

Your Ref:
Our Ref: GW/LF

Date:
2nd February 2015

[REDACTED]

Sir Howard Davies
Airports Commission Consultation
Sanctuary Buildings
20 Great Smith Street
London
SW1P 3BT

Dear Sir Howard,

I am writing personally to you in order to draw to your attention the key issues of concern to this Council within the Commission's current consultation concerning the option of a second runway at Gatwick.

The consultation is technical and consequently the responses you receive will be detailed in nature; however I believe it to be of the utmost importance that the bigger picture is not overlooked at this crucial stage in the Commission's work.

It is important to state at the outset that this Council is positive about sustainable economic growth and its plans reflect this by supporting knowledge-based business growth and reducing out commuting. The Council also welcomes opportunities for local businesses to grow and flourish. The Council places great importance on the need to achieve a balance between sustainable growth and protecting the environment.

Councillors have carefully considered this balance and are disappointed that the economic benefits of an expanded airport at Gatwick are not more pronounced. Therefore based on the available evidence they have concluded that the disadvantages of a much bigger airport at Gatwick outweigh the advantages and therefore strongly oppose expansion at Gatwick. The Council's arguments are outlined below.

The area surrounding Gatwick Airport is predominantly rural in nature and many areas comprise landscapes of the highest quality. Mid Sussex certainly has this characteristic. Our District, which at its most northerly point is just 1.25 miles from the current airport (see attached map), has 60% of its area either within the South Downs National Park or the High Weald Area of Outstanding Natural Beauty. 24% of the District is woodland and 16% ancient woodland (32% of which is not in the National Park or AONB).

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In addition, the European designated Ashdown Forest Special Protection Area and Special Area of Conservation in neighbouring Wealden District, means that 29% of Mid Sussex is within the buffer zone for the Forest. Our District has 13 Sites of Special Scientific Interest (SSSI) and over a thousand listed buildings and 25 scheduled monuments.

Mid Sussex has a rich network of ecological and historic assets. The area is rural in nature, tranquil and those living within it enjoy a high quality of life. Therefore I think it is extremely important that the Commission takes into careful account the impact of developing a huge airport, some 19% bigger than the existing Heathrow, in the middle of the Sussex and Surrey countryside.

This Council believes the impact would be to change the nature of this historic and beautiful area irreparably. Indeed it could be argued it will change the environment from rural to urban.

This Council considers that the Commission has grossly under estimated the difficulty of this District and its neighbours accommodating the additional housing required by a second runway at Gatwick. As things currently stand, the area is not able to provide the new housing needed to meet existing, natural growth let alone additional housing as a result of an expanded airport. Currently the wider area's draft and adopted spatial plans show a 2,000dpa deficit in the amount of housing the area can develop (compared to objectively assessed need), therefore the prospect of accommodating up to 18,400 additional homes cannot be anything other than very challenging.

In addition, this Council challenges the Commission's assumption that the additional housing required by a huge airport at Gatwick would be evenly accommodated across the 14 neighbouring local authorities. As the Commission is aware, currently nearly half of the airport's existing workforce lives within Mid Sussex, Crawley and Horsham. Given the housing constraints of Crawley, it is quite possible the burden of this additional housing would fall primarily to Mid Sussex and Horsham. For Mid Sussex this could equate to an increase of 51% in the amount of housing the area would need to accommodate. This would be untenable.

The infrastructure in Mid Sussex and the surrounding areas is already inadequate and is currently failing. This Council does not consider that the Commission has adequately understood this point. Even with the improvements planned, it is our view that they will not be enough to cope with the additional pressures created by a huge airport at Gatwick. Further, we believe the wider infrastructure requirements of expanding Gatwick have not been adequately assessed. Access to the whole range of essential facilities must be evaluated and their cost properly assessed. The current assessment looks only at the need for additional primary schools and doctor surgeries which is inadequate.

Finally, given the rural and tranquil nature of our District, we believe the effect of increased noise on Mid Sussex to be unacceptable. Currently, Mid Sussex residents can look forward to noise nuisance reducing as aircraft become quieter. However, if Gatwick is expanded and the number of flights more than doubled, this will reverse and noise will

detrimentally affect three times as many people in Mid Sussex than currently. Given the rural nature of the area, this Council has grave concerns about this potential impact.

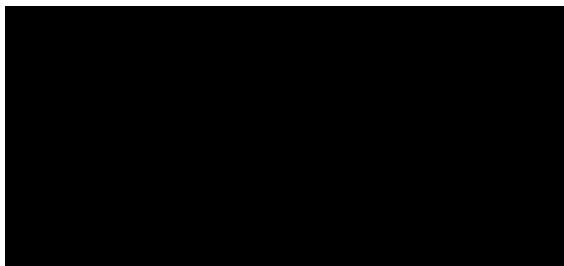
The Council's response to the consultation is attached, but I believe it is very important that responses do not focus on the detail to the detriment of the bigger picture.

The Commission should be under no illusions about the devastating impact a huge airport at Gatwick could have on this beautiful, ecologically and historically rich area of the Country. The Commission has underestimated the nature of this impact and its consequent implications on the capacity of the area to absorb the urbanising implications of an expanded airport.

Despite its rural nature, Mid Sussex enjoys a buoyant local economy with high employment and has sensible plans for sustainable growth, both of housing and jobs. However, it is concerned that the impact of an extended airport at Gatwick would jeopardise the sustainability of these plans; putting an unacceptable strain on local infrastructure and services and driving up commuting patterns. Mid Sussex has a highly qualified workforce and consequently wishes to promote new jobs that match the skills of the workforce. This means knowledge driven, creative and technology-based jobs and businesses, not the large number of lower skilled jobs the Commission envisages being created by a larger airport.

This Council has carefully considered the economic advantages of a significantly larger airport at Gatwick and, based on the evidence available, has concluded that the opportunities do not outweigh the very significant environmental and infrastructure impacts and that it will therefore strongly oppose the option of a second runway at Gatwick.

I do hope you and your Commission are able to take careful account of the points made above.



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Airport Commission's Consultation on Additional Runway Options in the South East of England

Mid Sussex District Council: Detailed Comments

Q1: What conclusions, if any, do you draw in respect of the three short-listed options?

Answer

- 1.1 The Commission has produced a wide-ranging and detailed appraisal of the options. All the main issues have been covered although there is a number of areas where the assessment needs to be extended or altered to provide a more robust basis for a comparison between the options and to ensure that there is a full understanding of the potential implications for the local area. The Council's response suggests areas where the Commission's work could be improved so that its recommendations to Government are based on sounder and more robust evidence.
- 1.2 However, the response from this Council goes further. Whilst the Council is strongly pro-business and supportive of sustainable growth in the local economy, it expresses grave concerns about the impact on this area of a second runway at Gatwick. In particular,
 - The damage that would be caused by the urbanisation of the high quality and essentially rural character of Mid Sussex. This damage would be caused by the increased development pressure arising from the airport expansion and related development;
 - The damage caused by increased noise from aircraft and related traffic to the quality of life of residents and the rural economy of Mid Sussex;
 - The very limited economic benefits to Mid Sussex, given its very low level of unemployment and the low skilled nature of the additional jobs that would be provided by the airport expansion;
 - The difficulty for the wider area in meeting its existing housing needs (it already under-provides against its needs by 2,000 homes per annum);
 - The reality of the increased housing pressure on Mid Sussex that would be caused by the airport expansion, particularly considering that nearly half of Gatwick's existing workforce lives in Crawley, Mid Sussex, or Horsham. This could equate to an increase of 51% in the amount of housing Mid Sussex would need to accommodate, which would be untenable;
 - The failing infrastructure of the area already, with an identified infrastructure funding gap in Mid Sussex alone of £119 million for existing planned levels of development. If other authorities have similar infrastructure costs, 18,400 homes will require infrastructure investment of £184 million on top of existing requirements. This would require substantial investment by Government, making Gatwick a more expensive option for the taxpayer than currently suggested and the infrastructure itself will also add to the urbanisation effect.
- 1.3 It is important that these over-arching objections to the proposed development are not lost in the detail of our response. The Commission should be under no illusions about the devastating impact a huge airport at Gatwick could have on this beautiful, ecologically and historically rich area of the Country. The Commission has underestimated the nature of this impact and its consequent implications on the capacity of the area to absorb the urbanising implications of an expanded airport.

- 1.4 Despite its rural nature, Mid Sussex enjoys a buoyant local economy and has sensible plans for sustainable growth both of housing and employment space. The Council is therefore disappointed that the economic impacts of an expanded Gatwick are not more positive for the District, indeed the evidence to date suggests that the impact of an extended airport at Gatwick would jeopardise sustainable economic growth in this area, putting an unacceptable strain on local infrastructure and services.

Q2: Do you have any suggestions for how the short-listed options could be improved, i.e. their benefits enhanced or negative impacts mitigated?

Answer:

Local and Regional Economy

- 2.1 The proposal by Gatwick Airport Limited to commit to funding 2,500 new apprenticeships is welcome, but further details of this scheme will be needed to ensure that it benefits residents of Mid Sussex, particularly young people entering the job market.

Social Infrastructure

- 2.2 Mid Sussex already experiences a significant infrastructure deficit. For current planned levels of growth up to 2031, the infrastructure needs are estimated to cost £138 million, of which only £19 million is currently committed or can be reasonably anticipated under s106 developer contributions. Assuming that infrastructure costs in the other authorities affected are similar to those in Mid Sussex, then an additional 18,400 homes brings with it an infrastructure bill of at least £184 million towards transport, education, health and other community infrastructure. The Commission must recognise the need for and cost of additional infrastructure to support additional housing generated by the expanded airport as this will affect the deliverability and cost of the scheme. Gatwick has pledged £46.5 million towards community infrastructure and £10 million towards local road improvements. However, this will not be sufficient to address strategic needs in the area, and the Commission will need to recognise and build into its evaluation, the substantial Government investment that will be needed to supplement developer funding should expansion occur at Gatwick.
- 2.3 The Council is also concerned that the increased infrastructure itself will add to the development pressures in the area and adversely impact on its rural character. New schools and health facilities have a land take and often have to be located on green field sites. Improvements to roads and junctions to increase capacity can significantly change their character and lead to a general urbanisation of the area and loss of the distinctive character of rural Sussex lanes which is highly valued by Mid Sussex residents.
- 2.4 The Commission is therefore asked to review the level of commitment needed to infrastructure, to include recognition of:
- the existing infrastructure deficit which must be addressed before further development pressures can be placed on this area;
 - the additional costs of providing additional infrastructure to meet this deficit and the needs of the expanded airport, and the need for substantial Government investment as well as that pledged by Gatwick Airport Ltd;

- the need to put appropriate mechanisms in place to secure the funding and provision of this infrastructure; and
- the impact of the increased infrastructure itself on the rural character of the area.

Surface Access

- 2.5 The rail network in this part of the South East is already experiencing considerable congestion and overcrowding and it is of grave concern to the Council that part of the increased rail capacity already planned to be provided will be used up by expansion of the airport and the associated business and residential development. This will inevitably bring forward the point at which further improvements will be needed to the network in order to avoid continuing, unacceptable levels of congestion. The Commission has already noted that the Brighton Main Line may need further upgrades in the 2040's. It seems likely that improvements will become increasingly difficult, and expensive to deliver and may involve radical solutions, including alternative routes from the South Coast to London.
- 2.6 The Commission is therefore asked:
- To seek to ensure that there is a formal commitment at a national level to the strategic road and rail network enhancements set out in its 'baseline';
 - To note the Council's concern that much needed capacity improvements to the strategic road and rail network would be, in part, used up by the demands from a second runway. It therefore needs to incorporate into the assessment further improvements which would be needed, partly as a result of a new runway at Gatwick and associated development. This should be taken into account by the Commission and the costs and deliverability fully assessed.
- 2.7 Significant reliance is placed on the North-South corridor which contains the M23/A23 and the Brighton Main Line. There is currently only limited access from that corridor to the Airport and the alternative routes are also limited. The Commission should give more consideration to the impacts on other major links in the area and the need for their improvement, including the A264 and the A22, both of which are likely to experience further pressures, in their own right and as alternatives to the M23/A23 at times when this route is congested. The Commission should also review its assessment of the scale of freight which might pass through Gatwick, and the consequential implications for employment and transport, taking into account the potential changes in the character of the airport over a long period.
- 2.8 In its proposals, GAL has set out targets for securing high levels of public transport usage; these will need to be robustly challenged to establish whether they are reasonable, given the current dependency on car travel, and mechanisms put in place to ensure that they are delivered. In this and other assessments the Commission should take into account the implications of shift working patterns at the airport.
- 2.9 Whilst GAL has indicated that it would provide £10 million to a local transport fund, little consideration has yet been given to the impact on local roads. Local roads to the south and east of the airport already experience heavy volumes of traffic, particularly at peak times. This is likely to be exacerbated with the increased demand for access to the airport. The Commission should extend its analysis to consider in more detail the effects of a new runway and associated development on the local road network and measures which should be put in place to mitigate the impacts. Further discussions are needed to establish an appropriate size for any fund, who should contribute to it and

how it should be distributed. It should include specific provision for addressing problems on local roads as well as at strategic junctions.

2.10 The Commission is therefore asked:

- To include within its assessment the impact of a new runway and associated development pressures on local roads and to seek to ensure an enhanced package to address those impacts;
- To ensure that the full costs of Gatwick are understood when the Commission makes its comparisons between Gatwick and Heathrow;
- To establish robust mechanisms which ensure that infrastructure and other commitments needed to address or mitigate the impacts of any new runway and the associated development can and will be delivered. Such mechanisms should include full involvement of local authorities and other infrastructure providers. The Commission should be satisfied on the deliverability of these mechanisms when it makes its evaluation of the Gatwick option.

Noise

2.11 Noise from night flights is recognised by the Commission as an issue. GAL has suggested that the northern runway could be used for night flights. Whilst at this stage it is not possible to determine the operational characteristics of an expanded airport, the Commission needs to look at this issue in more detail with a view to establishing clear conclusions which can be translated into operational requirements.

2.12 Some mitigation of noise effects can be achieved through noise insulation, although this does not address the outdoor environment. Gatwick Airport Ltd is proposing to extend the noise insulation scheme to cover the costs of insulation up to £3000 for houses within the 60dB contour. Consideration should be given to extending the scheme to properties falling within the 54dB contour to reflect the impact on properties which currently experience very little disturbance from noise. Similarly GAL's proposed council tax initiative whereby existing residents within the new 57dB contour for a second runway would receive an annual payment of £1,000 towards their council tax, should be extended to houses within the 54db contour with the level of contribution stepped to reflect the differing levels of disturbance.

2.13 No mitigation of noise effects for schools has been included in the report but Gatwick Airport Ltd's proposal is that schools are not overflown during the school day.

2.14 The Commission is therefore asked:

- In the event that it recommends a second runway at Gatwick, to incorporate noise mitigation measures and mechanisms for ensuring their delivery, Including:
 - An effective regime for limiting, managing or preventing night flights.
 - Review the indicative flight path to minimise flying over built up areas.
 - An increase in the pledges from GAL to include noise insulation and Council tax rebates for properties lying within the 54db contours
 - An effective regime for limiting and managing flights flying over schools and community buildings.

The Council has commissioned a detailed technical report on the noise impact of a second runway at Gatwick, and this report is appended to this consultation response as a background supporting document.

Q3: Do you have any comments on how the Commission has carried out its appraisal?

Answer:

3.1 The Commission is asked to refer to the comments contained throughout this response.

Q4: In your view, are there any relevant factors that have not been fully addressed by the Commission to date?

Answer:

4.1 The Commission is asked to refer to the comments contained throughout this response.

Q5: Do you have any comments on how the Commission has carried out its appraisal of specific topics (as defined by the Commission's 16 appraisal modules), including methodology and results?

Answer:

Local Economy

- 5.1 This Council is positive about economic growth and welcomes opportunities to support the Mid Sussex economy in line with the Council's Economic Strategy, which includes supporting knowledge based business and utilising a highly skilled workforce to support such high value sectors.
- 5.2 The Council notes that the increased jobs for an expanded Gatwick airport are anticipated to remain relatively low-skilled. The Commission needs to appreciate that surrounding authorities, such as Mid Sussex, have very low levels of unemployment (currently only 0.6% or 332 people in Mid Sussex are on Job Seekers Allowance). In addition the skills profile of Mid Sussex is high. Over 67% of the working age population is qualified to 'A' level or above and less than 4% have no qualifications.
- 5.3 The Council's Economic Development Strategy seeks to provide additional jobs to enable residents to work within their communities and reduce the need to commute. To achieve this it is important to match new jobs with the skills and capacity of the existing workforce. This means encouraging knowledge-driven, creative and high technology businesses which deliver high value, skilled jobs.
- 5.4 Due to the relatively low-skilled nature of the new jobs the Commission envisages being created by an expanded airport, it is possible that those needed to fill these jobs would have to migrate into the area from elsewhere. Whereas the provision of high skilled jobs could reduce existing out-commuting, if residents that currently commute out of the area take up jobs at the airport, this is unlikely to happen with lower skilled and lower paid jobs. This has implications in terms of housing numbers. The in-migration of lower-skilled workers also has implications for the provision of affordable /

subsidised housing and the cost of the support needed for lower paid residents (such as benefits, Council tax support and health provision).

- 5.5 The Council notes the Commission's employment forecasts (and their consequent housing forecasts) are significantly lower than those used for Heathrow, because they assume that Gatwick will continue to have a focus on point to point and low-cost sectors. However, if the development of Gatwick as a two runway airport results in an increase in the amount of long haul travel, then this could result in higher levels of employment and housing than suggested by the Commission. The Council, whilst keen to foster sustainable economic growth, has concerns about the negative impact such growth could have on the character of the area, as set out elsewhere in this response.
- 5.6 The Council is very concerned about the Commission's assumption that provision of premises to meet new employment needs would not be an issue within the wider area. The Commission has not appreciated the severe environmental and infrastructure constraints of the area in accommodating additional development (expanded on elsewhere in this response). The Council is positive about the provision of employment space in line with its Economic Strategy but considers the Commission has over-estimated the capacity of the area to accommodate employment space over and above that needed within current plans.
- 5.7 The Commission is therefore asked to note that, due to the relatively low skilled nature of the additional jobs to be created, the expanded airport may have limited economic benefits to Mid Sussex. This is because this Council considers it crucial to the sustainable growth of the local economy, that there is an increase in knowledge based, high value employment which builds on the skilled nature of the existing workforce. Growth in lower-skilled jobs, as envisaged by the Commission, therefore does not fit well with the ambitions Mid Sussex has for its economy. In addition, some existing local businesses have also expressed concern that the already limited labour market would be further reduced by the airport expansion and local firms would find it more difficult to recruit and retain staff.
- 5.8 Despite previous requests from local authorities the Council is disappointed to note that the Commission has not considered the effects of a new runway at Heathrow on Gatwick and the area around it. This analysis should be carried out in order to understand, in particular, how the local economy might be affected.

Local Economy (Housing and Social Infrastructure)

- 5.9 The pressure which growth at Gatwick will place on the housing market and the scale of new housing provision is a major issue for the area and the Commission needs to appreciate the severe environmental and infrastructure constraints of the area. This means it is already very challenging to plan in a sustainable way to meet existing projected needs.
- 5.10 Mid Sussex is a predominantly rural authority with a high level of environmental constraint. A recent study demonstrates that 92% of Mid Sussex is constrained and, of the remaining 8%, 4% is already built upon. The area surrounding Gatwick Airport is predominantly rural in nature and many areas comprise landscapes of the highest quality. 60% of Mid Sussex is either within the South Downs National Park or the High Weald Area of Outstanding Natural Beauty. 24% of the District is woodland and 16% ancient woodland (32% of which is not in the National Park or AONB).

- 5.11 In addition the European designated Ashdown Forest Special Protection Area and Special Area of Conservation in neighbouring Wealden District, means that 29% of Mid Sussex is within the buffer zone for the Forest. Our District has 13 Sites of Special Scientific Interest (SSSI) and over a thousand listed buildings and 25 scheduled monuments.
- 5.12 Mid Sussex has a rich network of ecological and historic assets. The area is rural in nature, tranquil and those living within it enjoy a high quality of life (17th out of 405 authority areas in the Halifax Quality of Life survey 2014). Therefore it is extremely important that the Commission takes into careful account the impact of developing a huge airport, bigger than the existing Heathrow, in the middle of the Sussex and Surrey countryside.
- 5.13 This Council believes the impact would be to change the nature of this historic and beautiful area irreparably. Indeed it could be argued it will change the environment from rural to urban necessitating high density development which is out of character with the market towns and villages of Mid Sussex.
- 5.14 In the wider area, neighbouring authorities are also heavily constrained, including by metropolitan Green Belt. As a result the wider area is currently projected to under-provide by 2,000 homes per annum compared to its existing predicted needs. This makes it highly unlikely that the area would be able to deliver the additional housing generated by an expanded Gatwick Airport.
- 5.15 The Commission's assumption that the housing pressure would be shared equally amongst the 14 authorities is completely unrealistic. At present nearly half of the airport's workforce resides in Crawley, Mid Sussex and Horsham, known collectively as the Northern West Sussex Housing Market Area. Due to the physical constraints of Crawley (which is built up to its administrative boundary) and the environmental and infrastructure constraints of Horsham and Mid Sussex, this Housing Market Area is currently unable to meet its existing predicted housing needs, and would not be able to meet the needs of the expanded airport without severe environmental damage and over-burdening the already failing infrastructure.
- 5.16 Additionally there is already an affordability issue in the area, with average house prices exceeding average salaries by a factor of 10. If the additional homes generated by the airport expansion are predominantly for low-skilled workers they are unlikely to be able to afford open-market homes to rent or buy, placing further pressures on the delivery of social housing. The provision of social housing is severely restricted due to reductions in Government grant and policies which reduce the ability of local authorities to require developers to provide a proportion of new homes for this sector. The amount provided is already insufficient to meet needs and an expanded airport will make the situation worse.
- 5.17 Issues relating to social infrastructure are dealt with in paragraphs 2.2 to 2.4 to which reference should be made with reference to this question.

Surface Access

- 5.18 Issues relating to Surface Access are dealt with in paragraphs 2.5 to 2.10 to which reference should be made with respect to this question.

Noise

- 5.19 The effects of noise on parts of Mid Sussex are a major concern to this Council. Maps produced by the Commission show how, without a second runway, noise contours contract as aircraft generally become quieter. With a second runway, contours expand significantly. Whilst currently, the contours have a predominantly east-west orientation, with a second runway, contours would extend south, reflecting, in particular, take-off routes. If there is an increase in long haul flights, the noise associated with larger, heavier aircraft carrying freight should be tested.
- 5.20 Copthorne and areas close to it would be directly affected by this and it is a major concern to this Council. As an example, the 57 dBLAeq 16 hour contour, the level used by the Government as marking the approximate onset of significant community annoyance from aircraft noise, currently runs along the line of Antlands Lane and on to the south of Newchapel. With a second runway, the Commission's forecasts show the contour line moved south to run approximately along the line of the A264, bringing the village of Copthorne, including a number of local schools/nurseries, into the noise affected area. The wider 54 dBLAeq 16 hour contour and other contour maps produced by the Commission demonstrate the way in which this area would be affected by both landing and take-off, with aircraft which depart in an easterly direction turning south shortly after take-off and passing close to if not over Copthorne.
- 5.21 The concern extends beyond the formal contours. The recent flightpath trials carried out at Gatwick have demonstrated the impacts of increased overflying on areas and communities which currently enjoy comparatively high levels of tranquillity. In this respect, the average contours used by the Government and the Commission fail to pick up the issue fully. In Mid Sussex, the issue is likely to be particularly significant in areas to the south east of the airport where new take-off routes are indicated, affecting local villages and schools, such as at Copthorne, Crawley Down, Turners Hill, Balcombe and the town of East Grinstead. However it is also likely to be an issue further away when regular and frequent overflight disrupts the normal tranquillity of an area, an issue for local residents and for small businesses that have sought out these more tranquil locations in the South East.
- 5.22 The Commission is therefore asked:
- To note the Council's concern at the level of noise and disturbance that would be generated by a second runway and the adverse effects on our communities.
 - To review its noise scorecards to take into account the effects of noise on typical days in the summer and winter.
 - To take greater account of the impacts of noise on areas and communities which currently experience comparatively tranquil environments and which are likely to be affected by overflying aircraft.

Other Environmental and People Issues

- 5.23 It is of concern that the Commission has not yet completed its work on air quality. This is an issue for the local area both in terms of air travel and surface access. The Commission should also consider further the implications of increased traffic on the Ashdown Forest Special Area of Conservation. The Commission's quality of life assessment, whilst of interest, needs significantly more work if it is to form part of a robust appraisal. In particular it should look at the effects of changes on quality of life, as there is likely to be a significant difference between the views of those who move into an area and those who experience a change in their living environment.

5.24 The Commission is therefore asked:

- To ensure that its work on air quality is completed taking into account issues related to increased surface traffic as well as air traffic
- To review its quality of life assessment to take into account the effects on people and communities which experience changes in the environment in which they live, including the impacts of air quality on the health of people in Mid Sussex
- To ensure that its air quality assessment takes account of the impact on the flora and fauna of Mid Sussex; and
- To assess the likely significant effects on the Ashdown Forest Special Area of Conservation and Special Protection Area as required under the Habitats Regulations, particularly relating to the effects of increased traffic.

Q6: Do you have any comments on the Commission's sustainability assessments, including methodology and results?

Answer:

6.1 The Commission is asked to refer to the comments contained throughout this response.

Q7: Do you have any comments on the Commission's business cases, including methodology and results?

Answer:

7.1 The Commission is asked to refer to the comments contained throughout this response.



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**MID SUSSEX
DISTRICT
COUNCIL**

**GATWICK
AIRPORT
SECOND RUNWAY**

**NOISE IMPACT
ANALYSIS OF THE
GATWICK
AIRPORT
SECOND RUNWAY
PROPOSAL ON
MSDC – NON-
TECHNICAL
SUMMARY**

JANUARY 2015

1949M-SEC-00003-01

**MID SUSSEX DISTRICT COUNCIL
GATWICK AIRPORT SECOND RUNWAY
NOISE IMPACT ANALYSIS OF THE GATWICK AIRPORT SECOND
RUNWAY PROPOSAL ON MSDC – NON-TECHNICAL SUMMARY**

DOCUMENT REFERENCE: 1949M-SEC-00003-01

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Authored By [REDACTED]	Position Senior Environmental Consultant	Signature [REDACTED]	Date 29/01/15
Reviewed By [REDACTED]	Position Principal Consultant	Signature [REDACTED]	Date 29/01/15
Approved By [REDACTED]	Position Director	Signature [REDACTED]	Date 29/01/15

AMENDMENT HISTORY			
Issue	Status	Description	Date
01	Final	Issue	29/01/15

This report has been prepared using all reasonable skill and care within the resources agreed by the client. No responsibility is accepted for matters outside the terms and scope of the agreement under which this report has been prepared. Similarly no responsibility in any form is accepted for third party use of this report or parts thereof, the contents of which are confidential to the client.

Southdowns Environmental Consultants Ltd

MAIN OFFICE: 16 Station Street, Lewes, East Sussex, BN7 2DB, UK Tel: +44 (0)1273 488186 Fax: +44 (0)1273 488187

LONDON OFFICE: 10 Greycoat Place, London, SW1P 1SB, UK Tel: +44 (0)207 9606255

enquiries@southdowns.eu.com www.southdowns.eu.com

REG. IN ENGLAND NO: 3150111

Introduction

This is a non-technical summary of the noise impact assessment report produced for MSDC on the matter of the Gatwick 2nd runway proposal that forms part of the Airports Commission consultation. The Consultation Document is supported by business case and sustainability assessments, including the Gatwick Airport second runway: business case and sustainability assessment and technical assessments, including noise assessments. The purpose of the noise impact assessment review of the consultation documents was primarily to advise Council Officers and Members on the identified noise impact of the Gatwick Airport second runway option and identify matters relating to noise which are considered to warrant further analysis or assessment and to inform MSDC's consultation response.

Scope of Noise Impact Analysis

This noise impact analysis is only concerned with the consideration of matters which have the potential to affect the acoustic environment of the Mid Sussex District Council area and its residents. The extent and technical depth to which any point has been presented and discussed in this review has been limited by the timescales and resources made available for this review. It is likely, therefore, that some of the key points raised will require more substantive research and technical evaluation once the Council has finalised its response strategy and that further points for evaluation will emerge, especially if the findings of this report are to be considered by the Airports Commission

The Airports Commission and Consultations

The Airports Commission is an independent commission established in 2012 to consider how the UK can maintain its status as a global hub for aviation and improve the use of existing runway capacity. They produced an Interim Report explaining the view of the Airports Commission that additional runway capacity in the south east of England would be required by 2030. The Interim Report identified three lead options for additional runway capacity with two options for Heathrow and one for Gatwick. The Gatwick option to be considered further was for a new runway to the south of the existing runway. Responses from the consultation will be used to validate and challenge the interim assessments in the consultation and be used to inform the Final Report, due in the summer of 2015.

Consultation Documents

The Consultation Document and business case and sustainability assessments are underpinned by detailed technical reports. The Airport Commission technical documents include noise analyses of additional airport capacity. The Option Promoter report for the Gatwick Airport second runway also included and a number of noise related documents that are included as part of their response.

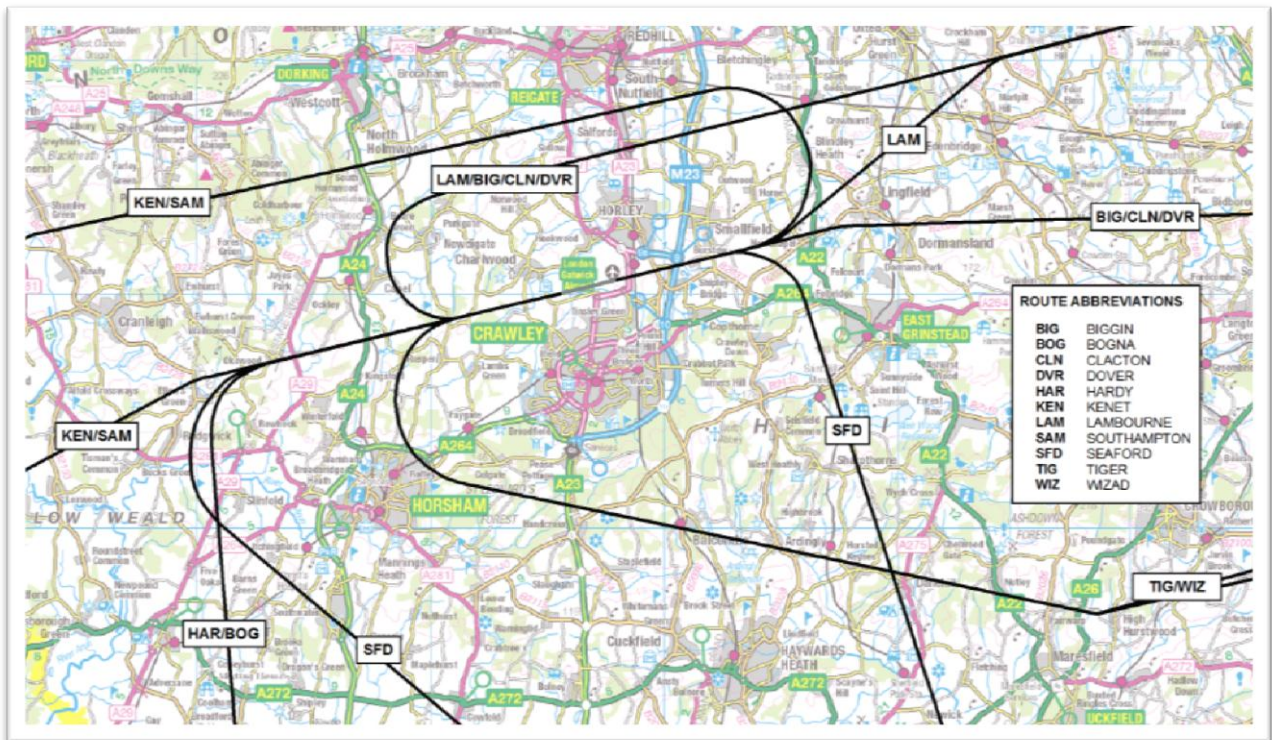
Key Analysis Themes

The review and noise impact analysis has therefore focussed predominantly on these themes relating to the modelling assumptions, noise metrics used, operational noise, noise mitigation and community impacts and effects.

Gatwick Airport current operations and MSDC

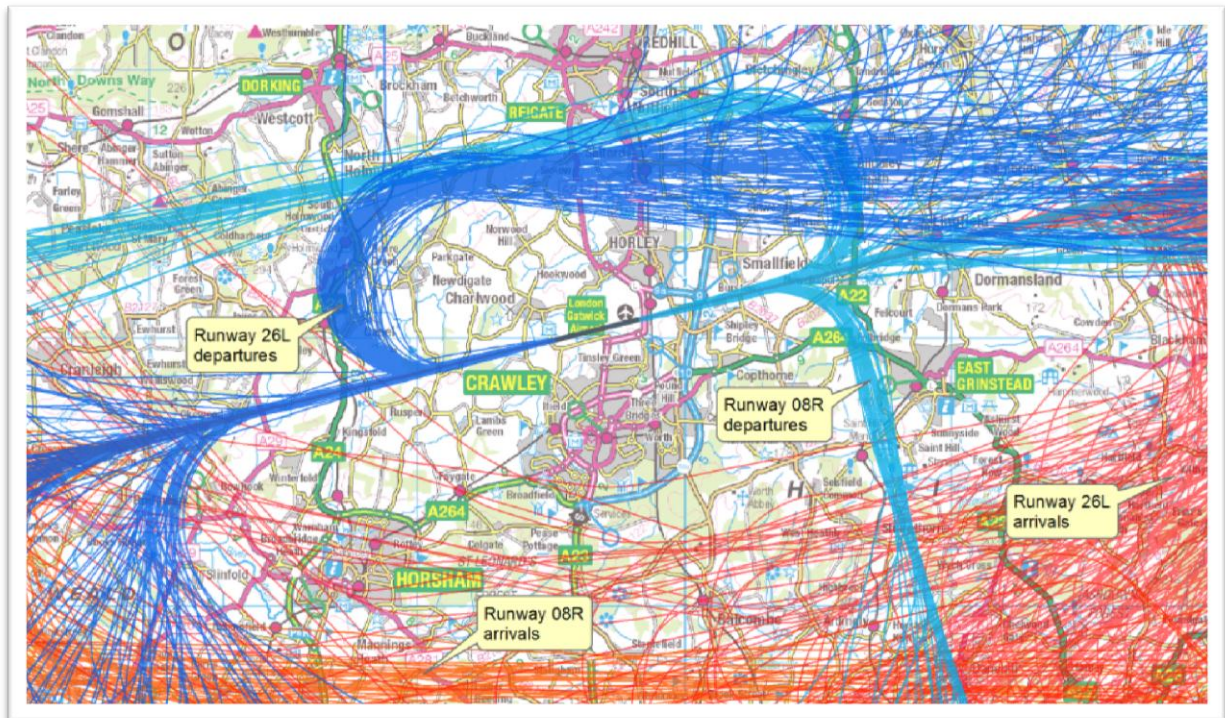
Gatwick Airport is located around 3 km northwest of the Copthorne community that is part of the MSDC area. Gatwick Airport has the world's busiest single-use runway with up to 55 aircraft movements per hour. In August 2014 the runway handled 906 movements in a day with an aircraft taking off or landing every 93 seconds. Gatwick Airport is operating at around 85% capacity with 252,833 ATMs in the financial year 2013/14. The Airports Commission forecast that the capacity limit will be reached by the 2030s.

Though Gatwick Airport operates as a single runway airport it has a second runway to the north of the main runway that can only be used when the main runway cannot be used. MSDC is overflowed by two of the current routes. These routes are shown below. When the airport is operating on westerly departures the MSDC community of Copthorne is around 1.5 km south of the arrivals path to the runway. Aircraft to and from Gatwick Airport do not keep exactly to the centreline of the flight path and radar flight tracks show areas that have been overflowed. Typical flight radar tracks for Gatwick Airport are shown below. Flight paths over MSDC area are not regularly used for day departures Gatwick airport day departures with some routes being unused and all below 10%. Night departure flight usage of the flight paths over the MSDC area was also low with routes over Mid Sussex being used for 10%, or less, for night departures in 2013. The modal split between westerly and easterly operations cannot be predicted as it is dependent upon the direction the wind is blowing from. The historic modal split is shown overleaf.

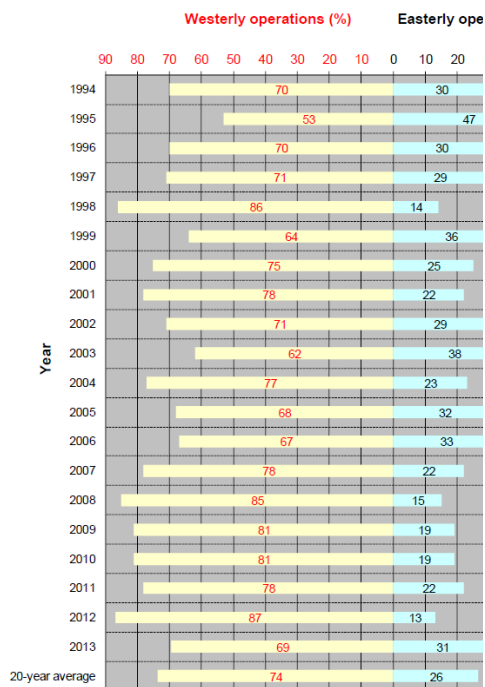


GATWICK DEPARTURE ROUTES

Mid Sussex does not fall in the area of any of the modelled noise contours for 2013. Nevertheless, the north of the MSDC area is near the arrivals path during westerly operations and complaints regarding aircraft noise have been received from residents of Copthorne. Copthorne is a large village with a population of around 5,000 where aircraft noise levels, in particular at night, are a constraint on development.



GATWICK FLIGHT RADAR TRACKS



GATWICK MODAL SPLIT FOR AVERAGE SUMMER DAY AND POPULATION POINTS

Gatwick Airport commission Second runway proposals

In the proposed Gatwick 2R scheme the additional runway would be located around 2km west of the Copthorne community that is part of the MSDC area. The 2R scheme at Gatwick Airport proposes to increase Air Transport Movements (ATMs) up to 98 aircraft movements per hour and give a capacity for the airport to accommodate up to 560,000

ATMs. The Do-Minimum option would have an increase of 27,399 ATMs between 2013 and 2030 to give a capacity of 277,919 ATMs for the Do-Minimum Option. Gatwick 2R-X option (carbon capped) has an assessment of need for 318,909 ATMs in 2030. Gatwick 2R-X-C (carbon traded) has an assessment of need for 480,623 ATMs in 2030. The Airports Commission states that as a broad rule the population exposed to aircraft noise would approximately double for both day flights and night flights as a result of the proposed second runway. The 2030 options have been chosen for analysis in this review as for the other scenarios there is a high degree of conjecture on the fleet mix and though the number of ATMs go up the predicted noise levels generally come down. As such the 2030 scenarios are considered the least subject to high levels of uncertainty. A summary of the Airports Commission findings is given below.

Carbon capped (37.5 million tonnes) Gatwick-2R-X Option
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{Aeq,16hr} > 54dB$ contour would increase by around 9,600, from 8,000 to 17,600 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $N70 > 20$ events contour would more than quadruple, from 2,100 to 10,500 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{Aeq,8hr} > 48dB$ contour would roughly double, from 11,700 to 22,300 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $N60$ (night) > 25 events contour would increase by 7,700, from 11,800 to 19,500 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{DEN} > 55dB$ contour would increase by 12,700, from 9,400 to 22,100 in the 2030 scenario
Carbon Traded Gatwick-2R-X-C Option
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{Aeq,16hr} > 54dB$ contour would increase by around 22,900, from 8,000 to 30,900 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $N70 > 20$ events contour would increase by more than seven times, from 2,100 to 15,400 in the 2030 scenario

Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{Aeq,8hr} > 48\text{dB}$ contour would roughly double, from 11,700 to 24,500 in the 2030 scenario

Between the Do-Minimum and Do-Something scenarios the number of people within the N60 (night) >25 events contour would increase by 8,600, from 11,800 to 20,400 in the 2030 scenario

Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{DEN} >55\text{dB}$ contour would increase by 25,100, from 9,400 to 34,500 in the 2030 scenario

SUMMARY OF AIRPORTS COMMISSION FINDINGS FOR 2ND RUNWAY PROPOSALS

The Airports Commission has stated that in relation to the objective of minimising noise impact and where possible reducing impacts that the Gatwick Second Runway will have an adverse impact. Gatwick Airport Limited has proposed an extended noise compensation scheme covering all households within the 16-hour day average noise level 57 dB contour that would entitle them to annual compensation equivalent to Band A Council Tax (£1,000). Gatwick Airport Limited has also proposed that night flights could be grouped on the current runway to prevent impact on the population centre of Crawley, to the south. This would also help protect the MSDC community of Copthorne.

Overview of Assessment Methodology Used and Noise Metrics

The Consultation provides an overview of the scheme and details that one of the objectives is that of the Aviation Policy Framework to “minimise and where possible reduce noise impacts” and identifies that the Commission is not looking at airport expansion in isolation but will consider interaction with the transport network and with broader policies (including noise). The Consultation document details that a single metric would be unlikely to provide a rounded view of the potential impacts of the options and that a ‘noise scorecard’ with a range of noise metrics is being used. The noise scorecard includes a range of average and frequency (number of events) metrics including:

- Day (16-hour day average noise level and ‘Number of events above 70 dB’ N70 contour);
- Night (8-hour night average noise level and ‘Number of events above 60 dB’ N60 contour);
- 24 hours (24-hour average noise levels with penalties applied for the evening and night);

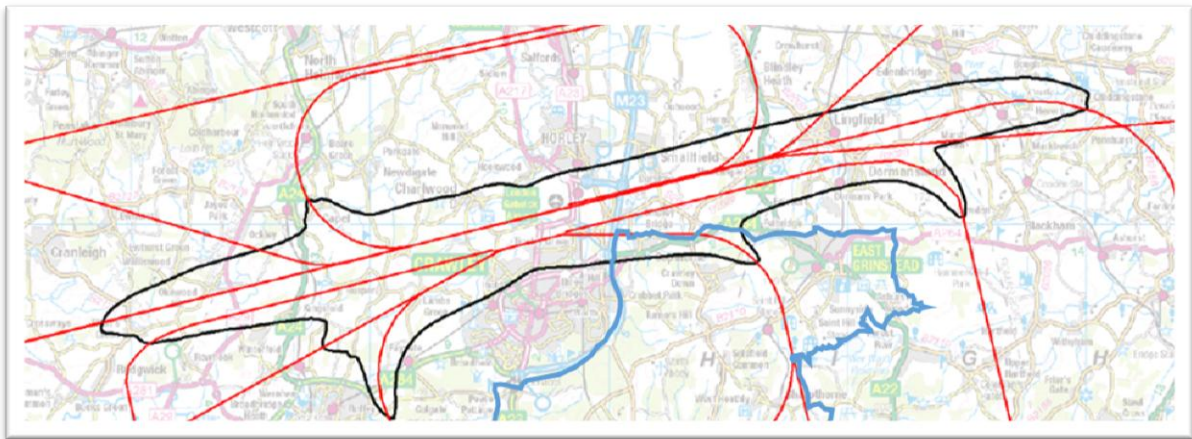
Do-Minimum Option – No 2nd runway

It is forecast that the annual ATMs at Gatwick Airport will increase by 14% from 250,520 in 2013 to 285,420 in 2050 and in the absence of any other changes this would lead to an increase in noise exposure at receptors of 0.6 dB. Nevertheless it has been assumed that there will be significant changes and modernisation in the aircraft operating to and from Gatwick.

Without the proposed second runway at Gatwick there would be reductions in the daytime noise metrics if the improvements to aircraft technology assumed in the baseline assessment are implemented. For the Do-Minimum option no community of MSDC is within the modelled contours.

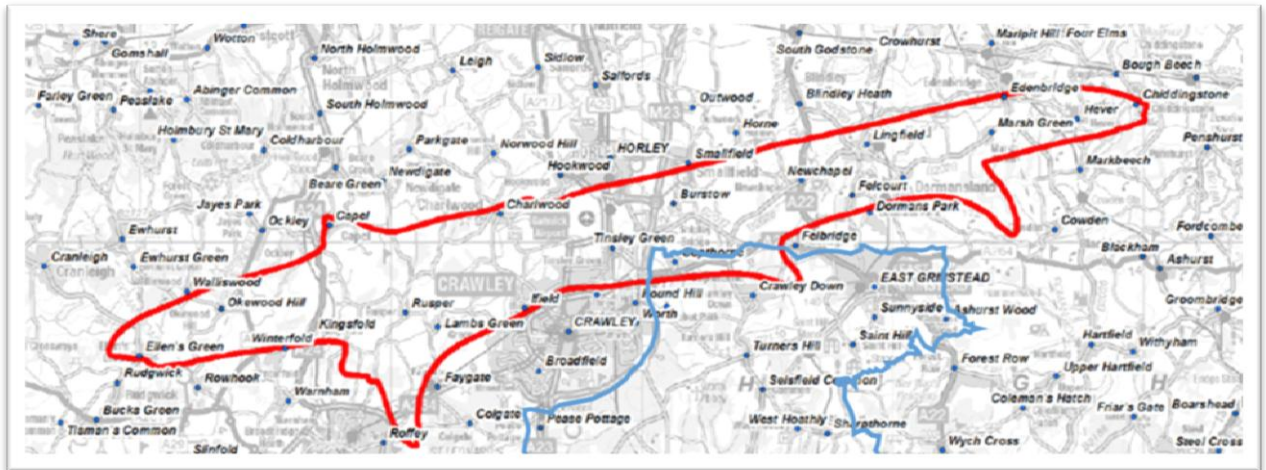
Mid Sussex District Council 2nd Runway Noise Impacts

As part of proposed Gatwick 2R scheme MSDC is to be overflown by additional (unnamed) routes. These routes are shown overleaf. MSDC would be overflown by an easterly departure route which diverges over the MSDC area (blue line) and the community at Copthorne would be around 750m south of the arrivals path to the southern runway. The study area only includes the settlement of Copthorne in the MSDC area and the area north of Crawley Down and has not considered other areas within the MSDC area that would be under a flight path. The study area is defined by the red line shown in the figure below and is derived from the maximum extent of the Do-Minimum and Do-Nothing modal split noise contours. For the Do-Something Gatwick 2R proposal part of the settlement of Copthorne is within the contours for all the noise metrics used.



INDICATIVE PROPOSED FLIGHT PATHS FOR GATWICK 2R PROPOSAL

MSDC contains rural areas and tranquil areas of tranquillity (including in the High Weald AONB and the South Downs National Park) that are not currently overflown. The second runway proposal will lead to some of these areas being overflown and when the relatively low ambient noise levels in the MSDC area are considered it is likely that there will be a significant noise impacts and adverse effects. It is also considered increased exposure to aircraft noise leading to potential health effects and annoyance which may in turn lead to complaints regarding aircraft noise relating to the second runway proposal will be received, if the proposal goes ahead.



AIRPORTS COMMISSION GATWICK AIRPORT STUDY AREA

The settlement of Copthorne is the only settlement in the MSDC area, in the local assessment, that is within the study area. The air noise appendix accompanying the submission by Gatwick Airport does detail the noise sensitive community receptors with the study area. The following noise sensitive community receptors are identified within MSDC:

- Copthorne C of E Junior School (RH10 3HR);
- Copthorne Preparatory School (RH10 3HR);
- Peter Bunny Nursery School (RH10 3EX);
- The Coach House Nursery (RH10 3HR);
- Peter Pan Playgroup (RH10 3RE);
- Jack and Jill Pre School (RH10 3QX);
- St John the Evangelist's C of E Church (RH10 3RD); and
- Copthorne Chapel (RH10 3ET).

Modal Split

The Airports Commission consultation has used modal split contours that average out the aircraft noise levels that would be experienced when the airport is operating normally i.e. on easterly or westerly operations, with the aircraft taking off into the wind direction. When easterly or westerly operation contours are used the total contour footprint is greater in extent and more accurately represents the noise exposure of communities exposed to aircraft noise during actual operations (i.e. easterly or westerly operations) rather than a notional average of the two operating modes. The easterly and westerly operation contours are produced as part of the production of the modal split contours and to not include them as part of the consultation does not allow the community to have an indication of what the noise levels will be on a particular day when the airport is operating normally. As such the modal average contours in the consultation at best can be considered as understating the potential aircraft noise exposure or impact. At worst they could be considered as misleading, in particular for communities that would be affected during easterly operations as the 25% easterly standard modal split will average down the contour area foot print substantially and not give an accurate indication of the noise impact on communities near the easterly flight paths.

Noise Metrics Used

16-hour day average noise level contours of 57dB have been used in the Airports Commission Consultation to define the onset of significant community annoyance. The Commission's discussion paper on aircraft noise considers that focussing on this contour does not adequately represent the adverse effects felt by communities around airports and that adverse effects can be experienced outside these contours and that airports can produce contours lower than these levels and explore alternative metrics.

WHO guidelines on community noise consider that the onset of serious annoyance occurs at 16-hour day average noise levels of 55dB and moderate annoyance at 50dB. It may therefore be considered more appropriate to use the lower contour to mark the onset of significant community annoyance, especially when considered with the tonal, episodic and intrusive characteristics of aircraft noise, likely quiet ambient noise levels in areas that are not currently under flight paths and other factors which indicate a greater degree of annoyance from aircraft noise compared to other transportation noise sources. Robust evidence would need to be prepared to support a case to challenge the use of the 57 dB contour.

The findings of the attitudes to noise from aviation sources in England study and a recent review of the findings indicate that use of the 16-hour day average noise level of 57dB is not an accurate indicator of the onset of significant community annoyance with aircraft noise and the onset is below these levels. This view is supported by the Civil Aviation Authority who consider that *"Despite the concerns raised by peer reviewers regarding the overall robustness of the study, the CAA considers that results from the pilot study support the adoption of a lower level for the approximate onset of significant annoyance, around 54dB $L_{eq, 16h}$ "*.

The Airports Commission consultation includes plots of the 16-hour day average noise level 54dB contour and an assessment of the number of households and population within the contour band but does not give a breakdown of the location of these receptors by community or local authority area. It is noted those households within the 54dB contour will not be offered a mitigation package under the mitigation proposed by Gatwick Airport.

The night event based N60 contours start at 25 events and it is noted that onset sleep disturbance will occur below this level and as such is recommended the contours start at 10-15 events for the onset of sleep disturbance to correlate with WHO guidelines for number events considered to cause sleep disturbance.

Noise Insulation and Mitigation

Noise mitigation is proposed by Gatwick Airport in the form of compensation to the equivalent of Council Tax Band A (£1,000) for dwellings with the 57dB 16-hour day average noise level contour. The modal split for this contour is not stated.

The Airports Commission consultation states "Planning applications for noise sensitive development submitted to neighbouring planning authorities should account for the second runway's noise contours". This may require changes to MSDC planning policy. It is also noted that the notional contours in the consultation are likely to underestimate the noise environment as result of the averaging down by the modal split of the contours, in particular in MSDC which is under the proposed flight paths during easterly operations. Development of new noise preferential routes using Precision Area Navigation (P-RNAV) capabilities and increased stakeholder engagement issues is considered part of the mitigation. It is considered likely that these routes will be optimised to avoid population

centres, though it is noted the community at Copthorne is directly beneath some of the departure routes.

Aviation Policy

The Aviation Policy Framework states the Government's aim 'to limit and where possible reduce the number of people in the UK significantly affected by aircraft noise'. The Gatwick 2nd runway proposal is contrary to this and will increase the number of people exposed to aircraft noise and introduce noise sensitive receptors and areas that were not previously exposed to aircraft noise, to aircraft noise.

Mixed Mode and Alternation

The Gatwick 2nd runway proposals are for aircraft to take off and land from both runways at the same time. This procedure is known as mixed mode and means that there will be no respite for communities from noise during operation hours of the airport. Heathrow currently runs an operation procedure called segregated mode where one runway is used for arrivals and one runway for departures. The use of the runways is then switched over at 15:00 hrs to give respite to the communities in the area so they are not overflown all day. BAA, who operate Heathrow, has made requests to use mixed mode at Heathrow but planning consent has not been applied for by BAA, following the Labour Government retraction of the Cranford Agreement in 2010, on the basis of the noise impact and number complaints following new mixed mode flight paths being tested in 2014. During the 5 month trial 86,000 noise complaints were received compared to 18,826 for normal operations in 2013.

P-RNAV

Precision Area Navigation (P-RNAV) is a procedure where the aircraft's flight management system navigates the aircraft and requires that an aircraft is capable of track-keeping accuracy for 95% of its flight time. The CAA plans to phase in P-RNAV gradually so as to make the noise impact of the focusing of the routes less sudden and allow an on-going review process for assessment of noise and other impacts. P-RNAV will have the effect of resulting in a narrow swathe of flight departure tracks with the aim of avoidance of population centres where feasible. The effect of the use of P-RNAV will be to limit the swathe of noise sensitive receptors that are overflown, though the areas beneath the P-RNAV routes will be subjected to aircraft noise with less respite to noise from variation in the route. An indication of the narrowing of the swathe with use of P-RNAV compared to standard departures is shown below.



ILLUSTRATION OF STANDARD DEPARTURE ROUTE (LEFT IMAGE) AND P-RNAV DEPARTURE ROUTE (RIGHT IMAGE) SWATHE WIDTH.

Schools

The Airports Commission Consultation has considered schools within study area and considered them against the modal split 16 hour day noise contours.

Guidance on the acoustic standards for schools considers low ambient noise levels are required, in particular for Special Educational Needs and Disability (SEND) children having hearing or communication needs including visual impairments, hearing loss or auditory processing difficulty, attention deficit hyper activity disorders (ADHD) and autistic spectrum disorders. Pupils with hearing impairment, autism and other special needs are often very sensitive to specific types of noise, particularly those with strong tonal, impulsive or intermittent characteristics (such as aircraft noise). The document states that this should be taken into consideration in the design of areas which may be used by such children.

The Equality Act 2010 places a duty on schools and local authorities to provide strategies and plans for improving the accessibility of schools for disabled pupils and staff including acoustic improvements to the internal and acoustic environments which would benefit hearing impaired and other pupils. MSDC's duty under this act may place additional burden on MSDC and their schools as they may be required to mitigate and improve the acoustic environment that has been degraded by aircraft noise if the Gatwick 2R proposal is selected.

The guidance gives performance standards for indoor ambient noise levels for new build school rooms and refurbishment of spaces. These standards are given as 30-minute average noise level in order to limit the potential disruption from noise that could occur during a lesson. Guidance also indicates the ambient noise levels during play is 55dB in school playgrounds to avoid annoyance and further recommends that at least one area suitable for outdoor teaching activities is below 50 dB.

The modal split contours do not reflect the noise environment when the airport is operating on easterly or westerly operations and as such schools outside of the study area may suffer adverse noise impacts that have not been considered as part of the Airport Commission Consultation. In order for an informed indication on the potential impact of the Gatwick 2nd runway proposal 30-minute contours for both worst case easterly and westerly proposed operations will need to be produced. These should form part of the Airport Commissions consultation. Without these contours for easterly and westerly operations consultees cannot make an informed consideration of the potential noise impact on schools.

Quiet Areas and Tranquillity

The impact on quiet areas and tranquillity has not been considered as part of the Airports Commission assessments. European and government policy calls for quiet areas and areas of tranquillity to be protected and improved whereas with the proposal there will be noise impacts on the High Weald AONB, nature reserves, the South Downs National Park and the tranquillity of the MSDC area.

Ground Noise

No night ground noise contours are available in the consultation. The modelled noise contours do not extend to the MSDC area and the M23 corridor separates the contour area from the MSDC area. The MSDC settlement of Copthorne is around 2 km away to the east. Ground noise impacts may occur during temperature inversions. Gatwick is located in an area that is prone to temperature inversions and during these inversions ground noise may be heard in Copthorne.

Noise Policy

The Airports Commission consultation makes no assessment of significance of the effect of the proposals to these Government guidance publications and presents noise impacts through being within the 57dB 16-hour day average noise level contour, and to a lesser extent the other noise metrics.

Conclusions

The Airports Commission consultation does not allow for any meaningful conclusions to be drawn with regards to the potential noise impact on the Mid Sussex District Council noise sensitive receptors, for the following reasons:

- Use of 'averaged-out' modal split contours means that the noise environment during normal easterly or westerly operation has not been portrayed or analysed;
- The use of the modal split contours has limited the study area and communities and noise sensitive receptors that may be adversely impacted by noise from the proposal have not been considered;
- The impact on schools, in particular SEND children, and the additional duties of schools and local authorities cannot be considered in detail without easterly and westerly contour plots in the appropriate 30-minute noise metric to shown the noise environment in a metric that reflects the educational requirements;

- No breakdowns or itemisation of the noise impacts is given by community or local authority area and therefore the individual, community or local authority will find it difficult to consider the information in the context of the impact on the individual community or local authority and make an informed response;

Nevertheless a number of general assumptions can be made:

- Areas of MSDC that were not previously overflowed are going to be overflowed, including in likely quiet rural areas and communities;
- There will be departure routes over MSDC and in particular over the community at Copthorne that will be directly beneath easterly departure paths and also close to westerly arrival routes;
- Use of precision flight paths will concentrate the noise impacts in the areas beneath the departure path in a narrow swathe; and
- The Gatwick 2nd runway proposal appears to be contrary to governmental noise and aviation policy and the Commission's aim to reduce the number of people in the UK significantly adversely affected by aircraft noise.

Recommendations

The following recommendations are made:

- That the Airports Commission consultation be extended to include easterly and westerly operation contour plots for the noise metrics currently in the consultation and include contour plots suitable to assess the impacts on schools;
- The duration of the consultation is extended to allow the communities and local authorities to consider the additional noise contour and population information;
- That the Airports Commission consultation includes analysis of the communities and local authorities affected by the proposal and a breakdown of the noise levels and number of noise sensitive receptors in each community is given;
- That the 16-hour day average noise level 54dB contour is used to mark the onset of significant community annoyance in the daytime (following government study recommendations and CAA consideration) and the assessment of impact is re-assessed on this basis;
- That the night noise event contours start at 15 contours to indicate the impact on sleep disturbance;
- The commitment is made by Gatwick Airport to offer compensation is extended to any dwelling within any of the easterly or westerly operations contours for any noise metric, with appropriate mitigation packages;

- An arrangement is made that if the Gatwick 2nd runway proposal is chosen an arrangement in the manner of the 'Cranford Agreement' is put in place to prevent departures from the southern runway over Copthorne;
- An agreement is made that if the Gatwick 2nd runway proposal is chosen Gatwick Airport will fund the mitigation packages necessary to ensure a suitable noise environment in indoor and outdoor spaces at schools and nurseries;
- A commitment is obtained from Gatwick Airport that segregated mode will be used rather than mixed mode, so communities that are overflown can be given respite from aircraft noise;
- That the Airports Commission consultation considers the modelled aircraft noise contours with the ambient noise levels and indicate the potential total noise levels and quantifies the change in noise levels as some of the areas within MSDC are likely to have very low ambient noise levels, in particular at night and changes of 20dB or more may occur outside of the Airports Commission aircraft noise study area;
- That the monetisation assessment is re-run using the westerly and easterly operation contours and the monetisation of the health and annoyance effects is itemised on a local authority and community basis so the additional burden of the proposal on the local authorities can be assessed.



Executive Summary

Southdowns Environmental Consultants Ltd

16 Station St, Lewes, E. Sussex BN7 2DB

www.southdowns.eu.com

Date: 29/01/2015

From: [REDACTED] (MIOA)

To: [REDACTED]

Reference: 1949m-SEC-00002-01 Noise Impact Analysis of the Gatwick Airport Second Runway Proposal on MSDC.

This document provides an executive summary of the analysis on the potential noise impacts and effects of the Gatwick Airport 2nd runway option, proposed by the Airports Commission consultation, on the residents and amenity of the MSDC area, reported in 1949m-SEC-00001-02. The noise impact analysis reviewed the noise aspects of the consultation document and supporting business case and sustainability assessment along with the noise related sections of the technical assessments. The review focused on the methodology applied to the noise modelling to inform the Airports Commission's assessments and the consideration of current policy and guidance to the findings of the Airports Commissions assessments.

The noise impact analysis found that MSDC would have new flight paths over their communities, including in areas not previously over flown. In particular the community at Copthorne would be underneath new easterly departure routes and close to westerly arrivals routes but would be outside of the contour area for mitigation packages, except in parts of Copthorne for the carbon traded scenario. The review also found that the Airports Commission methodology of using 'averaged out' modal split contours means that the noise environment during normal operations i.e. westerly or easterly is not portrayed or analysed. This approach understates noise contour foot prints in the area affected by the airport during normal operation. This in turn has limited the study area and the predicted aircraft noise levels likely to be experienced by receptors. No itemisation of community or local authority impacts has been reported in the consultation and no assessment has been made of the effect of the proposal on local schools, using the appropriate metric $L_{Aeq,30mins}$.

The review made recommendations, including for the following key points:

- That the Airports Commission consultation be extended to include easterly and westerly operation contour plots for the noise metrics currently in the consultation and include $L_{Aeq,30mins}$ contour plots to facilitate the assessment of noise impacts on schools within MSDC;
- That the Airports Commission consultation includes analysis of the communities and local authorities affected by the proposal and a breakdown of the noise levels and number of noise sensitive receptors in each community affected by the proposal is given;
- That the $L_{Aeq,16hr}$ 54dB contour is used to mark the onset of significant community annoyance in the daytime (following ANASE recommendations and CAA consideration) and the assessment of impact is re-assessed on this basis;
- That N60 15 contours are produced for night to indicate the impact on sleep disturbance;
- An agreement is made that if the Gatwick 2nd runway proposal is chosen Gatwick Airport will fund the mitigation packages necessary to ensure a suitable noise environment in indoor and outdoor spaces at schools and nurseries; and
- A commitment is obtained from Gatwick Airport that segregated mode will be used rather than mixed mode, so communities that are overflowed can be given respite from aircraft noise.



southdowns
consultants in acoustics, noise and vibration

**MID SUSSEX
DISTRICT
COUNCIL**

**GATWICK
AIRPORT
SECOND RUNWAY**

**NOISE IMPACT
ANALYSIS OF THE
GATWICK
AIRPORT
SECOND RUNWAY
PROPOSAL ON
MSDC**

JANUARY 2015

1949M-SEC-00001-03

**MID SUSSEX DISTRICT COUNCIL
GATWICK AIRPORT SECOND RUNWAY
NOISE IMPACT ANALYSIS OF THE GATWICK AIRPORT SECOND
RUNWAY PROPOSAL ON MSDC**

DOCUMENT REFERENCE: 1949M-SEC-00001-03

REVIEW AND AUTHORISATION			
Authored By [REDACTED]	Position Senior Environmental Consultant	Signature [REDACTED]	Date 29/01/15
Reviewed By [REDACTED]	Position Principal Consultant	Signature [REDACTED]	Date 29/01/15
Approved By [REDACTED]	Position Director	Signature [REDACTED]	Date 29/01/15

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Issue	Status	Description	Date
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02	Issue	issue	23/01/15
03	Final	Final Issue	29/01/15

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Southdowns Environmental Consultants Ltd

MAIN OFFICE: 16 Station Street, Lewes, East Sussex, BN7 2DB, UK Tel: +44 (0)1273 488186 Fax: +44 (0)1273 488187

LONDON OFFICE: 10 Greycoat Place, London, SW1P 1SB, UK Tel: +44 (0)207 9606255

enquiries@southdowns.eu.com www.southdowns.eu.com

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1. INTRODUCTION

1.1 Background

- 1.1.1 Southdowns Environmental Consultants Ltd (Southdowns) was appointed in December 2014 by Mid Sussex District Council (MSDC) to conduct a noise impact analysis of the consultation documents associated with the Airport Commission consultation on the Gatwick Airport second runway option in the Consultation Document [1]. The Consultation Document is supported by business case and sustainability assessments, including the Gatwick Airport second runway: business case and sustainability assessment [2]. The purpose of the review of the consultation documents is primarily to advise Council Officers and Members on the identified noise impact of the Gatwick Airport second runway option and identify matters relating to noise which are considered to warrant further analysis or assessment and to inform MSDC's consultation response.

1.2 Scope of Noise Impact Analysis

- 1.2.1 The Airports Commission consultation seeks views on the three options identified in the Commission's Interim Report [3]. These views are elicited through questions on the three options, appraisal methodology and overall approach, comments on specific areas of the Commission's appraisal and any other comments. This noise impact analysis is only concerned with the consideration of matters which have the potential to affect the acoustic environment of the Mid Sussex District Council area and its residents.
- 1.2.2 The approach followed in this noise impact analysis report has been to review the proposals and provide commentary on a particular technical issue (including an indication of the likely interests and other merits for MSDC in requesting or undertaking further analysis) based upon the information presented in the Airport Commission (or promoter) consultation documents, along with suggestions for areas to be included in the MSDC consultation response.
- 1.2.3 The extent and technical depth to which any consultation response point has been presented and discussed in this review has been limited by the timescales and resources made available for this review. It is likely, therefore, that some of the key points raised will require more substantive research and technical evaluation once the Council has finalised its response strategy and that further points for evaluation will emerge, especially if the findings of this report are to be considered by the Airports Commission.



1.3 The Airports Commission and Consultations

- 1.3.1 The Airports Commission is an independent commission established in 2012 to consider how the UK can maintain its status as a global hub for aviation and improve the use of existing runway capacity.
- 1.3.2 The commission invited options, in February 2013, for making the best use of existing runway capacity in the next 5 years and to provide additional capacity in the longer term.
- 1.3.3 In order to inform its work the commission published discussion papers on a number of aviation matters. Discussion Paper 05: Aviation Noise [4] gives an overview of how noise affects people, measurement of aviation noise, quantification of noise effects and mitigation options. Discussion Paper 07: Delivery of New Runway Capacity [5] includes sections on the noise impact of additional runways on local communities.
- 1.3.4 The Interim Report explained the view of the Airports Commission that additional runway capacity in the south east of England would be required by 2030. The Interim Report identified three lead options for additional runway capacity with two options for Heathrow and one for Gatwick. The Interim report committed to consult on its appraisal of the short-listed options and include detailed business cases and environmental assessments (including noise assessments) for each option.
- 1.3.5 The Gatwick option to be considered further was for a new runway to the south of the existing runway.
- 1.3.6 The consultation on increasing the UK's long-term aviation capacity was published on the 11th of November 2014 and runs through to the 3rd of February 2015.
- 1.3.7 Responses from the consultation will be used to validate and challenge the interim assessments in the consultation and be used to inform the Final Report, due in the summer of 2015.

1.4 Consultation Documents

- 1.4.1 The Consultation Document and business case and sustainability assessments are underpinned by detailed technical reports. The Airport Commission technical documents include noise analyses of additional airport capacity. The documents reviewed in this noise impact analysis are:
 - Additional airport capacity: noise analysis. Noise: Baseline [6];
 - Additional airport capacity: noise analysis. Noise: Local Assessment [7];
 - Additional airport capacity: noise analysis. Noise: National Assessment [8];
 - Additional airport capacity: noise analysis. Noise: Baseline and Local Assessment Methodology Addendum [9]; and
 - Additional airport capacity: noise analysis. Noise: Figures [10].
- 1.4.2 The Option Promoter report for the Gatwick Airport second runway also included and a number of noise related documents that are included as part of their response. The documents that have been reviewed and considered within this noise impact analysis are:



- A Second Runway for Gatwick: Appendix A7 Air Noise: [11];
- A Second Runway for Gatwick: Appendix A7 Air Noise: Figures [12]; and
- Air noise assessment for 95mppa case [13].

1.4.3 The Airports Commission held a public discussion session on the 16th of December 2014 and this noise impact analysis also considers the transcript of this meeting [14].

1.4.4 Documents and reports outside of the references detailed above have not been reviewed as part of the noise impact analysis for MSDC.

1.5 Key Analysis Themes

1.5.1 The review and noise impact analysis has therefore focussed predominantly on these themes:

- Baseline and Gatwick 2nd runway noise modelling and modelling assumptions;
- Noise metrics used;
- $L_{Aeq,16hr}$ average and easterly and westerly operations;
- L_{AMax} criteria and WHO criteria;
- Communities;
- N70 day / N60 dB night;
- Noise Insulation policy;
- Operational aviation noise;
- Operational ground noise;
- Mixed-mode operation – no alternation is proposed;
- Night noise and sleep disturbance;
- Tranquillity and quiet areas;
- Schools;
- Flight paths, P-RNAV and swathe;
- Fleet mix assumptions; and
- Application of National Noise Policy and Guidance in the consultation.



2. GATWICK AIRPORT CURRENT OPERATIONS

2.1 Gatwick airport

- 2.1.1 Gatwick Airport is located around 3km northwest of the Copthorne community that is part of the MSDC area.
- 2.1.2 Gatwick Airport has the world's busiest single-use runway (08L/26R) with up to 55 aircraft movements per hour. In August 2014 the runway handled 906 movements in a day with an aircraft taking off or landing every 93 seconds.
- 2.1.3 Gatwick Airport is operating at around 85% capacity with 252,833 ATMs in the financial year 2013/14. The Airports Commission forecast that the capacity limit will be reached by the 2030s.
- 2.1.4 Though Gatwick Airport operates as a single runway airport it has a second runway (08R/26L), to the north of the main runway, that can only be used when the main runway cannot be used. During normal operations the second runway is used as a taxi-way. The main (08L/26R) and second (08R/26L) runways are too close to each other to be used at the same time.

2.2 Mid Sussex District Council Area and Current Gatwick Operations

- 2.2.1 MDSC is overflowed by two of the current Standard Instrument Departure (SID) routes. These routes are 26R SFD (Seaford) and 08L TIG/WIZ (Tiger/Wizad). When the airport is operating on westerly departures the MSDC community of Copthorne is around 1.5 km south of the arrivals path to the runway.

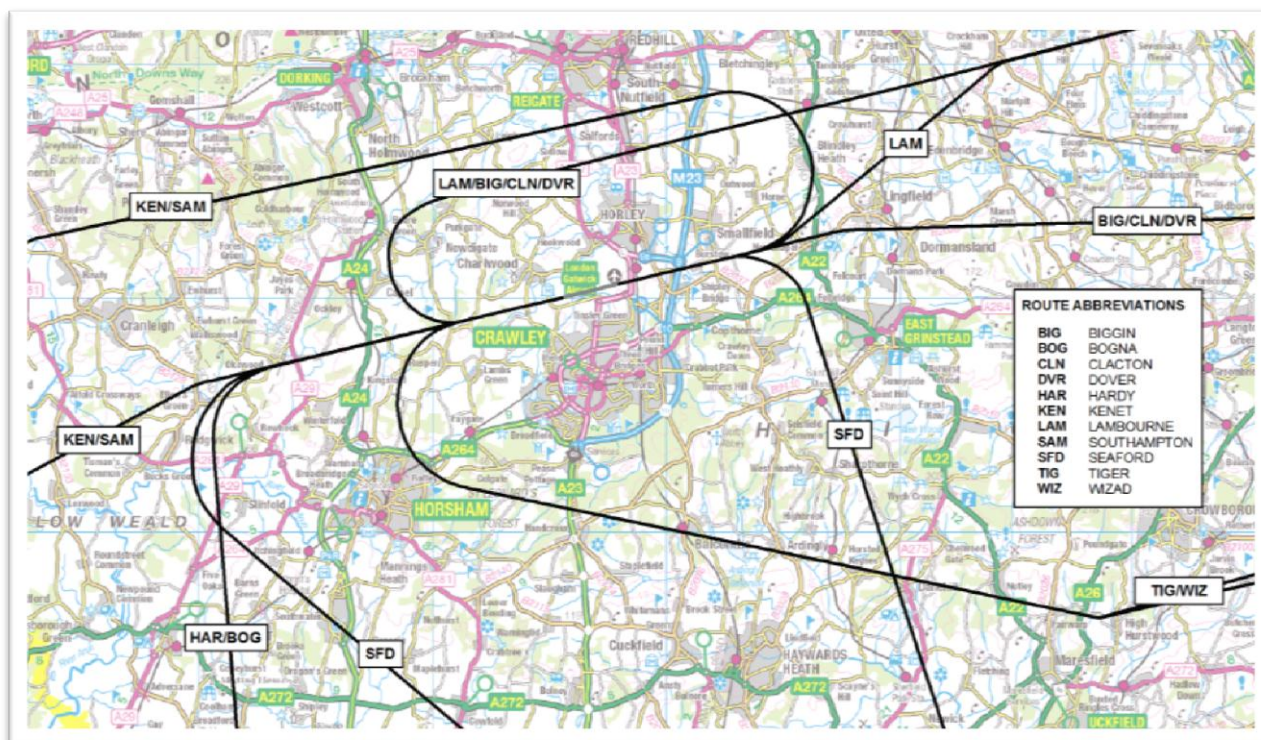


FIGURE 2.1 GATWICK SID DEPARTURE ROUTES



2.2.2 Aircraft to and from Gatwick Airport do not keep exactly to the centreline of the flight path and radar flight tracks show areas that have been overflown. Figure 2.2 displays typical flight radar tracks for Gatwick Airport.

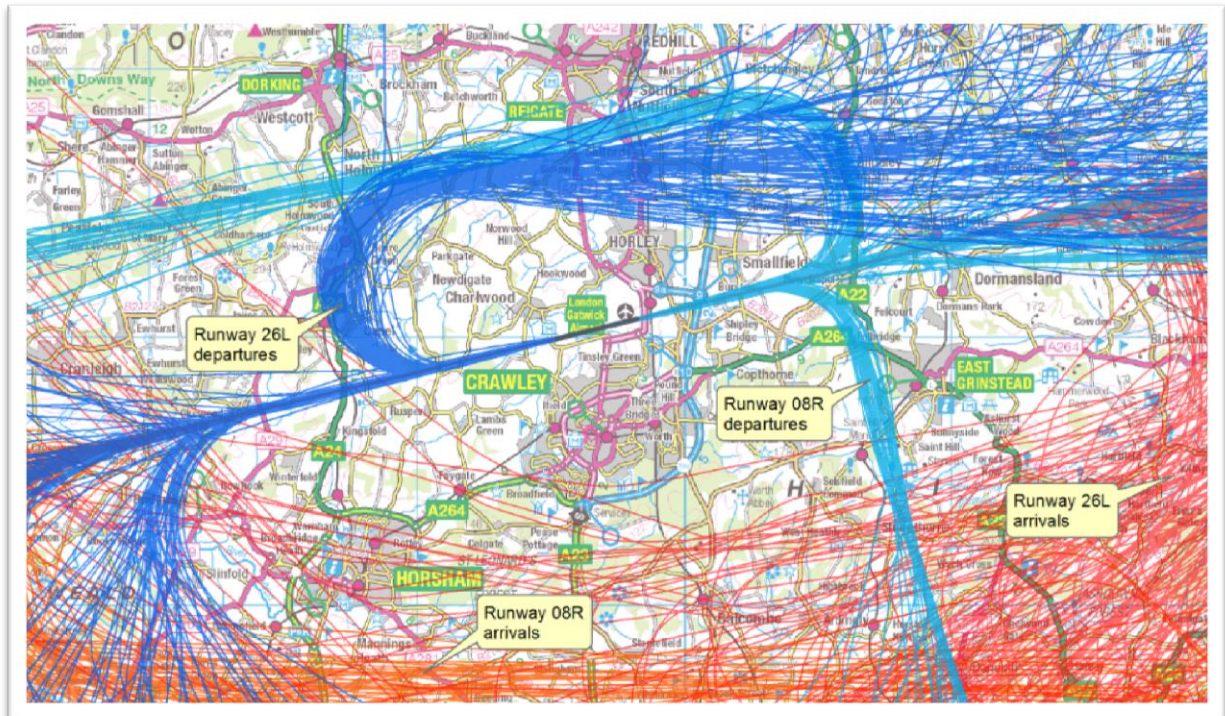


FIGURE 2.2 GATWICK FLIGHT RADAR TRACKS

2.2.3 The flight paths over the MSDC area are not regularly used for day departures with Figure 2.3 showing that 26L TIG/WIZ use was 0% 2012 and 2013 and 08R SFD was being used for, on average, 4% of departures in 2012 and 9% of departures in 2013 [15].

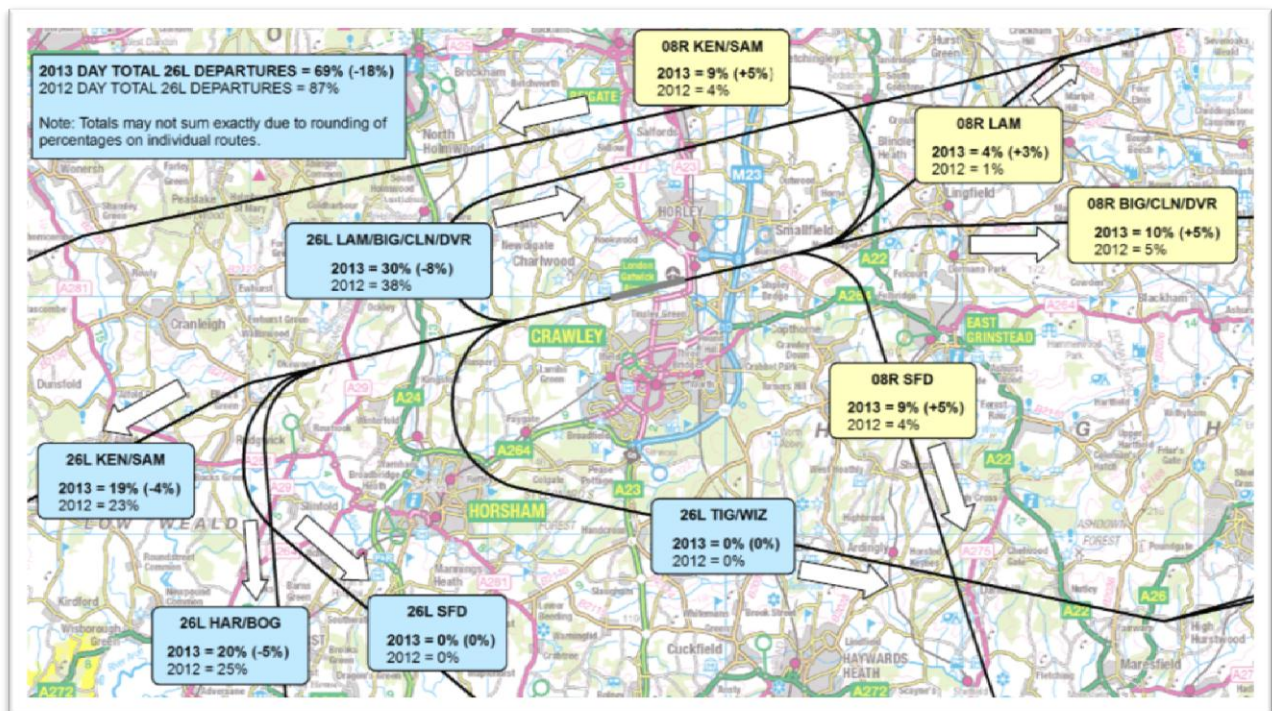


FIGURE 2.3 GATWICK AIRPORT DAY DEPARTURES SID TRAFFIC DISTRIBUTIONS IN 2012 AND 2013

2.2.4 Night departure flight usage of the SID flight paths over the MSDC area was also low with Figure 2.4 showing that 26LTIG/WIZ was being used 0% in 2013 and 08R SFD being used for 10% of night departures in 2013.

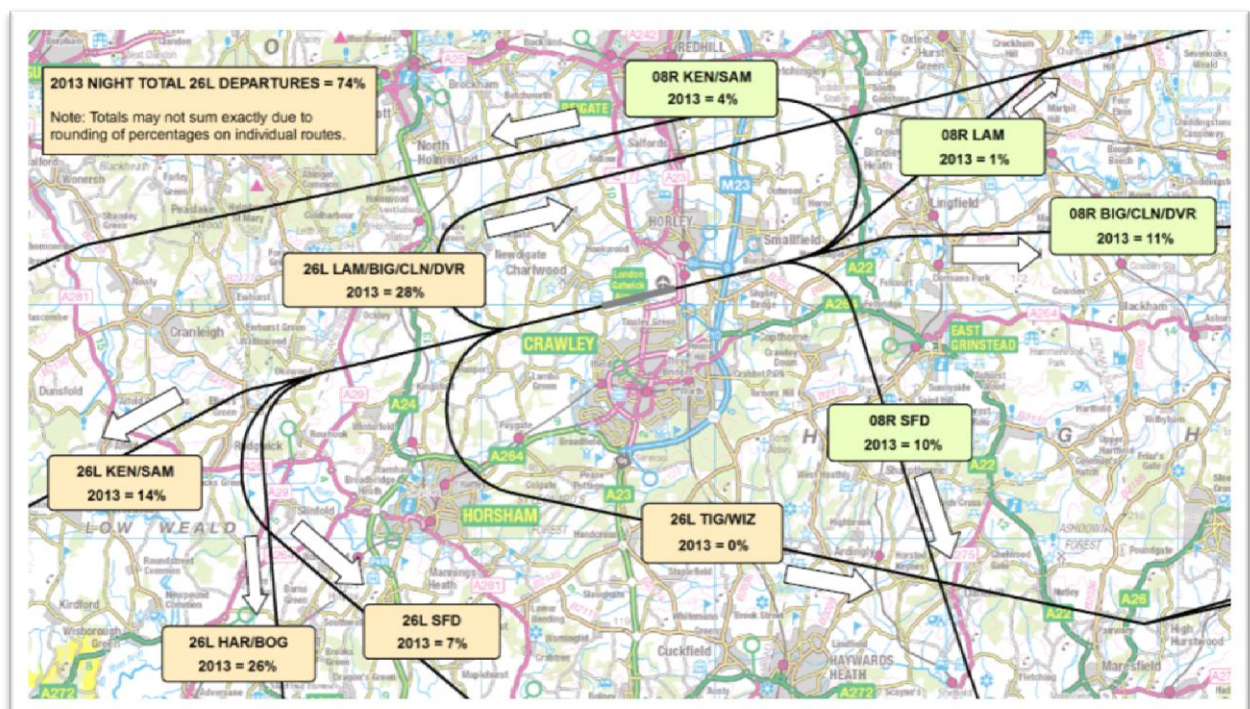


FIGURE 2.4 GATWICK NIGHT FLIGHT DEPARTURE SID TRAFFIC DISTRIBUTIONS IN 2013



- 2.2.5 The 08R SID departure route is the SID route that is most often used (typically under 10%) over the MSDC area and this route is used during easterly operation (when the wind is blowing from the east). The modal split between westerly and easterly operations cannot be predicted as it is dependent upon the direction the wind is blowing from. The historic modal split is shown below in Figure 2.5.
- 2.2.6 The location and number of noise sensitive receptors in the MSDC area in relation to the SID departure routes needs to be considered. The population count in the Gatwick Airport area in 2013 is shown below in Figure 2.6. From ERCD Report 1402 the following analysis can be made:
- MSDC does not fall within the $L_{Aeq,16hr}$ 57dB modelled contours for day actual modal split or standard modal split for 2013; and
 - MSDC does not fall within the $L_{Aeq,8hr}$ 48dB modelled contours for night actual modal split or standard modal split for 2013;
- 2.2.7 The Airports Commission consultation supporting information contains Figures for modelling of aircraft noise metrics for 2013 operations at Gatwick Airport from which the following analysis can be made:
- MSDC does not fall within the N70 contours;
 - MSDC does not fall within the N60 contours; and
 - MSDC does not fall within the L_{den} contours.
- 2.2.8 The north of the MSDC areas is near the arrivals path to 26L and complaints regarding aircraft noise have been received from residents of Copthorne. Copthorne is described in the Mid Sussex Local Plan [16] as a large village with a population of around 5,000 where aircraft noise levels, in particular at night, are a constraint on development.

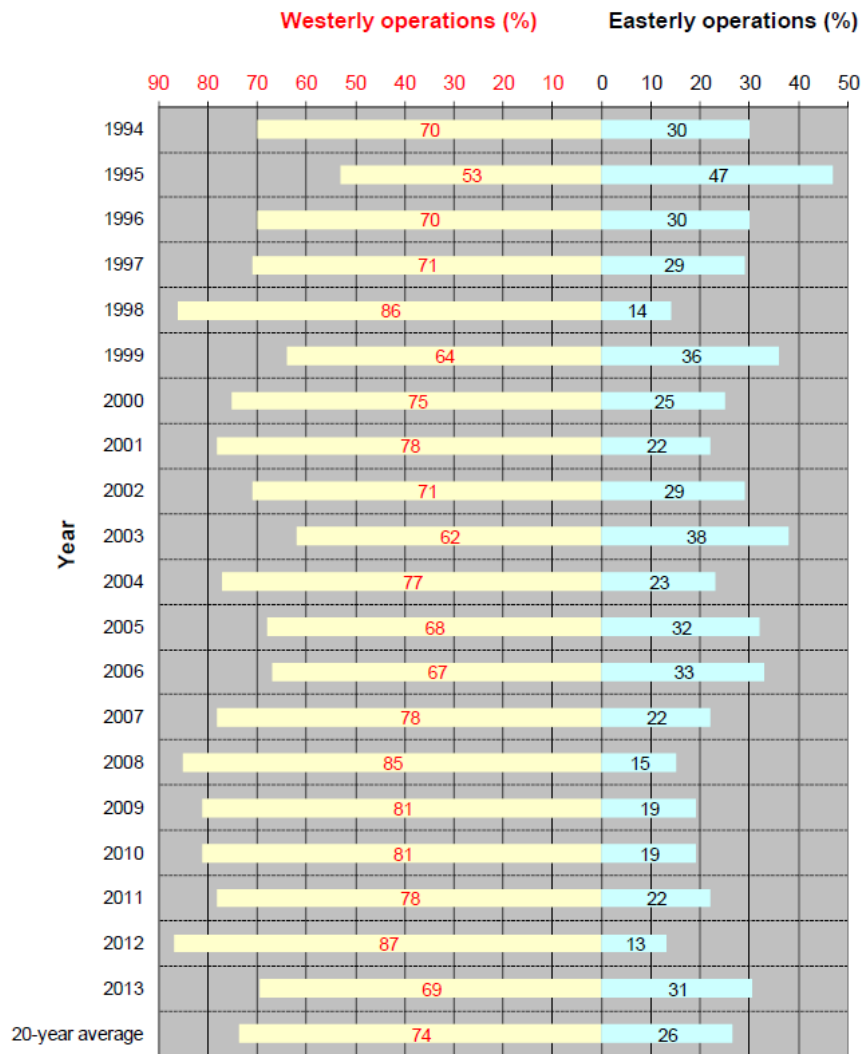


FIGURE 2.5 GATWICK MODAL SPLIT FOR AVERAGE SUMMER DAY

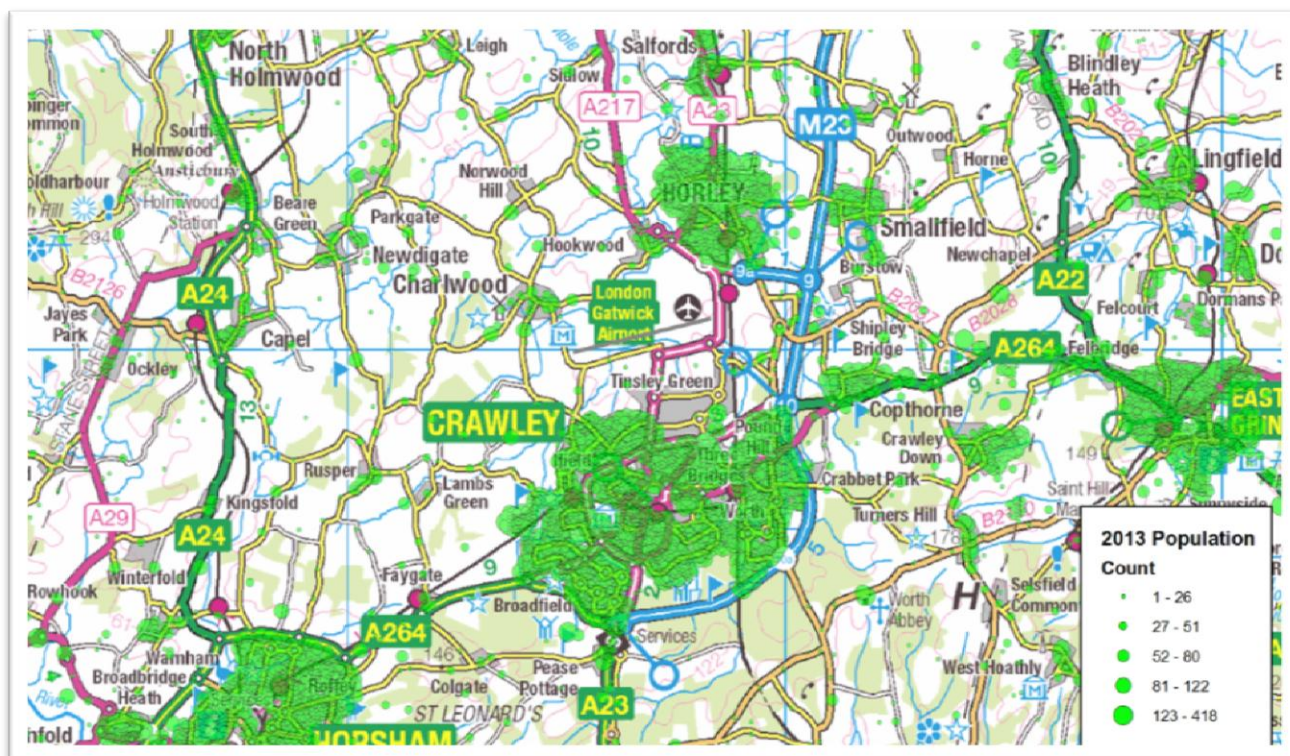


FIGURE 2.6 POPULATION DATA POINTS AROUND GATWICK AIRPORT



3. GATWICK AIRPORT COMMISSION PROPOSALS

3.1 Gatwick Airport 2R Scheme Overview

- 3.1.1 In the proposed Gatwick 2R scheme the additional runway would be located around 2km west of the Copthorne community that is part of the MSDC area.
- 3.1.2 The 2R scheme at Gatwick Airport proposes to increase ATMs up to 98 aircraft movements per hour and give a capacity for the airport to accommodate up to 560,000 ATMs.
- 3.1.3 The Do-Minimum option would have an increase of 27,399 ATMs between 2013 and 2030 to give a capacity of 277,919 ATMs.
- 3.1.4 The 2030 options have been chosen for analysis, in this review, as for the other scenarios there is a high degree of conjecture on the fleet mix and though the number of ATMs go up the predicted noise levels generally come down. As such the 2030 scenarios are considered the least subject to high levels of uncertainty.
- 3.1.5 The Airports Commission states that as a broad rule the population exposed to aircraft noise would approximately double for both day flights and night flights as a result of the proposed second runway.
- 3.1.6 The assessment of need has indicated and used in the modelling assumptions that for the 2030 Gatwick 2R-X option (carbon capped at 37.5 million tonnes) there would be 318,909 ATMs and for the Gatwick-2R-XC (carbon traded) option there would be 480,623 ATMs.
- 3.1.7 Two options have been assessed by the Airports Commission, the carbon capped ATM option Gatwick-2R-X and the carbon traded option Gatwick-2R-X-C. The changes to the population as a whole (not just MSDC area) are reproduced below in Table 3.1

Carbon capped (37.5 million tonnes) Gatwick-2R-X Option
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{Aeq,16hr} > 54dB$ contour would increase by around 9,600, from 8,000 to 17,600 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $N70 > 20$ events contour would more than quadruple, from 2,100 to 10,500 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{Aeq,8hr} > 48dB$ contour would roughly double, from 11,700 to 22,300 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $N60$ (night) > 25 events contour would increase by 7,700, from 11,800 to



19,500 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{DEN} > 55\text{dB}$ contour would increase by 12,700, from 9,400 to 22,100 in the 2030 scenario
Carbon Traded Gatwick-2R-X-C Option
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{Aeq,16hr} > 54\text{dB}$ contour would increase by around 22,900, from 8,000 to 30,900 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $N70 > 20$ events contour would increase by more than seven times, from 2,100 to 15,400 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{Aeq,8hr} > 48\text{dB}$ contour would roughly double, from 11,700 to 24,500 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $N60$ (night) > 25 events contour would increase by 8,600, from 11,800 to 20,400 in the 2030 scenario
Between the Do-Minimum and Do-Something scenarios the number of people within the $L_{DEN} > 55\text{dB}$ contour would increase by 25,100, from 9,400 to 34,500 in the 2030 scenario

TABLE 3.1 GATWICK 2ND RUNWAY AIRPORTS COMMISSION PREDICTED IMPACTS FOR 2030

- 3.1.8 The Airports Commission has stated that in relation to the objective of minimising noise impact and where possible reducing impacts that the Gatwick Second Runway will have an adverse impact.
- 3.1.9 When flight path improvements, mitigation and compensation are considered the schemes impacts could be sufficiently mitigated so as to be considered neutral. Nevertheless the Airports Commission does not consider this likely.
- 3.1.10 Gatwick Airport Limited has proposed an extended noise compensation scheme covering all households within the $L_{Aeq,16hr} 57 \text{ dB}$ contour that would entitle them to annual compensation equivalent to Band A Council Tax (£1,000).



- 3.1.11 Gatwick Airport Limited has also proposed that night flights could be grouped on the current runway to prevent impact on the population centre of Crawley, to the south. This would also help protect the MSDC community of Copthorne.



4. AIRPORTS COMMISSION NOISE ASSESSMENT

4.1 Overview of Assessment Methodology Used and Noise Metrics

4.1.1 The Consultation provides an overview of the scheme and details that one of the objectives is that of the Aviation Policy Framework to “minimise and where possible reduce noise impacts” and identifies that the Commission is not looking at airport expansion in isolation but will consider interaction with the transport network and with broader policies (including noise).

4.1.2 The Consultation document details that a single metric would be unlikely to provide a rounded view of the potential impacts of the options and that a ‘noise scorecard’ with a range of noise metrics is being used. The noise scorecard is shown below in Table 4.1 and includes a range of average and frequency (number of events) metrics including:

- Day (Average $L_{Aeq,16hr}$ and ‘Number above’ N70 contour);
- Night (Average $L_{Aeq,8hr}$ and ‘Number above’ N60 contour);
- 24 hours (L_{den});

Period	Average measure		Frequency measure (based on number above contour)
	UK Measure	EU Measure	
Day	54-72 L_{Aeq16h} in 3dB increments		‘Number above’ N70 contour
Night	48-72 L_{Aeq8h} in 3dB increments		‘Number above’ N60 contour
24-hour		55 L_{den}	

TABLE 4.1 AIRPORT COMMISSION NOISE SCORECARD

4.1.3 The noise metrics used in the assessment of the Gatwick Airport Second Runway are single event metrics, exposure metrics and supplementary metrics are detailed below in Table 4.2.

Noise Metric	Description
$L_{AS,max}$	The sound pressure level of the A-weighted maximum noise level during an event, with a slow time-response (1s).
$L_{Aeq,T}$	The A-weighted sound pressure level if the sound was a continuous steady state.
$L_{Aeq,16hr}$	The A-weighted equivalent continuous noise level, assessed over an average summertime daytime / evening period (07.00-23.00).
$L_{Aeq,8hr}$	The A-weighted equivalent continuous noise level, assessed over an average



	summertime night period (23.00-07.00).
L_{night}	The A-weighted equivalent continuous noise level, assessed over an annual average night period (23.00-07.00).
L_{den}	The A-weighted equivalent continuous noise level, evaluated over an annual average 24 hour period, with a 10 dB penalty added to the levels at night (23.00-07.00) and a 5 dB penalty added to the levels in the evening (19.00-23.00) which is to reflect people's increased sensitivity to noise during these periods.
N70	The number of times the $L_{AS,max}$ 70dB threshold level is exceeded on an average day.
N60	The number of times the $L_{AS,max}$ 60dB threshold level is exceeded on an average night.

TABLE 4.2 NOISE METRICS USED IN THE CONSULTATION

4.1.4 The noise metrics calculated were:

- $L_{Aeq,16h}$ noise contours from 54 dB to 72 dB, in 3 dB intervals;
- $L_{Aeq,8h}$ noise contours from 48 dB to 72 dB, in 3 dB intervals;
- L_{den} noise contours from 55 dB to 75 dB, in 5 dB;
- intervals;
- N70 (16-hour average day) contours (>20 to >500); and
- N60 (8-hour average night) contours (>25 to >500).

4.1.5 The noise predictions are based on the following input data:

- Number of ATMs and fleet mix;
- Flight paths, threshold displacements, approach path, take-off power and climb rates;
- Allocation of ATMS to runways and flight paths;
- Runway split assumptions; and
- Population data.

4.1.6 The Commission have used demand forecast with a carbon-cap as a 'rough lower end case' and a 'top end case' to assess future noise impacts. These scenarios have been used to calculate the number of air transport movements (ATMs) and the fleet mix by the Civil Aviation Authority's (CAA) Environmental Research and Consultancy Department (ERCD) to develop noise contours for each option. The flight paths are shown in Figure 4.1. It is important to note that these flight paths are indicative and a further consultation would be taken on the location of the actual flight paths.



4.2 Do- Minimum

- 4.2.1 Jacobs U.K. Limited, on behalf of the Airports Commission, has presented baseline noise modelling, undertaken by ERCD, defined as the 'Do-Minimum' development option. Baselines have been produced for the base year (2030), intermediate year (2040) and end year (2050).
- 4.2.2 It is forecast that the annual ATMs at Gatwick Airport will increase by 14% from 250,520 in 2013 to 285,420 in 2050 and in the absence of any other changes this would lead to an increase in noise exposure at receptors of 0.6 dB (A). Nevertheless it has been assumed in the baseline report that there will be significant changes and modernisation in the aircraft operating to and from Gatwick. For the 2030 Do-Minimum assessment year the assessment of need indicates 277,919 ATMs.
- 4.2.3 Without the proposed second runway at Gatwick there would be reductions in the daytime noise metrics if the improvements to aircraft technology assumed in the baseline assessment are implemented.
- 4.2.4 The night noise metrics indicate the number of people exposed to 50 or more events exceeding $L_{AS,Max}$ 60dB during the night will increase 4,900 to 7,200 from westerly take offs at night during the aviation 'shoulder periods' of 23:00-23:30 and 06:00 -07:00, during the night.
- 4.2.5 The effect of population growth in the area is significant and is forecast to result in a 19% increase in assessed population, from 2013 to 2050, in the $L_{Aeq,16hr}$ 54dB contour (if the noise impact were to remain constant over the period).
- 4.2.6 For the 2030 Do-Minimum assessment by the Airports Commission the population in the $L_{Aeq,16hr}$ 54dB contour is predicted to decrease by 1,700 as a result of improvements in aircraft noise performance from "Imminent" design aircraft.

4.3 Gatwick 2nd Runway

- 4.3.1 Jacobs U.K. Limited, on behalf of the Airports Commission, has presented modal split noise modelling of the 2nd runway proposal, undertaken by ERCD, defined as the 'Gatwick-2R-X' and Gatwick-2R-X-C (carbon capped) options. Aircraft noise contours for both options have been produced for the base year (2030), intermediate year (2040) and end year (2050).
- 4.3.2 The noise impact on all locations is not considered further in this review and this review only considers potential impacts on the MSDC area unless otherwise stated for population assessments, which are not itemised by area.

4.4 Mid Sussex District Council Noise Impact

- 4.4.1 For the Do-Minimum option no community of MSDC is within the 2030 $L_{Aeq,16hr}$, N70, $L_{Aeq,8hr}$, L_{den} or N60 contours.
- 4.4.2 As part of proposed Gatwick 2R schemes MSDC is to be overflowed by additional (un-named) routes. These routes are shown in Figure 4.1. MSDC would be overflowed by an easterly departure route which diverges over the MSDC area (blue line) and the community at Copthorne would be around 750m south of the arrivals path to the southern runway.

4.4.3 The study area only includes the settlement of Copthorne in the MSDC area and the area north of Crawley Down and has not considered other areas within the MSDC area that would be under a flight path. The study area is defined by the red line shown in Figure 4.2 and is derived from the maximum extent of the Do-Minimum and Do-Nothing modal split noise contours.

4.4.4 For the Do-Something Gatwick-2R proposals part of the settlement of Copthorne is within the $L_{Aeq,16hr}$ 54 and 57 dB contours, $L_{Aeq,8hr}$ 48 and 51dB contours, N70 20 and 50 contours, N60 25 contour and L_{den} 55 dB contour. These contours are shown in Figures 4.3 -4.7.

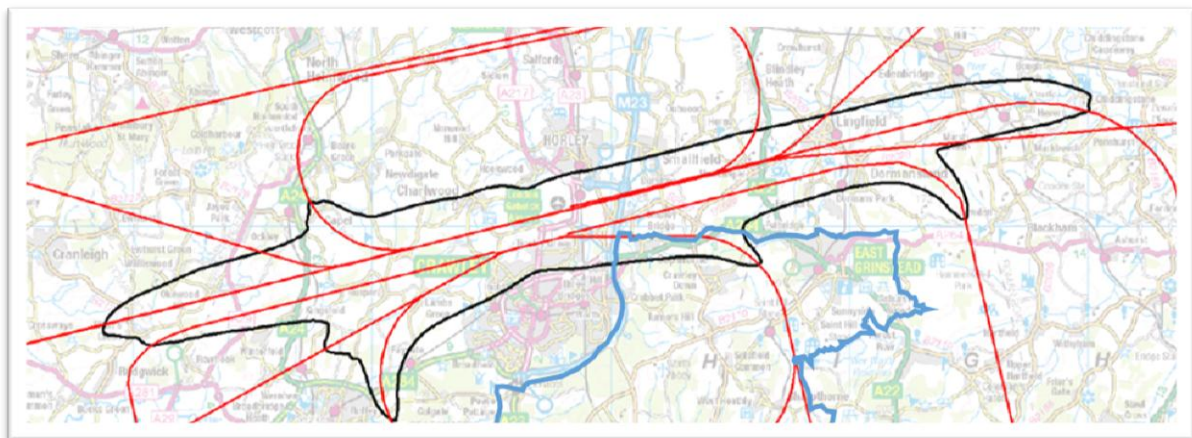


FIGURE 4.1 INDICATIVE PROPOSED FLIGHT PATHS FOR GATWICK 2R PROPOSAL

4.4.5 MSDC contains rural areas and tranquil areas of tranquillity (including in the High Weald AONB and the South Downs National Park) that are not currently overflown. The second runway proposal will lead to some of these areas being overflown and when the relatively low ambient noise levels in the MSDC area are considered it is likely that there will be a significant noise impacts and adverse effects. It is also considered increased exposure to aircraft noise leading to potential health effects and annoyance which may in turn lead to complaints regarding aircraft noise relating to the second runway proposal will be received, if the proposal goes ahead.

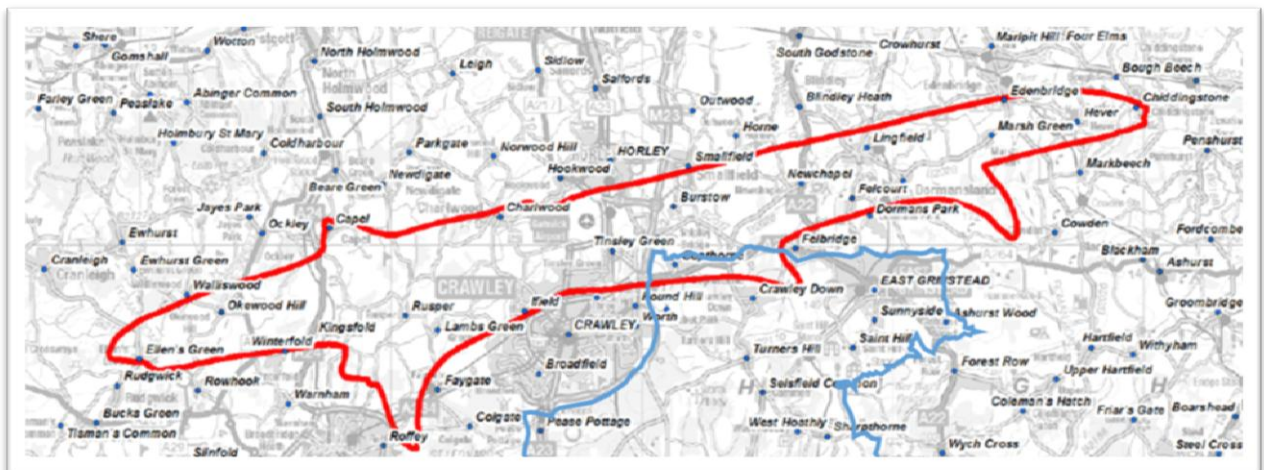


FIGURE 4.2 AIRPORT COMMISSION GATWICK AIRPORT STUDY AREA

4.4.6 The settlement of Copthorne is the only settlement in the MSDC area, in the local assessment, that is within the study area. No itemisation of the individual community noise sensitive receptors is given in the local assessment.

4.4.7 The air noise appendix accompanying the submission by Gatwick Airport does detail the noise sensitive community receptors with the study area. The following noise sensitive community receptors are identified within MSDC:

- Copthorne C of E Junior School (RH10 3HR);
- Copthorne Preparatory School (RH10 3HR);
- Peter Bunny Nursery School (RH10 3EX);
- The Coach House Nursery (RH10 3HR);
- Peter Pan Playgroup (RH10 3RE);
- Jack and Jill Pre School (RH10 3QX);
- St John the Evangelist's C of E Church (RH10 3RD); and
- Copthorne Chapel (RH10 3ET).

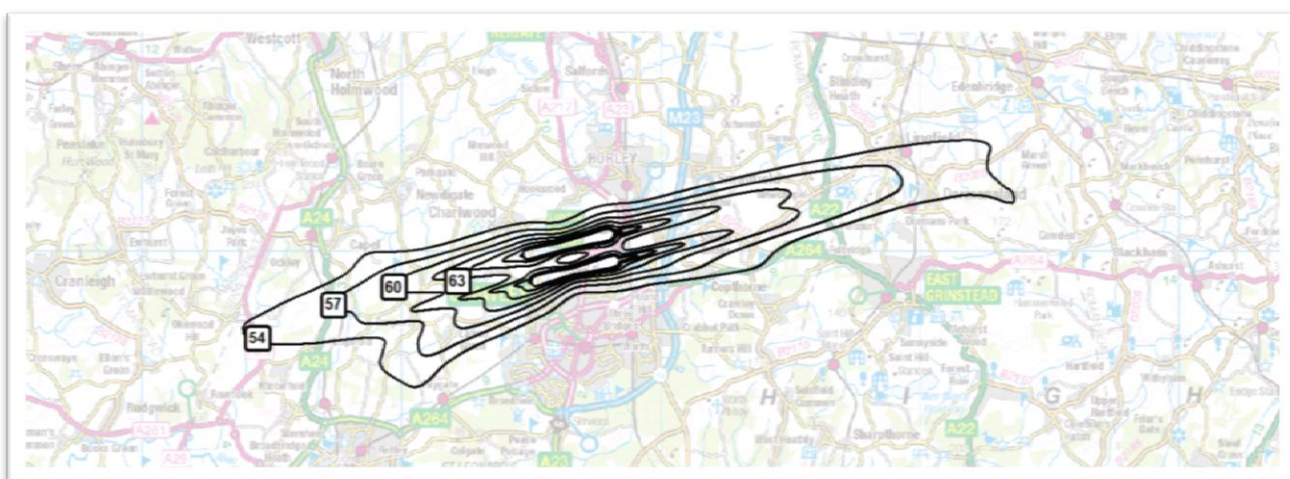


FIGURE 4.3 2050 GATWICK-2R-X $L_{AEQ,16HR}$ CONTOURS

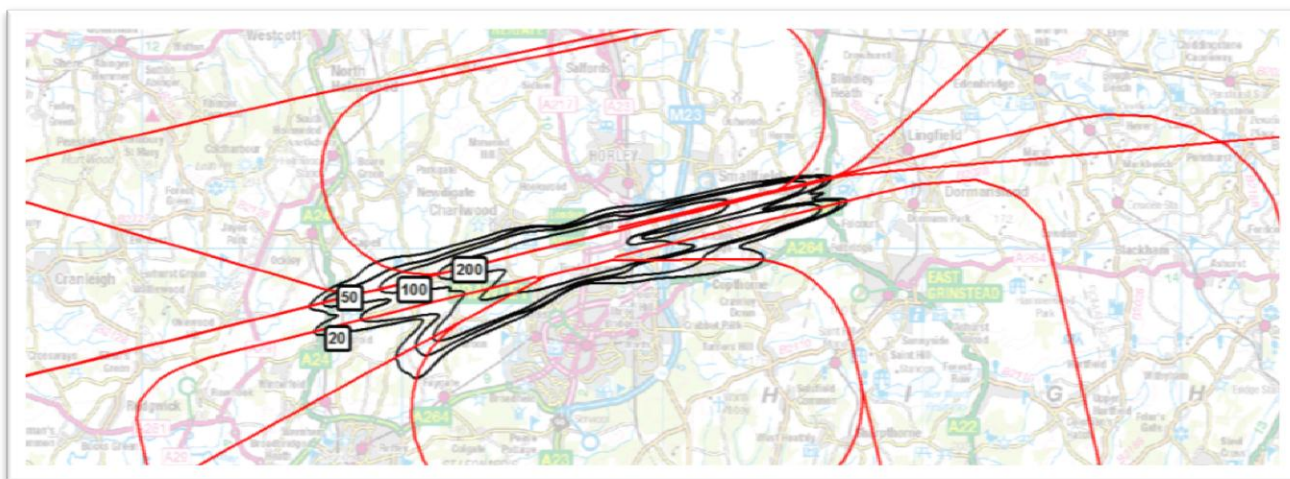


FIGURE 4.4 2030 GATWICK-2R-X N70 CONTOURS AND ROUTES

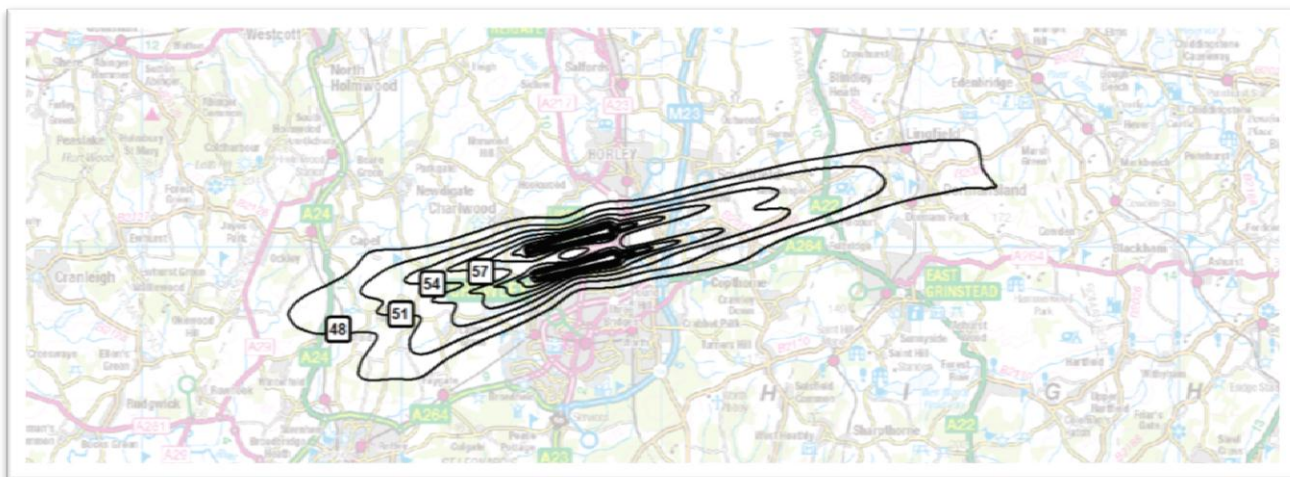


FIGURE 4.5 2030 GATWICK-2R-X LAeq,8hr CONTOUR

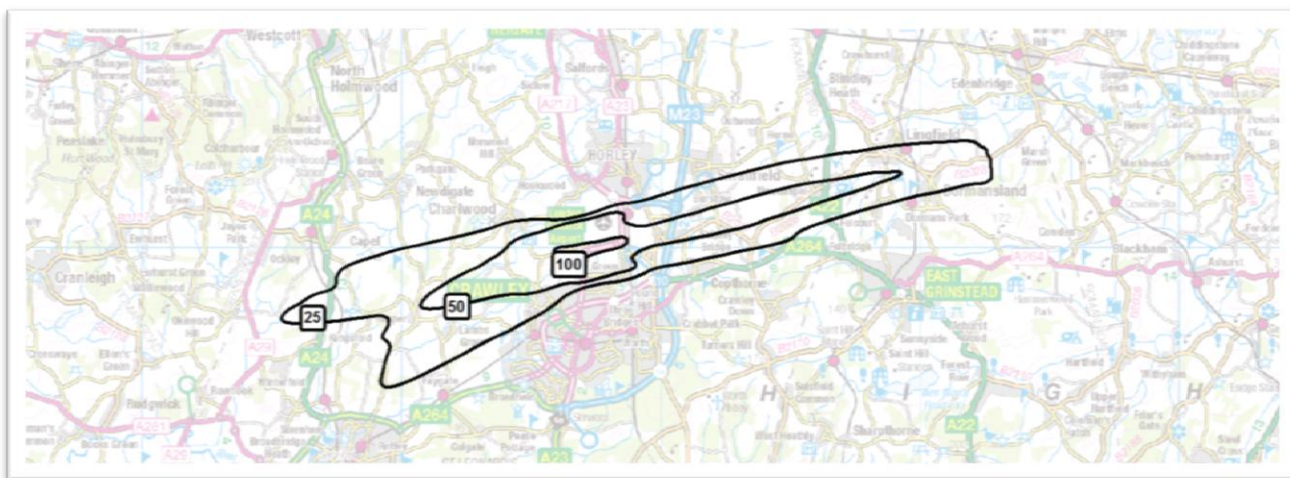


FIGURE 4.6 2050 GATWICK-2R-X N60 CONTOURS

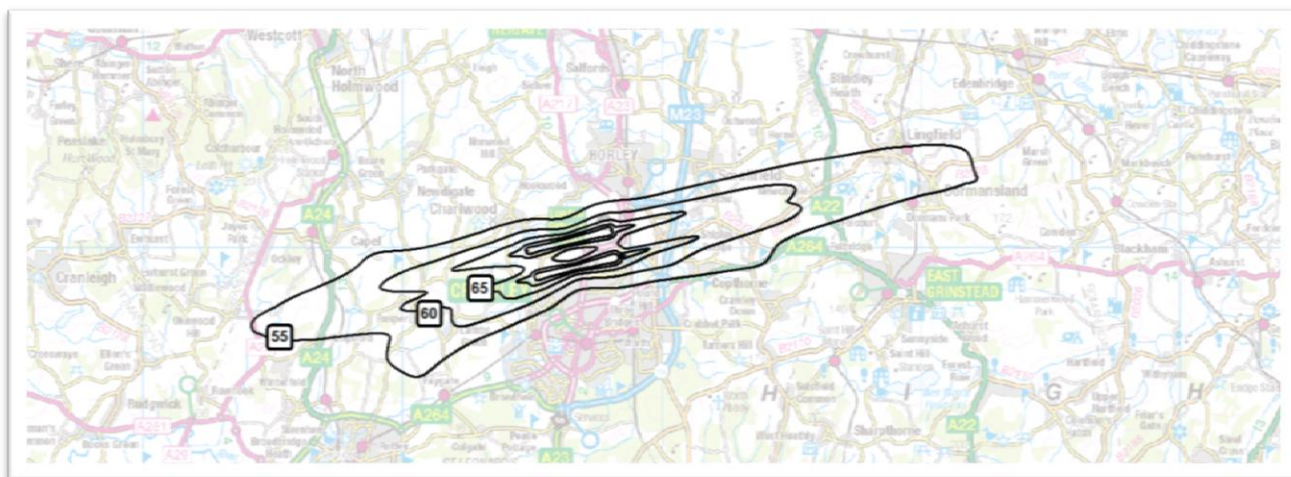


FIGURE 4.7 2030 GATWICK 2R-X L_{DEN} CONTOURS



5. COMMENTARY AND DISCUSSION

5.1 Introduction

- 5.1.1 This section presents a discussion on the methodology and findings of the Airport Commission's noise assessments and their impact on the MSDC area.

5.2 Modal Split

- 5.2.1 The Airports Commission consultation has used modal split contours that average out the aircraft noise levels that would be experienced when the airport is operating normally i.e. on easterly or westerly operations, with the aircraft taking off into the wind direction.
- 5.2.2 When easterly or westerly operation contours are used the total contour footprint is greater in extent and more accurately represents the noise exposure of communities exposed to aircraft noise during actual operations (i.e. easterly or westerly operations) rather than a notional average of the two operating modes.
- 5.2.3 The easterly and westerly operation contours are produced as part of the production of the modal split contours and to not include them as part of the consultation does not allow the community to have an indication of what the noise levels will be on a particular day when the airport is operating normally.
- 5.2.4 As such the modal average contours in the consultation at best can be considered as understating the potential aircraft noise exposure or impact. At worst it could be considered as misleading, in particular for communities that would be affected during easterly operations as the 25% easterly standard modal split will average down the contour area foot print substantially and not give an accurate indication of the noise impact on communities near the easterly flight paths.

5.3 Noise Metrics Used

- 5.3.1 $L_{Aeq,16hr}$ 57dB has been used in the Airports Commission Consultation to define the onset of significant community annoyance. The Commission's discussion paper on aircraft noise considers that focussing on the $L_{Aeq,16hr}$ 57 dB contour does not adequately represent the adverse effects felt by communities around airports and that adverse effects can be experienced outside these contours and that airports can produce contours lower than 57dB and explore alternative metrics.
- 5.3.2 WHO guidelines on community noise [17] consider that the onset of serious annoyance occurs at $L_{Aeq,16hr}$ 55dB and moderate annoyance at $L_{Aeq,16hr}$ 50dB, as shown below in Table 5.1. It may therefore be considered more appropriate to use the $L_{Aeq,16hr}$ 54dB contour to mark the onset of significant community annoyance, especially when considered with the tonal, episodic and intrusive characteristics of aircraft noise, likely quiet ambient noise levels in areas that are not currently under flight paths and other factors which indicate a greater degree of annoyance from aircraft noise compared to other transportation noise sources. Robust evidence would need to be prepared to support a case to challenge the use of the 57 dB contour however.
- 5.3.3 The findings of the attitudes to noise from aviation sources in England (ANASE) study [18] and a recent review of the findings [19] indicate that $L_{Aeq,16hr}$ 57dB is not an accurate indicator of the onset of significant community annoyance with aircraft



noise. These studies indicate the onset of significant community annoyance is below $L_{Aeq,16hr}$ 57dB and other events based metrics should be used as well. This view is supported by the Civil Aviation Authority, in their consultation response [20] on the Aviation Policy Framework [21], who consider that “*Despite the concerns raised by peer reviewers regarding the overall robustness of the study, the CAA considers that results from the pilot study support the adoption of a lower level for the approximate onset of significant annoyance, around 54dB $L_{eq,16h}$* ”.

Specific environment	Critical health effect(s)	L_{Aeq} [dB]	Time base [hours]	$L_{Amax, fast}$ [dB]
Outdoor living area	Serious annoyance, daytime and evening Moderate annoyance, daytime and evening	55 50	16 16	- -
Dwelling, indoors	Speech intelligibility and moderate annoyance, daytime and evening	35	16	
Inside bedrooms	Sleep disturbance, night-time	30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60
School class rooms and pre-schools, indoors	Speech intelligibility, disturbance of information extraction, message communication	35	during class	-
Pre-school Bedrooms, indoors	Sleep disturbance	30	sleeping -time	45
School, playground outdoor	Annoyance (external source)	55	during play	-
Hospital, ward rooms, indoors	Sleep disturbance, night-time Sleep disturbance, daytime and evenings	30 30	8 16	40 -
Hospitals, treatment rooms, indoors	Interference with rest and recovery	#1		

TABLE 5.1 CRITERIA FOR HEALTH EFFECTS IN WHO COMMUNITY GUIDELINES FOR NOISE

- 5.3.4 The Airports Commission consultation includes plots of the $L_{Aeq,16hr}$ 54dB contour and an assessment of the number of households and population within the contour band but does not give a breakdown of the location of these receptors by community or local authority area. It is noted those households within the $L_{Aeq,16hr}$ 54dB contour will not be offered a mitigation package under the mitigation proposed by Gatwick Airport.
- 5.3.5 $L_{Aeq,8hr}$ contours have been supplied for the night period but the use of these contours may not give a robust indication for potential impact of biological effects, sleep quality, well-being and medical conditions.
- 5.3.6 The WHO Night Noise Guidelines [22] recommend the use of $L_{Amax,inside}$ and $L_{night,outside}$ to assess the impacts of night noise on various effects, detailed below in Table 5.2. Neither of these metrics has been used in the Airports Commission consultation.
- 5.3.7 The WHO guidelines set a Night Noise Guidance (NNG) level of $L_{night,outside}$ of 40dB as a long-term aim and an Interim Target (IT) of $L_{night,outside}$ 55dB for the protection of public health. As $L_{night,outside}$ (a façade metric) can be considered broadly as the annual $L_{Aeq,8hr}$ contours the modelled $L_{Aeq,8hr}$ 48dB (free-field) contour would be 8-10.5 (up to 2.5dB façade correction) dB above the WHO long-term NNG value and therefore the consultation has not considered the NNG value and the extent of the noise effects from airport operations during the night period.



- 5.3.8 The IT value falls between the $L_{Aeq,8hr}$ 51 and 57dB contours. The guidance states that above $L_{Aeq,8hr}$ 55dB adverse health effects occur frequently and a sizeable proportion of the population is highly annoyed and sleep disturbed and there is evidence of the increased risk of cardio-vascular disease.
- 5.3.9 The WHO states that the “interim target (IT) of 55 dB $L_{night,outside}$ is recommended in the situations where the achievement of NNG is not feasible in the short term for various reasons. It should be emphasized that IT is not a health-based limit value by itself. Vulnerable groups cannot be protected at this level. Therefore, IT should be considered only as a feasibility-based intermediate target which can be temporarily considered by policy-makers for exceptional local situations.”
- 5.3.10 Other criteria for sleep disturbance and health effects at night are detailed below in Table 5.2.
- 5.3.11 BS8233 [23] gives recommended design noise levels for various types of building and activities. Noise criteria include $L_{Aeq,8hr}$ 30 dB for the period 23:00-07:00 and recommends the use of SEL or $L_{AF,max}$ levels to assess individual noise events and use of the WHO guideline levels for sporadic noise events. BS8233 considers that the sound attenuation from a partially open window is 15dB. With an older property with single glazing or a wider open window the sound attention may be as low as 10dB.
- 5.3.12 With 15dB sound attenuation from a partially open window the modelled $L_{Aeq,8hr}$ 48 dB external contour will not show if the BS8233 $L_{Aeq,8hr}$ 30dB inside sleeping area criterion, to avoid sleep disturbance, is being exceeded for areas outside the modelled $L_{Aeq,8hr}$ 48 dB contour.

Effect	Indicator	Threshold, dB
Biological effects	Change in cardiovascular activity	*
	EEG awakening	$L_{Amax,inside}$ 35
	Motility, onset of motility	$L_{Amax,inside}$ 32
	Changes in duration of various stages of sleep, in sleep structure and fragmentation of sleep	$L_{Amax,inside}$ 35
Sleep quality	Waking up in the night and/or too early in the morning	$L_{Amax,inside}$ 42
	Prolongation of the sleep inception period, difficulty getting to sleep	*
	Sleep fragmentation, reduced sleeping time	*
	Increased average motility when sleeping	$L_{night,outside}$ 42
Well-being	Self-reported sleep disturbance	$L_{night,outside}$ 42
	Use of somnifacient drugs and sedatives	$L_{night,outside}$ 40
Medical conditions	Environmental insomnia**	$L_{night,outside}$ 42



TABLE 5.2 SUMMARY OF EFFECTS AND THRESHOLD LEVELS FOR NOISE EFFECTS AT NIGHT

- 5.3.13 N70 is a metric used to give an indication of the number of noise events above $L_{AS,max}$ 70dB and is used with the $L_{Aeq,16hr}$ metric.
- 5.3.14 N60 is a metric used in to assess the night time noise impact by modelling the number of events above $L_{AS,Max}$ 60dB at night. The 60 dB value was chosen as it equates to the sleep disturbance level of 50dB in AS2021 [24], an Australian Standard relating to aircraft noise intrusion in relation to building location and construction. This standard states clearly in the foreword it is applicable to communities which are accustomed to aircraft noise and is not applicable to communities which are newly-exposed to aircraft noise as a result of construction of new runways or the redesign of flight paths. The appropriateness of this standard is therefore questionable when applied to proposals for new runways and flight paths.
- 5.3.15 $L_{AS,max}$ 60dB external would be roughly equivalent to $L_{AS,max}$ 45dB internal if sound attenuation for a partially open window is considered as 15dB. It is noted the Airports Commission has modelled $L_{AS,Max}$ (slow time weighting) whereas the WHO and other guidelines recommend using fast weighting. As a rule of thumb aircraft noise $L_{AS,Max}$ levels are around 3dB lower than $L_{AF,Max}$ levels. Use of the $L_{AS,Max}$ levels for the contours may therefore be considered to have the effect of lowering the contour values by 3dB.
- 5.3.16 The N60 contours start at 25 events and it is noted that onset sleep disturbance will occur below this level and as such is recommended the contours start at 10-15 events for the onset of sleep disturbance to correlate with WHO guidelines for number events considered to cause sleep disturbance.
- 5.3.17 L_{DEN} contours are not considered further in this review.

5.4 Noise Insulation and Mitigation

- 5.4.1 Noise mitigation is proposed by Gatwick Airport in the form of compensation to the equivalent of Council Tax Band A (£1,000) for dwellings with the $L_{Aeq,16hr}$ 57dB contour. The modal split for this contour is not stated. Part of Copthorne is within the $L_{Aeq,16hr}$ 57dB contour for the Gatwick-2R-X-C option.
- 5.4.2 The Airports Commission consultation states "*Planning applications for noise sensitive development submitted to neighbouring planning authorities should account for the second runway's noise contours*". This may require changes to MSDC planning policy. It is also noted that the notional contours in the consultation are likely to underestimate the noise environment as result of the averaging down by the modal split of the contours, in particular in MSDC which is under the proposed flight paths during easterly operations.
- 5.4.3 Development of new noise preferential routes using Precision Area Navigation (P-RNAV) capabilities and increased stakeholder engagement issues is considered part of the mitigation. It is considered likely that these routes will be optimised to avoid population centres, though it is noted the community at Copthorne is directly beneath some of the departure routes.



5.5 Aviation Policy

- 5.5.1 The Aviation Policy Framework states the Government's aim 'to limit and where possible reduce the number of people in the UK significantly affected by aircraft noise'. The Gatwick 2nd runway proposal is contrary to this and will increase the number of people exposed to aircraft noise and introduce noise sensitive receptors and areas that were not previously exposed to aircraft noise, to aircraft noise.

5.6 Mixed Mode and Alternation

- 5.6.1 The Gatwick 2nd runway proposals are for aircraft to take off and land from both runways at the same time. This procedure is known as mixed mode and means that there will be no respite for communities from noise during operation hours of the airport.
- 5.6.2 Heathrow currently runs an operation procedure called segregated mode where one runway is used for arrivals and one runway for departures. The use of the runways is then switched over at 15:00 hrs to give respite to the communities in the area so they are not overflowed all day.
- 5.6.3 BAA, who operate Heathrow, has made requests to use mixed mode at Heathrow but planning consent has not been applied for by BAA, following the Labour Government retraction of the Cranford Agreement in 2010, on the basis of the noise impact and number complaints following new mixed mode flight paths being tested in 2014. During the 5 month trial 86,000 noise complaints were received compared to 18,826 for normal operations in 2013.

5.7 P-RNAV

- 5.7.1 Precision Area Navigation (P-RNAV) is a procedure where the aircraft's flight management system navigates the aircraft and requires that an aircraft is capable of track-keeping accuracy for 95% of its flight time. The CAA plans to phase in P-RNAV gradually so as to make the noise impact of the focusing of the routes less sudden and allow an on-going review process for assessment of noise and other impacts.
- 5.7.2 P-RNAV will have the effect of resulting in a narrow swathe of flight departure tracks with the aim of avoidance of population centres where feasible.
- 5.7.3 Gatwick has run a trial of operation of RNAV Standard Instrument Departure (SID) over several years and the consultations on this have revealed that when this procedure is operational the flights using 08R SFD route are slightly closer to East Grinstead than using the standard SID.
- 5.7.4 The effect of the use of P-RNAV will be to limit the swathe of noise sensitive receptors that are overflowed, though the areas beneath the P-RNAV routes will be subjected to aircraft noise with less respite to noise from variation in the route.
- 5.7.5 An indication of the narrowing of the swathe with use of P-RNAV compared to standard departures is shown in Figure 5.1 below:



FIGURE 5.1 ILLUSTRATION OF STANDARD DEPARTURE ROUTE (LEFT IMAGE) AND P-RNAV DEPARTURE ROUTE (RIGHT IMAGE) SWATHE WIDTH.

- 5.7.6 MSDC may wish to consider further the potential impact of the narrow P-RNAV swathes proposed as there are communities in MSDC that are under the indicative P-RNAV routes for the Gatwick Airport 2R proposals.

5.8 Schools

- 5.8.1 The Airports Commission Consultation has considered schools within study area and considered them against the modal split $L_{Aeq, 16 \text{ hr}}$ contours.
- 5.8.2 Building Bulletin 93 [25] defines the acoustic standards for new schools and recommendations for existing schools. The guidance considers low ambient noise levels are required, in particular for Special Educational Needs and Disability (SEND) children having hearing or communication needs including visual impairments, hearing loss or auditory processing difficulty, attention deficit hyperactivity disorders (ADHD) and autistic spectrum disorders.
- 5.8.3 Pupils with hearing impairment, autism and other special needs are often very sensitive to specific types of noise, particularly those with strong tonal, impulsive or intermittent characteristics (such as aircraft noise). The document states that this should be taken into consideration in the design of areas which may be used by such children.
- 5.8.4 The Equality Act 2010 [26] places a duty on schools and local authorities to provide strategies and plans for improving the accessibility of schools for disabled pupils and staff including acoustic improvements to the internal and acoustic environments which would benefit hearing impaired and other pupils. MSDC's duty under this act may place additional burden on MSDC and their schools as they may be required to mitigate and improve the acoustic environment that has been degraded by aircraft noise if the Gatwick 2R proposal is selected.
- 5.8.5 BB93 gives performance standards for indoor ambient noise levels for new build school rooms and refurbishment of spaces. These standards are given as $L_{Aeq,30mins}$, not $L_{Aeq,16hr}$, in order to limit the potential disruption from noise that could occur during a lesson. The upper limits for indoor ambient noise are shown below in Table 5.3.
- 5.8.6 WHO guidelines and BB93 also indicate $L_{Aeq,during \text{ play}}$ is 55dB in school playgrounds to avoid annoyance and BB93 also recommends that at least one area suitable for outdoor teaching activities is below $L_{Aeq,30mins}$ 50 dB.



Type of Room	Room classification for the purpose of airborne sound insulation		Upper Limit for the indoor ambient noise level $L_{Aeq,30mins}$ dB
	Activity Noise (Source room)	Noise tolerance (Receiving room)	
Nursery School Rooms	Average	Medium	35 [40]
Primary school: classrooms, class bases, general teaching areas, small group rooms	Average	Medium	35 [40]
Primary music room	High	Medium	35 [40]
Secondary music classroom	Very high	Low	35 [40]
Small and large practice/group room	Very high	Low	35 [40]
Teaching spaces specifically for students with Special Educational Needs	Average	Low	30 [35]
SEN Calming Room	High	Low	35 [35]
Quiet study areas	Low	Medium	40 [45]
Resource areas	Average	Medium	40 [45]
Assembly halls, multi-purpose halls	High	Low	35 [40]
Atria, circulation spaces used for circulation and socialising but not teaching	Average	Medium	45 [50]
Dining rooms	High	Medium	45 [50]

TABLE 5.3 UPPER LIMITS FOR INDOOR AMBIENT NOISE LEVEL $L_{Aeq,30mins}$

[1] – Values in parentheses are for conversion and refurbishment, those in non-parentheses are for new build

5.8.7 The modal split contours do not reflect the noise environment when the airport is operating on easterly or westerly operations and as such schools outside of the study area may suffer adverse noise impacts that have not been considered as part of the Airport Commission Consultation.

5.8.8 In order for an informed indication on the potential impact of the Gatwick 2nd runway proposal $L_{Aeq,30mins}$ contours for both worst case easterly and westerly proposed operations will need to be produced. These should form part of the Airport Commissions consultation. Without these $L_{Aeq,30mins}$ contours for easterly and westerly operations consultees cannot make an informed consideration of the potential noise impact on schools.

5.9 Fleet mix assumptions

5.9.1 The noise modelling relies on the use of a forecast fleet mix for the Do-Minimum and Gatwick 2nd runway options. The fleet mix assumptions were updated in an addendum to the noise assessment in the interests of transparency of the



assessment. The fleet mix used will strongly influence the modelled noise levels and caution should be applied when projecting fleet mixes to avoid underestimating the potential noise impact. The fleet mix uncertainty may make the 2040 and 2050 modelled contours less robust and a sensitivity test should be applied to these fleet mix projections and contours modelled from them.

5.10 Quiet Areas and Tranquillity

- 5.10.1 The impact on quiet areas and tranquillity has not been considered as part of the Airports Commission assessments.
- 5.10.2 European and government policy calls for quiet areas and areas of tranquillity to be protected and improved whereas with the proposal there will be noise impacts on the High Weald AONB, nature reserves, the South Downs National Park and the tranquillity of the MSDC area.
- 5.10.3 No monetisation assessment has been included in the consultation of this potential loss of amenity.

5.11 Stacks and Holding Patterns

- 5.11.1 No information is given in the consultation on the potential impact of the location of aircraft holding and stacking changes as a result of Gatwick 2nd runway proposal. Though the stacking and holding patterns are not part of this consultation the increase in ATMs and changes in use of airspace as a result of the proposal may lead to a noise impact that has not been considered as part of this consultation.

5.12 Ground Noise

- 5.12.1 Though not considered in detail by the Airports Commission a modelled noise contour plot is available for the 2030 Do-Minimum and Gatwick 2R option, shown below in Figure 5.2. No night ground noise contours are available in the consultation. The $L_{Aeq,16hr}$ 57dB contours do not extend to the MSDC area and the M23 corridor separates the contour area from the MSDC area. The MSDC settlement of Copthorne is around 2km away to the east. Ground noise impacts may occur during temperature inversions. Gatwick is located in an area that is prone to temperature inversions and during these inversion ground noise may be heard in Copthorne.

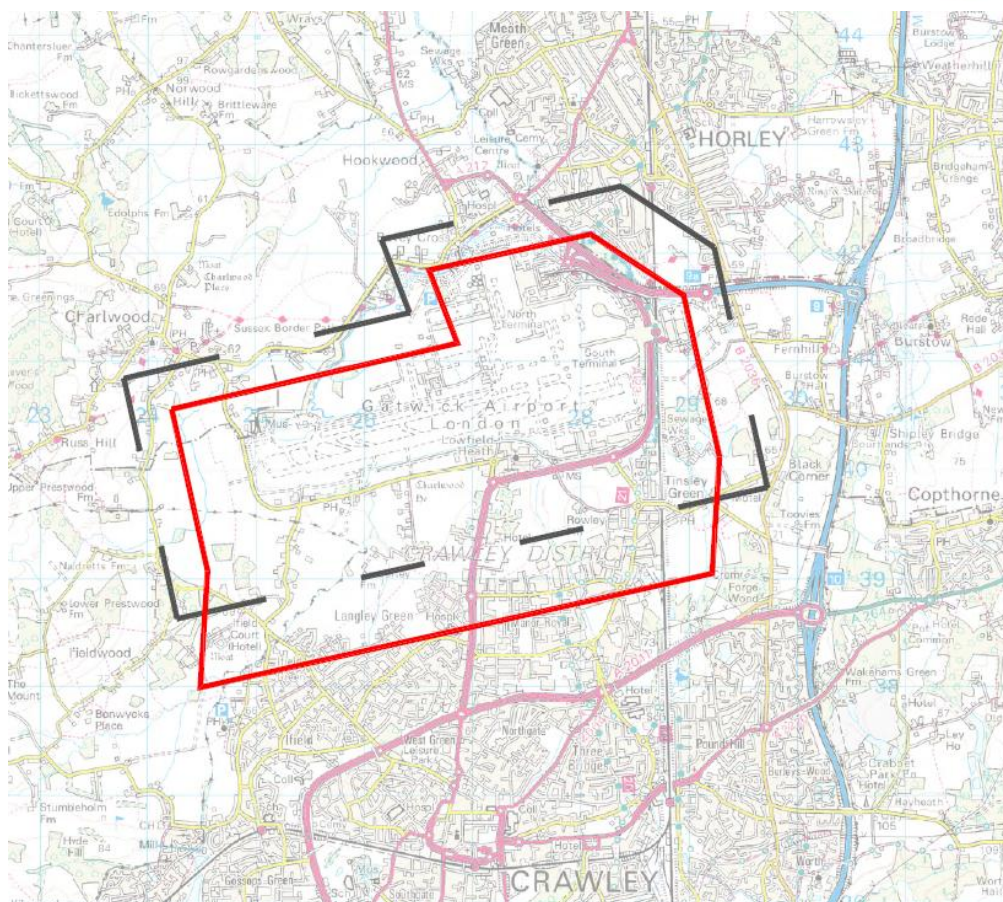


FIGURE 5.2 AIRPORTS COMMISSION 2030 DO-MINIMUM (BLACK) AND 2ND RUNWAY (RED) $L_{AEQ,16HR}$ 57 DB GROUND NOISE CONTOURS.

5.13 Assessment of Significance and Cross Reference to National Policy

5.13.1 The National Planning Policy Framework, the Noise Policy Statement for England [27] and National Planning Policy Guidance on noise [28] define the government's policy on noise.

5.13.2 The NPSE advanced the concepts of NOEL, LOAEL and SOAEL in relation to adverse noise effects and significant adverse effects on health and quality of life, and the Planning Practice Guidance for Noise provides example outcomes for each of these three categories. This is re-produced below in Table 5.4:

Perception	Examples of Outcomes	Increasing Effect Level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and	Noise can be heard, but does not cause any change in	No Observed	No specific



not intrusive	behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	Adverse Effect	measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory	Unacceptable Adverse Effect	Prevent

TABLE 5.4 PLANNING PRACTICE GUIDANCE EXAMPLE EFFECT LEVELS



- 5.13.3 According to the Planning Practice Guidance example outcomes an observed adverse effect is characterised as a perceived change in quality of life for occupants of a building or a change in the acoustic character of an area, as well as possessing the potential for some forms of sleep disturbance. Applying this guidance it is considered that adverse effects will occur outside of the study area in the consultation
- 5.13.4 The Airports Commission consultation makes no assessment of significance of the effect of the proposals to these Government guidance publications and presents noise impacts through being within the $L_{Aeq,16hr}$ 57dB contour, and to a lesser extent the other noise metrics.

5.14 Limitations of this review

- 5.14.1 This analysis on behalf of MSDC has been limited by time and resources and is not intended to be a noise analysis of all the aspects of the consultation relating to noise. This study focuses on certain aspects of the consultation, which are discussed in the preceding sections of this report.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

6.1.1 The Airports Commission consultation does not allow for any meaningful conclusions to be drawn with regards to the potential noise impact on the Mid Sussex District Council noise sensitive receptors, for the following reasons:

- Use of 'averaged-out' modal split contours means that the noise environment during normal easterly or westerly operation has not been portrayed or analysed;
- The use of the modal split contours has limited the study area and communities and noise sensitive receptors that may be adversely impacted by noise from the proposal have not been considered;
- The impact on schools, in particular SEND children, and the additional duties of schools and local authorities cannot be considered in detail without easterly and westerly $L_{Aeq,30mins}$ contour plots to shown the noise environment in a metric that reflects the educational requirements;
- No breakdowns or itemisation of the noise impacts is given by community or local authority area and therefore the individual, community or local authority will find it difficult to consider the information in the context of the impact on the individual community or local authority and make an informed response;

6.1.2 Nevertheless a number of general assumptions can be made:

- Areas of MSDC that were not previously overflown are going to be overflown, including in likely quiet rural areas and communities;
- There will be departure routes over MSDC and in particular over the community at Copthorne that will be directly beneath easterly departure paths and also close to westerly arrival routes;
- Use of P-RNAV will concentrate the noise impacts in the areas beneath the departure path in a narrow swathe; and
- The Gatwick 2nd runway proposal appears to be contrary to the NPSE, Aviation Policy Framework and the Commission's appraisal framework aim to reduce the number of people in the UK significantly adversely affected by aircraft noise.

6.2 Recommendations

6.2.1 The following recommendations are made:

- That the Airports Commission consultation be extended to include easterly and westerly operation contour plots for the noise metrics currently in the consultation and include $L_{Aeq,30,mins}$ contour plots to facilitate the assessment of noise impacts on schools within MSDC;
- The duration of the consultation is extended to allow the communities and local authorities to consider the additional noise contour and population information;
- That the Airports Commission consultation includes analysis of the communities and local authorities affected by the proposal and a breakdown of the noise levels and number of noise sensitive receptors in each community affected by the proposal is given;
- That the $L_{Aeq,16hr}$ 54dB contour is used to mark the onset of significant community annoyance in the daytime (following ANASE recommendations and CAA consideration) and the assessment of impact is re-assessed on this basis;
- That N60 15 contours are produced for night to indicate the impact on sleep disturbance;
- The commitment is made by Gatwick Airport to offer compensation to those in the $L_{Aeq,16hr}$ 57dB contour is extended to any dwelling within any of the easterly or westerly operations contours for any noise metric, with appropriate mitigation packages;
- An arrangement is made that if the Gatwick 2nd runway proposal is chosen an arrangement in the manner of the 'Cranford Agreement' is put in place to prevent departures from the southern runway over Cophthorne;
- An agreement is made that if the Gatwick 2nd runway proposal is chosen Gatwick Airport will fund the mitigation packages necessary to ensure a suitable noise environment in indoor and outdoor spaces at schools and nurseries;
- A commitment is obtained from Gatwick Airport that segregated mode will be used rather than mixed mode, so communities that are overflown can be given respite from aircraft noise;
- That the Airports Commission consultation considers the modelled aircraft noise contours with the ambient noise levels and indicate the potential total noise levels and quantifies the change in noise levels as some of the areas within MSDC are likely to have very low ambient noise levels, in particular at night and changes of $L_{Aeq,T}$ 20dB or more may occur outside of the Airports Commission aircraft noise study area;

- That a sensitivity test is undertaken on the fleet mix assumptions to indicate the potential deviation from the modelled noise levels if aircraft noise reduction measures and next generation aircraft rollout does not occur as rapidly as anticipated in the fleet mix assumptions; and
- That the monetisation assessment is re-run using the westerly and easterly operation contours and the monetisation of the Annoyance, Sleep Disturbance, Acute Myocardial Infarction, Hypertension and Quality Adjusted Life Years is itemised on a local authority and community basis so the additional burden of the proposal on the local authorities can be assessed.

7. REFERENCES

1. Airports Commission: Consultation Document, November 2014.
2. Airports Commission: Gatwick Airport second runway: business case and sustainability assessment, November 2014.
3. Airports Commission: Interim Report, December 2013.
4. Airports Commission: Discussion Paper 05: Aviation Noise, July 2013.
5. Airports Commission: Discussion Paper 07: Delivery of new runway capacity, July 2014.
6. Airports Commission. Additional airport capacity: noise analysis. Noise Baseline, November 2014.
7. Airports Commission. Additional airport capacity: noise analysis. Noise: Local Assessment, November 2014.
8. Airports Commission. Additional airport capacity: noise analysis. Noise: National Assessment, November 2014.
9. Airports Commission. Additional airport capacity: noise analysis. Noise: Baseline and Local Assessment Methodology Addendum, December 2014.
10. Airports Commission. Additional airport capacity: noise analysis. Noise: Figures, November 2014.
11. Gatwick Airport. A second runway for Gatwick: Appendix A7 Air Noise, May 2014.
12. Gatwick Airport. A second runway for Gatwick: Appendix A7 Air Noise Figures, May 2014.
13. Gatwick Airport. Submission to Airport Commission: Air Noise for 95 mppa Case, July 2014.
14. Airports Commission: Gatwick Area Public Discussion Session, 16th December 2014
15. Civil Aviation Authority. ERCD Report 1402. Noise Exposure Contours for Gatwick Airport 2013. October 2014.
16. Mid Sussex District Council. Local Plan. 2004.
17. World Health Organisation. Community Noise Guidelines. 1999.
18. MVA Consultancy. Attitudes to Noise from Aviation Sources in England. 2007.
19. Ian Flindell et al. Understanding UK community annoyance with aircraft noise. ANASE update study. 2013.
20. Civil Aviation Authority. Draft Aviation Policy Framework Consultation Response. 2012.
21. TSO. Aviation Policy Framework 2013
22. World Health Organisation. Night Noise Guidelines for Europe. 2009.

23. British Standards Institution. British Standard 8233:2014. Guidance on sound insulation and noise reductions for buildings.
24. Australian Standard. AS 2021. Acoustics-Aircraft noise intrusion-Building siting and Construction. 2000.
25. Department for Education. Building Bulletin 93. Acoustic Design of Schools – Performance standards. December 2014.
26. The Equality Act 2010.
27. Department for Environment, Food and Rural Affairs. Noise Policy Statement for England (NPSE). 2010.
28. Department for Communities and Local Government. National Planning Practice Guidance. Noise.
<http://planningguidance.planningportal.gov.uk/blog/guidance/noise/when-is-noise-relevant-to-planning/>