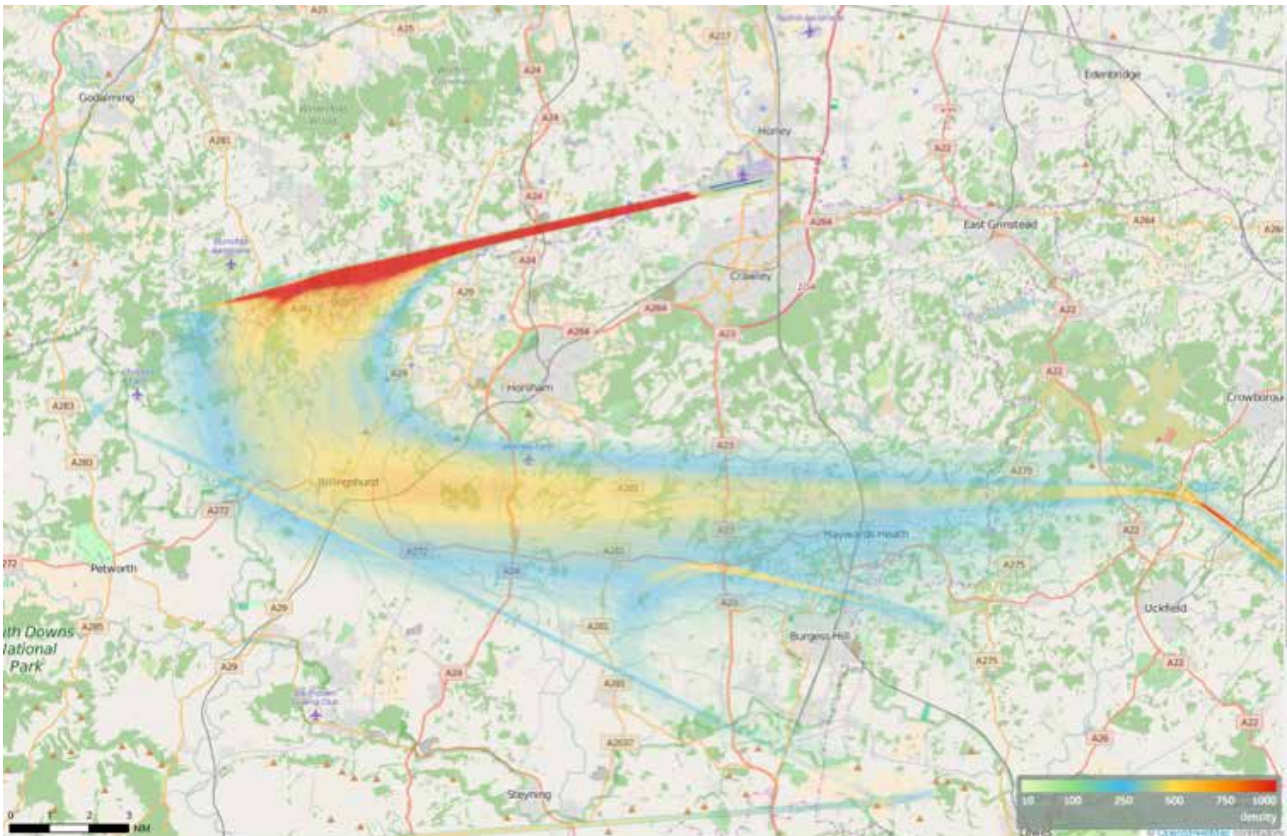


Figure 5 Easterly Arrivals April to September 2015, 10nm Minimum Joining Point

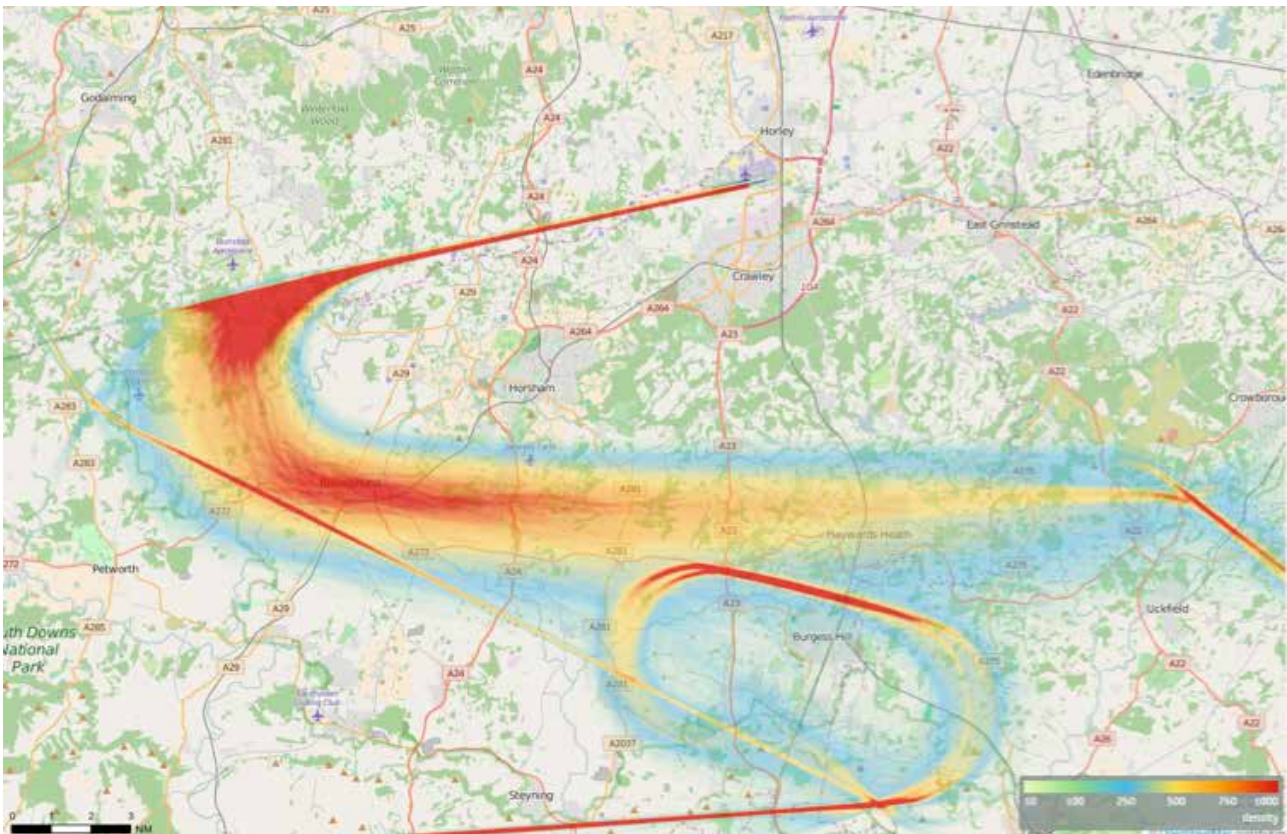


Figure 6 Westerly Arrivals April to September 2012, 7nm Minimum Joining Point

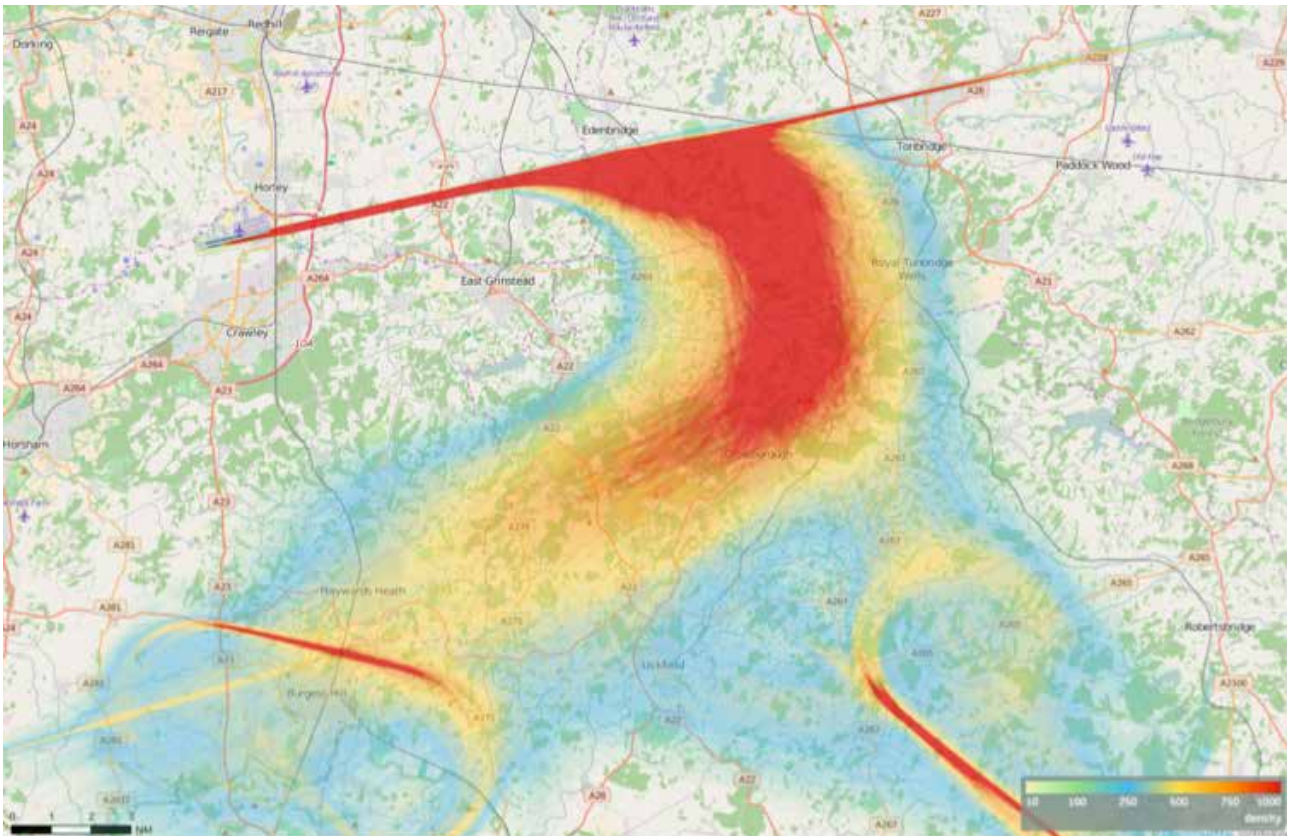
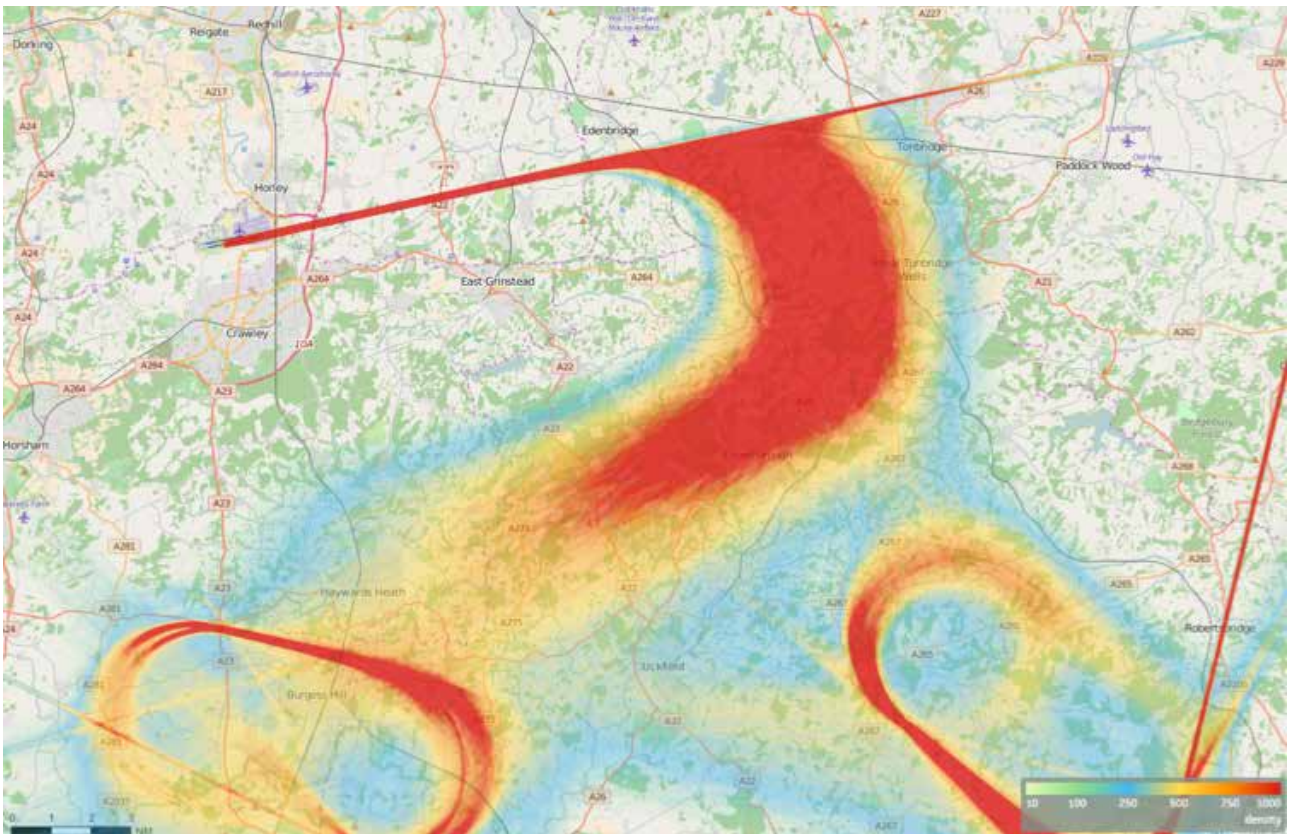


Figure 7 Westerly Arrivals April to September 2015, 10nm Minimum Joining Point



Issue 1: That aircraft will not use the full width of the swathe as a result of this change, but that aircraft will be concentrated at the 8nm joining point in order to fly the shortest route to the runway and to reduce CO₂ emissions.

Concerns have been raised in feedback to Gatwick that aircraft will be concentrated at the minimum joining point and that this will be done to allow aircraft to fly the shortest route to the runway, in order to reduce fuel consumption and CO₂ emissions. The concern being that the planned 8nm joining point will create a new concentration of aircraft

Analysis has shown that sustained joining point concentration has not been the case previously, and that it has no basis in actual flight data.

The effect of the 2013 joining point distribution change is illustrated in the chart at Figure 8, which compares the actual distribution of arriving aircraft seen before the joining point change, using 2010 information, with a corresponding analysis of data for 2015. This analysis shows clearly that aircraft were removed from areas closer to the airport in the range between 6nm and 10nm from touchdown, but also shows that aircraft were not concentrated at the 10nm minimum joining distance applied from 2013. The analysis reaffirms that from 2013, a concentration effect has been created further from the airport, which is the background to this recommendation.

The historical aircraft track data shown in Figure 9 further indicates that no such minimum joining point concentration has occurred in any of the years between 2010 and 2015, for either a 7nm or a 10nm minimum joining point, East or West of Gatwick. As can be seen from the analysis, aircraft can and do join the ILS final approach track at multiple distances from touchdown as a result of their flight route and normal traffic patterns.

As to the future, concentration at the minimum 8nm joining point would be contrary to the aim of 'fair and equitable dispersal'. NATS has confirmed to GAL that in their view, following the proposed change to an 8nm minimum joining point, the arriving aircraft distribution at Gatwick will continue to vary with the traffic patterns, as it has always done. For example, at busy times aircraft tend to join the final approach further from touchdown, something that is expected to continue to be the case. As a consequence, aircraft are not expected to be concentrated at the new minimum joining point. The NMB will, however, need to keep this under review.

Figure 8 Joining distance distribution comparison 2010 v 2015

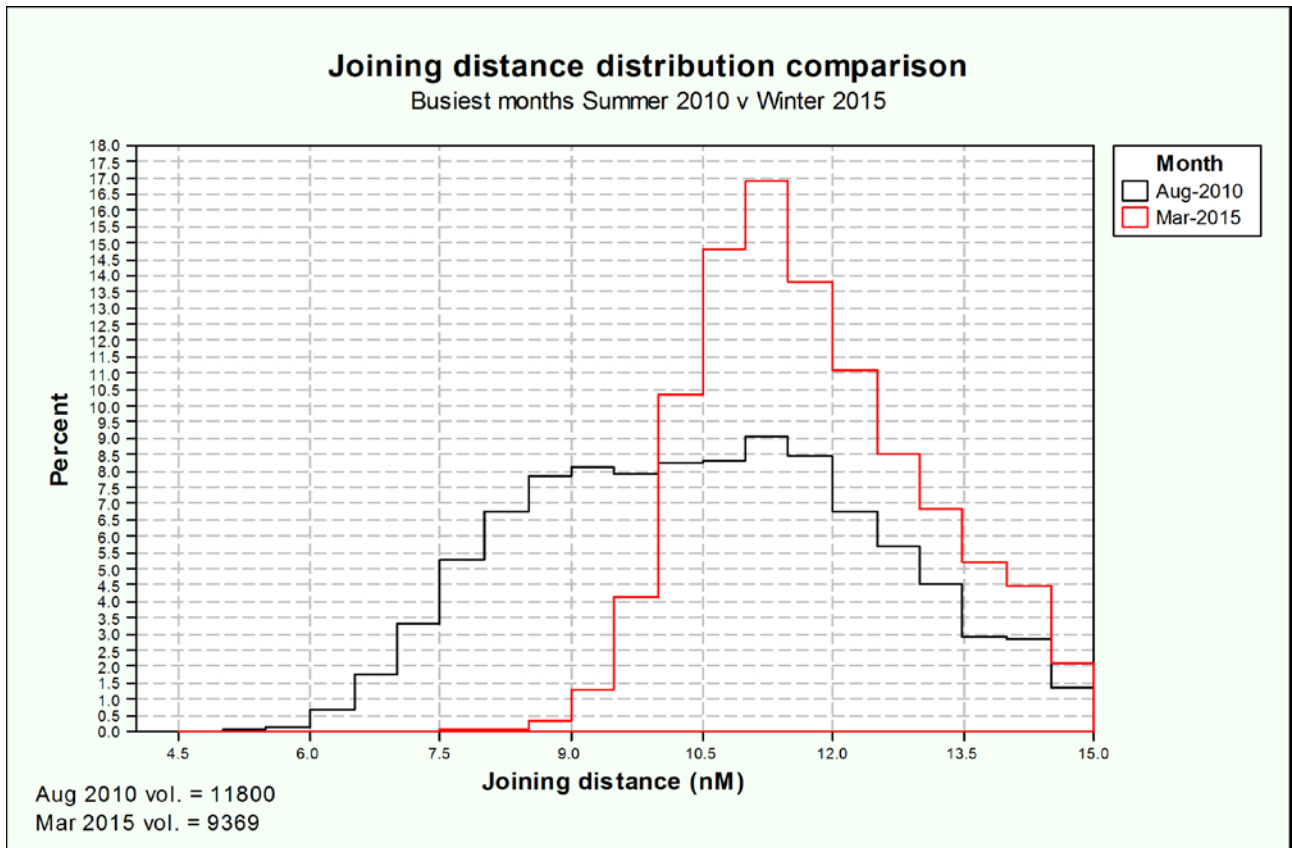
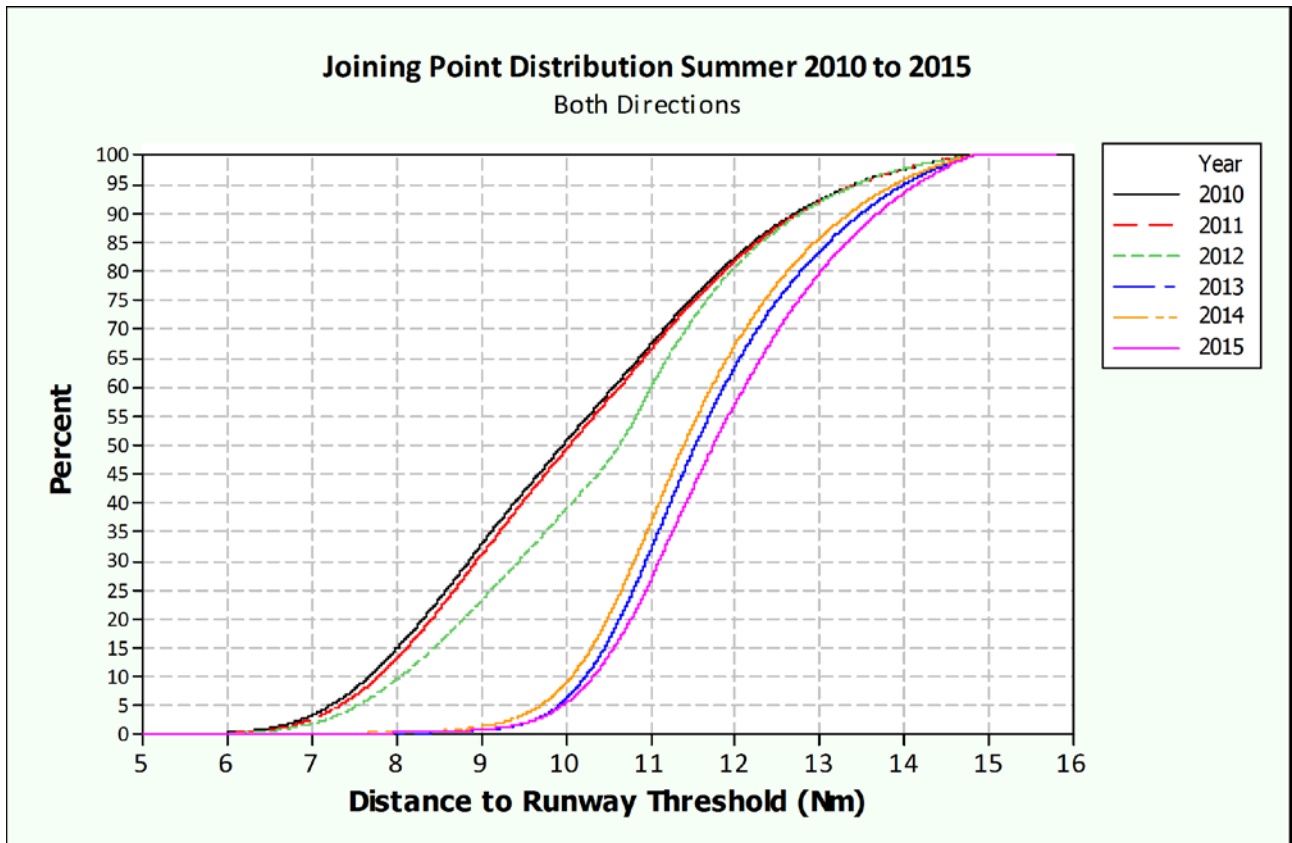


Figure 9 Joining point distribution 2010 to 2015



Issue 2: What will be the location of the swathe with the 8nm joining point?

The aircraft track data illustrated in Figures 4-9 depicts the historic distribution of arriving aircraft since 2010, reflecting the recorded locations of aircraft over the ground.

Figure 8, using data from before and after the 2013 change, illustrates the effect of aircraft being routed into a narrower swathe from 2013. It also illustrates the changes from the width of the swathe and the distribution of aircraft that existed prior to 2013.

The Independent Arrivals Review recommendation proposes to increase the width of the swathe to create a fairer and more equitable distribution of arriving aircraft closer to that seen previously.

Figures 10 and 11 illustrate the expected width and location of the new swathe. The maps indicate the areas over which aircraft are normally expected to operate.

The following methodology has been used to create the depiction in Figures 10 and 11:

- Inner edge of swathe – the August 2011 distribution has been modified to remove arrivals with a joining point of less than 8nm. This sets the inner edge of the swathe.
- Outer edge of swathe – we have used the outer edge traffic from August 2015 to reflect the wider distribution of traffic now expected.

Although the 2010 swathe distribution is shown in Figure 8 for comparison, it is not expected that the new swathe will follow exactly this distributed shape. This is because the distribution of flights across the swathe is affected by the type of aircraft used and density of traffic, the characteristics of which evolve year by year. It is also important to note that for these reasons the swathe is not expected to return to the exact 2010 distribution shifted by 1nm (from joining point minimum 7nm in 2010, to joining point 8nm in 2016). It is nonetheless likely to be closer to the prior distribution.

As it is not possible to predict precisely the distribution of aircraft within the swathe, the effects of the change planned for 2016 will be carefully monitored and reported to the Noise Management Board (Imm-18), which in turn will publish its findings and any conclusions.

Figure 10 Expected 8nm Joining Point Distribution East of Gatwick

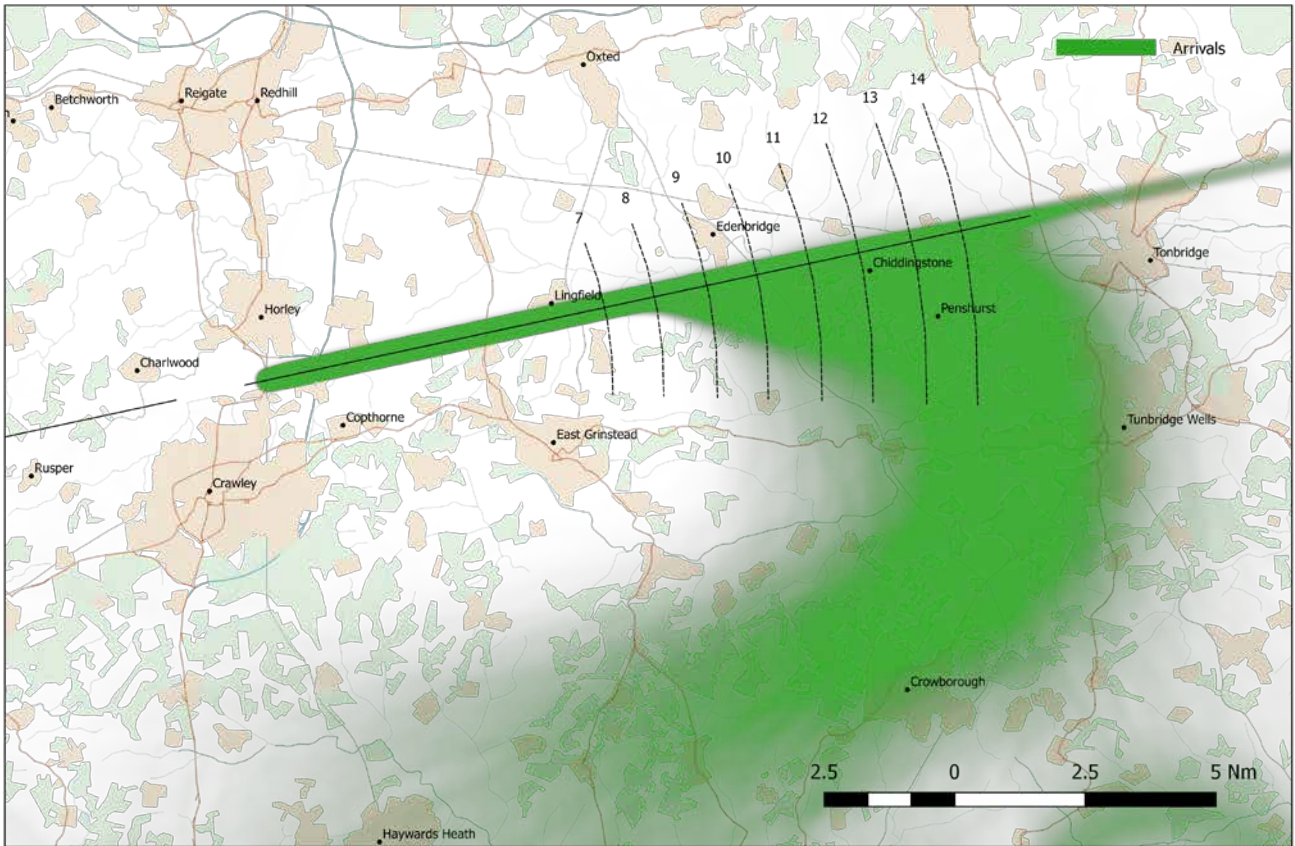
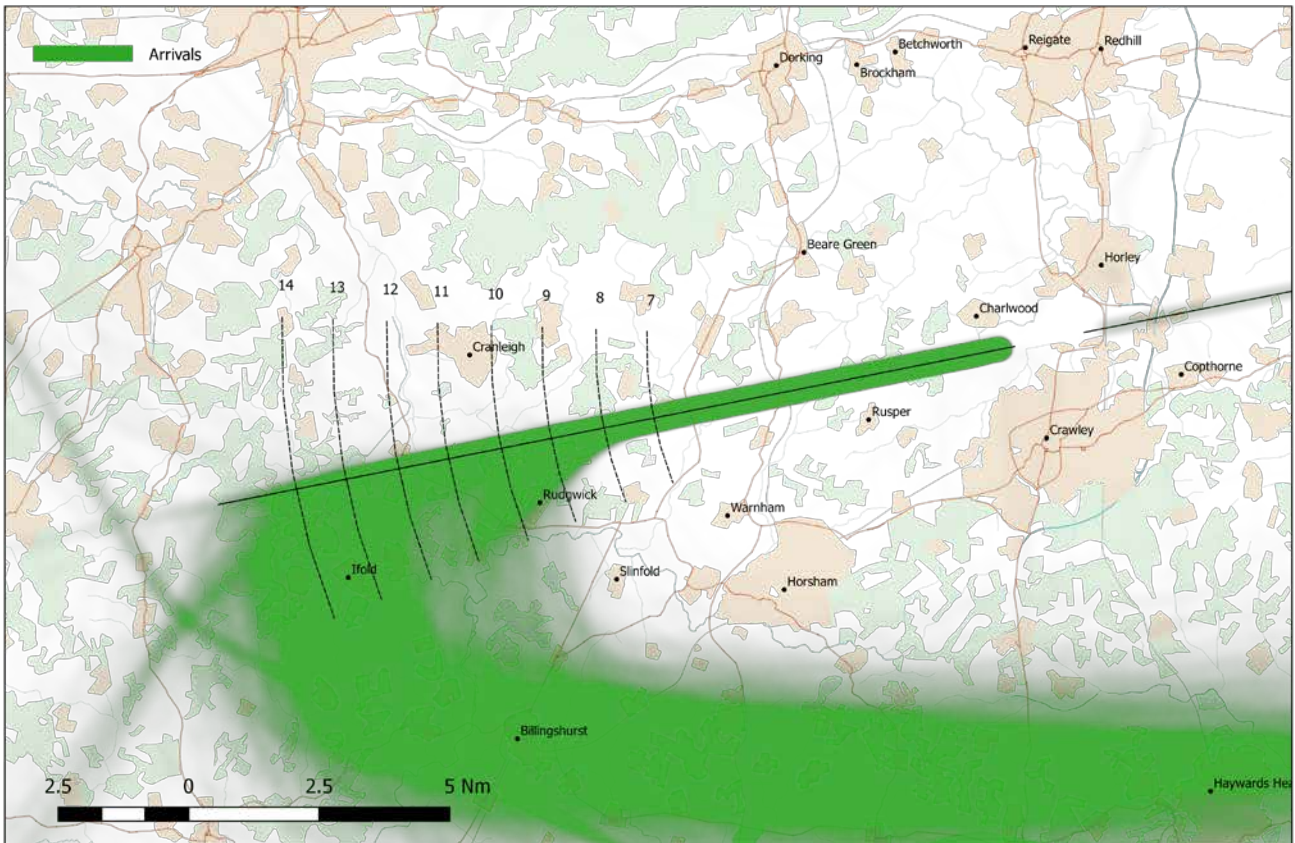


Figure 11 Expected 8nm Joining Point Distribution West of Gatwick



Issue 3: That the proposal favours communities that are a considerable distance away from the Airport, whilst further disadvantaging those that suffer noise from aircraft below 4,000 ft, and that this is contrary to Government Policy on noise.

In fact, analysis shows that the 2013 change of minimum ILS joining point significantly affected communities further from the airport, by relocating aircraft in the arrivals swathe away from communities closer to the airport. Figure 8 clearly shows the distribution of flights before and after that 2013 change, and the disadvantage of the increased numbers of flights affecting more distant communities.

The Independent Arrivals Review, with a significant level of community input to its Terms of Reference, set out to achieve a fairer and more equitable distribution of aircraft noise through a greater dispersal of aircraft, and thus alleviate the disproportionate concentration that some communities experienced after the 2013 change.

Figures 1 and 2 showed earlier, over which communities arriving aircraft normally descend through 4,000 ft. Figure 3 showed actual aircraft height information related to aircraft distance from touchdown.

Government Policy on aircraft noise has not changed during the period in which aircraft at Gatwick were using the 7nm minimum joining point in 2012 or the 10nm minimum joining point from 2013, and it has not been suggested to us that either of these situations was contrary to Government policy.

A change to the 8nm minimum joining point for aircraft in 2016 is not currently subject to any additional specific Government Policy on aircraft noise, and we conclude therefore that it too is compliant.

Issue 4: That the communities that would be impacted by the 8nm joining point are principally the same ones that already suffer PRNAV on departures.

It has been argued that some communities closer to the airport will now be subjected to the overlap of concentrated arrivals around the 8nm joining point, as well as current intense departures below 4,000 ft.

We have explained under Point 1 above why we do not expect arrivals to be concentrated around the 8nm joining point.

In order to address the issue of overlap, an analysis of the implications of any potential for overlap of arrival and departure routes below 4,000 ft has been undertaken. This analysis has set out to verify the extent to which any community located close to the airport might

experience the effects of aircraft operating below 4,000 ft, whether arriving or departing. The objective has been to verify whether communities that are affected by arriving aircraft operating below 4,000 ft in the arrivals swathe, will also be potentially affected by departing aircraft operating below 4,000 ft.

Figures 12 and 13 indicate the locations at which both arriving and departing aircraft operate below 4,000 ft. It can be seen that a change to a minimum joining point of 8nm is not expected to relocate significant volumes of arriving aircraft in the swathe to areas experiencing departures at the same altitudes.

Figure 12 Arriving and Departing aircraft below 4,000 ft East

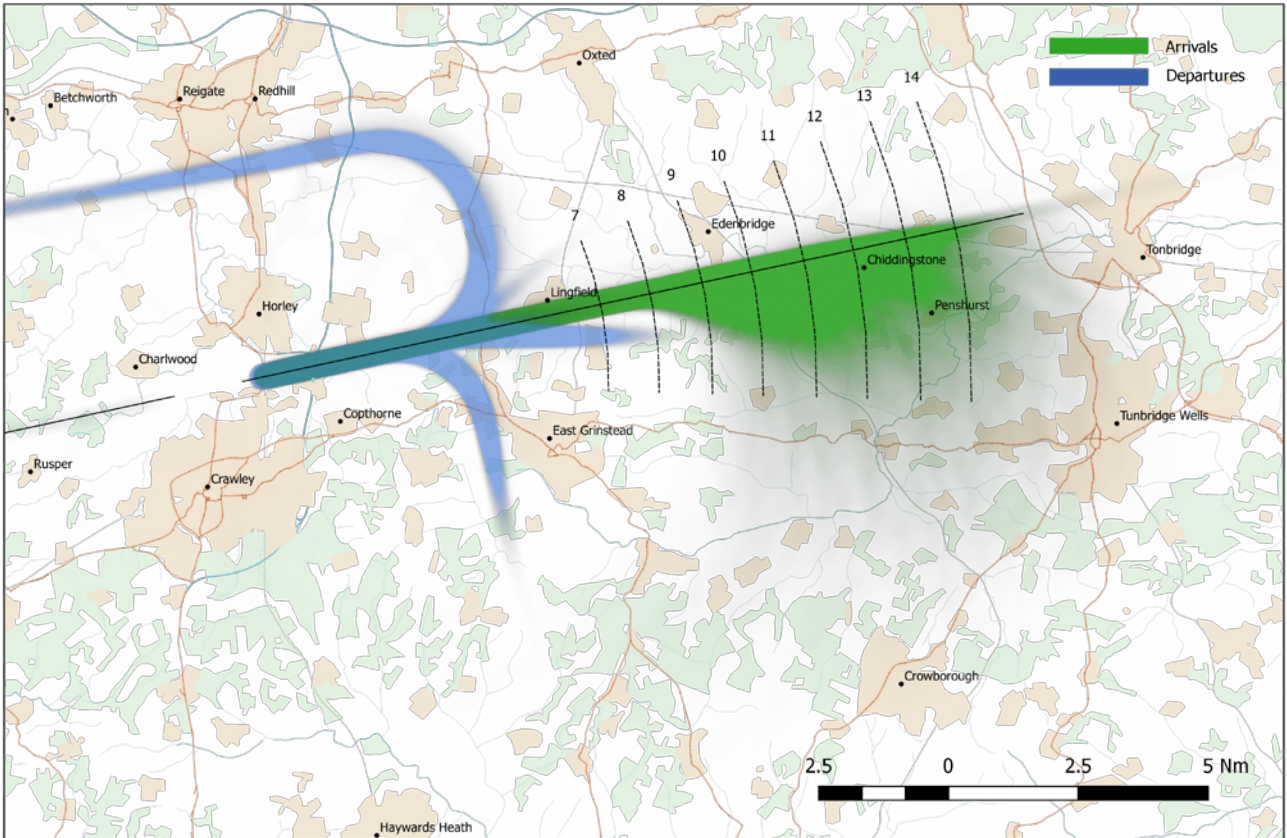
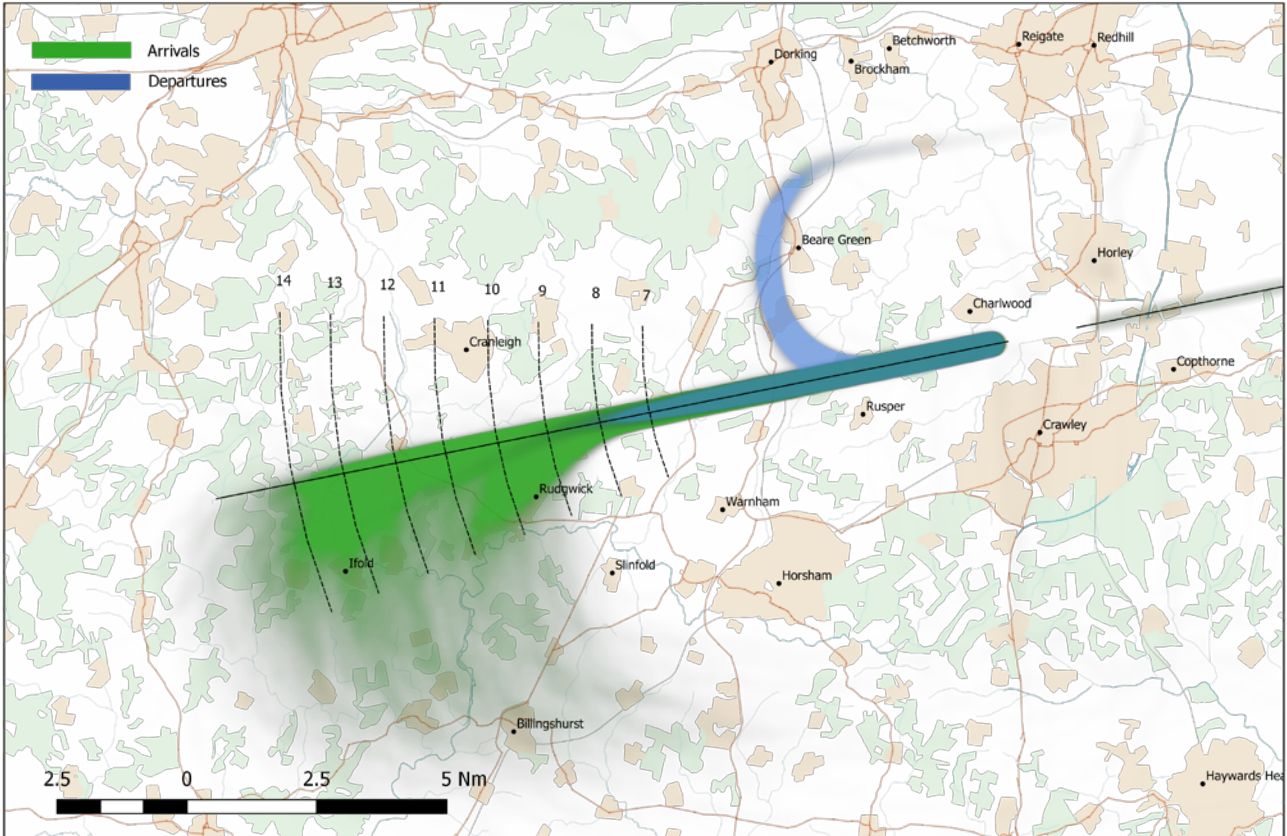


Figure 13 Arriving and Departing aircraft below 4,000 ft West



Issue 5: That the proposed change cannot be considered safe, in the light of the safety analysis made in 2013.

The 2013 move of the minimum ILS joining point from 7nm to 10nm was made to improve both safety and operational efficiency. The CAA requires that such operating changes are supported with a safety case. This does not mean that the previous 7nm joining point was unsafe. In accordance with the same CAA requirement, the proposed change to the 8nm minimum joining point will require a new safety case, to be developed by NATS and ANS, for approval by the CAA. Development of the safety case is currently underway and is expected to be complete in June 2016.

For completeness, we asked PPS to review comments on this recommendation in particular detail. This is set out below.

PPS Imm-10 Feedback Summary

Since publication of the Overview and Proposed Action Plan (OPAP) on 31st March, 41 respondents have made reference to the tenth recommendation, which concludes “hence, the arrival swathe would normally extend from a minimum of 8nm to 14nm, with aircraft joining on a straight in approach when traffic permits”. Prior to publication of the OPAP, the width of the arrivals swathe formed a large proportion of discussion: 94% of responses made mention of this subject.

Since publication of the OPAP, 34 of the 41 responses have stated or indicated support for Imm-10; 7 respondents expressed disapproval of the proposal. It was not possible to determine the geographical location of many respondents from the information provided.

Speed of delivery

Comments regarding speed of delivery have included:

- *“This is without doubt the most important and urgent change needed for Westerly arrivals.”*
- *“We expect the Action Plan to become unconditional following the engagement period, and look to GAL and its aviation partners to make very rapid progress on this critical point.”*
- *“This item has to be given top priority in terms of timing of implementation.”*

Overall, Imm-10 has been quite strongly supported – based on the limited geographical information provided, the majority of the support for this recommendation has been in the areas most affected by the 2013 flight path changes.

RECOMMENDATION Imm-11

“The development, publication and implementation by GAL of an operating protocol to define the occasions when a change of landing direction will be implemented at Gatwick for noise reasons, if weather, safety requirements and other conditions permit. The objective of the protocol being to achieve a more even split of arrivals, and to fragment the otherwise continuous use of one runway direction or another because of long term weather patterns. The impact should be monitored by GAL and the results regularly reviewed by the NMB. The target implementation of the protocol should be during 2016 following engagement with airlines, air traffic control and communities”.

Accept/Reject

This recommendation is accepted. Implementation will depend upon establishing a broad consensus on the new operating protocol.

Benefits/Issues

To deliver the objective of a more ‘fair and equitable distribution of noise’, this proposed protocol will provide the opportunity to enable improved respite for residents when weather and other conditions permit.

Preliminary analysis for the potential effect of this recommendation has indicated that the number of occasions when such a protocol could be used at Gatwick is unlikely to be more than 20 days per year, because of the effects of upper winds on aircraft ground speed.

The criteria for runway selection for the purpose of noise distribution need to be defined and a consensus reached amongst stakeholders at Gatwick.

Implementation Plan

1. GAL will establish a draft implementation plan for an initial discussion with the NMB.
2. After securing NMB endorsement GAL will, in full cooperation with ANS, airlines and NATS, initiate the work to establish a noise protocol for runway selection.
3. GAL will obtain the meteorological data needed to quantify the potential runway usage impact of the protocol.
4. The draft protocol will consider and take account of any related impacts of recommendation Imm-10.
5. The outcomes of this work will be discussed at NMB.

Responsibility: GAL

Complete: September 2016

6. If endorsed, use of the new protocol at Gatwick Airport.

Responsibility: GAL

Complete: December 2016

Imm-11 Further detail on the overlap of Arriving and Departing aircraft

Feedback relating to this recommendation included the following issue;

That the communities that would be impacted by the 8nm joining point are principally the same ones that already suffer PRNAV on departures.

As explained earlier, the conditions for use of the proposed runway selection protocol are not expected to exceed 20 days per year. An analysis of the implications of any potential for overlap of arrival and departure routes below 4,000 ft has been undertaken. This analysis has set out to verify the extent to which any community located close to the airport might experience the effects of arriving or departing aircraft operating below 4,000 ft. The objective has been to verify whether communities that are affected by arriving aircraft operating

below 4,000 ft in the arrivals swathe, will also be potentially affected by departing aircraft operating below 4,000 ft.

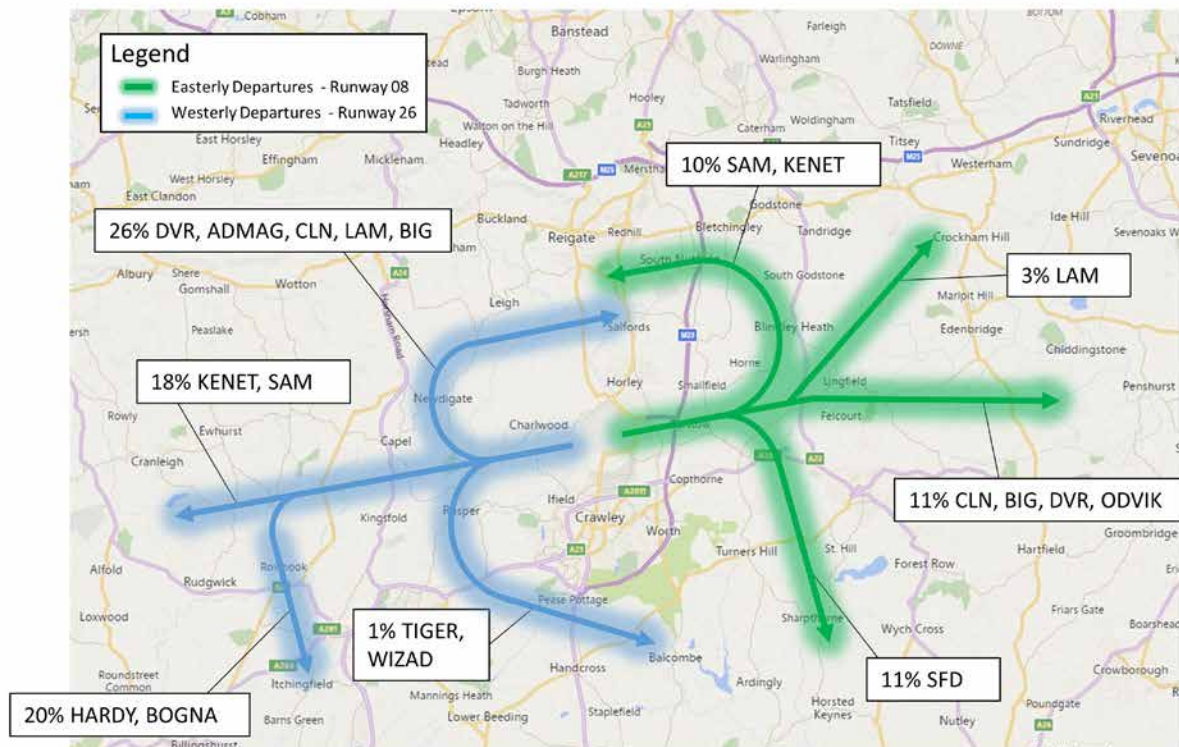
Aircraft are dispersed after take-off using Standard Instrument Departure (SID) PRNAV routes. These are shown in Figure 14 below.

An illustration of distribution of how arrivals to one runway and departures in the opposite direction interact is shown at Figure 15 and Figure 16. It can be seen that aircraft are widely dispersed onto their specific departure routes almost immediately after take-off. It is also clear that departing aircraft routinely climb more steeply than arriving aircraft descend.

It is apparent that overlap of departures and arrivals is not normally expected to affect the areas in the arrivals swathe. Overlap below 4,000 ft occurs only near to the runway ends, on the extended runway centreline.

Figure 14 Graphic showing proportion of departures using each SID

Illustrative graphic depicting the most used Standard Instrument Departure (SID) routes at London Gatwick Airport
Data Assessment Period - March – October 2015



Note: SID routes are depicted on this diagram for illustrative purposes only and do not represent actual routes for aircraft overflying a particular area. In some cases several SID routes have been consolidated into a single route depiction on the graphic. For details on actual routes, please review the Gatwick Airport Information Publication (AIP).

Air Traffic Control (ATC) are responsible for the routing of aircraft once airborne. When aircraft have reached 4,000 feet ATC can instruct pilots to leave the SID and fly a more direct routing. Additionally, ATC can instruct pilots off the SID at an altitude below 4,000 feet if this is required for safe separation from other aircraft, or for other safety reasons such as weather avoidance, this is known as vectoring.

Figure 15 Heatmap of arriving and departing aircraft below 4,000 ft East

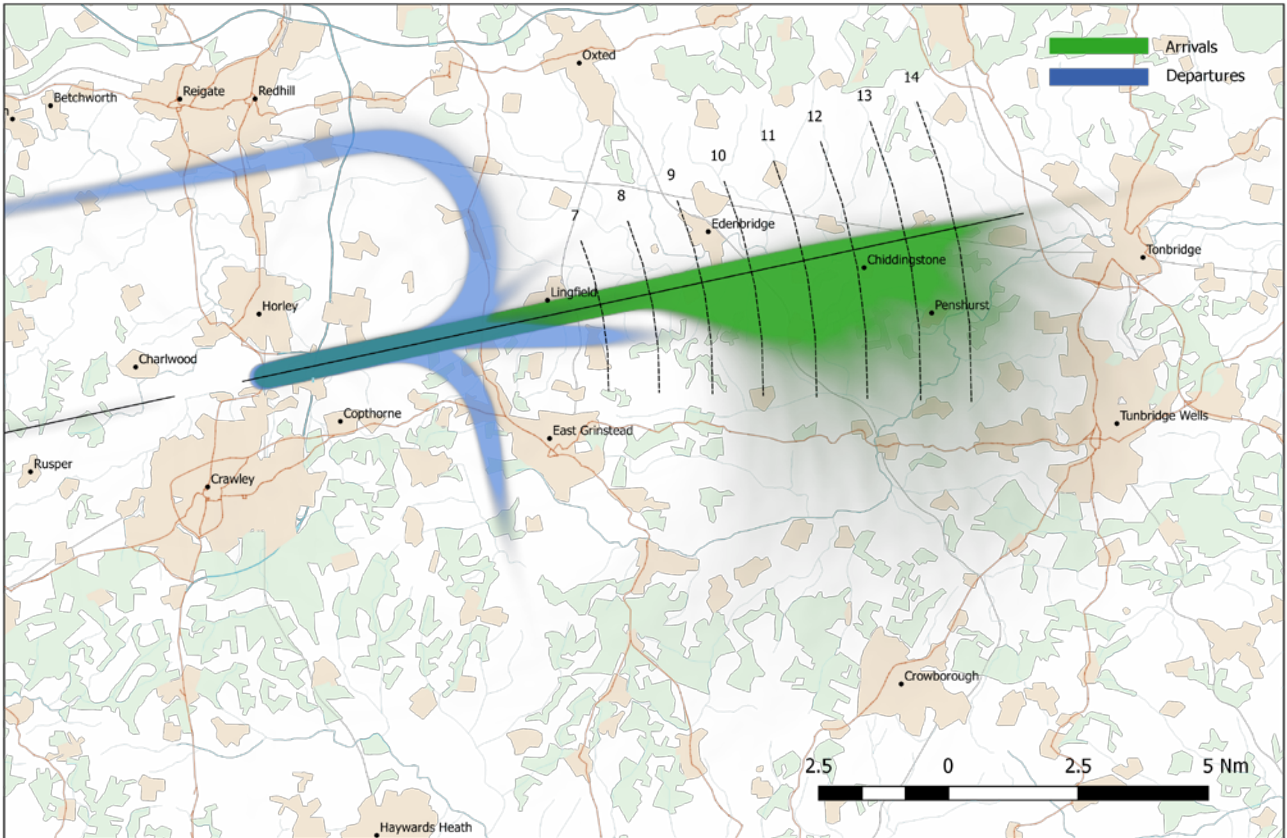
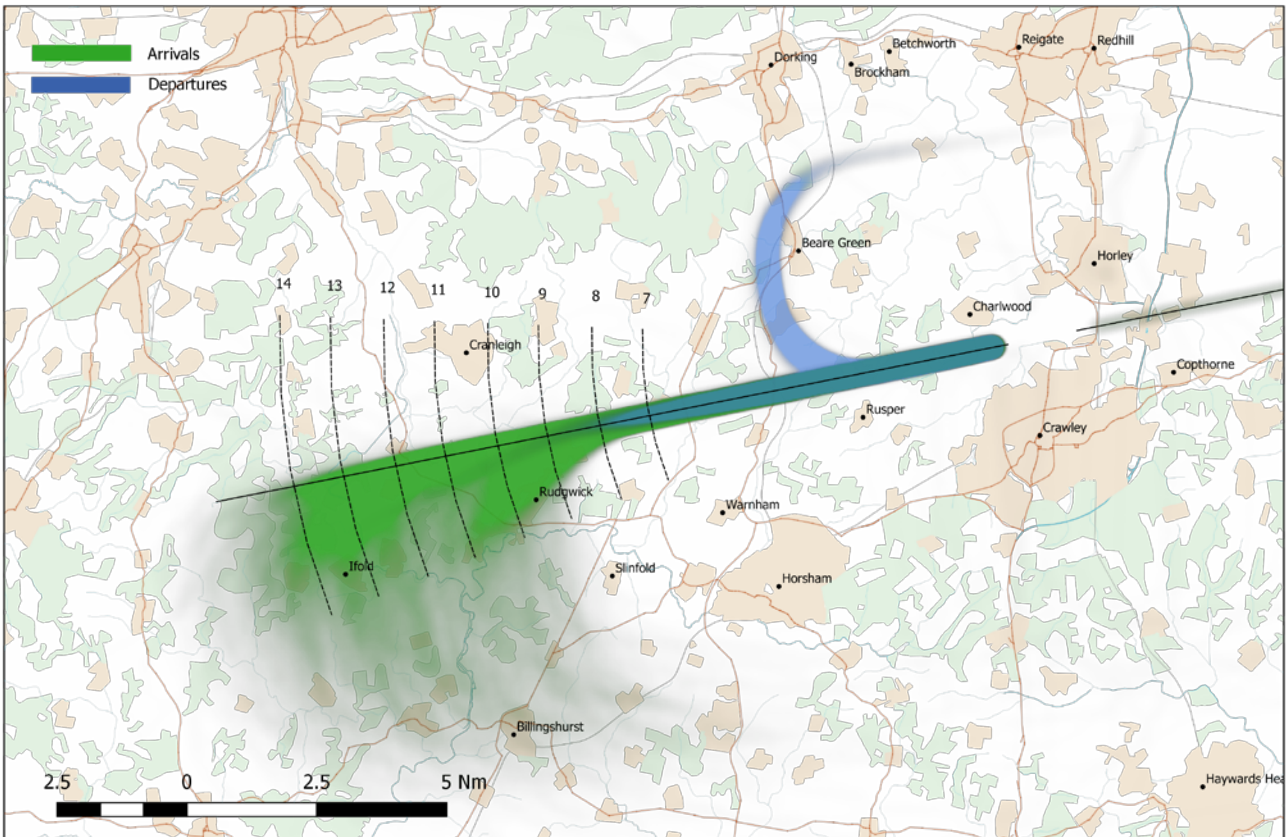


Figure 16 Heatmap of arriving and departing aircraft below 4,000 ft West



RECOMMENDATION Imm-12

“That the Gatwick Flight Performance Team (FPT) introduce a KPI, enabling the monitoring and reporting of the number of flights delayed from planned daytime arrival into a night movement (after 23:30 local) and that GAL initiate measures to identify and agree steps, including enhanced use of time based operations, with airlines and with the airport’s scheduling committee for implementation within 12 months, to effectively and progressively reduce unplanned night arrivals at Gatwick”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

This KPI provides the means to monitor the number of daytime scheduled arrivals that for a variety of reasons actually arrive after 23:30. The objective is to reduce the numbers of late arrivals by better understanding the reasons for them, then proposing corrective measures.

Implementation Plan

1. GAL to engage with airlines and other airport stakeholders to develop and define the KPI.
2. GAL to collect data and report the KPI.
3. GAL to report to NMB on the a) the data collected and b) proposals to encourage better adherence to schedule.
4. GAL to evaluate opportunities to reduce the number of late daytime arrivals and to introduce measures that deliver improved night performance.
5. GAL to report regularly and publish data on KPI’s to NMB.

Responsibility: GAL

Complete: December 2016

RECOMMENDATION Imm-13

“That within 6 months, NATS and GAL conduct a joint investigation to establish and agree whether XMAN is an effective tool to reduce arrival holding at Gatwick and if so, to agree and publish within 9 months when XMAN can be deployed for Gatwick and what results are expected”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

Known as Cross-border Arrivals Management (XMAN), the procedure enables air traffic controllers in the United Kingdom to work closely with those in the surrounding airspace in France, Ireland, Belgium and the Netherlands to regulate aircraft speed up to 350 miles away from London Heathrow, in order to minimise holding times on arrival.

XMAN is deployed for Heathrow at the NATS en-route centre at Swanwick with the support of neighbouring air traffic control centres in Europe (in whose airspace London arrivals are sometimes required to change speed to meet new planned arrival times). In the opinion of the review, the operation of XMAN should be extended as soon as possible to extend the benefits to include Gatwick arrivals.

XMAN implementation for Gatwick relies on the collaboration of NATS, GAL and airlines. The analysis of whether the XMAN tool can deliver the expected gains for Gatwick arrivals will require their collaborative review.

Implementation Plan

1. GAL to contact NATS, ANS, easyJet and other leading airlines to set out the Independent Arrivals Review findings for operational efficiencies, and to propose that GAL should lead review of the feasibility of XMAN for Gatwick including the identification of expected benefits.
2. If XMAN is validated as a beneficial tool for Gatwick arrivals, a deployment plan should be developed and published. The results of the analysis and its findings will be included in the progress report of the review recommendations in April 2017.
Responsibility: GAL
Complete: December 2016
3. Regular updates should be provided to the NMB.

RECOMMENDATION Imm-14

“GAL and NATS should evaluate the potential efficiency benefits of an earlier implementation of advanced Time Based Separation (TBS) technology (timescale for completion of evaluation within 12 months).”

Accept/Reject

This recommendation is accepted.

Benefits/Issues

TBS capability for Gatwick is included in Single European Sky planning for implementation by 2023. The benefits of TBS at Gatwick include reduced arrival delay and manoeuvring by improving the accuracy of arrival spacing. Future enhancements of TBS are expected to go even further, taking into account the specific arrival and departure aircraft types in order to fully optimise the spacing to be delivered by Approach. Because NATS manages the arrival sequencing for Gatwick, it is NATS at Swanwick that will determine the investment case and implementation schedule in collaboration with GAL. The associated devices at Gatwick Tower will rely on the Swanwick system.

Implementation Plan

1. GAL to contact NATS, ANS, easyJet, BA and other major airlines setting out the Independent Arrivals Review findings for operational efficiencies; and to propose a review of the feasibility of TBS for Gatwick, including the identification of expected benefits.
2. If TBS is validated as a beneficial tool for Gatwick arrivals prior to 2023, a deployment plan should be developed and published.
3. The analysis and findings will be included in the progress report of the review recommendations in January 2017.

Responsibility: GAL

Complete: December 2016

4. Regular updates will be given to NMB.

RECOMMENDATION Imm-15

“To better inform stakeholders, independent academic research should be undertaken to validate the reasons why arriving aircraft are often perceived by residents to be lower than in the past, and to identify measures to establish the actual facts in a controlled analysis with community involvement”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

This study should improve understanding of the facts and perceptions relating to the actual heights of arriving aircraft. Firstly by independent audit and verification of the height information reported by Gatwick’s noise and track keeping system. Then, provided that the height information is shown to be correct, to commission research to identify and analyse the reasons that some residents perceive aircraft to be lower than in the past.

Implementation Plan

1. GAL to commission an independent audit of the height information provided by the Gatwick Noise and Track Keeping system, building on the work of the CAA 2014 report (CAP1246), this audit to be completed in 2016.
2. If this audit confirms that aircraft heights are accurately reported, GAL to seek and obtain expressions of interest from recognised academic experts to conduct academic research (possibly by funding one or more PhD projects) to identify and evaluate the factors influencing the perceptions of aircraft height found in communities affected by aircraft noise.
3. GAL to seek guidance from the NMB on suitable Terms of Reference and objectives for the research work and its reporting This should include inter alia, provision for community engagement.
4. Taking into account guidance from the NMB, any resulting academic study should publish a report no later than the end of 2017.

Responsibility: GAL

Complete: Height verification 2016
Academic Research
and Report 2017

RECOMMENDATION Imm-16

“That GAL allocates additional manpower, as soon as possible, to strengthen the Airport’s community engagement capability.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

This recommendation will improve the community engagement capability of GAL.

Implementation Plan

1. GAL to identify the requirement for additional manpower and to put recruitment steps into place.

Responsibility: GAL

Complete: June 2016

2. GAL to report progress at the NMB.

RECOMMENDATION Imm-17

“That Gatwick should establish an enhanced complaints policy and fully transparent procedure, as soon as possible, using an on-line form as the primary medium, requiring sufficient detail to allow the location (postcode) of the complainant, the date and time of day of the incident, such that the aircraft in question can be identified and established with the location, to allow empirical data to be developed and analysed so that noise mitigation action can be taken. There should be no limit to the number of complaints per household. For residents not possessing computer access, postal submissions should be accepted, but should be required to contain the basic information outlined above.”

Accept/Reject

This recommendation is accepted.

Benefits/Issues

This proposal would improve GAL’s community engagement and responsiveness; it would also provide reporting data that is more reflective of reported noise issues.

Implementation Plan

1. GAL should draft an updated noise complaints handling policy whilst seeking feedback from local communities and GATCOM and the NMB. The final policy to be presented to GATCOM and the NMB, and then published.
2. In order to provide the ability to fill in the online form with sufficient detail, GAL will need to enhance its current online noise portal, known as ‘Casper’. This will require a software upgrade.
3. A regular report of complaints handling findings shall be provided to the NMB.

Responsibility: GAL

Complete: December 2016

RECOMMENDATION Imm-18

“The establishment of a Noise Management Board (NMB) by summer 2016, to be operated under independent Chairmanship and comprising representatives from each of the institutions able to effect change for Gatwick arrivals, as well as the chair of the Airport Consultative Committee (GATCOM), and both elected council members and residents’ representatives”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

1. Establishment of an NMB should assist in improving alignment of the responsibilities and initiatives of the key organisations able to effect change in the impact of aircraft noise.
2. An NMB can assist in ensuring that community concerns about aircraft noise are fully understood by those key organisations, and in developing a more co-ordinated set of visions and strategies for noise management around Gatwick – focused initially on implementation of recommendations from the Arrivals Review, but then extending to other important noise management issues.

Implementation Plan

1. Following analysis of feedback from many respondents, a planning meeting was held on 18th May 2016 for invited participants to discuss NMB membership and develop a final draft Terms of Reference for consideration and adoption by the NMB at its meeting on 21st June 2016. The Annex following contains the final draft Terms of Reference agreed at the planning meeting, and the attendance list for that meeting.
2. Participants at the NMB planning meeting welcomed an increase to the community group representation to four NMB seats, and agreed that these should reflect a rural, urban, departure and arrival representation. Community Groups at the meeting agreed to develop a consensus on how the increased representation on the NMB will be utilised and to inform the chair by 14th June. If no consensus is forthcoming, an interim solution will be used until a permanent representation can be jointly agreed.
3. Hold the first NMB meeting on 21st June 2016.

Responsibility: GAL

Complete: June 2016

Annex – Imm-18

Gatwick Noise Management Board (NMB) – Terms of Reference

(Final Draft for consideration by the NMB at its first meeting June 21st 2016)

Purpose

The purpose of the NMB is to develop, agree, oversee and maintain a coordinated noise management vision and consequent strategies for Gatwick, for all stakeholder organisations, intended to improve the situation for those affected by noise from aircraft using Gatwick.

This should include joint and coordinated reports through the NMB on progress of the implementation of these agreed strategies and, should seek to ensure consistent communication across all stakeholder groups, using verifiable data and transparent policies, to support the facilitation of their understanding by residents. This may also include when necessary, research and independent verification of information to be published.

The NMB can assist in ensuring that community concerns about aircraft noise are fully understood by key stakeholder organisations considering issues that may affect noise management around Gatwick. The NMB will focus initially on the implementation of recommendations from the Arrivals Review, but then extending to other important noise management issues.

The NMB should assist in the progressive development of consensus across its membership, to improve the alignment of responsibilities, initiatives and priorities of the key organisations able to influence change in the effect of noise from aircraft using Gatwick, whether for arrivals, departures or related to aircraft ground noise.

Objectives

1. The objective of the NMB is to develop, agree and oversee a coordinated noise management vision and consequent strategies for Gatwick, for all stakeholder organisations
2. The initial focus will be on the implementation of the Arrivals Review Recommendations
3. The NMB's remit extends to all important noise management issues related to Gatwick, including those related to departures, and aircraft ground noise, as well as arrivals
4. The NMB should be a body with real influence over operational stakeholders around the airport such as on airspace and aircraft operational issues
5. The NMB should influence and monitor the effective use of noise awareness training policies for staff of all Gatwick stakeholders and reported through NATMAG
6. The NMB should be consulted on all Gatwick noise related matters, such as compensation policy, noise insulation and community support
7. The NMB should be a main channel through which GAL, NATS, ANS, Airlines, DfT and CAA communicate actions that are being taken to address the effects of noise from aircraft using Gatwick
8. The NMB should seek to ensure the joint and co-ordinated reporting by stakeholders through the NMB, initially on progress of the Arrivals Review implementation and then on other noise issues and initiatives, and seek to facilitate better understanding by residents through more consistent communication and verifiable data
9. The NMB should establish a mechanism to identify and address unintended and unexpected consequences of noise improvement initiatives
10. Particular care will need to be taken by the NMB to avoid conflicting with the remits or duties of any of the other bodies already involved in noise matters related to Gatwick
11. If and when the Government establishes an Independent Noise Authority the NMB should ensure appropriate alignment between its own Terms of Reference and the remit of such a body
12. The NMB should agree and establish a process to set its SMART objectives and to regularly review and report its progress
13. The NMB should establish and maintain a transparent mechanism to adapt these Terms of Reference when agreed by members of the NMB
14. The NMB will seek to positively influence the noise environment of stakeholders by assisting the development of consensus among the various organisations represented through its membership

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15. In the event that it is not possible to reach NMB consensus on any matter, after exhausting all reasonable efforts, a majority decision can be made provided that it represents at least 75% of the NMB Membership

Meetings and Reporting

16. The NMB should meet every 2 months, or at intervals agreed by the members
17. The agenda and minutes of NMB meetings should be published on the (NMB website)
18. NMB meetings will not be open to the public, unless agreed by the NMB members for specific dates or specific topics
19. It is expected that at least one public meeting will be conducted each year by the NMB, to facilitate community dialogue, a reasonable understanding in communities of the work areas of the NMB, and to report NMB progress and plans

Membership

20. The NMB will comprise a nominated individual to represent the following organisations:

Institutions

- a. GAL
- b. Aircraft Operator with a minimum of 10% of the movements at Gatwick
- c. ANS – Tower ATC provider
- d. NATS – Air Navigation Service Provider
- e. CAA
- f. DfT
- g. GATCOM

Community Members

- h. County Council Representative #1
- i. County Council Representative #2
- j. Community Representative #1 East of Gatwick
- k. Community Representative #2 East of Gatwick
- l. Community Representative #3 West of Gatwick
- m. Community Representative #4 West of Gatwick

21. Each member shall have a single named alternate, who can attend the NMB as an observer, or can participate when the member is not available
22. The number of NMB members should ideally not exceed 14; above that the NMB's effectiveness will increasingly be at risk
23. It is important that all representatives are of sufficient seniority, and where appropriate, is empowered, to reach decisions
24. Care should be taken to ensure that a balanced geographical representation is always achieved for Community members of the NMB.
25. The term of NMB membership is 3 years, renewable. Individuals shall not serve more than 2 terms
26. Care should be taken to ensure continuity of NMB competence during any periods of membership transition
27. Institutional member organisations shall be invited to nominate their representative Alternates will attend NMB when the respective member is not available
28. The County Councils of Kent, Surrey, West Sussex and East Sussex should have either a member or Alternate participation on the NMB. Alternates must not be drawn from the same Council
29. District, Borough, Town and Parish Councils, and Community Noise Groups are each invited to nominate from their proposed NMB representative member, and an Alternate, for East and West of Gatwick
30. NMB meetings will be open to non-members only by specific invitation of the Chairman
31. GAL shall appoint the Independent Chairman and Secretary of the NMB by agreement of the NMB members
32. NMB membership terminates automatically for any member that fails to attend more than three consecutive full meetings of the NMB

Attendance List - Gatwick Noise Management Board Planning Meeting 18th May 2016

Attendee	Organisation
David Baron	GANG
Peter Barclay	GACC
David Fenwick	GANN
Charles Yarwood	Mole Valley DC
Angus Stewart	TWAANG
Irene Fairbairn	TWAANG
Peter Drummond	WGPC & APCAG
Nick Hague	Charlwood PC
Fran Flammiger	Plane Wrong
Helyn Clack	Surrey CC
Martin Barraud	GON
Geraint Thomas	Crawley BC
Brendan Sewill	GACC
Werner Spier	ANS
Douglas Moule	AOC
James Lee	CAGNE East
Charles Kirwan-Taylor	GAL
Mike George	Horley TC
Dominic Nevill	ESCCAN
Ian Jopson	NATS
David Howden	TWANSG
Jim Walker	CAA
Sally Pavey	CAGNE
David Lawton	Rusper PC
Liz Kitchen	W Sussex CC
Richard Streatfield	HWCAAG
Clive Pearman	Kent CC
Rupert Simmons	E Sussex CC
Paula Street	GATCOM (for chair)
Alan Jones	NATMAG
Bo Redeborn	Arrivals Review – proposed chair NMB
Graham Lake	Arrivals Review – proposed secretary NMB
Vicki Hughes	GAL
Apologies	DfT

RECOMMENDATION Imm-19

“That Gatwick should publish not later than March 31st 2016, a description of the steps that it is intended to take in response to the Arrivals Review report, and which if any of the recommendations it plans to pursue”.

Accept/Reject

This recommendation is accepted.

Implementation Plan

Through the publication of the Proposed Action Plan on 31st March 2016, this recommendation has been implemented.

RECOMMENDATION Imm-20

“In the interests of improved community relations that; GAL publish not later than January 31st 2017 a report of overall progress towards delivery of the steps recommended in this report, including relevant status updates from CAA and NATS, with where appropriate the basis for any related decisions”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

Acting in this way will inform communities and stakeholders of the implementation progress with each of the recommendations proposed by the review.

Implementation Plan

1. GAL and other organisations, as appropriate, to progress recommendations through the next 12 months in line with each agreed action plan and within its associated timescale.
2. To maintain a close liaison with the Arrivals Review Implementation Manager, to support the preparation of a detailed report of actions taken by GAL and the progress reported by other stakeholders, including the NMB, NATS, ANS, CAA, DfT, airlines and others as appropriate.
3. Produce a full, publicly available, report of overall progress. This would be presented first to the NMB.

Responsible: GAL

Complete: January 2017

RECOMMENDATION 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.”

Accept/Reject

This aspirational recommendation is accepted.

Benefits/Issues

The global provisions of ICAO adopted by the UK, require that Precision RNAV is implemented for UK airspace, including for arrival routes.

The timing of any PRNAV arrival routes for Gatwick is subject to a formal design and consultation process and the impact of related changes for other London airports. As such, even though there are clear opportunities to disturb fewer people, any implementation is likely to be after 2022.

The review has recommended that, since the design, public consultation, agreement and approval of any new PRNAV routes for Gatwick is likely to be a very lengthy process, the process should be initiated without delay so as to avoid a risk of delaying the noise benefits.

Implementation Plan

1. GAL to write to NATS, ANS, CAA and DfT advising them of the recommendation and inviting them to discuss it.
2. GAL, with support of the NMB, to develop and understand the related issues to inform implementation planning for GAL.

Responsible: GAL

Timescale: Task to begin Q1 2017

RECOMMENDATION Aspire-22

“That the Gatwick holding areas should be higher, or should be relocated to enable holding aircraft to dwell over water, rather than over Sussex.”

Accept/Reject

This recommendation is accepted.

Benefits/Issues

The aspiration of having continuous descent from the cruise level to touchdown at Gatwick will require a number of substantial changes in airspace and traffic management techniques deployed for the London Terminal Airspace during peak hours.

An increase of the altitude from which CDAs are commenced for noise purposes by aircraft arriving at Gatwick at all times must be a priority. Equally, for noise reasons, holding aircraft should be kept higher and the position of the Gatwick Arrivals Fixes (the site of the Gatwick airborne holding areas), should be relocated over the sea, eliminating airborne holding dwell time over Sussex, while permitting longer CDA tracks. Because this will also require widespread airspace and procedural change, it is likely to be still some years away. Clear steps to remove these barriers should be identified by NATS, CAA and GAL, with incremental improvements proposed as interim measures to deliver enhanced CDA.

Implementation Plan

1. GAL to write to NATS, ANS, CAA and DfT advising them of the recommendation and inviting them to discuss it.
2. GAL, with support of the NMB, to establish design objectives to reflect DfT policy, CAA guidance and NATS advice.

Responsible: GAL

Timescale: Task to begin Q3 2016

RECOMMENDATION Aspire-23

“That the requirements specification of any system upgrade to, or replacement of, any sequencing tools must take full account of the need to integrate the AMAN at Swanwick and DMAN at Gatwick, such that they are each fully informed of, and take into account the capacity allocations of both arrival and departure functions”.

Accept/Reject

This recommendation is accepted.

Benefits/Issues

AMAN is used by NATS at Swanwick to plan the sequence of arrivals to Gatwick’s runway, the Departure Manager (DMAN a planning tool) is also in use for Gatwick, but this time located at the airport control tower, intended to improve the departure flows at the airport and increase the predictability of take-off times.

For legacy reasons at Gatwick, in common with many other airports, even though both systems are calculating and managing real time runway capacity allocation, there is no system integration between the AMAN at Swanwick and DMAN at Gatwick Tower. This is not efficient and contributes to arrivals delay. Because the system at Swanwick is operated by NATS and the system at Gatwick is owned by GAL, the investment, procurement and technical policies for the integration of such systems do not appear to be adequately aligned.

Implementation Plan

1. GAL to write to NATS and ANS, advising them of the recommendation and inviting their guidance on how best to align procurement of a single replacement system.
2. GAL, with support of the NMB, to establish design objectives with NATS and ANS.
3. GAL, with support of the NMB, to establish design objectives with NATS and ANS.

Responsible: GAL

Timescale: Task to begin Q2 2016

9. Glossary

AMAN	Arrivals Management
ANS	Air Navigation Services (Air Traffic provider for Gatwick Airport)
CAA	Civil Aviation Authority
Casper	Airport noise and flight tracking computer system
CDA	Continuous Descent Arrival
DfT	Department for Transport
DMAN	Departures Management
EASA	European Aviation Safety Agency
EU	European Union
FOPP	Fuel Over Pressure Protector
FPT	Flight Performance Team
Ft	Feet
GATCOM	Gatwick Airport Consultative Committee
GOG	Gatwick Officers Group
ICAO	International Civil Aviation Organisation
ILS	Instrument Landing System
Imm	Recommendation number (taken from Arrivals Report; Immediate)
KPI	Key Performance Indicator
LAMP	London Airspace Management Programme
NAEA	National Association of Estate Agents
NATMAG	Noise and Track Monitoring Advisory Group
NATS	formally known as National Air Traffic Services
Nm	Nautical Mile
NMB	Noise Management Board
PRNAV	Precision Area Navigation
TBS	Time Based Separation

