Heathrow

EASTERLY ALTERNATION INFRASTRUCTURE PROJECT

Environmental Impact Assessment Environmental Statement, Volume III Appendix 7.2: Noise Management and Mitigation at Heathrow Airport

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Heathrow

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1. Introduction

1.1 Overview

1.1.1 This appendix provides an overview of the noise management and mitigation framework in place at Heathrow Airport with a full description of the measures in place set out in **Section 2**.

1.1.2 The Appendix provides in **Section 3** also an overview of Heathrow's most recent Noise Action Plan (NAP) for the period 2024 – 2028, which builds on the Airport's work under previous NAPs.

1.1.3 **Section 3** provides a full description of Heathrow's latest noise insulation and compensation schemes. The Quieter Neighbourhood Scheme (QNS) commenced in June 2024.

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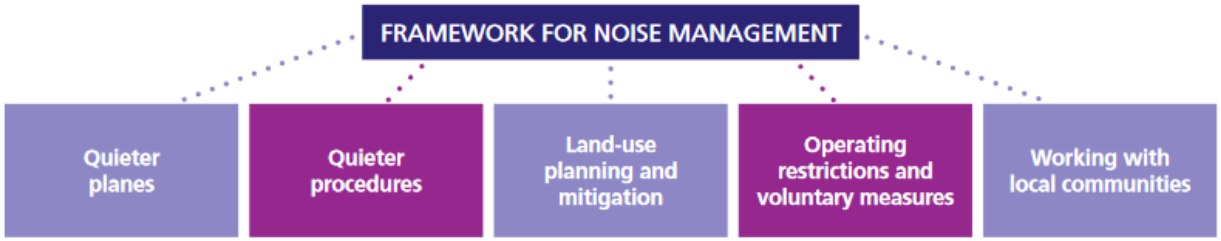
2. Existing and Legacy Noise Management Measures at Heathrow Airport

2.1 Heathrow's Framework for Noise Management

2.1.1 Heathrow's framework for Noise Management has five pillars, shown in **Graphic A7.2.1**. The first four of these reflect the four principal elements of International Civil Aviation Organisation's (ICAO) Balanced Approach to Aircraft Noise Management.

Graphic A7.2.1 Framework for noise management at Heathrow Airport



2.1.2 The first pillar, Quieter Planes, is based on the 'Reduction at Source' element of the Balanced Approach. The second pillar, Quieter Procedures, reflects the element of 'Noise Abatement Operational Procedures'. The third pillar is on Land use Planning and Mitigation and includes sound insulation and land use, similar to ICAO's second principal element. The fourth pillar takes the Balanced Approach element on Operating Restrictions and expands it to include Voluntary Measures.

2.1.3 The fifth pillar of Heathrow's noise management framework, Working with Local Communities, goes beyond the Balanced Approach, recognising the importance of community engagement and collaboration in identifying and understanding issues and working towards improvements.

2.1.4 In the Noise Action Plan for the period 2024 - 2028 Heathrow has introduced a sixth pillar, 'Research'. This supports its commitment to enhance understanding of community perceptions and the effectiveness of the noise management actions taken to reduce noise impacts.

2.1.5 Heathrow's noise management general commitments are set out in **Table A7.2.1.**

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Table A7.2.1 - General Commitments of Framework for Noise Management

Framework for Noise Management	Geneal Commitment	ICAO Balanced Approach's principal element
Quieter planes	"As aircraft and technology improves and planes become quieter, we will continue to work to ensure that residents share in the benefits. We are committed to continuing to provide a strong financial incentive for airlines to use the quietest planes currently available, including in the early morning period, through the use of differential charging fees."	Reduction of Noise at Source
Quieter procedures	*"We are committed to take full advantage of opportunities to manage airspace differently, working with local communities to identify changes that could benefit them. This will include trialing new air traffic management and operating procedures"*	Noise Abatement Operating Procedures
Land-use planning and mitigation	*"We are committed to continuing to help with noise insulation and mitigation through a new range of schemes. We will also continue to press the Government to provide more detailed guidance on planning around airports, and to restrict noise sensitive development in high noise areas. We are also committed to establishing a Memorandum of Understanding with local authorities to standardise the means of exchanging information on land use planning and airport operations."*	Land Use Planning and Management
Operating restrictions and voluntary measures	*In line with the principles of the ICAO Balanced Approach, we agree that restrictions should not be considered as a first resort, and we are committed to developing voluntary measures through collaborative approaches. These can be quicker to implement and more effective. Where restrictions are in place, we are focused on ensuring that they are adhered to fully.*	Operating Restrictions
Working with local communities	*"At the heart of our work to address aircraft noise, we are committed to engaging openly and constructively with local communities to understand their concerns and to provide accessible information and an on-going dialogue."*	(beyond the Balanced Approach)
Supporting Research	*"We strongly believe that it is important to improve our understanding of community perceptions and the effectiveness of the noise management actions taken to reduce noise impacts. This research will help us gain insights into how aviation activities impact various aspects of quality of life for the communities we serve."*	(beyond the Balanced Approach)

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2.1.6 The following subsections provide an overview of the existing and legacy noise management measures at Heathrow Airport in line with the pillars of Heathrow's framework for Noise Management.

2.2 Quieter Planes

Differential Landing Charges

2.2.1 Heathrow offers financial incentives to airlines to promote and incentivise the use of the latest quietest aircraft technology through differential landing charges. Such charges have been in place since the 1990s.

2.2.2 Such charges and noise-related fines are possible through provisions of the Civil Aviation Act 1982 which allows noise designated airports[1] to levy financial penalties based on noise, on aircraft that breach noise abatement measures introduced by the Secretary of State for Transport.

2.2.3 Each year Heathrow publishes a 'Conditions of Use' document[2] which sets out the differential charging structure for aircraft operating at Heathrow. These charges promote the use of best-in-class aircraft technology in relation to the ICAO noise certification standards.

2.2.4 In 2017, Heathrow was the first airport to introduce new charging categories based on the latest ICAO Chapter 14 noise standard. This was followed by the introduction of a new Chapter 14 Ultra Low charging category from 1 January 2023. In 2016, Chapter 3 aircraft represented 0.55% of all air traffic movements at Heathrow and since 2022, have become less than 0.1% of Heathrow's fleet mix.

2.2.5 The current qualification criteria for noise charges effective from 1 January 2023 are presented in **Table A7.2.2**.

[1] Heathrow is 'designated' under Section 80 of the Civil Aviation Act 1982 for the purposes of the regulation of noise. Noise from aircraft using the 'designated' aerodromes is regulated according to notices and directions made under section 78 of the 1982 Act.

[2] Heathrow Airport Limited, Conditions of Use including Airport Charges from 1 January 2024 (https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/doing-business-with-heathrow/flights-condition-of-use/conditions-of-use-documents/2024-Heathrow-%20-Airport-Limited-Conditions-of-Use.pdf) [Accessed 17 October 2024].

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Table A7.2.2 - Movement Charges: Noise Charging Categories and Associated Criteria

Noise Charging Category	Criteria to be met concurrently	
	Chapter 14 certification or equivalent	Cumulative EPNdB reduction from ICAO Chapter 3 standard[3]
Chapter 3 'Maximum'	No	Less than 10
Chapter 4 'Ultra High'	No	Less than 14
Chapter 4 'Super High'	No	Less than 17
Chapter 14 'High'	Yes	Less than 20
Chapter 14 'Base'	Yes	Less than 23
Chapter 14 'Low'	Yes	Less than 26
Chapter 14 'Super Low'	Yes	Less than 29
Chapter 14 'Ultra Low'	Yes	29 or more

2.2.6 The noise charging scheme at Heathrow means that the costs of operating the noisiest Chapter 3 maximum aircraft is 20 times that of a Chapter 14 'Ultra Low' aircraft.

2.2.7 In collaboration with airlines, Heathrow is working towards a target of zero Chapter 3 aircraft by 2026. If a voluntary phase out of Chapter 3 aircraft is not to be completed or agreed by the end of 2025, Heathrow will undertake the required steps to implement an operating restriction on their use at the airport.

2.3 Quieter Procedures

2.3.1 Heathrow operates a range of operating procedures which aim to control and mitigate noise impacts. Some of these procedures have been introduced by Government with some being the result of voluntary incentives brought forward through collaboration between Heathrow, the Civil Aviation Authority (CAA), airlines and National Air Traffic Services (NATS).

Departure Noise Limits

2.3.2 Heathrow operates departure noise limits at 12 fixed noise monitor terminal sites defined in the AIP. Noise monitoring at the fixed noise monitoring terminals around Heathrow is a mandatory requirement under legislation. The Government has set noise limits at each of the fixed noise monitors for departing aircraft. Any aircraft shall, after take-off, be operated in such a way that it will not cause breach of the set noise limits. These limits are enforced with fines for breaches. These fines are called 'Departure Noise Infringement Fines' and are set based on the time of day. Table A7.2.3 sets out the current departure noise limits and associated fines.

2.3.3

[3] This represents the sum of the differences between the certified noise values for a particular aircraft registration at the three monitoring points (Flyover, Sideline and Approach) and the Chapter 3 limits at these points.

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Table A7.2.3 - Departure Noise Limits and Associated Noise Infringement Fines

Period	Time Period	Decibel Limit	Fine Per Decibel Above Limit (dB)
Day	07:00 – 23:00hrs	94	£500
Shoulder	23:00 – 23:30hrs and 06:00 – 07:00hrs	89	£1,500
Night	23:30 – 06:00hrs	87	£4,000

2.3.4 The aim of the departure noise limits is to deter noisy operations and to encourage the use of quieter aircraft and best operating practices.

2.3.5 The Government requires that all funds raised from Departure Noise Infringement Fines are distributed for the benefit of local communities. Heathrow currently directs money generated from the fines to the Heathrow Community Trust (HCT) which is an independent grant-making charity. The HCT then distributes funding for community projects in the Heathrow area.

1,000ft Rule and Minimum Climb Gradient

2.3.6 Rules introduced by Government dictate how aircraft departing Heathrow must climb. There are two rules which relate to this. These are the 1,000ft rule and minimum climb gradient.

2.3.7 The 1,000ft rule requires that after take-off pilots climb their aircraft to a height of not less than 1,000 feet above by 6.5km from the start of the take-off roll.

2.3.8 Thereafter, a minimum climb gradient rule applies where aircraft are required to maintain a climb gradient of not less than 4% until reaching an altitude of not less than 4,000 feet.

2.3.9 The height requirement has been set by the Government for noise purposes since 1966. The current requirement was introduced following the Government's decision of 18 December 2000 on the noise limits and related noise monitoring arrangements to apply at the London airports. Prior to that decision, the requirement was that aircraft should be at a height of 1,000ft when passing the nearest noise monitor (some of which were not located close to 6.5km from start of roll).The primary purpose of the 1,000ft requirement is therefore to encourage flight crew to apply an optimum take-off power and rate of climb profile to minimising aircraft noise maintaining levels within the noise limits at the positions of the monitors.

Noise Preferential Routes (NPRs)

2.3.10 The current Standard Instrument Departure (SID) routes at Heathrow were designed in the 1960's by the Department for Transport.

2.3.11 Because all aircraft perform differently and may be affected by weather conditions which can cause them to drift left or right of the SID, there can be variation as to where different aircraft will fly relative to the centreline of the SID. For this reason, the Government has set

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corridors known as Noise Preferential Routes (NPRs) which extend 1.5 kilometres (km) either side of the SID route centrelines.

2.3.12 Over time as aircraft performance and navigation technology has developed, the position of aircraft over the ground has become more consistent on departure routes. However, there are still some small variations between aircraft types and due to the navigation data coding supplied to airlines for aircraft flight management systems.

2.3.13 Aircraft don't have to follow the centreline of the SID precisely, but they have to remain within the NPR corridor up to 4,000 feet. Under Government rules[4], once aircraft reach this altitude, Air Traffic Control (ATC) can direct planes off the departure route towards a more direct heading to their destination, or to facilitate a better continuous climb above 6,000 feet. This is known as vectoring and is a common feature of Heathrow's operations. It is ATC's responsibility to ensure a safe and orderly flow of air traffic. As aircraft performance has outstripped the legacy airspace design which was predicated on slower climbing aircraft. Due to this, ATC now adapt to expedite traffic flow to avoid unsafe separation distances.

2.3.14 Although Runway 09L (northern runway) is not currently used for routine scheduled departures during the day-time operations, all departure routes from Runway 09L include NPRs.

2.3.15 Heathrow is required to continually monitor how well aircraft adhere to the NPRs.

Westerly Preference

2.3.16 For safety reasons, aircraft normally take off and land into the wind. The prevailing wind at Heathrow is westerly, so for most of the time the wind comes from the west.

2.3.17 Heathrow operates a 'westerly preference'. This dictates that, during the day and unless the wind is too strong, aircraft should always take off towards the west and consequently arrive from the east. The preference can only be operated when the tailwind is less than five knots, the runways are dry and there are no strong crosswinds. Westerly preference has been in operation at Heathrow since 1962. When it was introduced, it operated twenty-four hours a day because the noise emitted by aircraft on departure was considered by the Government at the time to be the predominant issue. The aim was, , to reduce the number of departing aircraft which would otherwise take off over the more densely populated areas to the east of the airport.

2.3.18 In 2001, following a consultation on the preference for the direction of operation of the airport at night, the Secretary of State for Transport decided that westerly preference should be replaced, at night, by a weekly rotation between westerly and easterly operations whenever weather conditions permitted.

Continuous Decent Approach (CDA)

2.3.19 Continuous Decent Approach (CDA) is a noise abatement technique of flight during which a pilot descends at a rate with the intention of achieving a continuous descent to join the glide-path at the correct height for the distance. This procedure thereby avoids the need for

[4] Rules set under Section 78(1) of the Civil Aviation Act 1982 and detailed in the UK AIP

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extended periods of level flight. The intention of a CDA is to perform the approach phase using reduced thrust and thereby reducing arrival noise.

2.3.20 Heathrow continually monitors airlines compliance with CDA and reports this compliance as part of its FlyQuiet and Green programme.

Joining Point Rules

2.3.21 Aircraft on approach to the airport have to align directly with the runway and intercept the Instrument Landing System (ILS). The distance from the runway from which the aircraft intercepts the ILS is known as the Joining Point.

2.3.22 At certain times of the day and night there is a minimum altitude at which aircraft can join the ILS. At these times they cannot be below this altitude.

2.3.23 During easterly and westerly operations, between 06:00 and 23:00hrs (local) aircraft must be established on the ILS not below 2,500ft above mean sea level (MSL). This equates to a distance of approximately 8 nautical miles (nm) from the runway. Between 23:30 and 06:00hrs hours (local), the altitude is raised to 3,000ft with an additional requirement that aircraft join the ILS no closer than 10nm.

2.3.24 The joining point requirements are set out in the Heathrow's Aeronautical Information Publication (AIP).

Limiting Use of Reverse Thrust

2.3.25 Reverse thrust is used to help aircraft slow down once they have landed on the runway. During wet conditions reverse thrust must be used for safety reasons. However, the use of reverse thrust can result in noise disturbance in areas close to the airport. Heathrow's AIP therefore requests that pilots avoid the use of reverse thrust after landing, providing this allows for the safe operation of the aircraft, between 23:30 and 06:00hrs.

Westerly Runway Alternation

2.3.26 Runway alternation is a system used at Heathrow that can provide noise respite for people to the east of the airport who are affected by noise from aircraft on final approach. The system can also provide some respite for people located under the initial westerly departure routes. By alternating runs, noise is shared between communities under the flight paths from each runway.

2.3.27 Runway alternation at the airport was formally introduced on a trial basis in January 1972. At the time the northern runway was the preferred runway for westerly landings between 07:00 and 15:00hrs local time; and the southern runway was the preferred runway for westerly landings from 15:00 to 23:00hrs local time. This was subsequently modified in 1973 to the current arrangement whereby the arrival runways are alternated between the northern and southern runways at 15:00hrs local time, with order of alternation changed on a weekly basis from Monday to Sunday.

2.3.28 The runway alternation arrangements in place during daytime hours at Heathrow for westerly operations now means that one of the westerly runways (either runway 27R (northern runway) or runway 27L (southern runway)) are designated as the arrival runway

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and used for the majority of landings from 06:00 to 15:00hrs local time; and the other from 15:00hrs local time until after the last departure for the day's schedule.

2.3.29 As an example, if runway 27L is designated as the arrival runway from 06:00 to 15:00hrs local time then runway 27R will be used for arrivals from 15:00hrs until after the last departure. This arrangement will then run for one week at which time the pattern will change so that runway 27R becomes the designated arrival runway from 06:00 to 15:00hrs; and runway 27L is used from 15:00hrs until after the last departure. The runway alternation schedule is published in advance providing predictability for local communities.

2.3.30 After the last departure there is a distinct night period until 06:00hrs local time. During this period, as noted above, if weather conditions permit, there is a weekly rotation between westerly and easterly operations, preferring all four runway single modes of operation in turn over a 4 week cycle.

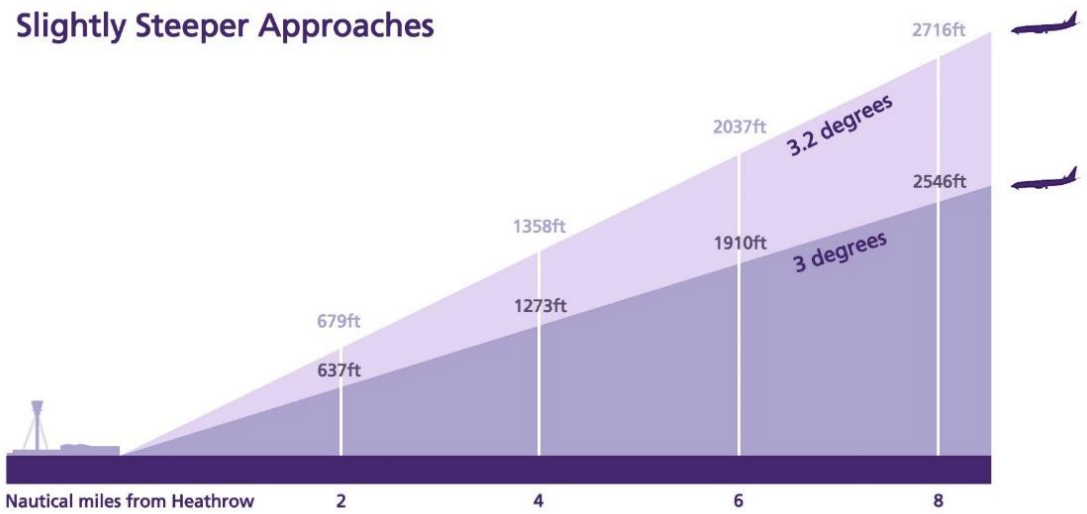
2.3.31 Runway alternation is not a measure required by way of a notice under Section 78 of the 1982 Act. It is an established operational aspect of the airspace arrangements and has associated Air Traffic Control procedures.

2.3.32 Runway alternation cannot be modified or abandoned without the approval of the SoS under the directions given to the CAA. This would have to be obtained subject to an airspace change process (ACP) which is overseen by the CAA on behalf of the Department for Transport, subject to Secretary of State call-in powers call-in under the 'The Civil Aviation Authority (Air Navigation) Directions 2017'.

Slightly Steeper Approaches (SSA)

2.3.33 Most aircraft arriving into Heathrow fly a standard 3.0° approach angle which is similar to most airports around the world. However, a small percentage fly a slightly steeper 3.2° approach, causing them to fly higher for longer as illustrated in **Graphic A7.2.2**. This measure is known as 'Slightly Steeper Approaches' (SSA).

Graphic A7.2.2: Illustration of Slightly Steeper Approaches



2.3.34 Trials which were carried out between 2015 and 2017 demonstrated that this measure helps to reduce aircraft noise. An Airspace Change Proposal (ACP) to make this measure permanent was approved by the CAA in August 2021.

2.3.35 SSA is the first major airspace change Heathrow has successfully transitioned through the Government's new airspace change process introduced in 2018.

Ground Noise Measures

2.3.36 To help manage and mitigate the impact of noise from ground operations, Heathrow has introduced operational controls on the use of:

- Auxiliary Power Units (APUs);
- Ground Power Units (GPUs);
- Fixed Electrical Ground Power (FEGPs);
- Pre-Conditioned Air (PCA); and
- Aircraft Engine Testing.

2.3.37 These are controlled through Operational Safety Instructions (OSIs) with regular audits carried out to monitor compliance.

2.3.38 The OSIs seek to optimise the use of appropriate ground power services at the most appropriate time and in the most appropriate circumstances, to reduce or limit ground noise, emissions and fuel usage. It also includes robust restrictions on night ground engine run tests to reduce ground noise at the most sensitive times.

2.3.39 Action 9A of Heathrow's Noise Action Plan 2024 – 2028 is to develop a Ground Noise Management Plan (GNMP).

2.4 Land Use Planning and Noise Mitigation

2.4.1 Heathrow has operated a range of noise insulation and mitigation schemes that have either met or exceeded Government policies since the mid-1990s.

2.4.2 Action 3.1 of Heathrow's 2019 – 2023 Noise Action Plan committed to a major review of Heathrow's existing noise insulation schemes. This review was carried out in 2021, with new and improved schemes set to launch in 2024.

2.4.3 This new scheme, the Quieter Neighbourhood Support (QNS) scheme will launch in June 2024 and is presented in **Section 3**.

2.4.4 Following are described Heathrow's most recent legacy schemes which were in operation up to the launch of the QNS in June 2024 and is described in **Section 4**.

Legacy Community Buildings Noise Insulation Scheme

2.4.5 Under the Aviation Policy Framework (APF, Paragraph 3.37) The Government expects airport operators to:

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"offer acoustic insulation to noise-sensitive buildings, such as schools and hospitals, exposed to levels of noise of 63 dB$L_{Aeq,16h}$ or more. Where acoustic insulation cannot provide an appropriate or cost-effective solution, alternative mitigation measures should be offered."

2.4.6 Heathrow's legacy Community Buildings Noise Insulation Scheme applied to noise sensitive community buildings that fall within the 2019 63 dB $L_{Aeq,16hr}$ noise contour. The scheme covered:

- Hospitals;
- Schools and colleges;
- Nurseries attached to schools and hospices;
- Nursing homes;
- Registered nurseries; and
- Libraries and community halls.

2.4.7 All reasonable measures were used to encourage the community buildings' owners to register for the scheme. The scheme then provided acoustic insulation to the registered buildings, and this could extend to window replacement and mechanical ventilation.

2.4.8 Eligibility was set by a 2002 63 dB$L_{Aeq,16hr}$ contour. Under this and previous similar schemes Heathrow has insulated a total of 39 schools and community buildings. 100% of the costs for the installation of high specification replacement windows or secondary glazing has been provided in eligible rooms along with the installation of overheating avoidance measures such as solar film and acoustically attenuated ventilation systems.

Legacy Home Relocation Assistance Scheme

2.4.9 The APF (Paragraph 3.36) states that:

"The Government continues to expect airport operators to offer households exposed to levels of noise of 69 dB$L_{Aeq,16h}$ or more, assistance with the costs of moving"

2.4.10 Heathrow's legacy Home Relocation Assistance Scheme was available for properties that properties that fall within Heathrow's 2019 69 dB $L_{Aeq\ 16hr}$ noise contour, and residents who have been living in the property before 31 December 2022, this scheme provided eligible homeowners with financial assistance with the costs of moving away from areas of high levels of airport noise. The scheme is currently capped at £20,000 per home.

2.4.11 Previous iterations of the scheme have been based on the extent of the 2002 $L_{Aeq,16hr}$ contour with eligible homeowners receiving a lump sum of £5,000 plus 1.5% of the sale price up to a maximum of £12,500.

Legacy Residential Noise Insulation Scheme

2.4.12 Heathrow's legacy residential noise insulation schemes provided acoustic insulation to residential buildings in the local community. The package of insulation included acoustic double glazing or secondary glazing to external windows and doors and acoustically

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attenuated ventilation. Later iterations of the legacy schemes went on to provide loft insulation.

2.4.13 Early iterations of Heathrow's residential noise insulation schemes were based on the 1994 69 dB $L_{Aeq,18hr}$ noise contour. Under these schemes Heathrow has contributed 100% of the costs of secondary glazing, 50% of the costs towards primary windows in habitable rooms and 100% of the costs for providing ventilation. Eligibility was subsequently expanded to account for early morning arrivals, and then night noise based on a 2004/05 90dBA SEL contour for the loudest aircraft between 23:30–06:00hrs (a Boeing 747-400 with Rolls Royce Engines).

2.4.14 Between 2017 and 2022, Heathrow ran its Quieter Homes Initiative which provided the full costs of glazing and ventilation measures along with upgrade ceiling over-boarding in habitable rooms for eligible properties, based on a 2011 69 $dBL_{Aeq,16hr}$ contour.

2.5 Operating Restrictions and Voluntary Measures

2.5.1 The ICAO Balanced Approach advises that operating restrictions should only be used to manage noise as 'last resort'.

2.5.2 Heathrow is subject to a combination of legally binding operating restrictions and voluntary curfews.

Air Transport Movement Cap

2.5.3 As part of planning conditions attached to Terminal 5, Heathrow is legally required to comply with a number of noise-related operating restrictions. This includes an air transport movement cap of 480,000 movements per year.

Noise Contour Area Restriction

2.5.4 As well as the cap on ATM, the Terminal 5 consent also includes a limit on the area enclosed within the 57 dB $L_{Aeq,16hr}$ contour. The limit is of 145 km^2 and under the terms of consent must be complied with by 1 January 2026.

Department for Transport Night Flying Restrictions

2.5.5 As a noise designated airport, the Department for Transport (DfT) has direct control over noise at Heathrow and is responsible for setting night flying restrictions. These restrictions are typically reviewed and subject to consultation every 5 years or so. The most recent set of night flying restrictions are effective from October 2022 to October 2024[5].

2.5.6 These restrictions prohibit the noisiest aircraft being scheduled to take off or land during the night (23:00 to 07:00hrs). In addition, the restrictions also define a 'noise quota period' from 23:30 to 06:00hrs where aircraft are restricted by numbers of movements and a 'noise quota'. During the night quota period, the restrictions are managed using a Quota Count (QC) system.

[5] Department for Transport, Night Flight Restrictions at Heathrow, Gatwick and Stansted, Decision Document, July 2021

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2.5.7 DfT set both the number of permitted night-time movements and the noise quota at the noise designated airports. Through consultation, the DfT can consider making changes to these restrictions.

2.5.8 A full description of the night flying restrictions and how they apply to the designated airports is maintained by NATS through a series of AIP supplements. At the time of this Environmental Statement, the most recent AIP supplement is effective of 31 March 2024[6].

Voluntary Curfew on Early Morning Arrivals

2.5.9 Whilst night movements are regulated, Heathrow has also committed not to schedule aircraft to arrive before 04:30hrs in agreement with airlines. It is a voluntary measure and has not been breached, except for where an emergency requires. Heathrow measures performance against this commitment in its FlyQuiet and Green programme.

2.5.10 This voluntary curfew is commended by Government in the APF which states in Paragraph 3.35 that:

"In recognising these higher costs upon local communities, we expect the aviation industry to make extra efforts to reduce and mitigate noise from night flights through use of best-in-class aircraft, best practice operating procedures, seeking ways to provide respite wherever possible and minimising the demand for night flights where alternatives are available. We commend voluntary approaches such as the curfew at Heathrow which ensures that early morning arrivals do not land before 4.30am."

Voluntary Curfew on Scheduling Cargo Departures Between 23:30hrs and 06:00hrs.

2.5.11 As with the voluntary curfew on early morning arrivals, Heathrow has also committed to a voluntary curfew on scheduling cargo departures between 23:30 and 06:00hrs.

2.6 Working with Local Communities

2.6.1 Government policy promotes working in partnership and activity participating in engagement forums with a range of stakeholders on noise[7].

2.6.2 Although not directly a pillar of the ICAO balanced approach, Heathrow recognises the importance of working with local communities in managing aircraft noise. Heathrow has therefore included working with local communities and the aviation industry as a core pillar of its own noise management framework.

2.6.3 To this end, Heathrow supports a range of community engagement forums and industry groups. These include:

- **Noise and Airspace Community Forum (NACF)** – this was established in 2022 with an independent chair. The NACF continues the work of the Heathrow Community Noise Forum (HCNF) which was established in 2015 in response to local concerns regarding future changes to airspace as a result of the

[6] https://nats-uk.ead-it.com/cms-nats/export/sites/default/en/Publications/aip-supplements/EG_Sup_2024_011_en.pdf
[7] Paragraph 3.2, Aviation Policy Framework, 2013

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Government's Airspace Modernisation Strategy. The NACF is made up of representatives from local authorities and communities around Heathrow Airport, along with industry representatives from NATS, British Airways, Department for Transport, the Civil Aviation Authority and Heathrow.

- **Council for the Independent Scrutiny of Heathrow Airport (CISHA)** – in 2022 Heathrow launched CISHA to fulfil the functions of the former Heathrow Airport Consultative Committee and Heathrow Community Engagement Board. CISHA is responsible for ensuring constructive and effective engagement between Heathrow Airport and those who are impacted by the airport. This includes aircraft noise and other environmental issues and concerns.
- **Aircraft Noise Monitoring Advisory Committee (ANMAC)** – ANMAC was set up by the Government in the early 1990s to advise them on the operation of the noise monitoring equipment which Heathrow had been required to install by the DfT under the Civil Aviation Act 1982. Since then, the committee has been used as an advisory body on various noise issues. Membership includes representatives from NATS, the Environmental Research and Consultancy Division (ERCD) of the CAA, the Scheduling Committees and their technical advisors, representatives from Heathrow, Stansted, and Gatwick as well as a representative and technical adviser from the Consultative Committees of the three airports. The committee is chaired by the Head of the Aviation Environment Division at the DfT. ANMAC has become largely dormant in recent years with the Airspace and Noise Engagement Group (ANEG) providing the most frequent interaction between DfT and stakeholders.
- **Aircraft Noise Engagement Group (ANEG)** – (ANEG) was established by Government to act as a formal channel of communication between the DfT and airspace and airport noise stakeholders. ANEG covers all aspects of national airspace and airport noise policy development. It acts as a sounding board to identify, discuss and, where possible, resolve airspace and airport noise issues that impact on the work of the department. Discussions are at a strategic policy level. ANEG does not debate or attempt to resolve individual local issues. Instead, ANEG is also an open forum for members to share their own relevant airspace and airport noise projects. It meets two to three times each year and notes of the discussions are made publicly available on DfT's website.
- **Airports Council International (ACI)** - ACI represents airports in discussions with international organisations. The most important relationship is with ICAO, where international standards for air transport are debated and developed. ACI represents airports and develops standards and recommended practices for safety, security and environmental initiatives. Heathrow's membership of ACI gives it the opportunity to encourage the exchange of knowledge between European airports and share best practice.

Noise and Track Keeping

2.6.4 Heathrow monitors aircraft noise and track keeping. Flight data provided via Heathrow's Noise and Track Keeping system is taken directly from the National Air Traffic Services (NATS) radar that is used to direct aircraft at Heathrow. The accuracy of the system has

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been verified by the Civil Aviation Authority and by independent Dutch company NLR. This data is used to monitor adherence to the NPRs and to investigate 'off track' aircraft.

2.6.5 Heathrow has an array of fixed and mobile noise monitors located around the airport. These are used to monitor compliance with noise limits set by the DfT for aircraft departing from the airport, to assist annual noise contour mapping and air traffic management improvement initiatives, and to measure noise in community locations where requests have been received to assist our understanding of aircraft noise and to help us shape future policy commitments.

Complaints Service

2.6.6 Heathrow offers a noise complaints service which aims to provide full and comprehensive information to residents on how they are affected by Heathrow's operations.

2.6.7 Complaints can be made to Heathrow's Community Relations team through Heathrow's website, by email or a dedicated phone number.

2.6.8 Heathrow publishes quarterly noise complaint reports on its website. These include data on the number and complaints received, along with the geographic locations of where complaints have arisen.

Communications Tools

2.6.9 Heathrow provides a dedicated noise website (www.heathrow.com/noise). This website hosts or provides links to a number of publicly accessible tools including WebTrak (https://webtrak.emsbk.com/lhr).

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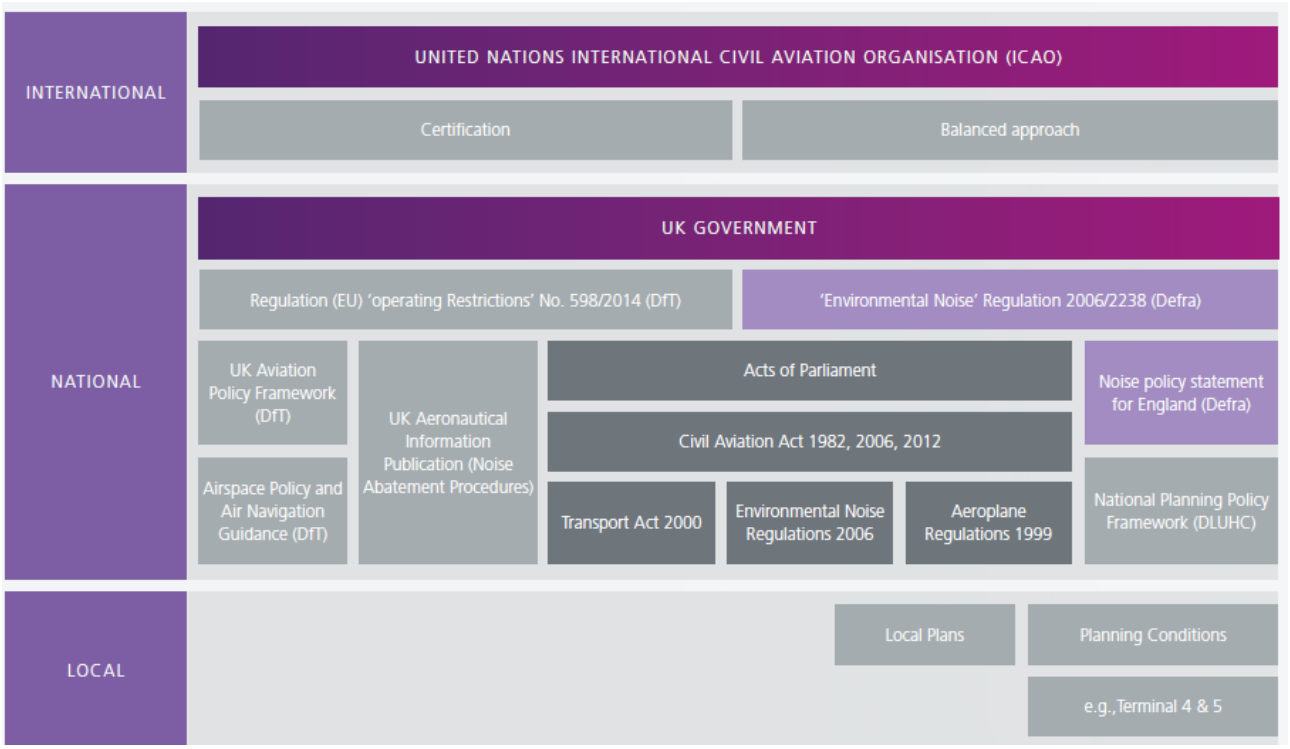
3. Noise Action Plan 2024 - 2028

3.1.1 A Noise Action Plan is a requirement under the Environmental Noise (England) Regulations 2006 (as amended) for major airports with more than 50,000 movements per year. Under the Regulations, Heathrow Airport is the designated competent authority for preparing the airport Noise Action Plan every five years.

3.1.2 The Noise Action Plan summarises the legal context and the background to the regulatory framework for aircraft noise management at Heathrow Airport. This is summarised in **Graphic A7.2.3**

3.1.3 A description of the various international and national legislation presented in **Graphic A7.2.3** can be found in **Chapter 7: Noise and Vibration, Volume II** of the Environmental Statement.

Graphic A7.2.3 Aircraft Noise Regulation and Controls at Heathrow Airport



3.1.4 Heathrow's Noise Action Plan for the period 2019-2023 was adopted and approved by the Secretary of State for Environment, Food and Rural Affairs (Defra) in February 2019.

3.1.5 In 2022 Heathrow undertook to develop a draft Noise Action Plan for the period 2024-2028 in a collaborative manner with significant engagement with stakeholders, partners, local community groups, local MPs, and councillors, and local residents.

3.1.6 The draft Noise Action Plan underwent then a six-week public consultation from the 5th of June to 17th July 2023. Feedback was gathered and reflected into the Noise Action Plan's actions before having been submitted to the Secretary of State (SoS) for the Department for Environment, Food and Rural Affairs (Defra) for approval.

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3.1.7 The Noise Action Plan 2024 – 2028 has since been approved by the SoS.

3.1.8 This Noise Action Plan introduced the sixth pillar, 'Research', to Heathrow's noise management framework. This supports Heathrow's commitment to enhance understanding of community perceptions and the effectiveness of the noise management actions taken to reduce noise impacts.

3.1.9 The key actions that will be progressed in this plan to deliver improvements over the course of 2024 – 2028 were identified under the six pillars of Heathrow's noise management framework and are summarised in **Table A7.2.4**.

Table A7.2.4 Identified actions for Noise Action Plan Noise 2024-2028

Framework for Noise Management	Key action statement
Quieter planes	*"Establish a Fleet Forecasting Forum (FFF) with input from the aircraft manufacturers, at least the top 10 airlines (by movement) and technical experts to more collaboratively predict the pace of future technology and likely take up at Heathrow."* *"Review the landing charges structure in order to meet our sustainable growth objectives and through the FFF identify opportunities to evidence and incentivise the accelerated adoption of new technology at Heathrow with the aim of accelerating the transition to a Chapter 4-free fleet."*
Quieter procedures	*"Establish a Technical Engagement Forum (TEF) with membership from the aircraft manufacturers, at least the top 10 airlines (by movement), NATS and Heathrow Operations to undertake a review and renewal of the arrivals, departures and ground operations Code of Practice by 2026 aimed at supporting the achievement of the noise abatement objectives."* *"We will develop and trial operational practices aimed at increasing the level of predictable respite, particularly at night. This will include the implementation of Easterly Alternation during the daytime."* *"We will identify opportunities to enhance the collection and analysis of operational and noise data in order to improve our understanding of the effectiveness of the noise abatement interventions in the AIP (Aeronautical Information Publication) and identified by the TEF."*
Land-use planning and mitigation	*"We will share the forecast noise contour outputs agreed upon in the MoU with local authorities and exchange information regarding their local development plans and our forecasting outputs to collaboratively reduce sleep disturbance and support land use planning."* *"Launch the new Round 4 Noise Insulation Schemes in 2024 and through the Prioritisation Panel, agree the first phases of the residential insulation and schools ventilation."*
Operating restrictions and voluntary measures	*"In line with our Heathrow 2.0 commitment, we will seek to introduce a voluntary ban on non-dispensed operations after 0000 and before 0430 from 2025."*
Working with local communities	**"**We will strengthen the independent scrutiny of our noise management strategy through CISHA and continue to engage with stakeholders through a variety of forums and provide independent insight, assurance, and transparency."

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Framework for Noise Management	Key action statement
	"We will undertake a review and enhance our online information and tools to improve accessibility and provide greater insight in a more efficient way."
Supporting Research	*"We will develop and implement a Ground Noise Management Plan which will include work with international partners to develop a standard for the use of Pre-Conditioned Air where available."* *"We will establish a longitudinal noise attitudes survey for Heathrow and continue to support and lobby for further research to enhance understanding of our stakeholders and the effectiveness of our noise strategy."*

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4. Quieter Neighbourhood Scheme (QNS)

4.1 Introduction

4.1.1 Following a review of Heathrow's insulation and mitigation schemes in response to Action 3.1 of the 2019 – 2024 Noise Action Plan, Heathrow has introduced a new scheme effective form June 2024.

4.1.2 The new scheme replaces the legacy schemes described in **Section 2.4**.

4.1.3 The new scheme is called the Quieter Neighbourhood Scheme (QNS) and includes two new noise insulation scheme families:

- Residential Insulation Scheme (RIS), comprising:
  - Noise insulation.
  - Home Relocation and Assistance.
  - Vortex impact repairs.
- Community Buildings Scheme (CBS), including:
  - The Quieter Schools Programme (QSP) – Acoustic insulation and ventilation for schools and colleges, including repairs to measures provide under legacy schemes.
  - Noise insulation for community halls, libraries, hospitals, hospices and registered nurseries.

4.2 Residential Insulation Scheme (RIS)

4.2.1 Eligibility is based on a shared eligibility contour. This is comprised of a composite of four discrete contours or aircraft noise footprints as follows:

- Daytime 2026 forecast 63 dB $L_{Aeq,16hr}$ contour;
- Night-time 2026 forecast 55 dB$L_{Aeq,8hr}$ contour;
- 90 dBA SEL for the noisiest scheduled aircraft arriving before 6:00am (Airbus A380-800); and
- The footprint of calculated probability of more than 1 additional aircraft noise awakening night based on aircraft operating between 04:30 and 06:00hrs.

4.2.2 The initial forecast scheme footprint and eligibility boundary has been based on a 2026 forecast year. The current initial eligibility boundary for the QNS is presented in **Graphic A7.2.4**

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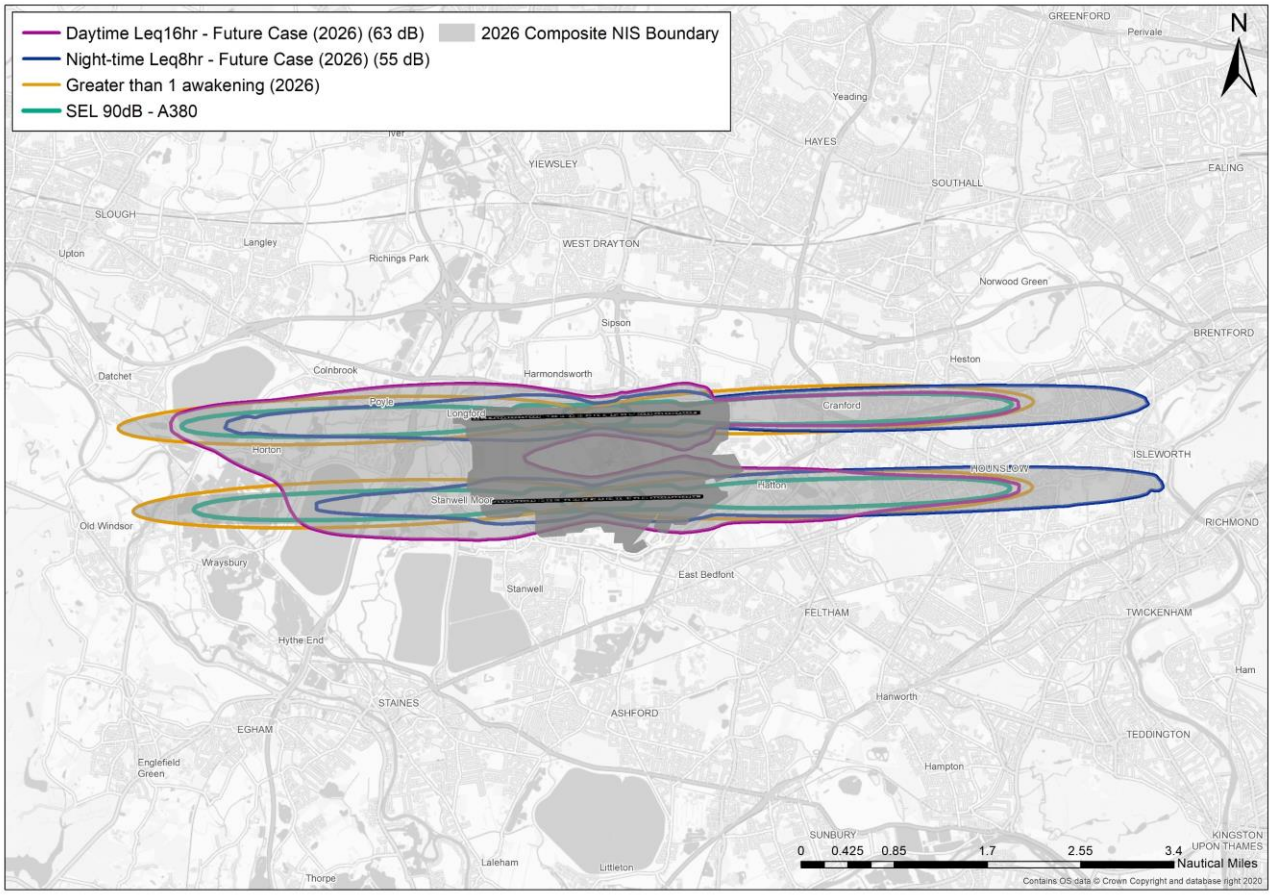
Graphic A7.2.4: QNS – Current (Draft) Eligibility Boundary



4.2.3 **Graphic A7.2.4** is currently based on a forecast year of 2026 and does not currently account for the Proposed Development. Should the Proposed Development be granted consent, and the implementation of Easterly Alternation approved then the scheme boundary will update accordingly.

4.2.4 The eligibility boundary for the schemes are not fixed at the outset (unlike Heathrow's legacy schemes) but will remain dynamic to reflect the changes (and anticipated improvements) in noise exposure over time.

4.2.5 Beyond such changes, it is envisaged the scheme boundary will be reviewed at approximately five-year intervals after implementation in line with the timeframe of the Noise Action Plan for the 2024 - 2028 period, and subsequent rounds of Noise Action Plans, strategic noise mapping or any new requirements that arise through changes to Government policy.

4.2.6 A major review of the new schemes is already planned for 2031 to take account of planned research work and progress against, as well as revisions of, Heathrow's Sustainability 2.0 goals.

Prioritisation Panel

4.2.7 To assist with the delivery of the QNS, Heathrow has established a prioritisation panel which is comprised of independent stakeholder organisations and experts. These include:

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- The Council for the Independent Scrutiny of Heathrow Airport (CISHA);
- Heathrow Association for the Control of Aircraft Noise (HACAN);
- Heathrow Strategic Planning Group (HSPG);
- Heathrow Airline Operators Committee (AOC); and
- Noise and Health Experts.

4.2.8 The aim of the prioritisation panel is to provide oversight in how the QNS will be delivered. This includes the identification of 'zones' around the Airport for a phased roll out of the QNS. The objective of a prioritised phased roll out of the QNS is to:

- Ensure that the delivery programme for the QNS provides the quality experiences that residents and local communities expect; and
- Prioritise those in the highest noise areas and roll out the delivery for dwellings and community buildings within the eligibility areas based on UK noise policy on an area by area basis.

4.2.9 The roll of the Prioritisation Panel is also to consider any special cases which may arise and to help address disputes.

RIS Technical Provisions

4.2.10 Under the RIS, and for the purposes of determining eligibility to the scheme, a dwelling[8] is considered to potentially eligible under the scheme if any part of it or its curtilage falls within the composite noise insulation scheme boundary in the relevant implementation phase.

4.2.11 The scheme is available to dwelling owners or tenants, although the latter requires landlord approval. Heathrow will ensure that tenants inform their landlords about the scheme and its benefits and invite the landlord to register interest with Heathrow. Heathrow will then work with the landlord and the tenant to arrange access for surveys.

4.2.12 The noise insulation costs for residential schemes are 100% funded by Heathrow, subject to a maximum expenditure limit of £34,000 per dwelling[9]. This approach goes beyond existing Government policy but does not extend to the Airport's expansion proposals and/or any anticipated future Government policies[10]. A total scheme take-up rate of circa 80% is envisaged for the new scheme.

4.2.13 For each eligible dwelling, Heathrow will independently assess each home or building to determine what noise insulation and vortex protection measures will be most effective, detailing them in a bespoke Statement of Need (SON).

[8] For the purposes of Heathrow's noise schemes, a dwelling is considered to be a main building of fixed bricks-and-mortar type construction that is used as a residence. It does not include out-buildings, garages, mobile homes or canal boats.
[9] The limit of £30,000 per dwelling is subject to periodic review and uplift by Heathrow.
[10] Department for Transport, Aviation 2050, Paragraphs 3.121 and 3.122

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4.2.14 Should the expenditure required go beyond the expenditure limit, this will be referred to Heathrow's Prioritisation Panel as a special case for determination.

4.2.15 Heathrow's new noise insulation scheme will incorporate some or all of the following:

a) The supply and installation of replacement primary windows or secondary glazing and external doors.
b) The supply and installation of acoustically attenuated ventilation in eligible rooms.
c) The Installation of an acoustic quilt within the roof void.
d) Upgrading of ceilings within eligible rooms where practicable to provide an increased level of acoustic attenuation.

4.2.16 The schemes will aim to install noise mitigating measures in all rooms in any eligible property where there is evidence to show there will be a practicable reduction on noise. For this reason, conservatories are specifically excluded from the scheme.

4.2.17 Where the dwelling has already been treated with acoustic glazing (double or secondary) or ventilation, Heathrow's assessors will determine whether it remains effective or requires replacement under the scheme.

Acoustic Performance Specification

4.2.18 Heathrow's acoustic performance specification for the new residential noise insulation scheme is described in scheme document NIS No.16: Acoustic Performance Specification Document.

4.2.19 Replacement double glazed windows should provide a minimum sound reduction performance value of 38 dB.

4.2.20 The sound insulation requirements of the glazing are applicable to the window system as a whole, including frames, mullions and panels. They are based on BS EN ISO 10140: 2010 *"Acoustics - Laboratory measurement of sound insulation of building elements"* and rated in accordance with BS EN ISO 717-1:2013 *"Acoustics – Rating of sound insulation in buildings and of building elements Part 1. Airborne sound insulation"*.

4.2.21 With secondary glazing the following material and installation specification should be followed:

- 4 mm toughened glass where distance between inner and outer window is 150 mm or more; 6 mm toughened glass where distance between inner and outer window is less than 150 mm with a recommended minimum distance of 100 mm.
- Where non- glazed or partially glazed doors open into habitable rooms, the door leaf should provide a minimum sound reduction performance of Rw 35 dB and incorporate full perimeter seals along the head, jambs and threshold.
- The performance of the door panel should be determined as indicated in BS EN ISO 10140: 2010 "Acoustics - Laboratory measurement of sound insulation of building elements" and rated in accordance with BS EN ISO 717-1:2013 "Acoustics – Rating of sound insulation in buildings and of building elements Part 1. Airborne sound insulation".

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Ventilation Performance Specification

4.2.22 As part of the Heathrow Airport Noise Insulation Scheme, the appointed contractor is responsible for installing appropriately specified ventilation unit(s) into a resident's property. The purpose of the ventilation unit(s) is to provide adequate background ventilation to a resident's property in accordance with the most recent revision(s) of the UK Building Regulations. This will negate the need to rely on opening windows to improve airflow, also known as 'purge ventilation'.

4.2.23 All ventilation products installed are to meet a minimum acoustic performance rating of 46 dB (in accordance with DIN EN 20140-10/$D_{n,e,w}$ + C_{tr}) and are to be correctly designed and specified by the appointed contractor to comply with the applicable sections of the Building Regulations, BS EN 13141 and other relevant standards.

4.2.24 All ventilation works are to be covered by the appointed contractors FENSA, CERTAS or other applicable industry recognized self-certification scheme. This will confirm to Heathrow Airport that the property installation meets the standards outlined by the building regulations as a minimum.

4.2.25 Historically compliance with the scheme requirements has been achieved by utilizing the following ventilation products.

- Whole house Positive Input Ventilation Systems (PIV);
- Through wall mechanical ventilation units. (Siegenia Aeropac); and
- Through wall passive ventilation units. (Siegenia Aerotube DD160).

4.2.26 Prior to installing any ventilation systems in a property, the appointed contractor is responsible for providing technical information relating to the proposed product to Heathrow Airport for review to confirm product suitability and approval. Under no circumstances are new products to be installed without prior agreement in writing from Heathrow Airport or their appointed technical adviser.

4.2.27 Where fixed systems for mechanical ventilation such as PIV are deemed appropriate, the appointed contractor is responsible for carrying out pre and post works air flow rate testing in all instances to confirm that the system is adjusted correctly to ensure compliance with Approved Document F of the Building Regulations. The appointed contractor is to make the resident aware that fabric alterations make be required to their property to improve through flow of ventilation in some situations.

4.2.28 Heathrow Airport also requires pre and post works air flow testing to be undertaken on occasion to other NIS ventilation installation works other than PIV. This is to validate that the system or unit(s) specified achieves compliance with the applicable parts of the Building Regulations. Heathrow Airport will issue instructions in collaboration with their technical adviser(s) when these tests are required at the time of the appointed contractor receiving an instruction to proceed with the works.

4.2.29 In all instances regardless of property type or form of construction, a resident is given a choice between the installation of a mechanical and/or passive ventilation system(s) at their property.

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4.2.30 All ventilation units are installed either prior to, or during the NIS works undertaken at the resident's property.

4.3 Vortex Impact and Prevention Scheme (VIPS)

4.3.1 The vortex scheme also forms part of the Residential Insulation Scheme.

4.3.2 Legal liability for vortex damage rests with airlines, however Heathrow Airport voluntarily funds this scheme as part of its commitment to the local community.

4.3.3 There is no eligibility footprint applicable to the vortex repair scheme. This reflects its reactive nature, focusing on locations where instances of vortex roof damage occur. This tends to be concentrated in small areas near the end of runways. In instances where greater than 50% of roofs in a road exhibit vortex damage, Heathrow will offer full roof retiling for 100% of dwellings in the road.

4.3.4 The replacement roofs are strengthened by fixing down specified tiles and metal clips that have passed stringent wind tunnel tests.

4.3.5 Sometimes cars may get damaged by vortex lifted tiles from the roof. Heathrow tends to receive a few claims of this type per year.

4.3.6 The vortex scheme is managed by the Delivery Partner and implemented by their appointed roofing contractor.

4.4 Community Buildings Scheme (CBS), including Quieter Schools Programme (QSP)

4.4.1 This includes schools and colleges, hospitals, hospices and nursing homes, libraries and other public buildings where a large number of people will spend long periods of time or where the use is considered to be noise sensitive. The criteria is aligned to a 2026 63 dB $L_{Aeq,16hr}$ forecast.

4.4.2 The following categories of community buildings are eligible under the scheme:

- Primary and secondary schools;
- Higher/ tertiary education colleges;
- Registered nurseries;
- Community halls;
- Libraries;
- Hospices; and
- Nursing homes.

4.4.3 The building – or part of it, if appropriate – should not have been built or converted for use after the publication of the Department for Transport White Paper 'The Future of Air Transport' on 16 December 2003.

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4.4.4 Heathrow would expect that any development given planning permission after that date would have been built with the appropriate noise insulation, according to Government planning guidance.

4.4.5 The scheme provides 100% of the cost of installation of high specification replacement windows or secondary glazing in eligible rooms which for the purpose of our schemes include:

- Schools: classrooms and other learning areas; and
- Nursing homes: bedrooms and communal lounges.

4.4.6 Where acoustic insulation will not provide an appropriate or cost-effective solution, alternative mitigating measures could be considered by the Prioritisation Panel.

4.4.7 The scheme also includes the installation of overheating avoidance measures (such as solar film) or acoustically attenuated ventilation systems in certain eligible buildings, predominantly schools.

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