



Response to Stansted Airport Draft Noise Action Plan 2019-2023

Stop Stansted Expansion ('SSE') was established in 2002 in response to Government proposals for major expansion at Stansted Airport. We have some 7,500 members and registered online supporters including 150 parish and town councils and local residents' groups and national and local environmental organisations. Our objective is to contain the development of Stansted Airport within tight limits that are truly sustainable and, in this way, to protect the quality of life of residents over wide areas of Cambridgeshire, Essex, Hertfordshire and Suffolk, to preserve our heritage and to protect the natural environment.

Stop Stansted Expansion
15 October 2018
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Introduction

This document is the response from Stop Stansted Expansion ('SSE') to the Manchester Airports Group's ('MAG') consultation on the Stansted Airport Draft Noise Action Plan ('NAP') 2019-2023. SSE welcomes all efforts to reduce the environmental noise harms and adverse health impacts for people living around the airport and under the flight paths.

There is growing evidence of the social cost associated with the adverse impacts of aircraft noise, particularly at night. Adverse health effects from noise are well established particularly poor performance at work from interrupted sleep and impaired cognitive development in primary school children who live and/or attend schools near airports. These adverse effects mean that there is not only a social cost but also an economic cost to the nation which can be directly attributed to aircraft noise.

SSE Executive Summary

The last NAP covered the period 2013-2018 and the outcome has failed to avoid, prevent or reduce the harmful effects of noise since the number of people adversely affected has increased throughout this period.

The current draft NAP covering the period 2019-2023 is not fit for purpose since it retains actions that have previously failed to reduce the number of people affected and does not introduce actions which would reverse this unacceptable outcome.

Contrary to the instructions provided by the Department for Environment, Food and Rural Affairs ('Defra'), the draft NAP does not provide estimates of the reduction in the number of people affected together with specific timescales throughout the period 2019-2023.

'Foreword by the Chief Executive, Stansted Airport'

MAG states that its objective is *"limiting, where possible, the number of people affected by noise as a result of the airport's operation and development"*. MAG's objective is weaker protection than required by the EU's Environmental Noise Directive ('END') which has the clearly stated objective *"to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise."*¹

In 2010, the then Aviation Minister Theresa Villiers said *"The noise action plans will make a key contribution to helping to reduce the local noise impacts for residents. ... Can I assure you that these plans are currently being submitted to rigorous scrutiny to ensure that they do meet the underlying aim of the EU Directive namely avoiding, preventing or reducing the harmful effects due to exposure to environmental noise."*²

Furthermore the Government's Aviation Policy Framework ('APF') says *"We want to strike a fair balance between the negative impacts of noise on health, amenity (quality of life) and productivity and the positive economic impacts of flights. As a general principle, the Government therefore expects that future growth in aviation should ensure that benefits are shared between the aviation industry and local communities. This means that the industry must continue to reduce and mitigate noise as airport capacity grows."*³

¹ Directive 2002/49/EC, June 2002, Article 1, Objectives.

² Aviation Minister letter to Gatwick Area Conservation Campaign dated 27 May, 2010.

³ DfT APF, March 2013, paragraph 3.3.

Having acquired Stansted Airport in 2013 MAG has since been responsible for environmental and noise management. While the first NAP was published in 2006, it is also important to review performance in reducing noise impacts since 2013. Compared to the last NAP in 2011, the number of people within the noise contours has increased. As Stansted Airport has grown since 2013, it has failed to avoid, prevent or reduce the harmful effects of noise when measured by the number of people affected. Details are provided in section 5: 'Noise Mapping Results'.

For ease of reference the numbering of the sections below follows the numbering in the Draft NAP. We have not commented on every section of the Draft NAP and so the section numbers in this response are not consecutive.

1. Noise Action Plan

As a consequence of airports being left to prepare and execute their own NAPs, communities not unreasonably believe that airports are effectively judge and jury. The APF makes clear that *"the Government recognises that noise is the primary concern of local communities near airports and we take its impact seriously."*⁴ There is no independent monitoring or enforcement of airport NAPs to check whether harmful effects on local communities are being reduced. The claim by MAG that *"our noise management system is independently audited annually as part of our CSR report"* is misleading. This is not the same as the NAP being independently monitored to ensure that planned noise reduction outcomes are achieved on time, and enforced where this is not the case. The experience of local communities around UK airports (including Stansted) concerning the effectiveness of NAPs to reduce noise impacts has been unsatisfactory both in terms of the results and the lack of independent monitoring.

MAG states that its specific aims are *"to consider any new evidence regarding the effects of noise disturbance on people"* and *"to consider any government regulations or policies relating to airport noise or operations"*. As will be seen in section 5, new evidence has revealed an increase in the numbers of people affected by noise disturbance.

3. The Airport

MAG states it has *"permission to serve up to 35mppa, with a noise contour of 33.9km²."* As will be evident from section 5 this noise contour area – as a representation of significant community annoyance – has already been exceeded following new evidence of the effects of noise.

5. Noise Mapping Results

MAG states that *"the population estimates show that over the course of the last 10 years, there has been a reduction in the number of people exposed to aircraft noise in all contour models"*. MAG illustrates this by stating that *"the number of people within the 55dB L_{den} contour has fallen by 700 (8%) to 8,700"*. However when the 2016 figures are compared to the 2011 figures, it can readily be seen that over the course of five years, the number of people within the 55dB L_{den} contour has increased by 1,300 (18%) to 8,700. Over the same five-year period the number of people within all the other contours of L_{day}, L_{evening}, 16-hour L_{Aeq} and L_{night} has also increased, as shown below:

- L_{day} by 800 (18%) to 5,300
- L_{evening} by 800 (20%) to 4,900
- 54dB 16-hour L_{Aeq} by 800 (18%) to 5,200
- L_{night} by 1,200 (67%) to 3,000

⁴ Ibid, Executive Summary, paragraph 16.

When comparing the 16-hour L_{Aeq} contours for 57dB in the day and the 8-hour L_{Aeq} contours for 48dB in the night over the last five years since MAG acquired Stansted Airport, there has been a steady and virtually continuous increase in the size of the affected areas and of the population exposed to significant noise annoyance, as shown in the table below:

YEAR	DAY (57dB L_{Aeq} .16-hour)		NIGHT (48dB L_{Aeq} .8-hour)	
	AREA (km ²)	POPULATION	AREA (km ²)	POPULATION
2017	26.5	2,450	64.0	7,750
2016	24.8	2,050	61.9	7,800
2015	23.6	1,650	57.2	6,950
2014	21.6	1,650	56.3	6,650
2013	20.0	1,250	51.5	6,400

Source: CAA noise exposure contours

The CAA figures for areas and populations affected are the 57dB L_{Aeq} 16-hour day and the 48dB L_{Aeq} 8-hour night contours respectively which are published annually and used for consistency of comparison.

However, the Government is now proposing a lower threshold for the onset of significant noise annoyance of 54dB L_{Aeq} 16-hour in the day and the World Health Organisation ('WHO') originally recommended a threshold of 45dB L_{Aeq} 8-hour at night. The effect of applying these lower thresholds on the areas, households and populations for 2016 and the MAG planning application for 43mppa is shown in the tables below:

Day (54dB L_{Aeq} .16-hour)

CASE	AREA (km ²)	HOUSEHOLDS	POPULATION
2016	45.4	2,250	5,700
2028 43mppa	53.0	2,400	6,150

Night (45dB L_{Aeq} .8-hour)

CASE	AREA (km ²)	HOUSEHOLDS	POPULATION
2016	89.7	5,350	13,550
2028 43mppa	106.2	6,800	16,950

It is immediately apparent that the 2016 figures show a considerable increase in the areas and populations affected compared to the 2016 CAA figures for the 57dB L_{Aeq} 16-hour contour.

The current Stansted AN1 planning limit for 35mppa – i.e. an area of 33.9km² is now clearly exceeded since significant community annoyance previously observed at 57dB is now observed at 54dB L_{Aeq} 16-hour. More people are now significantly annoyed by aircraft noise than was the case when the AN1 planning limit was agreed.

Using the latest Government threshold of 54dB for the onset of significant community annoyance and the night noise threshold of 45dB as originally recommended by the WHO, the 2016 contour areas have increased by 83% in the day and 45% at night and the population affected has increased by 178% in the day and 74% at night. These figures would be substantially higher if the 43mppa planning application were to be approved.

On 10th October 2018, WHO published its latest Environmental Noise Guidelines⁵, the first complete update of the WHO 'Guidelines for Community Noise' published in 1999. Following a comprehensive review of the scientific evidence linking noise to health impacts, WHO Europe has made source-specific recommendations for noise from aviation, road traffic, rail, wind turbines and leisure (such as personal electronic devices). For aircraft noise, the relevant guidelines are now as follows:

- For noise exposure averaged across the day, evening and night (L_{den}), the new WHO Guidelines strongly recommend reducing noise levels to below 45dB L_{den} , as aircraft noise above this level is associated with adverse health effects.
- For night noise exposure, the new WHO Guidelines strongly recommend reducing noise levels to below 40dB L_{night} , as aircraft noise above this level is associated with adverse effects on sleep.
- To reduce health effects, the new WHO Guidelines recommend "that policy-makers implement suitable measures to reduce noise exposure from aircraft in the population exposed to levels above the Guideline values for average and night noise exposure."

The aircraft noise thresholds are significantly lower than those for road and rail noise, confirming that people are more sensitive to aircraft noise than to noise from other modes of transport at any given level.

These new WHO thresholds are significantly lower than the levels used for the noise mapping. For example, the 55dB level over 24 hours (L_{den}) used for mapping is replaced by a new threshold of 45dB and the night 48dB level (L_{night}) is replaced by a new threshold of 40dB. These new Guideline thresholds for aviation reflect the strength of the evidence relating to aircraft noise annoyance and sleep disturbance. The application of these new lower thresholds will significantly increase the calculated areas, households and numbers of people affected beyond those given in the Draft NAP.

The noise mapping results are based on the higher levels and therefore no data is available to show the scale of the increased numbers of people affected around Stansted Airport. Extrapolating national data for the population exposed at 45dB L_{den} and 40dB L_{night} must be undertaken using the new WHO thresholds.

The noise mapping results are used to provide information of average noise levels and numbers of people affected on which to base NAPs to manage and reduce the adverse impacts. The latest WHO thresholds clearly make this task extremely difficult without having the corresponding new noise mapping data based on the lower thresholds.

6. Regulation and Policies

MAG has acknowledged the Government's position on Airspace Policy which adopts the following levels from WHO definitions to describe the effects of noise:

- **NOEL** – **No Observed Effect Level** – this is the level below which no effect can be detected.
- **LOAEL** – **Lowest Observed Adverse Effect Level** – this is the level above which adverse effects on health and quality of life can be detected.

⁵ Environmental Noise Guidelines for the European Region, 2018.

http://www.euro.who.int/_data/assets/pdf_file/0008/383921/noise-guidelines-eng.pdf?ua=1.

- **SOAEL** – Significant Observed Adverse Effect Level – this is the level above which significant adverse effects on health and quality of life occur.

The LOAEL thresholds are 51dB L_{Aeq} .16-hour in the day and 45dB L_{Aeq} .8-hour at night. The areas and populations affected will therefore be even greater than those shown in the tables in the previous section. MAG acknowledges that frequency-based noise metrics are expected to be developed. Frequency-based metrics means counting the number of aircraft operating and setting criteria. The Government now recognises that the number of flights can be a more significant factor than the average noise levels over a 16-hour day and an 8-hour night.

MAG states that the Independent Commission on Civil Aviation Noise (ICCAN) *“will help ensure that the noise impacts of airspace changes are properly considered and give communities a greater stake in noise management”*. ICCAN is expected to be established by the Department for Transport (‘DfT’) in 2019 but it will only be an advisory body to promote effective local engagement and locally-informed decision making. ICCAN will have no noise regulation powers, nor powers to reduce noise nor any enforcement or ombudsman powers.

8. Airspace Modernisation

The implementation of the first phase of the London Airspace Management Programme (‘LAMP’) has brought changes to traffic volumes by moving the daytime Detling departure traffic onto the Clacton departure routes. This has doubled the traffic on the Clacton routes in the day (The Detling route is still used at night.) For aircraft up to 4,000ft, 1,470 fewer people are overflowed during the day but 2,400 people are overflowed more intensively both during the day and at night. LAMP has substantially increased the noise annoyance for communities living under the Clacton route.

Furthermore the introduction of Performance Based Navigation (‘PBN’) throughout UK has not been an unqualified success, particularly for communities living under flight paths where aircraft are at heights of between 4,000ft and 7,000ft. PBN has led to concentrated flight paths for communities where previously there was dispersion. While the CAA has not yet published its decision following its Post Implementation Review of the Detling/Clacton airspace change, the need to protect people living under concentrated flight paths from noise must be resolved by introducing alternative or multiple routes in consultation with local communities.

10. On the Ground

Ground noise from aircraft is highly intrusive for communities living close to the airport and noise annoyance is increased in conditions of reverse temperature gradient or downwind. In addition to reduced engine taxiing for aircraft on the ground, there should be a complete ban of the use of reverse thrust during the night except in the case of genuine emergencies.

11. Departing Aircraft

Aircraft avionics are now sufficiently accurate for there to be no excuse for airlines not adhering to Noise Preferential Routes (‘NPR’)s and avoiding overflight of sensitive areas except for safety reasons or when instructed by air traffic control. “Off-track” financial penalties of £750 (day) and £1,000 (night) are derisory and not a sufficient deterrent. Penalties should be treated on the basis of the “polluter pays” principle; the commonly accepted practice whereby those who produce pollution should bear the costs of the damage it causes to human health and the environment.

There should be a tenfold increase in the level of fines for off-track flying and excessively noisy aircraft. This will hopefully prove to be an effective deterrent. If not, there will at least be the consolation that the proceeds from the fines will be used to support projects in the local communities who suffer the annoyance.

Aircraft performance on take-off is now much improved such that very few infringe the Department for Transport ('DfT') departure noise limits which are set with considerable headroom. The proposal to seek to lower these limits is fully supported.

For the same reasons the 1,000ft height rule is also effectively meaningless since aircraft rarely infringe this rule. This height rule should be totally revisited with the DfT and more meaningful criteria adopted.

The airport does not continuously monitor aircraft noise and height other than at two specific locations, one at each end of the runway, close to the airport perimeter and only for departing aircraft. Noise and height are not continuously monitored for arriving aircraft. The limits set by the Department for Transport have considerable headroom such that aircraft rarely infringe these limits and provide little or no protection for local communities against aircraft noise.

12. Night Noise

The Government says that *"the costs on local communities are higher from aircraft noise during the night, particularly the health costs associated with sleep disturbance. Noise from aircraft at night is therefore widely regarded as the least acceptable aspect of aircraft operations."*⁶

SSE has long argued to the Government that night flights have a far greater impact on local residents around Stansted because of its rural location where background noise levels are generally very low. Furthermore the night flights limit only applies to the 6½-hours between 11.30pm and 6.00am whereas the normal definition of 'night' is the 8 hours between 11.00pm and 7.00am. Additionally Stansted has a significant and growing number of freighters operating during the night; currently about 35% of all night flights are freighters. Night flights and freighters together give rise to a disproportionately high level of noise complaints.

In 2017, the Government decided to maintain the current number of night movements whilst at the same time abolishing the anomaly of exempting less noisy aircraft and adjusting the movements cap to include the previously exempt flights. This is, at last, an acknowledgement that all aircraft can cause sleep disturbance.

SSE is calling for an unequivocal Government commitment to phase out all night flights at Stansted by 2030, except in the case of genuine emergencies. In the meantime, any proposal to lower the night time departure noise limit is supported.

14. Continuous Improvement, Monitoring and Reporting

The adverse impact of helicopter operations close to the airport is an unresolved issue and acknowledged by MAG when it says that *"community concerns were still apparent, so further action was needed"*. Ten years ago the Department for Environment, Food & Rural Affairs ('Defra') published a document *"Research into the improvement of the Management of Helicopter Noise (NANR235)"*⁷ and concluded, inter alia:

- There was insufficient data to determine the scale of public concern and the prediction of community response to helicopter noise;

⁶ DfT APF, March 2013, paragraph 3.34.

⁷ <http://www.defra.gov.uk/environment/noise/research/pdf/nanr235-project-report>.

- Annoyance was not well correlated with generally used acoustic measurement parameters;
- In addition to the unique character of helicopter noise not being fully addressed by indices, there is a 'virtual noise' factor which encompasses community attitudes and fears towards operations; and
- It was often difficult to complain and the failure to act on complaints was one of the largest causes of dissatisfaction amongst the public.

The research has not moved forward to any significant extent since then. However Stansted Airport has recently established a Visual Reference Point over Hazel End Wood so helicopters should follow this route. In fact the UK Aeronautical Information Publication for Stansted Airport says "*Helicopters landing from or departing to the west are to avoid overflight of Birchanger, Stansted Mountfitchet and Bishop's Stortford.*"⁸ MAG must ensure that further action is taken to ensure helicopter operators observe the rules.

It is also noted that the current 43mppa planning application has made no assessment of helicopter noise, the reason being that MAG expects to phase out helicopter movements at Stansted by 2028. This will be a welcome development in many local communities.

MAG's statements on the introduction of new generation aircraft need to be carefully examined. The illustration of the reduction of the 90dB SEL footprint over 20 years is misleading. In the first instance nobody ever hears a 90dB SEL footprint. It is the equivalent measurement of the sound exposure level (SEL) of an aircraft noise event by representing it in a one second burst of steady noise that contains the same total A-weighted noise energy as the whole aircraft noise event. In other words, it is the value that would be measured if the entire aircraft flyover event energy were compressed into a reference time of one second.

Two aspects are very important (i) it is not what people actually hear, and (ii) importantly, it is a measure of noise energy not noise intensity.

MAG has been saying "*the noise footprint of each new generation of aircraft is significantly lower than that of the aircraft it replaces*". This assertion is misleading because it relies on the way that aircraft noise is measured as pressure levels when certified on manufacture. It is not the same as aircraft noise intensity or loudness that people actually hear on the ground.

The aviation industry claims that the new generation of aircraft would be 50% quieter. A 50% reduction in the way that aircraft noise pressure levels are measured when certified on manufacture is 3 decibels, which is the minimum change perceptible by the human ear.

The aviation industry appears to be implying that new generation aircraft will be only half as noisy as those being replaced. This is disingenuous because it requires a 10 decibel reduction in the way aircraft noise is measured on certification to produce a 50% reduction in loudness for local communities on the ground.

For the new generation Boeing 737- MAX aircraft the reduction in loudness of each aircraft compared to the current generation of Boeing 737-800 is 3.0dB on departure and 2.2dB on arrival. This reduction would scarcely be noticeable, if at all, by local communities on the ground. A significant increase in the number of flights would however be very noticeable.

Reporting and monitoring appears to be a common theme throughout the Draft NAP. There is however a lack of time-scaled quantified objectives and targets to reduce noise impacts. Many

⁸ http://www.ead.eurocontrol.int/eadbasic/pamslight-235DB96DE9401DBE26CAB73C40047544/7FE5QZZF3FXUS/EN/AIP/AD/EG_AD_2_EGSS_en_2018-09-13.pdf

of the actions rely on other parties such as the airlines and NATS. There is no evidence that MAG has followed Defra's advice that, when reviewing the plans submitted for adoption, the Government will pay particular attention to the following requirements set out in the guidance:

- Estimates in terms of the reduction in the number of people affected (annoyed, sleep disturbed, or other) as a result of the measures in this Action Plan including evidence that the measures are challenging, objective, quantified (where reasonably practicable), subject to specific timescales, and have taken full account of the views of local communities.
- Where noise reduction measures need the support and active participation of other parties (such as NATS & CAA), information on how the airport intends to achieve such co-operation.

Time-scaled quantified outcomes that reduce noise impacts and evidence where noise reduction measures need the support and active participation of other parties must be provided.

16. Noise Complaints

Noise complaints have increased since 2013 when MAG acquired Stansted Airport.

YEAR	COMPLAINTS
2017	8,395
2016	4,170
2015	747
2014	1,022
2013	930

It should be noted that complaints are counted by the number of communications received and not by the number of noisy aircraft events and many communications report a number of noisy aircraft. It is acknowledged that multiple complainers can distort the statistics and SSE consistently encourages people to complain responsibly. But it is inevitable that some people will be far more adversely impacted by aircraft noise than others and so multiple complainers are often making entirely legitimate complaints. However, even disregarding multiple complainers, there is a clear upward trend in noise complaints at Stansted over the past five years, and this is opposite to the direction in which we should be heading.

18. Conclusions

1. The new lower WHO thresholds announced on 10th October 2018 of 45dB for 24 hour (L_{den}) and 40dB for night (L_{night}) effectively nullify the noise mapping results.
2. The information on areas and numbers of people affected by the new WHO thresholds on which to base NAPs to manage and reduce the adverse impacts is not available.
3. The mapping must be recalculated using the new WHO thresholds.
4. Compared to the 2011 NAP, the number of people within the noise contours has increased.
5. This in itself shows that the 2011 NAP has failed to achieve the END objective "to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise".
6. Time-scaled quantified outcomes that reduce noise impacts and evidence where noise reduction measures need the support and active participation of other parties must be provided in the 2019-2023 NAP as required by Defra.

7. Frequency-based metrics need to be developed in consultation with the local community.
8. Reduction of the noise impact on people who now live under concentrated flight paths as a consequence of PBN routes must be introduced. This might be resolved by introducing alternative or multiple routes in consultation with local communities.
9. On the ground, reduced engine taxiing must be fully introduced and there should be a complete ban of the use of reverse thrust during the night except in the case of genuine emergencies.
10. "Off-track" financial penalties of £750 in the day and £1,000 at night are derisory and not a sufficient deterrent. These fines should be 10 times higher.
11. The proposal to seek to lower the Government departure noise limits is supported.
12. The 1,000ft height rule is effectively meaningless since aircraft rarely infringe this rule. It should be totally revisited with the Government and more meaningful criteria adopted.
13. The proposal to lower the night time departure noise limit is supported.
14. Further action must be taken to ensure helicopter operators observe the rules.

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