

December 2023

# Sustainability Scrutiny Project: Community views on air quality around Heathrow Airport

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Full report

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## 1. Foreword from CISHA

The Council for the Independent Scrutiny of Heathrow Airport (CISHA) works with the airport, local communities, and other stakeholders to deliver independent, open and honest engagement and feedback.

We identify airport-related issues that can be improved and encourage actions to be taken to help Heathrow in its efforts to be a better neighbour. Our job at CISHA is to ensure that the views and concerns of those impacted by the airport are listened to and acted upon.

Part of our role is to scrutinise Heathrow's position on sustainability and the environment, which the airport has set out in its [Heathrow 2.0 sustainability strategy](#).

As Chair of CISHA, I've had many conversations with residents about what it's like living near one of the world's busiest airports. One of the key issues that residents and other stakeholders have raised with us at CISHA forum meetings and elsewhere is their concerns around air quality, and their belief that the airport should take more action.

That's why we selected this subject to focus on in our first community research project. We wanted to understand the local communities' views on air quality in the area, on how relevant information is communicated, and their opinions on Heathrow Airport's actions to monitor and improve air quality.

CISHA teamed up with Thinks Insight and Strategy to conduct this project which has considered existing monitoring, reporting and targets set out in Heathrow 2.0 and analysed the airport's proposals and actions around air quality.

Thinks carried out extensive desktop research, insight interviews with a variety of Heathrow airport's stakeholders and an online survey to hear from as many of people as possible. They also carried out a focused survey with a sample of 751 people, as well as 6 focus groups.

At CISHA, we visited sixteen different locations in the neighbouring villages and towns surrounding Heathrow airport to hear directly from people. We also held a webinar to share information on air quality and hear the views of attendees.

We're grateful to the many people who took the time to contribute their views to this project. We hope this project provides helpful information for those concerned about air quality. After considering the views of local communities, the report concludes with a number of recommendations. CISHA will be making these recommendations to the airport, and we look forward to their response.

## 2. Executive summary

### 2.1 The project

The Council for the Independent Scrutiny of Heathrow Airport (CISHA) commissioned Thinks Insight and Strategy to conduct a public review of the local community's views on air quality, including perceptions of Heathrow's actions and commitments to improve air quality.

The public review took an iterative, two-phased approach to scrutinise Heathrow Airport's actions and commitments to improve air quality, before exploring local residents' views on the issue. Within the initial scoping stage, we conducted desk research (reviewing 43 sources) and scoping interviews with 11 key stakeholders between June 19<sup>th</sup> and July 18<sup>th</sup>, 2023.

This was followed by a community engagement phase comprising of 6 deliberative focus groups with residents from Heathrow Airport's neighbouring villages and towns, a focused survey of local residents (broadly representative of the local area), an open link survey, a webinar and 16 in-person community engagement events.

Within the participating sample, there was a focus on residents living closest to Heathrow Airport (within 3 miles) who are most impacted by the airport's activities. This phase took place between 28<sup>th</sup> August and 2<sup>nd</sup> October 2023.

### 2.2 Air quality around Heathrow Airport

Air pollution and air quality have become more prominent issues given the increasing data and evidence regarding its impact on human health, both in the short- and long-term.

Air quality is the term used to describe how polluted the air we breathe is, and this is determined by concentrations of pollutants which can affect human health in the atmosphere.

In the UK, air quality is normally assessed through the measurement and predicted concentration against government objectives of key pollutants, including particulate matter, sulphur dioxide, ozone, nitrogen dioxide, black carbon and carbon monoxide. Ultra-fine particles (UFPs) are also becoming an increasing air quality concern due to early evidence showing its negative effects on the respiratory system. There are currently no air quality standards for UFPs in the UK or anywhere else in the world because of limited monitoring and research to date.

Heathrow Airport measures particulate matter, nitrogen dioxide and ozone using automatic point and diffusion tube monitoring at five Heathrow-funded monitoring sites around the airport. The data collected is shared publicly on the Heathrow Airwatch website, alongside data from another 17 local monitoring sites managed by local councils.

Across the United Kingdom, air quality is measured against the UK government's Air Quality Strategy (AQS) objectives, using similar monitoring methods as conducted by Heathrow Airport. In 2022 the measurements taken showed that the monitoring sites around Heathrow Airport met the AQS's objectives for particulate matter and nitrogen dioxide, however it failed to meet the objective for ozone.

The historical data collected on Heathrow Airwatch shows that concentrations of the pollutants it measures have generally decreased over the past ten years. However, there are still instances in which air pollution levels are high and exceed daily targets.

These findings in this study are based on, and limited by, the measurements taken by the available monitors publishing data on the Heathrow Airwatch website.

### 2.3 Heathrow Airport's work on air quality

Heathrow Airport published its Sustainability Strategy (Heathrow 2.0) in 2022, which includes an overarching goal is to reduce NO<sub>x</sub> airside emissions by 18% (compared to 2019 figures) by 2030. In order to achieve this, it outlines 5 targets to help improve air quality locally<sup>1</sup>. These include:

- Have at least 45% of passengers using public transport to get to the airport by 2026
- Have no more than 57% of colleagues coming to work in single-occupancy cars by 2026
- Increase the number of people located within 1.5 hours of Heathrow by public transport by 25%, and within 3 hours by 12%
- All airport vehicles to be zero emissions or use biofuels by 2030
- Introduce the Ultra-Low Emission Zone for airside vehicles by 2025

Heathrow Airport has set out a range of actions and commitments to achieve these objectives, outlined across its Sustainability Strategy, Net Zero plan and Surface Access strategy. These include:

- Investing in improving and expanding the public transport system to and from Heathrow, including incentivised travel for employees
- Increasing awareness of public transport options using its travel planner and relaunching the Way2Go app for employees
- Reducing traffic flow around Heathrow Airport by introducing park and ride options and terminal drop-off charges

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<sup>1</sup> Heathrow Airport (2022) *Heathrow 2.0: Connecting People and Planet. Our Sustainability Strategy*. <https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/further-reading/Heathrow%202.0%20Connecting%20People%20and%20Planet%20FINAL.pdf>

- Improving the active travel infrastructure around the airport, including the installation of cycling routes
- Encouraging employees to use Heathrow's car-sharing scheme
- Converting Heathrow's current fleet of vehicles to zero emissions, and promoting biodiesel as an interim measure.
- Investing and researching zero-carbon aircrafts such as small electric and hydrogen-powered aircrafts
- Leading a research study on the impacts of pollutants, including ultra-fine particles
- Increased use of new plug-in cooling solutions to save airlines from running engines on standby
- Increased use of Sustainable Aviation Fuel (SAF), which cuts carbon by more than 70%. At least 0.5% of fuel delivered to airlines at Heathrow during 2022 was SAF, predicted to rise to 1.5% in 2023 and 2.5% in 2024.
- Preparing for the introduction of an Ultra-Low Emission Zone (ULEZ) in August 2023.

The context and detail in the above three sections were shared with focus group participants, webinar and community engagement event attendees to provide informed views on air quality, including expectations for Heathrow Airport.

## **2.4 Local community views on air quality around Heathrow Airport**

### **2.4.1 Air quality concerns**

While few local residents think about air quality on a day-to-day basis given its hidden nature, air pollution is still registered as an important and concerning issue. Most feel fairly or very concerned about the quality of the air in the local area (59% in the focused survey feel concerned, compared to 68% in the open link survey), with concern rising amongst those who live closest to the airport (within 3 miles), those living with health conditions, and those with caring responsibilities of a minor.

Learning more about air pollution leads to increased concern about the issue, the impact of Heathrow Airport on air quality locally and how poor air quality impacts human health. On deliberation, local residents newly associate and link symptoms or health conditions experienced by themselves, friends and family to poor air quality.

Anecdotally, health conditions (particularly respiratory and cancer) are perceived to be higher in the local area by local residents than in the rest of the UK average. Learning more about the different pollutants also increased how much they wanted to understand the impact of Heathrow Airport as a source of pollution, particularly in the context of its third runway plans.

## **2.4.2 Views on Heathrow Airport's air quality monitoring and reporting**

Whilst local residents *assume* that Heathrow Airport monitors air pollution, there is very little awareness of how the airport *actually* monitors and reports on air quality. On prompting, there is very little awareness of Heathrow Airwatch, with only 3% of focused survey and 6% of open link survey respondents claiming they have definitely used the website before. Poor knowledge about the website and a perceived lack of intent for Heathrow to promote it generates distrust in the airport's intentions and contributes to a sense that the data is being hidden from the public.

Given that air quality is regarded an important topic which is not widely understood, local residents feel it is Heathrow Airport's responsibility to proactively communicate the data in an accessible manner, including guidance on how to reduce air pollution and protect oneself when air pollution levels are high. There are also felt to be important gaps in the current air quality monitoring network – most notably below the flight paths and within the airport perimeter as well as UFP measuring – which local residents feel are important to address. Local residents also feel it is important that there is independent oversight over Heathrow's air quality monitoring and reporting, stemming from resident scepticism in the airport's corporate interests.

On engaging with content from the Heathrow Airwatch website, including historical data and breaches, local residents are initially impressed with the depth of air quality reporting available to them. Upon further analysis however, residents are more cynical towards the data, specifically towards reports showing all monitoring levels classified as 'low', contradicting what they would expect air quality levels to be around one of the busiest airports in the world. While residents are not surprised by the incidence of spikes in air pollution and breaches of the objectives, there is concern about the impact this has had (and will continue to have) on local residents' health – particularly for children and those with health conditions. There is an expectation that Heathrow Airport should communicate instances when air pollution is high in the moment and outlines how local residents can protect themselves from it.

## **2.4.3 Views on Heathrow Airport's air quality targets and commitments**

There is little understanding of what Heathrow Airport is doing to improve air quality locally, with one fifth (21%) claiming awareness of Heathrow's 2.0 Sustainability Strategy before being surveyed, and only 3% claiming to know what the strategy includes. Despite this, there is a general consensus that air quality should be a key priority for Heathrow Airport. All local residents feel that the airport has a responsibility to mitigate the impact the airport's activities on the environment and prioritise local communities' health.

On learning about Heathrow Airport's air quality targets, local residents broadly feel these are ambitious and necessary. However, some residents question whether Heathrow is being held accountable to ensure it achieves them and wonder if the airport would be fined if the targets were not achieved. On further deliberation, local residents also feel the targets place a large deal of the responsibility on passengers (such as increased passenger use of public transport) rather than being in the airport's direct control, with residents questioning why no targets relate to the aircrafts themselves.

Initially, local residents approve of the range of actions and commitments Heathrow Airport has outlined to improve air quality, feeling the airport is taking the right measures to achieve its targets. However, residents raise some important considerations to ensure the commitments have a real impact and do not adversely affect its neighbouring residents. These include ensuring investment is made into the public transport network close to the airport (with many feeling it has been deprioritised over longer distance travel), ensuring Heathrow uses its power to drive change by pressuring airlines and partners to commit to air quality objectives, and considering the implications of the air quality actions and commitments on the local area (such as increased traffic as a result of the newly introduced shuttle services).

While there are mixed levels of confidence in Heathrow's ability to achieve its air quality targets (51% feeling confident and 49% not feeling confident in the focused survey, and 32% and 68% respectively in the open link survey), local residents outline some actions that could increase their confidence. These include having an independent party that oversees and scrutinises Heathrow Airport's air quality monitoring, reporting, targets and commitments, further communication of its work and outcomes surrounding air quality, and demonstrating how the airport works with external parties (such as local councils and weather stations) to improve air quality monitoring and reporting.



## 3. Background and methodology

### 3.1 Project background

Heathrow Airport's 2.0 Sustainability Strategy – published in 2022 – outlines local air quality and its effects on public health as critical issues for communities around Heathrow. This issue has been repeatedly raised with CISHA as a significant concern at CISHA forums and elsewhere.

CISHA commissioned Thinks Insight and Strategy to evaluate community views around Heathrow Airport's air quality monitoring, targets and commitments through using primary and secondary research techniques.

### 3.2 Project objectives

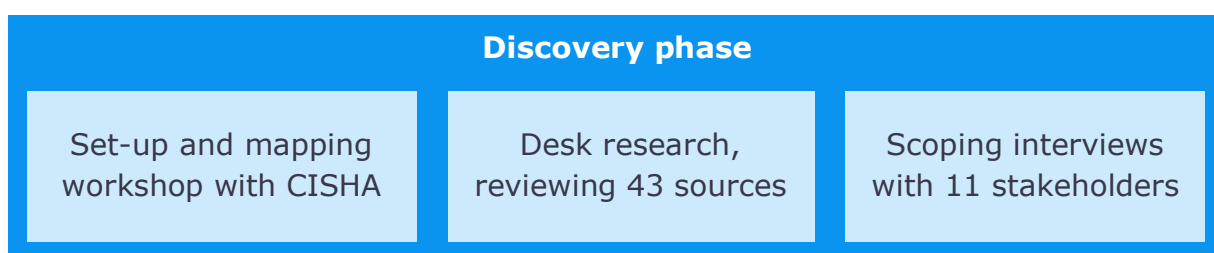
Thinks Insight and Strategy conducted a mixed-method research programme to evaluate existing literature on air quality around Heathrow, and obtain informed local community views on how Heathrow Airport is performing against its commitments. Specifically, the objectives of the research include:

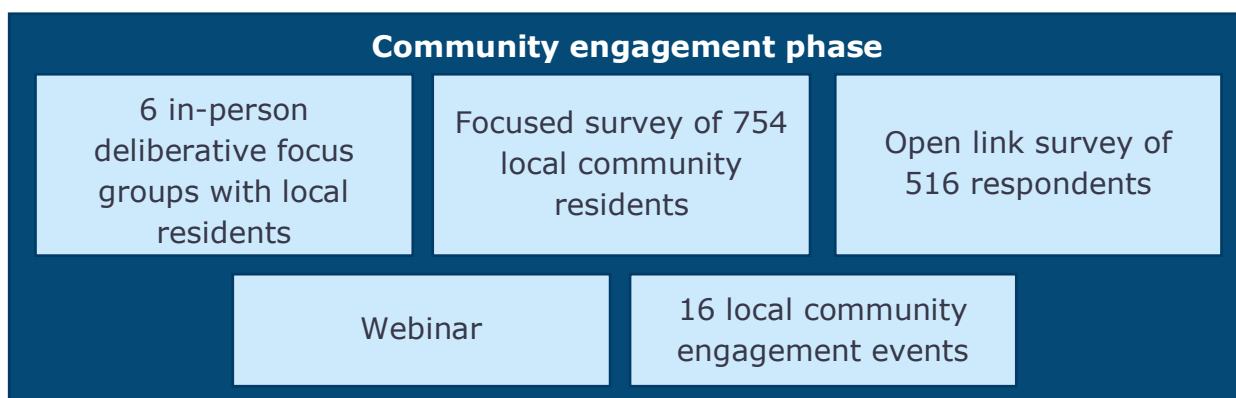
- Scrutinising existing publicly available literature on Heathrow Airport's air quality monitoring, targets and commitments
- Exploring expert and stakeholder views on Heathrow Airport's performance with regards to local air quality
- Understanding the local community's air quality concerns
- Obtaining views on Heathrow Airport's air quality monitoring and reporting, including Heathrow Airwatch
- Obtaining views on Heathrow Airport's air quality targets and commitments

Ultimately, the research provides an account of informed local community views on air quality and sets out recommendations for Heathrow Airport.

### 3.3 Methodology and sample

To address the numerous research objectives, Thinks Insight and Strategy conducted a multi-staged and iterative research programme that ensures local community participants are able to make informed judgements given the low salience nature of the topic in question, and produced a set of recommendations. This included:





## Discovery phase

To scrutinise Heathrow Airport's actions and commitments in relation to air quality and inform the design of the community engagement phase, Thinks Insight and Strategy conducted a discovery phase which included an internal set-up and mapping workshop with CISHA, desk research and stakeholder scoping interviews. More detail on these stages can be found below.

### Desk research

This involved the review of 43 sources, which informed this research's findings and helped produce easily comprehensible stimulus materials to use when engaging local residents, to ensure they were able to have informed views on the following areas:

- The main contributors to air pollution and poor air quality, and its impact on human health
- How air quality is monitored and reported, including at Heathrow Airport
- How Heathrow Airport communicates and engages with local communities on air quality
- Heathrow Airport's actions and commitments to improving air quality

A full list of sources reviewed and cited can be found in the appendix.

### Scoping interviews and wider engagement

In addition to the desk research, Thinks Insight and Strategy conducted scoping interviews (lasting c. 45 minutes) with 11 key stakeholders to further understand Heathrow Airport's actions and commitments in relation to air quality. A list of stakeholders who took part in the interviews can be found in the appendix.

In addition to the scoping interviews, we attended:

- Heathrow Airport's Air Quality Working Group meeting on July 11<sup>th</sup> to gather further insight into its monitoring and reporting responsibilities, as well as its action and commitments to improving air quality
- The Local Community Forum meeting on July 18<sup>th</sup> to discuss the research design and key research considerations.

## Community engagement phase

Following the discovery phase, local communities were engaged via focus groups, surveys, community engagement events and a webinar, aimed to:

- Understand their concerns around air quality
- Explore their expectations and views on Heathrow Airport's air quality monitoring and reporting
- Understand their preferences for future communication and engagement on air quality
- Gauge their views on Heathrow Airport's targets and commitments to improving air quality

To ensure we heard from those who are most heavily impacted by Heathrow Airport's activities, we upweighted the sample of people living within a 3-mile radius of the airport within the focus groups and focused survey. Additional detail on the community engagement phase can be found below.

### Focus groups

Thinks Insight and Strategy conducted 6 two-hour deliberative, in-person focus groups with residents from Heathrow Airport's neighbouring villages, taking place between 13<sup>th</sup> and 26<sup>th</sup> September, and split by location:

- Cranford
- Hounslow
- Feltham
- Stanwell
- Colnbrook, Langley and Longford<sup>2</sup>
- Harmondsworth, Harlington, Sipson and Hayes

There were 5-8 participants per focus group, with a total of 37 participants taking part in the qualitative focus groups. Detailed information on the focus group sample can be found in the appendix.

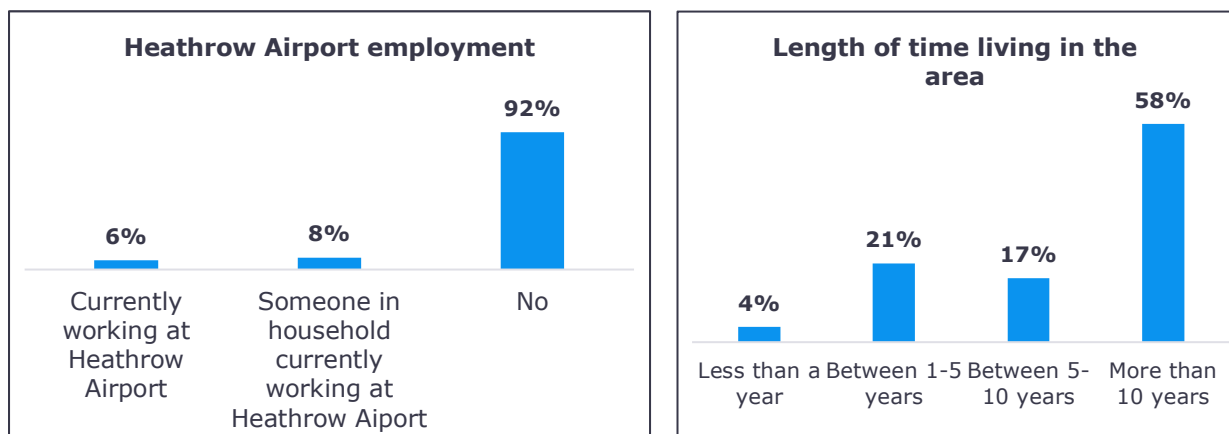
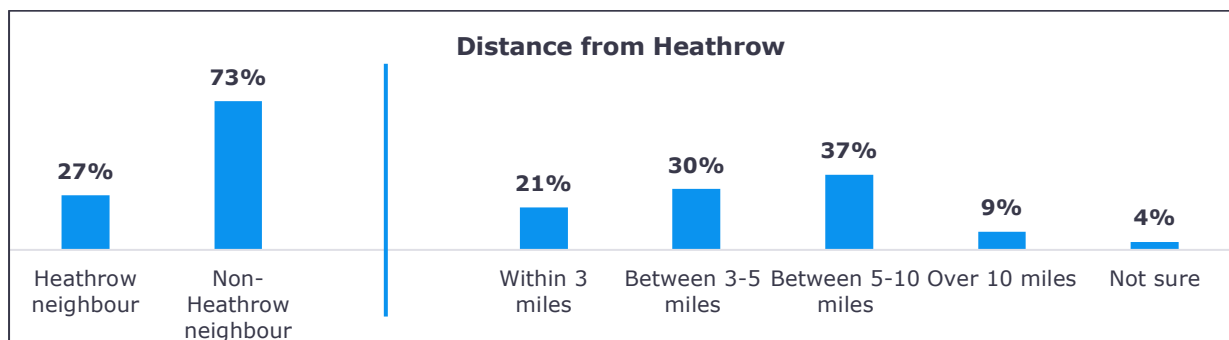
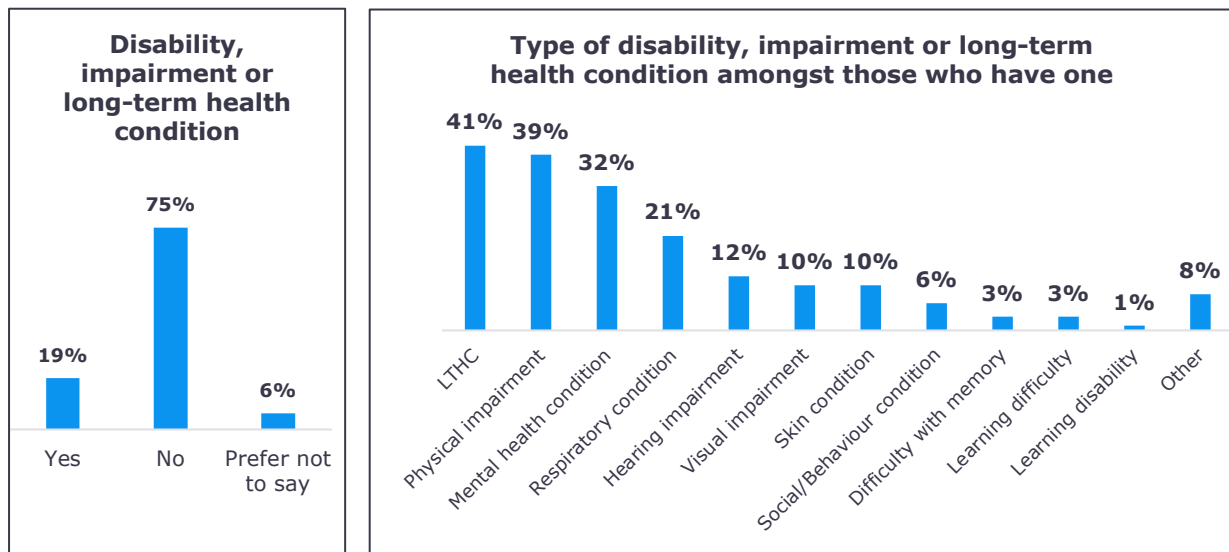
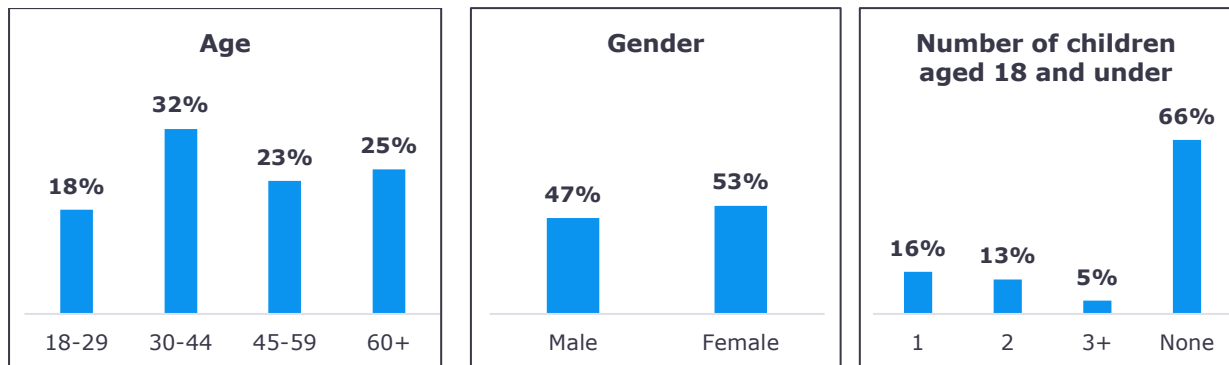
### Focused survey

Thinks Insight and Strategy conducted a 10-minute survey with 754 local residents, broadly representative of the UK population. The survey took place between September 20<sup>th</sup> and October 2<sup>nd</sup> via a mixed approach of online and computer automated telephone interview (CATI) responses. Respondents were recruited to take part in the survey via a panel. The sample was limited to those living near Heathrow Airport, ensuring we heard from those most affected by the airport. As such, we upweighted the sample of those living in Heathrow's neighbouring towns and villages to 204 respondents – these are described as

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<sup>2</sup> Due to unexpected last-minute participant drop-outs, we conducted an online mini-group with three participants.

Heathrow neighbours throughout. A list of the qualifying postcodes can be found in the appendix. The sample comprises of:



## Local community engagement events

To provide further opportunities for local residents to learn more about air quality around Heathrow Airport and share their views on the topic, CISHA conducted local community engagement events in 16 locations between the 7<sup>th</sup> and 23<sup>rd</sup> September. A full list of the locations attended can be found on CISHA's website<sup>3</sup>.

CISHA used local media print advertising and social media engagement and marketing to promote the community engagement events, as well as the open link survey and the webinar, to maximise reach and engagement with local residents. CISHA also contacted local schools, businesses, residents' associations, and other local organisations, and relevant local authorities and members of Parliament, to encourage participation in the research via attendance at the local community engagement events, completion of the open link survey, and attendance of the webinar.

During the local community engagement events, CISHA shared information about the research programme via an information leaflet developed by Thinks Insight and Strategy. The leaflet (see image below on the left) includes an introduction to air quality, insight on Heathrow Airport's air quality monitoring and reporting, and detail on the airport's targets to improving air quality. The leaflet also included a QR code to access the open link survey for residents to share their views. The leaflet can be found on CISHA's website<sup>4</sup>.



<sup>3</sup> Council for the Independent Scrutiny of Heathrow Airport (2023). 'What do you think about air quality'. <https://www.cisha.org/air-quality>

<sup>4</sup> Council for the Independent Scrutiny of Heathrow Airport (2023). 'Air quality leaflet'. [https://static1.squarespace.com/static/63c557a5efd5340d43ea2d49/t/64f71cf8117de70470932163/1693916411403/CISHA\\_Leaflet.pdf](https://static1.squarespace.com/static/63c557a5efd5340d43ea2d49/t/64f71cf8117de70470932163/1693916411403/CISHA_Leaflet.pdf)

## Open link survey

In addition to the controlled, representative survey, Think Insight and Strategy provided an open link survey as an opportunity for a wider sample to share their views should they wish to. This was advertised by CISHA at the local community events and on socials. The survey took place between 28<sup>th</sup> August and 30<sup>th</sup> September, with participants taking part online. The sample comprised of:



Participants who took part in the open link survey had been primed with information about local air quality provided in the information leaflet. The opt in and self-selection nature of the survey also skews participation from those who are naturally more interested in the topic and tend to have stronger views than the average resident – as evidenced in the data in this study.

## Webinar

To provide an opportunity for local residents to learn more about air quality around Heathrow Airport and share their views, CISHA and Thinks Insight and Strategy conducted a webinar. The webinar took place on the 20<sup>th</sup> of September, lasting 90 minutes with a total of 16 attendees. The webinar presented information about the research programme and air quality around Heathrow Airport, including the airport's actions and commitments to improving air quality. It also allowed attendees to share their views via polls and questions. The webinar running slides and webinar recording can be found on CISHA's [website](#)<sup>5</sup>.

## 4. Information on air quality around Heathrow Airport

The information in this section was independently gathered and drafted by Thinks Insight and Strategy through the desktop research and scoping interviews.

### 4.1 Introduction to air quality

#### 4.1.1 Background on air quality

Air quality is the term used to describe how polluted the air we breathe is<sup>6</sup>. This is determined by concentrations of pollutants in the atmosphere which can affect human health.

Air pollution and air quality have become increasingly prominent issues, given increasing data and evidence about its impact on human health, both in the short- and long-term. However, concern and legislation around air quality in the UK spans back to the 20<sup>th</sup> century, when urban smog caused by coal combustion prompted the UK government to introduce its first Clean Air Act in 1956<sup>7</sup>.

Concentrations of air pollutants in the UK have significantly changed over time, due to a decline of industrial and domestic coal use but increased usage of

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<sup>5</sup> Council for the Independent Scrutiny of Heathrow Airport (2023). 'What do you think about air quality'. <https://www.cisha.org/air-quality>

<sup>6</sup> GOV.UK, DEFRA (2019) *Air Quality: explaining air pollution – at a glance*. <https://www.gov.uk/government/publications/air-quality-explaining-air-pollution/air-quality-explaining-air-pollution-at-a-glance#:~:text=Air%20quality%20is%20the%20term,with%20lung%20or%20heart%20condition>

<sup>7</sup> DEFRA, UK AIR (n.d.) Monitoring Networks: Brief History. <https://uk-air.defra.gov.uk/networks/brief-history>

transport vehicles<sup>8</sup>. The World Health Organisation (WHO) has outlined five 'priority' pollutants, deemed to have the biggest impact on human health. These are also some of the main pollutants monitored by the UK government's Department for Environment, Food and Rural Affairs (DEFRA) currently. The primary sources and impact on health of these pollutants are defined in DEFRA's AQS (Air Quality Strategy) and summarised below<sup>9</sup>:

Pollutant	Primary sources	Impact on health
<b>Particulate Matter (PM)</b> (both PM <sub>2.5</sub> and PM <sub>10</sub> , numbered by the diameter of the particle in microns)	Derived from human-made and natural sources. In the UK, the biggest human-made sources are stationary fuel combustion and transport. Road transport gives rise to primary particles from engine emissions, tyre and brake wear and other non-exhaust emissions. Other sources include quarrying and construction.	Both short-term and long-term exposure to ambient levels of PM are consistently associated with respiratory and cardiovascular illness and mortality as well as other ill-health effects.
<b>Sulfur dioxide (SO<sub>2</sub>)</b>	UK emissions are dominated by combustion of fuels containing sulphur, such as coal and heavy oils by power stations and refineries.	Causes constriction of the airways of the lung. This effect is particularly likely to occur in people suffering from asthma and chronic lung disease.
<b>Ozone (O<sub>3</sub>)</b>	Ozone is not emitted directly from any humanmade source. It arises from chemical reactions between various air pollutants, primarily NO <sub>x</sub> and VOCs.	Exposure to high concentrations may cause irritation to eyes and nose. Very high levels can damage airways leading to inflammatory reactions. Ozone reduces lung function and increases incidence of respiratory symptoms, respiratory hospital admissions and mortality.

<sup>8</sup> London Air (n.d.) Air Pollution Guide: London History. <https://www.londonair.org.uk/londonair/guide/londonhistory.aspx#:~:text=It%20is%20often%20assumed%20that,of%20the%201950s%20and%2060s>

<sup>9</sup> (DEFRA (2007) *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 1)* pp. 16-19, Table 1). <https://assets.publishing.service.gov.uk/media/5a758459ed915d731495a940/pb12654-air-quality-strategy-vol1-070712.pdf>



<b>Nitrogen dioxide (NO<sub>2</sub>)</b>	Road transport is the main source, followed by the electricity supply industry.	At high levels NO <sub>2</sub> causes inflammation of the airways. Long term exposure may affect lung function and respiratory symptoms. NO <sub>2</sub> also enhances the response to allergens in sensitive individuals
<b>Carbon monoxide (CO)</b>	The largest source is road transport, followed by residential and industrial combustion.	Substantially reduces capacity of the blood to carry oxygen to the body's tissues and blocks important biochemical reactions in cells.

#### 4.1.2 Ultra-Fine Particles

Ultra-Fine Particles (UFPs) are defined as particulate matter (PM) which are between 1 to 100 nanometres in size. Despite their size, UFPs have been found to make up the largest number of particles in the ambient air<sup>10</sup>.

UFPs are a newly discovered pollutant, only perceptible via nanotechnology. This means that knowledge of UFPs and their human health impact is mainly limited to academic study – there are few instances of public-facing communication by governments or other public bodies about UFPs, and a notable lack of coordinated research and testing. But there is growing concern amongst the public health community about UFPs' impact on human health. These are currently understood to include the following:

- UFPs travel deeper into the lung than larger particles. They are also small enough to avoid the body's attempts to clear particles from the lungs, allowing them to stay in the body longer, to build up, and to cause damage<sup>11</sup>.
- UFPs' high surface area means they can absorb a substantial amount of toxic compounds<sup>12</sup>.
- Health studies conducted with animals, most notably by Donaldson et al. (2001), have found that exposure to UFPs is related to inflammatory stress on the respiratory system<sup>13</sup>.

Like PM<sub>10</sub> and PM<sub>2.5</sub>, fuel combustion from mobile sources (vehicles, ships, aeroplanes), as well as stationary sources (power plants, incinerators) are considered the primary sources of UFPs<sup>14</sup>.

<sup>10</sup> Kwon, et al. (2020) *Ultrafine particles: unique physicochemical properties relevant to health and disease*

<sup>11</sup> Diaz (2019) *Summary of Health Research on Ultrafine Particles*

<sup>12</sup> Moreno-Ríos, et al. (2022) *Sources, characteristics, toxicity, and control of ultrafine particles: An overview*

<sup>13</sup> Donaldson, et al. (2001) *Ultrafine particles*

<sup>14</sup> Diaz (2019) *Summary of Health Research on Ultrafine Particles*

Levels of emissions from aircraft turbine engines have therefore been specifically scrutinised in academic research, and technical research has been conducted in the vicinity of international airports such as Heathrow, LAX, Schiphol and Copenhagen<sup>15</sup>. An academic review of technical research studies into UFP levels in and around airports concludes that “all [studies] demonstrating high concentrations of UFPs are observed close to aircraft emissions [...] and may be observable for some distance downwind from the source, suggesting that airport and aircraft emissions and impact should be considered in isolation from other sources.”<sup>16</sup>

### 4.1.3 Air quality limits and objectives

There are a range of limits, objectives and targets nationally and internationally with regards to air quality. In the UK, DEFRA’s existing Air Quality Strategy (AQS) Objectives are currently in line with air quality standards set and enforced by the European Directive<sup>17</sup>. However, now that the UK has left the EU, the government is able to amend its air quality standards. The extent to which the standards will be amended is being proposed and debated within parliament as of the time of writing this report<sup>18</sup>.

The EU air quality standards which remain adhered to in the UK contain limit values and target values. Air quality standards, exceedances and limit and target values are defined by DEFRA as the following<sup>19</sup>:

- Air Quality standards are concentrations recorded over a given time period, which are considered to be acceptable in terms of what is scientifically known about the effects of each pollutant on health and on the environment. They can also be used as a benchmark to indicate whether air pollution is getting better or worse.
- An exceedance is a period of time (defined for each standard) where the concentration is higher than that set out in the standard. In order to make useful comparisons between pollutants, the number of days on which an exceedance has been recorded is often reported.
- Limit values are legally binding parameters that must not be exceeded. Limit values are set for individual pollutants and are made up of a

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<sup>15</sup> Hudda, et al. (2014) *Emissions from an International Airport Increase Particle Number Concentrations 4-fold at 10 km Downwind*; Hudda and Fruin (2016) *International Airport Impacts to Air Quality: Size and Related Properties of Large Increases in Ultrafine Particle Number Concentrations*; Janssen, et al. (2022) *Effects of long-term exposure to ultrafine particles from aviation around Schiphol Airport*; Møller, et al. (2014) *Occupational exposure to ultrafine particles among airport employees-combining personal monitoring and global positioning system*; (Stacey, et al. (2021) *Evaluation of aircraft emissions at London Heathrow Airport*

<sup>16</sup> Stacey (2019) *Measurement of ultrafine particles at airports: A review*

<sup>17</sup> DEFRA, UK AIR (n.d.) *UK Air Quality Limits*. <https://uk-air.defra.gov.uk/air-pollution/uk-eu-limits>

<sup>18</sup> UK Parliament (2023) *Air Quality: policies, proposals and concerns*. <https://commonslibrary.parliament.uk/research-briefings/cbp-9600/>

<sup>19</sup> DEFRA, UK AIR, (2023) *Air Quality Objectives Update* [https://uk-air.defra.gov.uk/assets/documents/Air\\_Quality\\_Objectives\\_Update\\_20230403.pdf](https://uk-air.defra.gov.uk/assets/documents/Air_Quality_Objectives_Update_20230403.pdf)

concentration value, an averaging time over which it is to be measured, the number of exceedances allowed per year, if any, and a date by which it must be achieved.

- Target values are to be attained where possible by taking all necessary measures not entailing disproportionate costs.

The table below summarises DEFRA's Air Quality Strategy Objectives for the pollutants of note, as of Autumn 2023<sup>20</sup>:

Pollutant	Mean averaging time	DEFRA AQS objectives
PM <sub>10</sub>	Annual	40 µg/m <sup>3</sup> (18 µg/m <sup>3</sup> in Scotland)
	24-hour	50 µg/m <sup>3</sup> – not to be exceeded more than 35 times a year, or 7 times a year in Scotland
PM <sub>2.5</sub>	Annual	10 µg/m <sup>3</sup> or lower, and that population exposure is reduced by 35% compared to 2018 levels by 2040 (England only) <sup>21</sup>
O <sub>3</sub>	8-hour	100 µg/m <sup>3</sup> not to be exceeded more than 10 times a year
NO <sub>2</sub>	Annual	40 µg/m <sup>3</sup>
	1-hour	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year
SO <sub>2</sub>	24-hour	125 µg/m <sup>3</sup> not to be exceeded more than 3 times a year
CO	24-hour	10 mg/m <sup>3</sup>

The World Health Organisation (WHO) also outlined its global air quality guidelines in 2021, which are non-enforced targets.<sup>22</sup> These targets detail lower concentrations of the major pollutants across the board, particularly when it comes to PM<sub>2.5</sub>, NO<sub>2</sub> and SO<sub>2</sub>:

Pollutant	Mean averaging time	WHO guideline target
PM <sub>10</sub>	Annual	15 µg/m <sup>3</sup>

<sup>20</sup> DEFRA, UK AIR, (2023) *Air Quality Objectives Update* [https://uk-air.defra.gov.uk/assets/documents/Air\\_Quality\\_Objectives\\_Update\\_20230403.pdf](https://uk-air.defra.gov.uk/assets/documents/Air_Quality_Objectives_Update_20230403.pdf)

<sup>21</sup> DEFRA, (2023) *England Fine Particulate Matter Targets*. <https://uk-air.defra.gov.uk/pm25targets/overview>

<sup>22</sup> WHO, (2021) *What are the WHO Air quality guidelines?*. <https://www.who.int/news-room/feature-stories/detail/what-are-the-who-air-quality-guidelines>

	24-hour	45 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Annual	5 µg/m <sup>3</sup>
	24-hour	15 µg/m <sup>3</sup>
O <sub>3</sub>	Peak season	60 µg/m <sup>3</sup>
	8-hour	100 µg/m <sup>3</sup>
NO <sub>2</sub>	Annual	10 µg/m <sup>3</sup>
	1-hour	25 µg/m <sup>3</sup>
SO <sub>2</sub>	24-hour	40 µg/m <sup>3</sup>
CO	24-hour	4 mg/m <sup>3</sup>

There are currently no air quality standards for UFPs in the UK or anywhere else in the world. The WHO are unable to give a guideline target for UFP levels, due to limited monitoring and cohesive research to date.<sup>23</sup>

## 4.2 Air quality monitoring around Heathrow Airport

### 4.2.1 Background to air quality monitoring

In 1956, the UK government introduced the Clean Air Act and launched the National Survey, the world's first national air pollution monitoring network which coordinated data from over 1200 sites across the UK. While initially national legislation was aimed at managing smog and emissions from commercial and industrial activities, over time the focus shifted to pollution from motor vehicle emissions and other man-made pollutants.

In 1987, the UK launched an automatic urban monitoring network to ensure compliance with new air quality limits and it has since evolved into the present-day Automatic Urban and Rural Network (AURN).<sup>24</sup> Today, the AURN is the UK's largest monitoring network with over 170 monitoring sites across the UK. Apart from the AURN there are numerous other monitoring networks tracking various pollutants such as The UK Urban NO<sub>2</sub> Network (300 sites). Additionally, most Local Authorities also conduct their own form of air quality monitoring, as do relevant industries such as the airline industry.

#### Types of air quality monitoring

There are two types of air quality monitoring practices in the UK: Automatic and non-automatic. Automatic networks use specialised equipment to capture and analyse air at various locations and the data is then transferred via modems in

<sup>23</sup> WHO, (2021) *WHO global air quality guidelines*.

<https://iris.who.int/bitstream/handle/10665/345329/9789240034228-eng.pdf?sequence=1>

<sup>24</sup> DEFRA, UK AIR, (n.d.) *Monitoring Networks: Brief History*. <https://uk-air.defra.gov.uk/networks/brief-history>

real-time. These networks operate continuously enabling consistent monitoring and speedy data analysis and reporting. Conversely, with non-automatic networks physical samples are collected via diffusion tubes or filters and then taken to a lab and treated chemically to calculate the pollution concentration. As this process requires manual labour, samples are collected much less frequently (typically daily, monthly or quarterly) and results are manually generated.<sup>25</sup>

The data collected via automatic monitoring sites is typically published in real time via online websites/portals, whilst data from non-automatic sites are typically consolidated and published in annual reports. Most online websites use interactive maps that make it easy for users to pinpoint locations of interest and quickly access the relevant data. Air quality data is also available to some members of the public via opt-in alert systems. For example, the Hertfordshire and Bedfordshire Air Pollution Alert System allows residents to opt-in to text message alerts that are sent out when the air pollution is forecasted to be moderately high or very high.<sup>26</sup>

#### **4.2.2 Air quality monitoring around Heathrow Airport**

Air quality around Heathrow airport is measured using automatic monitoring sites and non-automatic diffusion tube monitoring. Air quality is measured against the UK government AQS objectives<sup>27</sup>.

##### **Automatic Monitoring**

Automatic monitoring sites measure pollutant concentrations from a continuous stream of air pumped through the analysers. This data is stored in data loggers at each site and fed back via modem. Automatic monitoring at sites around Heathrow is used to measure NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, O<sub>3</sub>, SO<sub>2</sub> amongst other pollutants such as black carbon (BC), and is particularly useful as it can provide high resolution data averaged over a very short period of time.

##### **Diffusion Tube Monitoring**

Unlike Automatic monitoring, diffusion tube monitoring is much more infrequent (weekly or monthly) and is only used to measure NO<sub>2</sub>. This involves periodically exposing a tube to collect samples via a chemical reaction on a filter or substrate within the tube. The samples are sent for lab analysis and the measurements are averaged over weekly, fortnightly and monthly periods.

##### **Monitoring sites**

Overall, there are 22 total monitoring sites surrounding Heathrow airport, five of which are run and funded by Heathrow Airport, while the others are managed by

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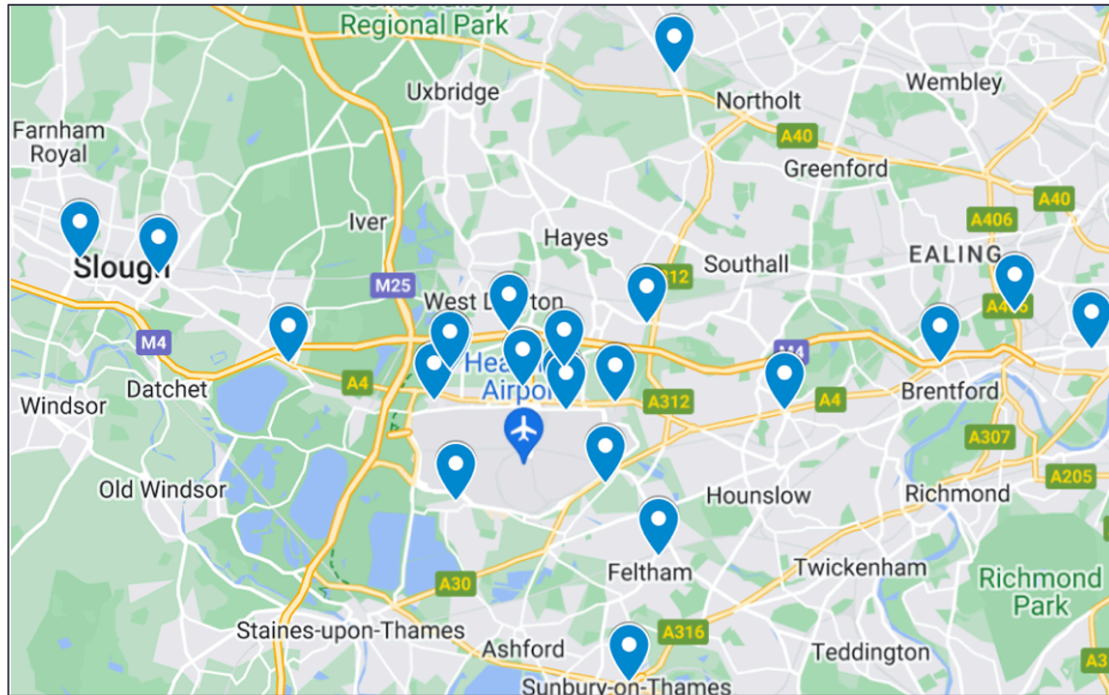
<sup>25</sup> DEFRA, UK AIR (n.d.) *Monitoring Networks*. <https://uk-air.defra.gov.uk/networks/site-types>

<sup>26</sup> Air Quality England (n.d.) *Hertfordshire and Bedfordshire Air Pollution Alert System, the free air pollution alert messaging system*. <https://www.airqualityengland.co.uk/local-authority/knr-subscription>

<sup>27</sup> DEFRA, UK AIR (n.d.) *UK Air Quality Limits*. <https://uk-air.defra.gov.uk/air-pollution/uk-eu-limits>

various local authorities. Of the 22 sites, there are 12 automatic point monitoring sites within 2km of Heathrow (one of which is located within the airport’s perimeter). The map below shows the location of these sites:

**Map of monitoring sites sharing data on Heathrow Airwatch**



Each monitor collects data on a different combination of pollutants, depending on their locations and local council jurisdiction. For example, NO<sub>2</sub> diffusion tube monitoring is only conducted in the boroughs of Spelthorne, Hillingdon, Slough, and Hounslow. Monitor data is published hourly on Heathrow Airwatch. Overall, the most tracked pollutants are NO<sub>2</sub> and PM<sub>10</sub><sup>28</sup>:

Pollutant	Number of Monitors
NO <sub>2</sub>	18
PM <sub>10</sub>	17
PM <sub>2.5</sub>	8
CO	5
BC	2
O <sub>3</sub>	1

The monitoring sites are installed at the following locations:

- Airport sites: These sites are within the boundary of the airport’s perimeters and they monitor emissions from aircrafts, vehicles, commerce, heating and other major airport activity.

<sup>28</sup> Heathrow Airwatch (n.d.) *Monitoring Methods*. <http://www.heathrowairwatch.org.uk/air-quality?view=methods>

- Roadside sites: These sample between 1m of the kerbside of a busy road and the back of the pavement and are used to evaluate the worst-case exposure for the population. These focus on vehicle emissions and can also be used for assessing the impact of traffic planning schemes.
- Suburban sites: These are situated in residential towns or on the outskirts of a city and measure emissions from various sources including traffic, commerce, heating etc. They are particularly useful for traffic and land use planning and exploring urban plumes.
- Urban background sites: These are somewhat distanced from the sources they are measuring and so capture overall background conditions across the city. These sites are also used for trend analysis and urban planning.
- Urban centre sites: These are located in the centre of the town/city to capture the typical exposure to various sources such as vehicles, commerce etc. and are used to track long-term urban trends.

While monitoring sites provide a picture of overall air quality, reporting on air pollution necessitates taking into account various contributing factor and sources. Conclusively identifying the proportion of road traffic and emissions solely caused by airport activities, and therefore the specific levels of air pollution that can be attributed to Heathrow alone, remains a challenge. However, this is addressed in some way by source apportionment (SA) studies, most commonly used in relation to PM<sub>2.5</sub>, which uses receptor models to categorise different sources (industry, traffic, natural sources) and the percentage they contribution to pollution levels.<sup>29</sup>

#### **4.2.3 Heathrow Airwatch: Reporting air quality**

Heathrow's air quality data is publicly available on the Heathrow Airwatch website. This website is funded by Heathrow Airport Ltd, as part of the Heathrow Air Quality Working Group, which includes London Boroughs of Hillingdon and Hounslow, Slough and Spelthorne Borough Councils and British Airways. At present, it is currently operated by a third-party air quality consulting company Ricardo-AEA.

Heathrow Airwatch publishes live information about air quality around the airport via an interactive map, and detailed data reports which can be downloaded. Viewers can click on a map and get a detailed breakdown of the concentrations of various pollutants in that location, which is classified using DEFRA's Air Quality Index<sup>30</sup> into bands ranging from low to very high.

On the website, visitors can access the latest air quality summary and generate their own customised graphs charting historical data, which dates back to 1993 at some monitoring locations. The site also contains background information on the various types of air quality monitoring done around Heathrow, as well as the

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<sup>29</sup> WHO (n.d) *Database on source apportionment studies for particulate matter*. [Who.int/data/gho/data/themes/air-pollution/source-apportionment-db](http://Who.int/data/gho/data/themes/air-pollution/source-apportionment-db)

<sup>30</sup> DEFRA (n.d) *Daily Air Quality Index*. <https://uk-air.defra.gov.uk/air-pollution/daq>

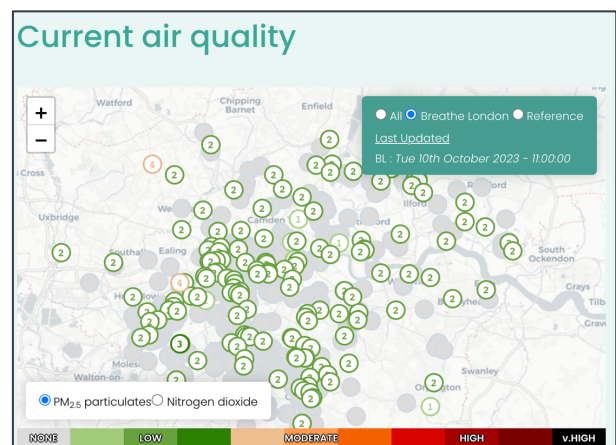
location of their monitoring sites. The site hosts a compliance dashboard showing breaches, annual and quarterly reports, and government policy reports. There is also information on how to travel sustainably and a children's area which shares data in an easily accessible way and gives tips on how the public can contribute to better air quality. Between January 1<sup>st</sup> and April 12<sup>th</sup>, 2023, Airwatch received 3,308 page views. Visitors spent an average of 1 minute and 18 seconds on the site.

#### 4.2.4 Other ways of reporting air quality

There are other useful examples of air quality monitoring and reporting available:

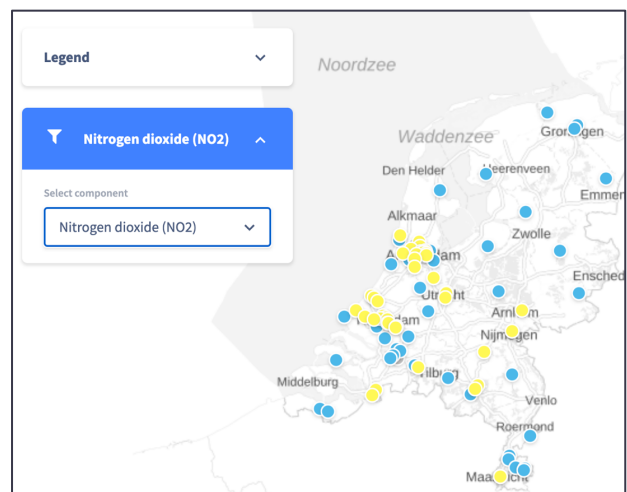
##### Breathe London

Breathe London is run by the Environmental Research Group at Imperial College London and is currently funded by the Mayor of London. Their website (pictured on the right) includes an interactive map of London detailing the numerous and the ratings for both PM<sub>2.5</sub> particles and nitrogen dioxide.<sup>31</sup>



##### Schiphol Airport

Air quality at Schiphol airport is monitored by the Dutch Government using three monitoring stations. Users can access an interactive map online which shares real-time measurements for a large range of various pollutants including NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, UFPs, and smoke. The airport is also committed to improving air quality and has developed a Nitrogen Action Plan to help reduce nitrogen oxide emissions. In 2021, they also commissioned the Netherlands Organisation for Applied Scientific Research to carry out additional research into UFP concentrations around Schiphol.<sup>32</sup>



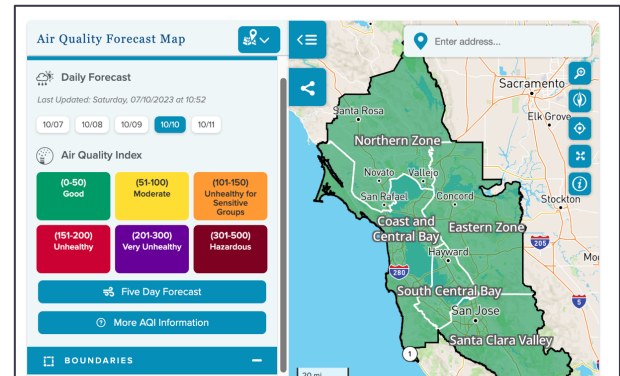
<sup>31</sup> Breathe London, Imperial College London (2023) *About the Breathe London Network*. <https://www.breathelondon.org/about>

<sup>32</sup> Schiphol Airport (n.d.) *Improving Air Quality*. <https://www.schiphol.nl/en/schiphol-group/page/improving-air-quality/>



## San Francisco Airport (BAAQMD)

The Bay Area Air Quality Management District (BAAQMD) monitors air quality at San Francisco airport<sup>33</sup>. The BAAQMD measures both O<sub>3</sub> and PM<sub>2.5</sub> and has public-facing, interactive data modelling on their website and a 'Spare the Air programme', which includes general public alerts when air quality is unhealthy, advising Bay Area residents to stay indoors. San Francisco Airport coordinates



with BAAQMD, signposting to them on their website, and collaborating on aspects of their Spare the Air programme. The website also includes an air quality 5 day forecast. The BAAQMD measures both O<sub>3</sub> and PM<sub>2.5</sub> and sends out alerts to the public to urge them to stay indoors when air quality is poor. On their website, visitors can use interactive maps and access air quality measurements and forecasts, reports of incidents and advisories, emissions inventories and current research.

## 4.3 Air quality around Heathrow Airport

### 4.3.1 Air quality around Heathrow Airport

Monitoring sites publishing data on the Heathrow Airwatch website show that the DEFRA's AQS objectives in 2022 were met for NO<sub>2</sub>, PM<sub>2.5</sub> and PM<sub>10</sub> across all monitoring sites, but they failed to meet the short-term objective for O<sub>3</sub>. According to the Heathrow quarterly update from January to March (2023), average concentrations of NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and O<sub>3</sub> at the Heathrow sites were comparable with urban background air pollution monitoring sites in London. Measurements against AQS objectives, both long- and short- term, in 2022 are summarised in the table below. These are outlined in the *Air Quality at Heathrow Airport 2022* report published on the Airwatch website<sup>34</sup>:

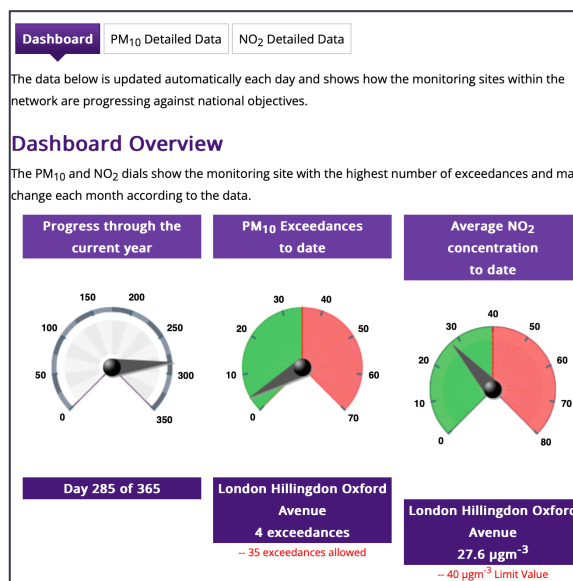
<sup>33</sup> Bay Area Air Quality Management District (2023) *Spare the Air*. <https://www.baaqmd.gov/about-air-quality/spare-the-air>

<sup>34</sup> Carpenter, S., Rand, N. (2022) *Air Quality at Heathrow Airport 2022*. [http://www.heathrowairwatch.org.uk/documents/Heathrow\\_2022\\_Annual\\_Report\\_Issue\\_2.html](http://www.heathrowairwatch.org.uk/documents/Heathrow_2022_Annual_Report_Issue_2.html)

Pollutant	DEFRA AQS annual mean objectives	Heathrow exceedances in 2022	DEFRA AQS short-term objectives	Heathrow exceedances in 2022
<b>NO<sub>2</sub></b>	40 µg/m <sup>3</sup>	Zero exceedances	200 µg m <sup>3</sup> hourly mean, not to be exceeded more than 18 times per year	Zero exceedances
<b>PM<sub>10</sub></b>	40µg/m <sup>3</sup>	Zero exceedances	50 µg m <sup>3</sup> 24 hour mean, not to be exceeded more than 35 times per year.	Six exceedances (within the exceedance limit)
<b>PM<sub>2.5</sub></b>	20µg/m <sup>3</sup> *	Zero exceedances	No short-term objective set	N/A
<b>O<sub>3</sub></b>	No annual objective set	N/A	8 hour running mean of 100 µg m <sup>3</sup> , not to be exceeded more than 10 days per year	34-day exceedance (outside exceedance limit)

The Heathrow Airwatch website includes a compliance dashboard (see right)<sup>35</sup> which outlines when PM<sub>10</sub> and NO<sub>2</sub> breaches occur at Heathrow Airport monitoring sites across the current year.

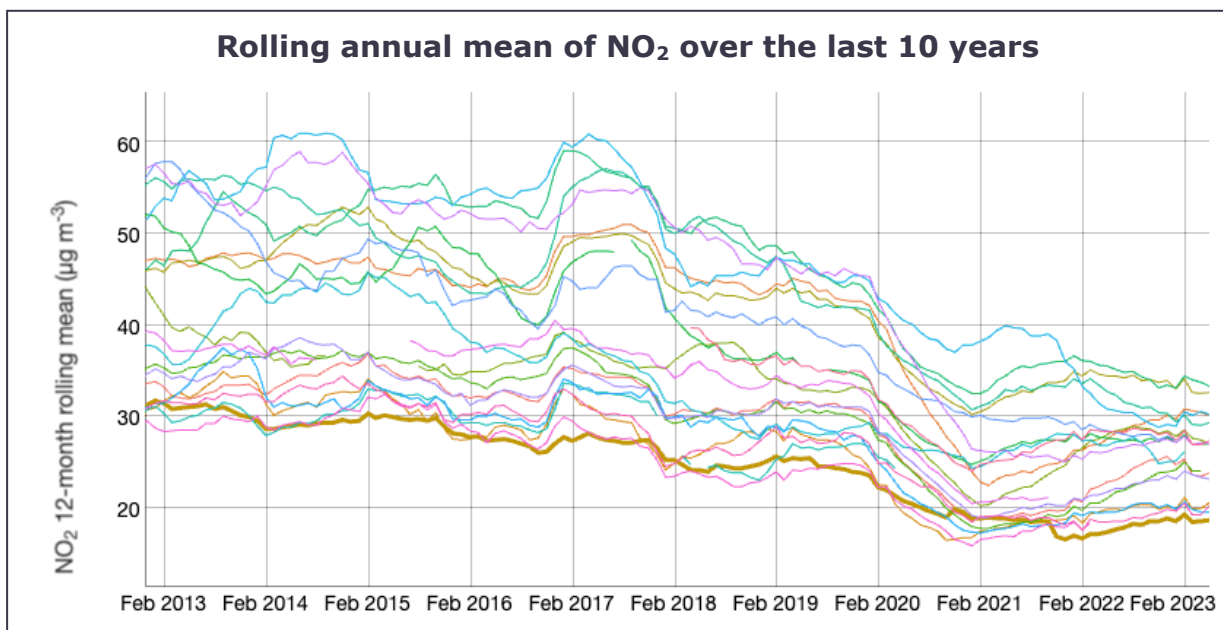
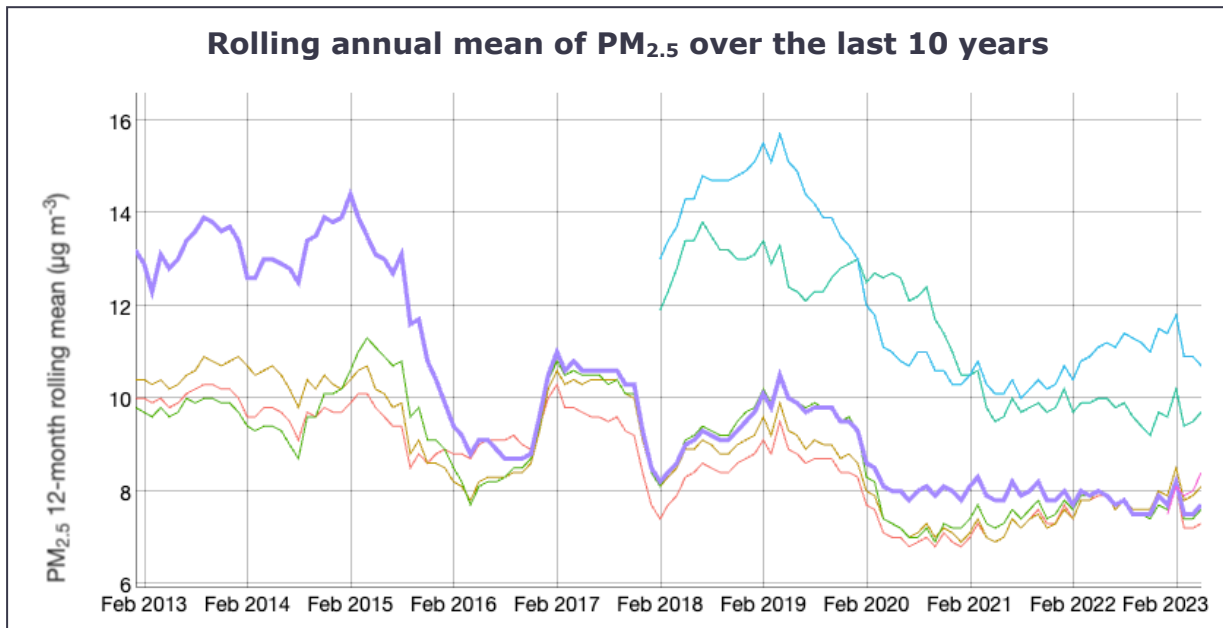
Generally, the data available of Heathrow Airwatch shows that concentrations of air pollutants around Heathrow Airport have been decreasing over the past 10 years, particularly for PM<sub>2.5</sub> and NO<sub>2</sub>. UFPs are currently not measured or tracked due to being new and under-researched. Below are the rolling annual means of PM<sub>2.5</sub>, NO<sub>2</sub>, and PM<sub>10</sub> over the last 10 years. Note: The lines on the charts represent different monitoring sites within the area



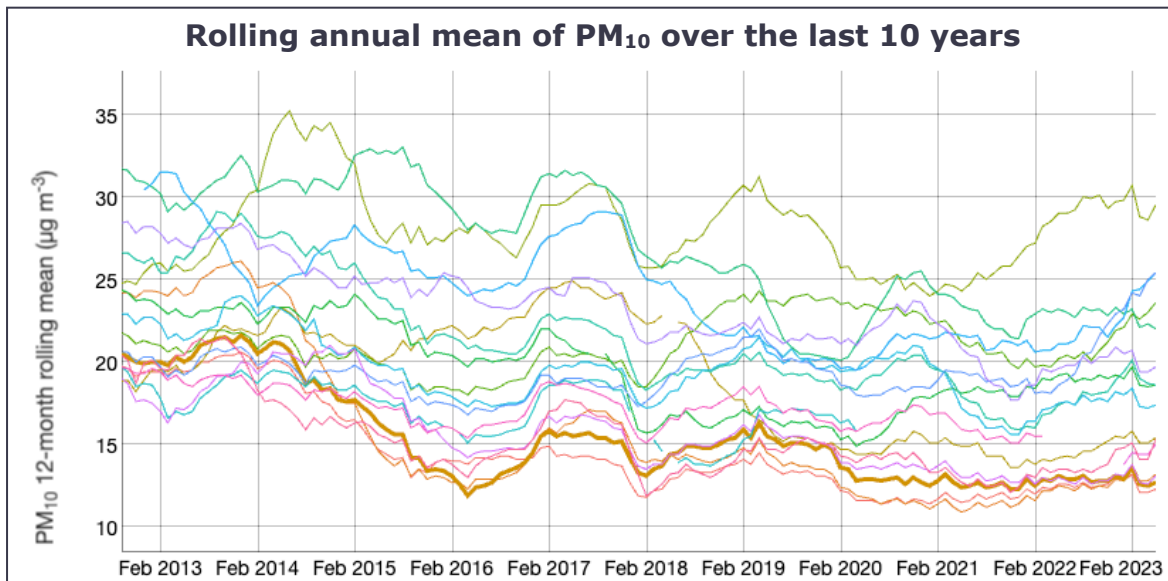
\*Please note: In 2023, the Environmental Targets (Fine Particulate Matter) (England) Regulations updated the annual mean PM<sub>2.5</sub> objective from 20 µg/m<sup>3</sup> to 10 µg/m<sup>3</sup>. The 2022 target of 20 is displayed in this table. Source: DEFRA (2023) Particulate Matter (PM<sub>2.5</sub> targets) in the Environment Act: Monitoring Assessment Methods. <https://uk-air.defra.gov.uk/networks/monitoring-methods?view=PM-Environment-Act-MonitoringMethods>

<sup>35</sup> Heathrow Airwatch (n.d.) Compliance Dashboard. <http://www.heathrowairwatch.org.uk/dashboard/>

surrounding Heathrow Airport<sup>36</sup>. The relevant monitoring stations can be found on using the following [link](#).

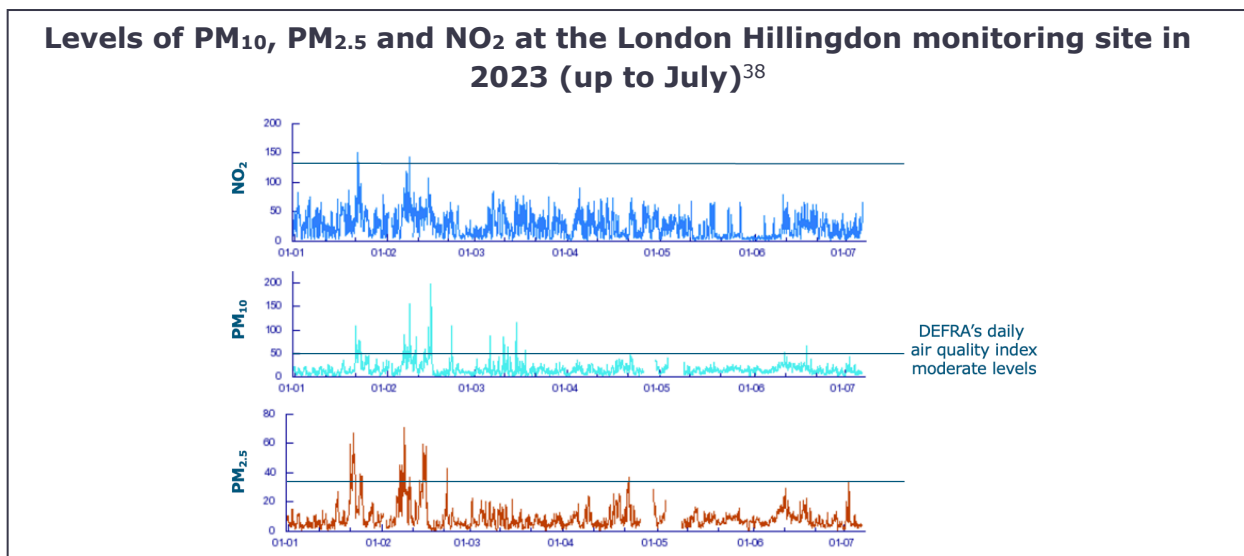


<sup>36</sup> Carpenter, et al. (2023) *Heathrow Airwatch Quarterly Report for January to March*. [http://www.heathrowairwatch.org.uk/documents/Heathrow\\_Q1\\_2023.html](http://www.heathrowairwatch.org.uk/documents/Heathrow_Q1_2023.html)



Despite the data showing the yearly trend of pollutant concentrations decreasing – particularly for NO<sub>2</sub> and PM<sub>2.5</sub> – there are still instances in which the limits are exceeded. These spikes could be linked to meteorological conditions with the weather having a large effect on air pollution. In sunny conditions, ozone is created as pollutants react with sunlight. If there is no wind or rain to blow it away, ozone builds up to dangerous levels. When it’s cold and icy (and not windy), cold air gets trapped under a layer of warmer air above creating high levels of pollution<sup>37</sup>. Spikes in pollution levels are therefore apparent over a 24hr average period but balance out in yearly averages.

This is a contributing factor as to why the WHO and the UK has different 24-hour and annual average targets. Below are the levels of PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>2</sub> at the London Hillingdon monitoring site in 2023:



<sup>37</sup> Carpenter, et al. (2023) *Heathrow Airwatch Quarterly Report for January to March*. [http://www.heathrowairwatch.org.uk/documents/Heathrow\\_Q1\\_2023.html](http://www.heathrowairwatch.org.uk/documents/Heathrow_Q1_2023.html)

<sup>38</sup> Heathrow Airwatch (n.d.) *Custom Graphs*. <http://www.heathrowairwatch.org.uk/data/graphs#graphResultsArea>

## 4.4 Heathrow Airport’s targets and commitments towards improving air quality

### 4.4.1 Heathrow Airport’s air quality targets

In 2022, Heathrow Airport published its Heathrow 2.0 Sustainability Strategy, which outlines measures to improve air quality both at and around the airport.

Heathrow states that its overarching goal is to reduce NO<sub>x</sub> airside emissions by 18% (compared to 2019 figures) by 2030. In order to achieve this, Heathrow has identified five core targets to help improve air quality:

1. Ensure that 100% of the airport’s fleet of vehicles use biofuels or are zero-emission by 2030
2. Guarantee that no more than 57% of staff travel to work in single-occupancy cars by 2026
3. Ensure that at least 45% of passengers use public transport to get to the airport by 2026
4. Increase the number of people located within 1.5 hours of Heathrow by public transport by 25% and those within 3 hours of Heathrow by 12%
5. Implement Airside ULEZ by 2025

These will work in tandem with the other measures being implemented under the company’s Net Zero Plan and Surface Access Strategy to improve air quality.

### 4.4.2 Heathrow Airport’s commitments towards improving air quality

As part of Heathrow 2.0 Sustainability Strategy, the airport outlines the sustainability commitments it plans to undertake over the next few years. In terms of air quality, the ‘Net Zero Plan’ and the ‘Surface Access Strategy’ also contain actions Heathrow will take to improve the quality of air around the airport, with targets and actions outlined across all the different plans.

The disparate nature of these reports creates a challenge in simply assessing Heathrow’s progress against its targets, as there is no central tracking and reporting on its various actions and commitments.

#### Heathrow’s current progress

At present, there is limited data on Heathrow’s progress against each of its current air quality targets (see table below) and previously collected KPIs have focused on data capture and monitoring as opposed to performance:

Target	Performance against the target
Reduce NO <sub>x</sub> airside by 18% compared to 2019	N/A – A full emissions inventory for 2022 is being completed in 2023

Ensure that 100% of the airport's fleet of vehicles use biofuels or are zero-emission by 2030	Average in 2022 was 38%, up from 32.5% in 2021
Guarantee that no more than 57% of staff travel to work in single-occupancy cars by 2026	N/A – Colleague travel survey will be conducted in 2023 to assess performance
Ensure that at least 45% of passengers use public transport to get to the airport by 2026	N/A – Study commissioned to determine performance, with results expected in 2023
Increase the number of people located within 1.5 hours of Heathrow by public transport by 25% and those within 3 hours of Heathrow by 12%	17% of all operational vehicles are zero emissions, and over 60% of the airport's own diesel fleet has been switched to using biodiesel in 2022

In the interim, Heathrow plans to invest in further research into air quality, as well as how to communicate about air quality with its staff, stakeholders and neighbouring communities. Its current research database includes: leading a study on UFPs; resuming the annual emissions inventories to establish performance against air quality targets; and conducting research with the local community to understand how data and reporting should be shared with them.

### **Heathrow's commitments to achieving Net Zero**

In the Heathrow 2.0 Sustainability Strategy, the organisation clarifies that working towards net zero means "achieving as close to zero carbon emissions as possible and removing any residual emissions, such as by absorbing it in restored natural ecosystems or by using 'engineered removals' to capture carbon from the atmosphere and to store it permanently"<sup>39</sup>.

To achieve this, Heathrow Airport is committing resource and investment to reducing carbon emissions and improving air quality locally. As such, Heathrow will be investing in a three-pronged approach involving:

- Achieving Net Zero in the air
- Achieving Net Zero on the ground
- Further researching air quality and its impacts

### **Achieving Net Zero in the air**

The overarching goal for achieving Net Zero in the air is to have a 15% reduction in carbon by 2030. This reduction is mapped against peak carbon

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<sup>39</sup> Heathrow Airport (2022) *Heathrow 2.0: Connecting People and Planet. Our Sustainability Strategy*.  
<https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/further-reading/Heathrow%202.0%20Connecting%20People%20and%20Planet%20FINAL.pdf>

emissions from 2019, prior to the Covid-19 pandemic. In order to achieve these goals, Heathrow airport has outlined the following key targets:

1. Cut up to 1% of 'in the air' carbon emissions by 2030 through more efficient operations and modernising airspace
2. Cut up to 7% of 'in the air' carbon emissions by 2030, through use of Sustainable Aviation Fuel
3. Cut up to 8% 'in the air' carbon emissions by 2030 through improvements to conventional aircrafts

To meet these targets Heathrow will be working on implementing several measures including:

#### Improving airspace and increasing use of new plug-in cooling solutions

- Advocating for the re-design of flight paths so that they are more fuel-efficient.
- Encouraging the use of fixed electrical ground power, pre-conditioned air and electric pushback tugs to better optimise ground movements and minimise the amount of fuel that aircrafts use both before take-off and after landing.
- Aiming to cut up to 1% of 'in the air' carbon emissions by 2030 through more efficient operations and modernising airspace.

#### Increasing use of Sustainable Aviation Fuel (SAF)

- Promoting a switch to SAF which can cut carbon up to 70% compared with traditional jet fuel, with Heathrow's stated ambition being for 11% SAF use by 2030, resulting in an overall 7.5% carbon saving.

#### Investing in and researching zero-carbon aircrafts such as small electric and hydrogen-powered aircrafts

- Supporting the development and manufacturing of more efficient aircrafts by incentivising the use of more carbon efficient 'cleaner' planes (expected to be made easier by the soon-to-be implemented carbon emissions rating for aircrafts which is expected to be introduced in 2028).
- Aiming to cut up to 8% 'in the air' carbon emissions by 2030 through improvements to conventional aircraft.

### **Achieving Net Zero on the ground**

Heathrow has also laid out plans to work towards achieving Net Zero on the ground within its sustainability strategy<sup>40</sup>, with a stated goal of cutting carbon by

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<sup>40</sup> Heathrow Airport (2022) *Heathrow 2.0: Connecting People and Planet. Our Sustainability Strategy*.  
<https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/further-reading/Heathrow%202.0%20Connecting%20People%20and%20Planet%20FINAL.pdf>

at least 45% by 2030 (compared to 2019 levels). The targets to achieve this goal are as follows:

1. Halve surface access carbon emissions by 2030
2. 87% cut in carbon emissions from airport vehicles by 2030
3. Cut supply chain carbon emissions by 36% by 2030
4. Heathrow building and infrastructure to be zero carbon by the mid-2030s

To meet these targets the airport has plans to implement several measures, outlined in its Surface Access Strategy<sup>41</sup>. In order to ensure improved surface access, Heathrow will be:

#### Investing into improving and expanding the public transport system to and from Heathrow, including subsidized transport for employees

- Raising awareness of more sustainable modes of passenger transport, managing demand for less sustainable modes, and improving public transport connections and facilities.
- Aiming to achieve a passenger public transport mode share of 45% by 2026 (compared to 2019), as well as to bring 25% more people within a 1.5-hour public transport journey time of Heathrow, and to increase the 3-hour catchment population by 12% – both by 2026.

#### Reducing traffic flow around Heathrow Airport by introducing park and ride options and terminal drop-off charges

- Looking to increase the number of passengers transferring to public transport for the last leg of their journey to Heathrow, by identifying strategic locations along major passenger approach routes to place park and ride options.
- Attempting to reduce airport drop-offs in private vehicles through terminal drop-off charges, which it claims will fund sustainable transport initiatives at the airport.

#### Increasing awareness of public transport options using its travel planner and relaunching the Way2Go app for employees

- Improving passenger awareness of public transport links to the airport and new services introduced through information online and in Heathrow itself.
- Improving ticket purchase processes by making them available on different platforms and working with airlines and other third parties to raise awareness of public transport options when leaving Heathrow.

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<sup>41</sup> Heathrow Airport (2022) *Surface Access Strategy*.  
<https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/about/company-information/2022-Surface-Access-Strategy.pdf>



- Improving awareness of sustainable transport options among Heathrow colleagues through a Way2Go colleague-focused campaign and app introduced in 2022.

#### Improving the active travel infrastructure around the airport, including cycle routes

- Improving active travel options to encourage employees living close enough to walk or cycle e.g. by completing maintenance of the CTA Northern Tunnel, adding more active travel routes that integrate with wider transport networks, improving active travel routes within the airport and working with other organisations such as TfL and local authorities to improve active travel routes to the airport.
- Improving existing active travel infrastructure and facilities e.g. by providing more well-located and secure cycle parking, improving signage for pedestrians and cyclists around the airport, providing more segregated and uninterrupted infrastructure.

#### Encouraging employees to use Heathrow's car-sharing scheme

- Aiming to achieve a colleague single-occupancy-car mode share of 57% by 2026 (compared to 2017), by working with its car-share provider to increase registrations among employees, and continuing to offer priority parking in prime locations for those who car-share.

#### Supporting and preparing for the introduction of ULEZ in August 2023

- Aiming to mitigate impacts on some employees and local businesses relating to the airport, whose living and operating costs will increase as a result of ULEZ.

#### Investing in sustainable airport vehicles

- Updating all its vehicles to be zero emissions by 2030 and encouraging staff members to try to do the same through incentivisation.
- Reducing the cost of electricity and improving EV charging to encourage staff buy-in.
- Increasing the 'biofuel' blend for non-electric vehicles to improve carbon emissions.
- Redesigning routes to be more fuel-efficient and keeping airport vehicles well maintained.

#### Reducing supply chain emissions

- Planning on introducing contractual supplier obligations which will force suppliers to reduce carbon from their goods and service in order to ensure continued partnerships with the airport.
- Planning to implement a 'balanced scorecard approach' aimed at seeking out suppliers whose commitment to Net Zero mirrors their own.

#### Decarbonising buildings and infrastructure

- Investing in making its building and infrastructure zero carbon, by upgrading electricity networks, introducing a hydrogen supply, decarbonising heating and standby power generation and switching to ultra-low GWP (global warming potential) refrigerant alternatives where possible.

## 5. Local community views on air quality around Heathrow Airport

### 5.1 Perceptions of air quality around Heathrow Airport

#### Key findings:

- While few local residents think about air quality on a day-to-day basis given its hidden nature, air pollution is still registered as an important and concerning issue – around three in five feel fairly or very concerned about air quality in their local area.
- Air quality is assumed to be getting worse over time, fuelling a feeling of powerlessness about addressing pollution levels and making residents feel apathetic about the subject.
- Transportation, particularly ground traffic, is assumed to be the biggest source of air pollution in the area surrounding Heathrow. Almost half think Heathrow Airport's activities have a significant impact on air quality locally.
- The more local residents discuss or learn about air quality, the more concerned they feel about topic, particularly about poor air quality's health impacts and Heathrow's contribution to pollution locally.

#### 5.1.1 Level of concern about air quality

##### **Few local residents think about air quality on a day-to-day basis given its hidden and technical nature.**

Very few local residents have previously looked for information about air quality, such as daily measurements. This is due to the hidden nature of air quality not providing a visual prompt to encourage local residents to find out more. The topic is also felt to be technical and something which residents have no control over.

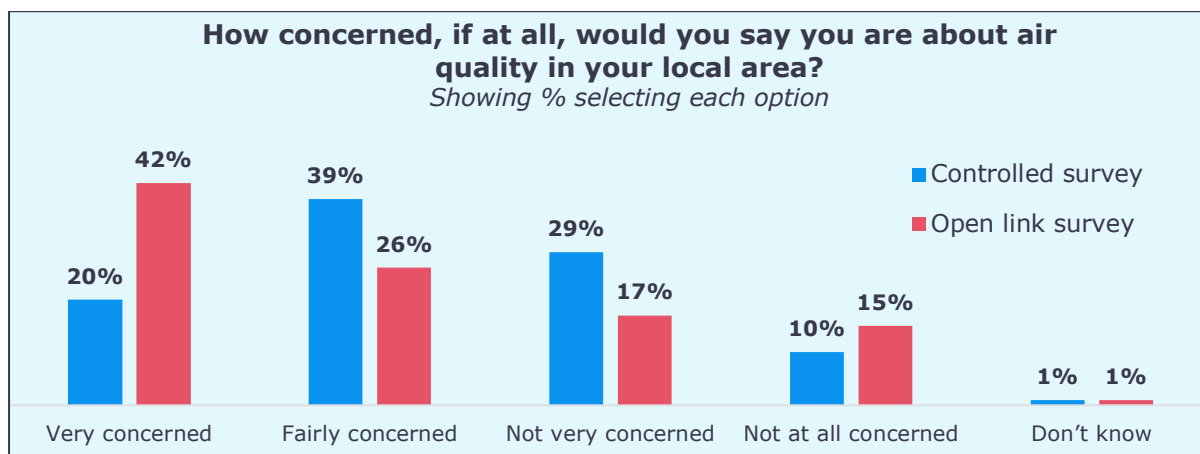
Whilst many residents assume that their local area is polluted by busy roads, industrial sites and flight paths nearby, poor air quality is not widely a key negative aspect about where they live. Noise pollution and car traffic are more regularly named as such, because of how tangibly impactful they are on residents' daily lives. Many adjust how they hold conversations to account for the noise of planes flying over, whilst ground traffic is considered an impediment to residents being able to travel via car or bus. Additionally, some residents describe their neighbourhood as suburban, with lots of green spaces, which leads them to conclude that air quality would be better in their local area compared urban areas such as Central London.

Some local residents who live below the flight paths do however describe experiencing an 'orange film' or 'dust', which builds up on cars or windows serving as a visual prompt of air pollution. This is assumed to be something

emitted from plane exhausts and causes concern. Similarly, a resident at a community engagement event described using his bird bath as a 'air quality monitor', where the clarity of the water depended on whether there were planes flying over or not.

*"I went away on holiday and the two cars parked outside house developed this orange film. I assume it's what comes out of a planes exhaust, maybe burnt fuel? I've heard about planes dumping fuel but I'm not sure this is true, it's probably just burnt fuel."* (Focus group participant, Cranford)

**Despite air quality not widely registering as a salient issue, the majority report feeling fairly or very concerned about it when prompted.**



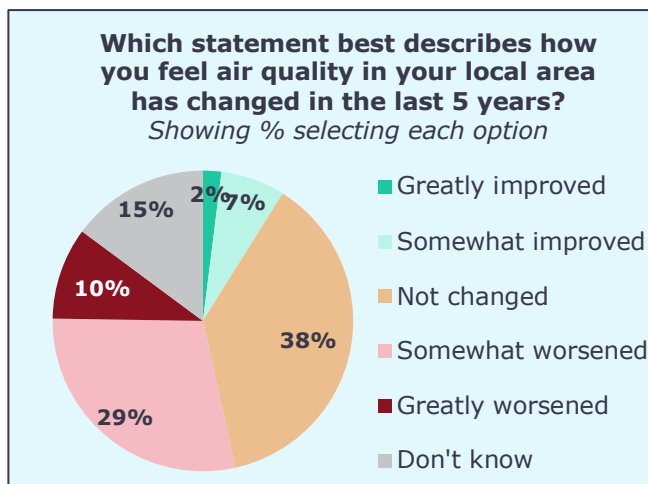
59% of local residents in the focused survey and 68% in the open link survey report feeling very or fairly concerned about air quality in their local area.<sup>42</sup> All webinar respondents (7/7) feel very or fairly concerned about air quality. Amongst those who completed the surveys, concern is higher amongst those living within 3 miles of the airport, with 31% of residents from the focused survey feeling very concerned (compared to the 20% average) and 57% in the open link survey (compared to the 42% average). Similarly, those with caring responsibilities of a minor are significantly more likely to feel concerned about air quality locally than those without (72% v 53% in the focused survey).

Some local residents feel that air quality is becoming a more prominent topic in the media, off the back of increasing concern about the climate and environment. The recent media coverage of levels of air quality in the London Underground and the introduction of the expanded Ultra Low Emissions Zone also raised the prominence of air quality as a topic of discussion.

*"I do [think about air quality] a lot now because it's in the news, with global warming and fires"* (Focus group participant – Feltham)

<sup>42</sup> How concerned, if at all, would you say you are about air quality in your local area? Base: All respondents (Focused survey=754, Open link survey=516, Webinar=7); Under 3 miles (Focused survey=156, Open link survey=82).

**Air quality is also felt to be worsening over time.**



In relation to this, local residents say that they would assume air quality is getting poorer over time in line with worsening climate change and global warming. This is reflected in the focused survey where less than 1 in 10 (9%) feel air quality locally has improved in the last 5 years, compared to 2 in 5 (39%) who feel it has worsened, while 38% feel it has not changed and 15% are unable to comment.<sup>43</sup>

Those living within 3 miles of airport are significantly more likely to feel air quality in their local area has greatly worsened in the last 5 years, at 16% compared to 10% of the overall sample.

Local residents frequently refer back to their experiences during the Covid-19 pandemic where air and road traffic was greatly reduced, and the air quality was felt to be much 'cleaner'. Many used this as a reference point to evaluate current air quality feeling worse than in the past.

Local residents with long term health conditions, such as asthma, are the most likely to feel concerned about air quality and are considered the most negatively impacted by poor air quality. Those with asthma describe experiencing physical symptoms on days when air quality is poor, which has driven them to conduct research online into levels and sources of pollution.

*"As an asthmatic I feel it more day-to-day. I can tell you without looking it up that there is more traffic outside today because my symptoms are worse."*  
 (Focus group participant, Hounslow)

Parents of young children also report having thought about or researched the impact or source of pollution, in relation to their child's health and wellbeing.

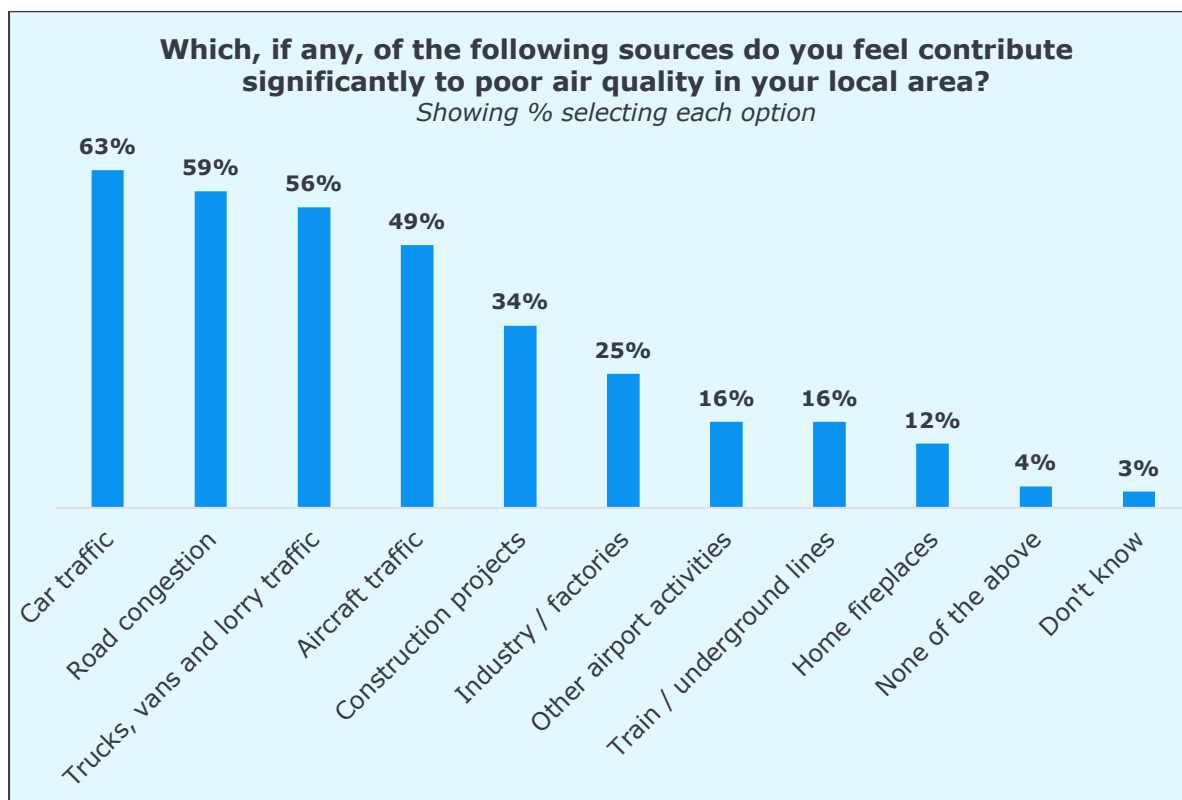
**5.1.2 Background knowledge about air quality**

**Whilst local residents have little background knowledge of different pollutant types, the majority confidently attribute road traffic and congestion as the biggest emission sources.**

<sup>43</sup> Focused survey: A2. Which statement best describes how you feel air quality in your local area has changed in the last 5 years? Base: All respondents who have lived in the area for more than 5 years (n=564); Under 3 miles (n=105).

The unspecific, umbrella term 'emissions' is regularly used in discussions around pollution, with CO<sub>2</sub> being the 'pollutant' that local residents are most familiar with.

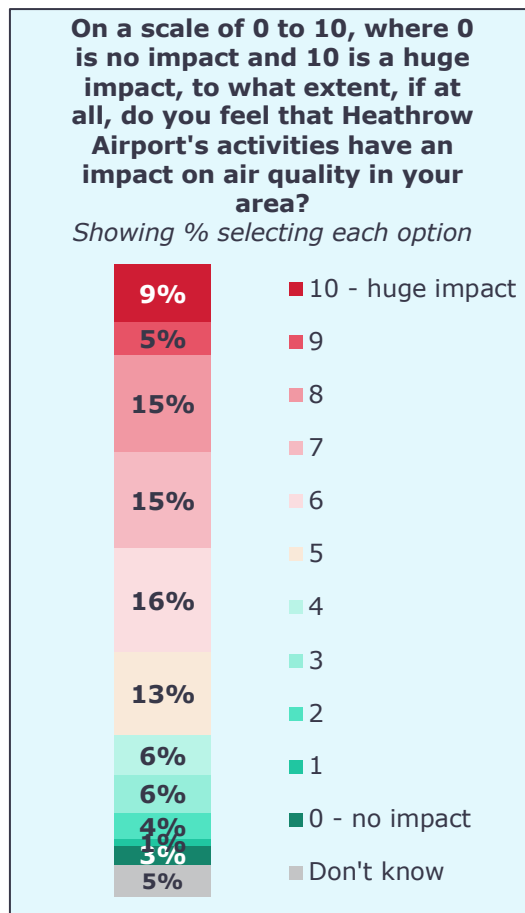
Aeroplanes are seen as a source of emissions due to their consumption and combustion of fuel, with a few residents of Heathrow villages expressing concern that older planes still in use may be generating more pollution. But there is a general consensus amongst local residents that car or ground traffic is the biggest source of emissions in the area. Car traffic (63% agree), road congestion (59%), and trucks, vans and lorry traffic (56%) are felt to contribute most significantly to poor air quality in the local area, followed by aircraft traffic (49%).<sup>44</sup> Those who live within 3 miles of the airport are more likely to feel that aircraft traffic contributes significantly to poor air quality locally (56%) than those who live over 10 miles away (33%) or between 5-10 miles away (49%).



<sup>44</sup> Focused survey: A3. Which, if any, of the following sources do you feel contribute significantly to poor air quality in your local area? Base: All respondents (n=754); Under 3 miles (n=156); Between 5-10 miles (n=276); Over 10 miles (n=67).

Whilst Heathrow Airport is seen as a major contributor to the large amount of road traffic in the local area, many local residents also recognise that this traffic is also caused by those travelling in to and out of Central London making it challenging to measure impact. Taxis and passenger pick-up and drop-off traffic are seen as significant contributors to poor air quality in Heathrow’s neighbouring villages, as well as being generally disrupting day-to-day life.

Almost half of local residents feel Heathrow Airport activities have a significant impact on air quality in the local area (45% giving a score of >7)<sup>45</sup>. However, at 36%, a significant minority feel the airport has a moderate impact on air quality locally (scoring 4-6) while 14% feel Heathrow Airport has limited impact (scoring <3). Those living within 3 miles of the airport and those who claim to feel very concerned about air quality are more likely to feel Heathrow Airport is having a significant impact (58% and 75% respectively).



When asked to consider specific airport activities, focused survey respondents living within 3 miles of Heathrow are significantly more likely to feel that aircraft activities (e.g. landing, taking off, taxiing), road traffic to and from the airport, and waste generated by other airport activities (e.g. boilers, generators, incinerators) have a very significant negative impact on air quality in their local area than the wider sample (36%, 31%, 18% vs 25%, 21%, 12%, respectively).

### 5.1.3 Informed concerns about air quality

#### **Understanding more about air pollution, particularly its impact on human health, leads to increased concern about the role of Heathrow Airport on air quality locally.**

Local residents in the focus groups and webinar were shown information about the five key pollutants and UFPs, their primary sources and their impact on human health. As local residents learn more about air quality, concern towards the issue increases.

<sup>45</sup> Focused survey: A4. On a scale of 0 to 10, where 0 is no impact and 10 is a huge impact, to what extent, if at all, do you feel that Heathrow Airport's activities have an impact on air quality in your area? Base: All respondents (n=754); Under 3 miles (n=156); Very concerned about air quality (n=151).

Most feel surprised to learn about numerous different types of pollutants, particularly UFPs which were previously unheard of by almost all focus group participants. There is interest and demand to know how pollutants are measured or change over time, and how levels compare in different areas of the UK and globally.

Residents are particularly shocked to learn about the pollutants' effect on human health, which causes some to question whether independent reviews are being conducted into air pollution's health impact in their area. It also prompts local residents in focus groups and community events to link symptoms or health conditions experienced by themselves, friends and family to poor air quality. Parents of young children in particular are more likely to share concerns about air pollution on their children's health.

*"My mum's always says she gets reoccurring chest feelings and feels dizzy. Maybe it's to do with this [air pollution]." (Focus group participant, Stanwell)*

*"I've lived here all my life and haven't noticed a change in health, but I went on holiday with a family friend who lives locally and has COPD [chronic obstructive pulmonary disease], and the difference in her breathing when we were away in comparison to when we we're at home was unreal. She's moved away because of it." (Focus group participant, Hounslow)*

*"This will have a bigger impact on the next generation [...] When I was in school maybe two people had asthma in a class, and now you go to a class of 7 year olds and 50 children are asthmatic." (Focus group participant, Stanwell)*

Learning more about the impact of pollutants on human health also increases how much they consider or scrutinise Heathrow Airport as a source of pollution and its negative health effects, particularly in the context of its third runway plans.

*"The bit where it said about affecting people's lungs, that's definitely my granddad. In the winter, he goes like to America or will take himself away for a couple of months and he gets so much better. He keeps saying he has got such bad chest all the time and says it's the airport because when he goes away from the airport, he seems to be fine." (Focus group participant – Colnbrook, Langley, Longford)*

*"Heathrow need to explain how much these pollutants would increase if they did any infrastructure change." (Focus group participant – Cranford)*



## 5.2 Views on Heathrow Airport's air quality monitoring and reporting

### Key findings:

- Awareness of Heathrow's air quality monitoring and reporting is very low, with no focus group participants having heard of the website before and only 13% of focused survey respondents and 11% of open link survey respondents having used it. Despite low awareness, 3 in 5 (60%) say they are likely to visit the site now they know it exists.
- Around half of the open link survey respondents feel there aren't sufficient air quality monitors in the area, with many calling for more monitors to be installed below the flight paths.
- While the Airwatch website is seen to host useful data, the website itself is not regarded as user friendly and needs modernising, for example by including comparative data, outlining steps to reduce air pollution and protect oneself, and introducing alerts when pollution levels are high.

### 5.2.1 Awareness of Heathrow's air quality monitoring

#### **There is very limited knowledge about Heathrow's air quality monitoring among local residents.**

While the majority of local residents *assume* Heathrow monitors air pollution, very few are aware of what *actual* monitoring Heathrow undertakes. A minority of local residents report seeing air quality monitors in their communities but are largely unaware of the scale of the monitoring network or where the data is displayed.

Overall, local residents agree that consistent monitoring is important and should be a priority. However, local residents acknowledge that they rarely think about air quality, unless it becomes particularly bad and thus has a noticeable impact.

*"When I go home, I'm not going to be thinking about air quality, I do wonder if there are apps out there which does monitor it but not actually looking out to download it because not actually concerned about it. I'm not thinking every day 'I wonder what the air quality is today'."* (Focus group participant, Cranford)

### 5.2.2 Views on Heathrow Airport's air quality monitoring and reporting

#### **Local residents agree that Heathrow Airport and the UK government should be responsible for monitoring air quality and communicating it to those most affected.**

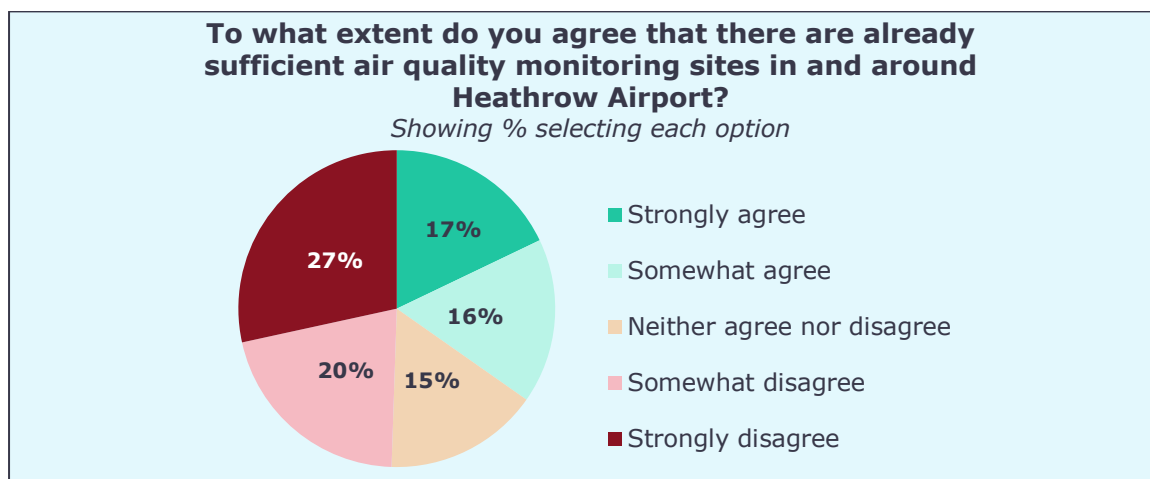
Many feel that Heathrow should be primarily responsible for monitoring air quality given its significant role in contributing to the air pollution locally. Many

also feel that the government and local councils should be the bodies in charge of managing and overseeing the process of monitoring and communicating relevant data to residents given the lack of trust residents have in Heathrow. There would be mistrust around the validity of the data if reported on by Heathrow, as some assume its corporate interests would impact the way the data is presented.

*"Maybe it should be under local council jurisdiction more to do the groundwork, measurements, and then distribute that data to different organisations in the area. Would be good if it was independent from Heathrow Airport, so that it can be published as they receive it without any sort of trying to manipulate the data."* (Focus group participant, Hounslow)

*"Mayor of London wants to make London the greenest city in the world, and Heathrow Airport should also be responsible [...] In Shanghai they declare the air quality levels – why is London getting away with not declaring it. Why do none of us here know what air pollution levels are?"* (Focus group participant, Cranford)

In the open link survey, respondents were prompted with a map showing the 22 air quality monitors sharing live data. While 33% feel there are sufficient air quality monitors, 47% disagree.<sup>46</sup> Similarly, focus group participants question the installation of the monitoring sites and whether they are strategically placed to collect low readings and meet the air quality objectives.



Some residents engaged through local community events who have an awareness of air quality monitors in the area express concern that many air quality monitors that already exist are defective or not reporting, particularly in Colnbrook and Longford.

<sup>46</sup> Open link survey: A4. To what extent do you agree that there are already sufficient air quality monitoring sites in and around Heathrow Airport? Base: All respondents (n=516)

**Additionally, residents believe that additional monitors need to be installed, particularly below Heathrow's flight paths.**

Local residents at community events and in focus groups, and those who attended the webinar, state a need for additional monitors to be installed close to busy roads, as close to traffic as possible, and under the flight paths (with the suggestion that they should take joining points into account), so as to give a true reflection of the air quality in the worst affected areas. Gaps in monitoring that should be filled are identified particularly towards the east of Heathrow, and, to a lesser extent, the north and south. Residents living below the flight paths are more likely to attribute health conditions within their neighbourhood to air pollution, and link this directly to the flight path.

Installing monitors next to local schools and within Heathrow Airport itself is also suggested to measure impact on children and Heathrow employees – amongst those considered most impacted by air pollution.

Open link survey respondents also feel that monitors needed to be located in more suburban spaces where they can capture the effects of pollutants on residents.

*"I think air quality monitoring should happen wherever planes fly. Depending on the wind direction, we are on the take-off flight path from Heathrow and yet we have no monitoring sites within 11 miles of our home."* (Open link survey respondent)

*"Under the actual flight path. There is no point measuring up in Slough, the arrivals paths are almost completely straight and east/west of the airport."* (Open link survey respondent)

*"I think there should be more recording in the areas where there are vehicles parked with their engine running i.e. the mini cabs, in areas where HGV are parked and where there are children i.e. outside schools and nurseries."* (Open link survey respondent)

*"Why do you not measure air quality along the flight paths that are exposed to a heavy concentration of flights especially late at night impacting Surrey residents?"* (Webinar attendee)

*"How long would it take to get a monitor if one wanted one? The monitors are very close to Heathrow or they're further south, one or two in the North. But nothing further east than Ealing. Bearing in mind that the joining point was moved in 2016 for arrivals to Heathrow, and are now over Southwark and a little bit further east... with concentrated flight paths you're going to get concentrated polluting as well, and to ask for a monitor would be a good thing. How long would it take to get and how long would it be until the data starts being significant or put on the dashboard?"* (Webinar attendee)

Open link survey respondents and webinar attendees also list specific areas and communities where they think monitors are currently needed. The most popular

of these areas include South Buckinghamshire, Old Windsor, Putney, Slough and Fulham.

*"Parts of Windsor are directly under the flight path and so a monitoring site should be installed in those locations."* (Open link survey respondent)

*"Putney. It is directly below the approach to 27L when the wind is from the west, which it is for about 75% of the time."* (Open link survey respondent)

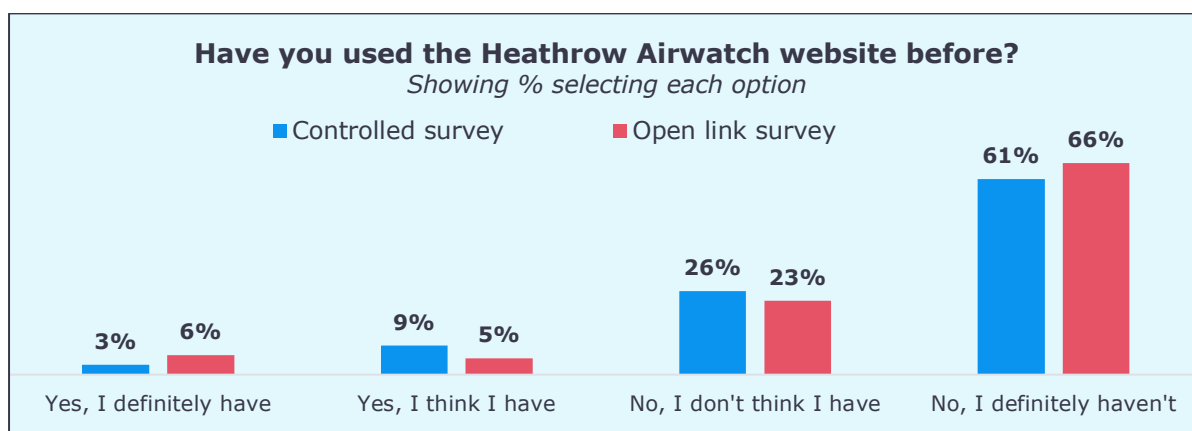
*"SE5, Southwark, Lewisham, Greenwich and Lambeth - under both LCY and LHR flight paths, 8 and 18 m from runway."* (Webinar attendee)

Local residents also state an expectation that current and future monitors should track as many of the pollutants that have UK targets set against them as possible, as well as UFPs.

### 5.2.3 Prompted views on the Heathrow Airwatch website

**There is very low awareness and usage of the Heathrow Airwatch website amongst local residents, including amongst those who are concerned about air quality.**

No focus group participants were aware of its existence and only 13% of focused survey respondents and 11% of open link survey respondents have used the Airwatch website before, with 87% and 89% respectively having never previously used it.<sup>47</sup>



Those significantly more likely to have used it are:

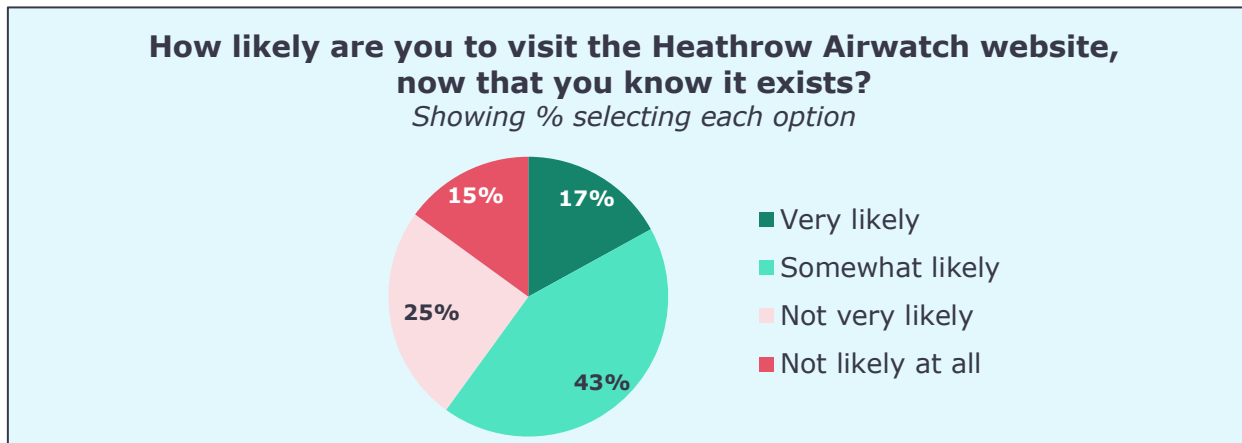
- Those living in Heathrow’s neighbouring villages (19%)
- Those aged 18-29 (20%) and 30-44 (20%)
- Those with caring responsibilities of a minor (22%)
- Those ‘very’ concerned about air quality (21%)

<sup>47</sup> Have you used the Heathrow Airwatch website before? Base: All respondents (Focused survey = 754 Open link survey = 516; Webinar=8). Those living in Heathrow’s neighbouring villages (focused survey = 204) Those aged 18-29 (focused survey = 138) Those ‘very’ concerned about air quality (focused survey = 151) Those with caring responsibilities of a minor (focused survey = 257) Those aware of Heathrow’s actions and commitments to improving air quality (focus survey = 238) Those who perceive Heathrow’s comms as effective (focused survey = 222)

- Those aware of Heathrow’s actions and commitments to improving air quality (32%)
- Those who perceive Heathrow’s comms as effective (27%)

Over half (5/8) of webinar attendees said they hadn’t used the Heathrow Airwatch website before, while 3/8 claimed that they had.

**When asked how likely they are to visit the Airwatch website now that they know it exists, almost two thirds of focused survey respondents (60%) said they are likely to do so, though only 17% said they’re very likely to.**<sup>48</sup>



Those who are more likely to visit it now that they know it exists are:

- Those living within 3 miles of Heathrow (72%)
- Those living in area for less than 10 years (68%)
- Those with caring responsibilities of a minor (72%)
- Those very or fairly concerned about air quality (70%)

When asked how likely they are to visit the Heathrow Airwatch website now that they know it exists, just over half (5/9) of webinar poll respondents claim they are very likely, one third (3/9) claim they are somewhat likely, and only one claims they are not very likely.

Focus groups participants and webinar attendees were shown images from the Heathrow Airwatch website and invited to share their views.

**While the site is seen to offer a comprehensive overview of local air quality with substantial amounts of data available, local residents suggest various ways in which the website could be improved.**

The suggested improvements from local residents include:

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<sup>48</sup> How likely are you to visit the Heathrow Airwatch website, now that you know it exists? Base: All respondents (Focused survey=754; Open link survey=516; Webinar=9). Those living within 3 miles of Heathrow Airport (n=130) Those living in area for less than 10 years (n=256) Those with caring responsibilities of a minor (n=200) Those fairly concerned about air quality (n=258)

- Updating and modernising the look and feel of the website to make it more engaging and user-friendly for visitors.
- Provide contextual information so that visitors can map local air quality against national levels.
- Provide relevant advice so that local residents know what measures they should take to help mitigate the effects of pollution.

More broadly, local residents feel Heathrow Airport should further promote the existence of the website to local residents. A perceived lack of efforts in promoting the site generates a sense of distrust and makes residents feel the airport is trying to hide the data.

*"That's fantastic to hear that we've been monitored, and it's easily accessible. We've got all that history, so we can see if it's getting better. But then obviously, you know, looking back to page four, some of the things recorded out as we didn't know about these impacts to the brain, nervous system, etc. And so where are the results from the UFPs and all these other areas?"* (Focus group participant, Colnbrook, Langley, Longford)

*"I think they should be measuring the UFPs. They're the most dangerous, and compare it to other countries."* (Focus group participant, Stanwell)

*"It shouldn't just say if it's high or low – it needs to have advice [on how to reduce pollution levels and keep safe when levels are high]."* (Focus group participant, Hounslow)

### 5.3 Views on air quality data around Heathrow Airport

#### Key Findings:

- Residents show overall appreciation for accessibility of the data including the real-time hourly reports, but also raise scepticism towards the figures due to a misalignment with their perceptions of local air quality, a difficulty in comprehending the data and a lack of overall context to deepen their understanding.
- Data on Heathrow Airwatch contradicts the local resident perception and experience of air pollution locally, with many feeling it has gotten worse over time.
- Local residents feel Heathrow Airport could do more to promote the Heathrow Airwatch website with local residents and improve the way it communicates air quality.

#### 5.3.1 Views on the Heathrow Airwatch air quality data

**While initially satisfied by the air quality data available on the Heathrow Airwatch website and the frequency with which data is collected, residents identify concerns on scrutinising the data.**

Focus group participants and webinar attendees were presented with air quality data available on the Heathrow Airwatch website, including levels of NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> over the past 10 years from the Heathrow Air Quality quarterly report for Q1, 2023.

Residents are initially impressed by the depth of air quality reporting available to them, particularly the access to historical records dating back to 1993. Providing comparative data across years is particularly important to residents, especially since the majority of those spoken to have lived in their respective areas over long periods of their lives. Despite initial appreciation to seeing the air quality reporting, residents share frustration over its overall lack of public knowledge.

*"Needs to be more publicly advertised, need to be aware that they can look at this info."* (Focus group participant, Cranford)

**Upon further analysis, residents became more cynical towards the data, specifically towards reports showing monitoring levels classified as 'low'.**

The idea that the majority of the monitoring system shows 'low' grades of pollution seems inconsistent with their lived realities or with their perceptions of air quality in areas close to Heathrow Airport. A few mentioned seeing signs on the roads citing poor air quality and noting that this 'mismatch' of information generates hesitancy to trust data.

Additionally, local residents question whether the data or reporting has been manipulated so as to show Heathrow in a positive light given it is funded by managed by the airport. Some question the metric Heathrow is using to determine and label pollution levels, and whether this is adhering to any external guidelines.

*"Can't believe that it's 'good' or 'low'- doesn't feel realistic. This is 'fake news'. My eyes automatically said this is great, but I need to understand more about context."* (Focus group participant, Cranford)

*"The fact that all the areas are low raises alarm bells. We need further info and clarity around the numbers, historical data is very buried in the website to see how it changed over time."* (Focus group participant, Cranford)

*"I just don't know if what they're telling me is true. You see those air pollution signs on the motorway, and they read here that the levels are fine. It just doesn't add up."* (Focus group participant, Colnbrook, Langley, Longford)

*"Do the bandings (low/medium/high etc) for air quality on the Airwatch site relate to guidelines on safe exposure issued by the World Health Organisation?"*  
(Webinar attendee)

*"Would it be better to ask the Dept for Health rather than DEFRA what the levels where it is not safe to exceed?"* (Webinar attendee)

Some residents also explicitly share their concerns around the validity of the data in relation to where it is collected and how band ratings are calculated. Residents raise suspicions that data might be collected at off-peak times when pollutant concentrations are assumed to be lower. Questions are also raised in relation to how the data is presented, with a minority raising suspicions that data is averaged out in daily, monthly or yearly averages in the graphs to hide spikes and breaches.

Similarly, some are concerned that the air quality monitors are 'strategically' located in lightly affected areas, meaning that while the data is technically valid, it does not give an accurate reflection of the poor air quality that they believe they experience in their everyday lives.

*"I don't think there are any details of where the monitors are or how you arrive at the results you put on the graph. Are you saying that none of the monitors ever show a reading over the limit or is this an average over a day? I don't feel I can trust the information. If the air is not dangerously polluted, even with the airport allowed up to 480,000 flights a year and the area is always within pollution limits, it doesn't make sense"* (Open link survey)

*"It doesn't cover my area and the data for most types of pollution seem to be missing in most places. It therefore gives the impression that there are no problems with air quality while the true situation is that the data is not available to conclude that."* (Open link survey)

*"It rather carefully avoids measuring under the actual flight paths (for example, arrivals where planes are lower). I do not trust this data as it does not tally up with our own experience (i.e. we can smell the fuel on some days)." (Open link survey)*

**Additionally, while scrutinising the data, residents become more critical towards the overall information provided.**

Many find the information on Heathrow Airwatch difficult to dissect and comprehend given their lack of knowledge about air quality - a technical topic - which the website is felt to do little to help clarify.

Residents note a lack of comparable data to contextualise local air quality, which makes it difficult to put into perspective. For example, including comparison data with other airports and areas, and outlining health implications relative to air pollution levels are seen as useful for visitors to know when looking at current air quality levels.

While having access to previous reports is appreciated, many find it difficult to navigate, and would like easier to read, comparative annual data. Overall, few find the data engaging which fuels feelings of distrust and apprehension.

*"[I] need to understand where the monitors are set up, because that will influence how low/high levels are. Where specifically are they placed?"* (Focus group participant, Hounslow)



*"Are there any local authorities who don't monitor their air quality? Does that make the information pulled in by Heathrow difficult to clarify?"* (Webinar attendee)

*"I want to understand more about the health implications of poor AQ, are people going to the hospital more, more lung/breathing difficulties? Then should make decisions based on health implication."* (Focus group participant, Hounslow)

**While residents are not surprised by the incidence of spikes in air pollution and breaches of the objectives, there is concern about the impact this has had (and will continue to have) on local residents.**

Residents were also provided with information about air quality spikes and breaches outlined in the latest air quality quarterly report for levels of PM<sub>10</sub>, PM<sub>2.5</sub> and NO<sub>2</sub> on the Heathrow Airwatch website.

Most residents are not familiar with the prevalence of spikes and breaches and express anger towards the lack of communication about them. Knowledge of spikes and breaches is felt to be especially important for older people or those with health difficulties to help manage their conditions, and local residents feel Heathrow Airport has a responsibility to advertise and communicate this data.

Optional phone or news alerts are raised as useful ways of communicating spikes and breaches. Residents are keen to know more about trends so that warnings can be issued before a spike rather than after so residents can take precaution. However, some residents noted that this could increase feelings of anxiety so feel it is important to ensure these are provided optionally, with explanations of the spikes given alongside to help contextualise and allay concerns.

Residents note that alongside this information, it is important to them to have Heathrow held accountable for breaches or excessive spikes in poor air quality. It is suggested that fines should be paid to local communities/governments who suffer the most to compensate for spikes or breaches.

*"So maybe this (notifications) comes in when it is cold and icy when the levels are likely to be higher. People should be made more aware so they can put on face masks before they go out."* (Focus group participant, Stanwell)

*"Maybe when there is a breach the local councils should be paid, so that local people are actually getting something."* (Focus group participant, Colnbrook, Langley, Longford)

### **5.3.2 Communicating and engaging with local residents about air quality**

**Residents are keen to receive information on air quality, but most admit that they are unlikely to actively search for it themselves.**

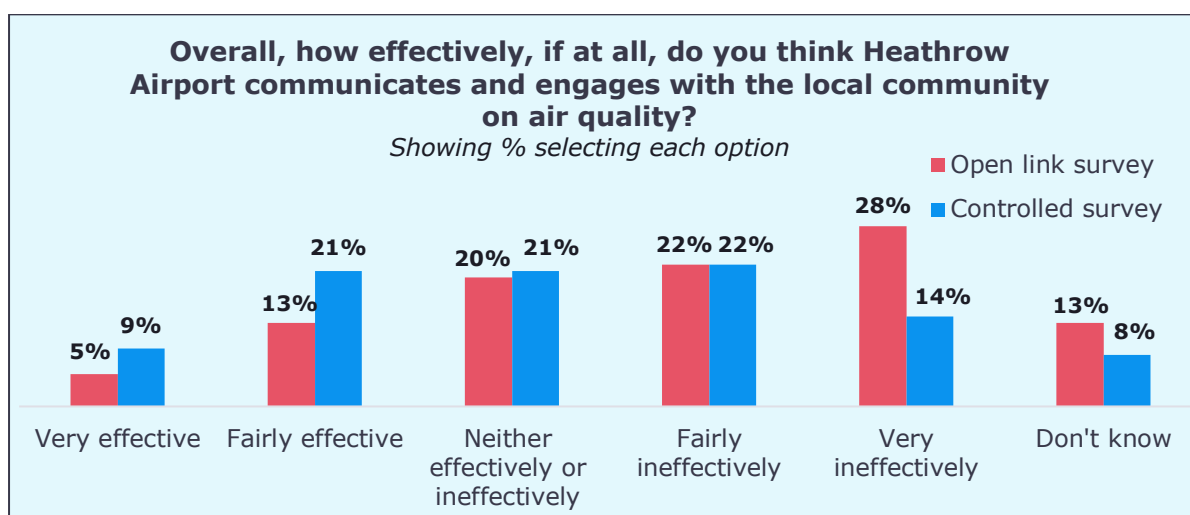
Generally, residents find Heathrow's public data helpful, but these positive feelings are overshadowed by frustration towards the lack of proactive communication on it. Local residents also acknowledge that air quality is not a

front of mind concern meaning few will actively search for it. They are, however, strongly in favour of information and data being delivered to them in an accessible manner. The suggestions they offer include:

- Installing devices that display air quality data in public spaces so residents can access the info with no effort
- Making air quality data is available via existing apps (such as weather apps) for ease of access
- Distributing text alert warnings when air pollution levels are high
- Sharing updates via a dedicated social media account
- Sharing summary reports or daily updates via local newsletters
- Including air quality updates and reports on the daily local news

*"[They] Should have a visible air monitor, e.g. like a speed camera monitor, something that people can see air quality levels. If, air quality was high, I would stay inside. Should be warnings if it was very high."*  
 (Focus group participant, Cranford)

*"Tell me on the news, maybe the daily report news? They give you high pollen count areas, no? Why can't they give you high pollution?"* (Focus group participant, Feltham)

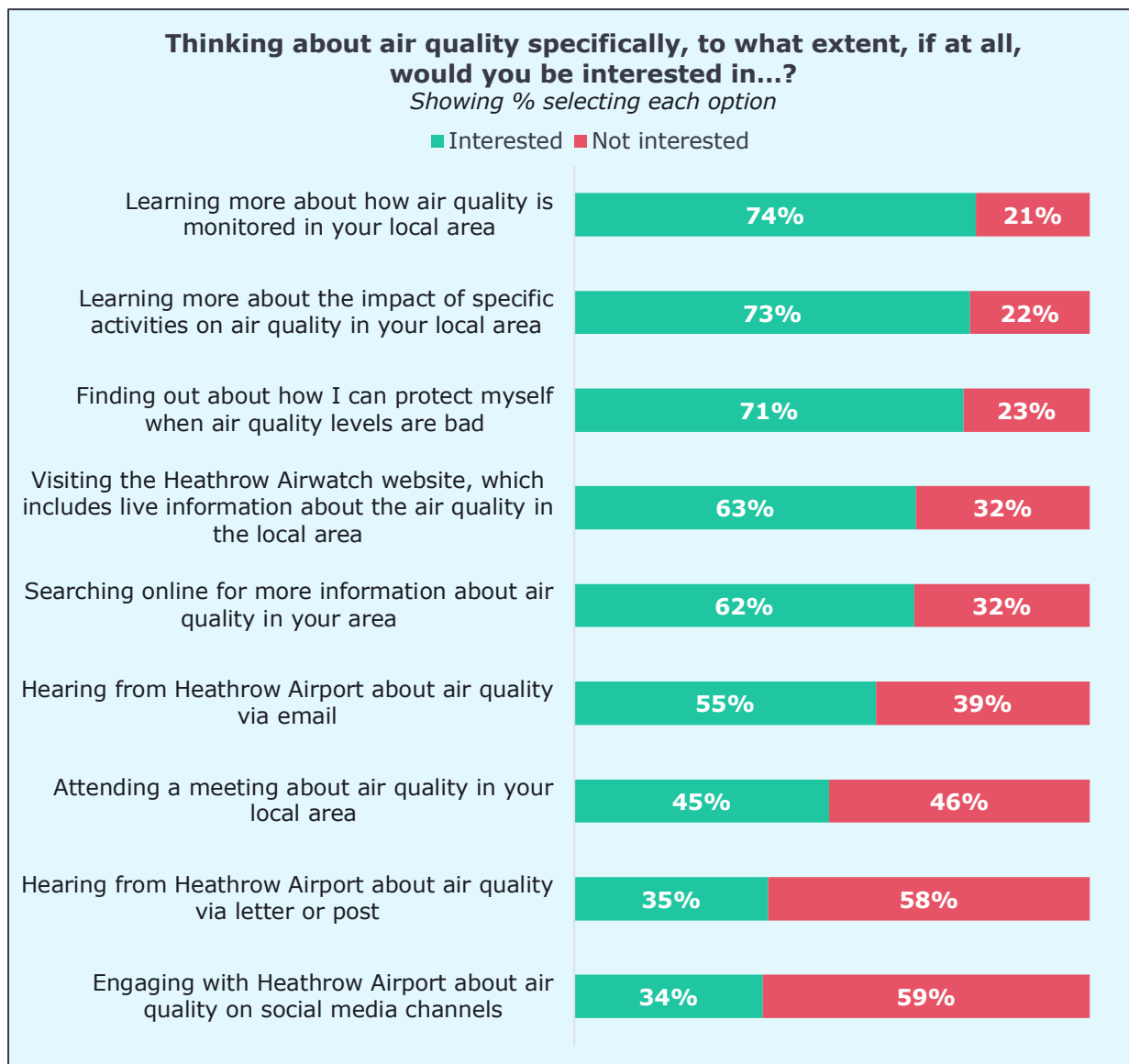


In the focused survey, 36% of participants find Heathrow Airport’s communications with the local community on air quality effective, while 33% find it ineffective.<sup>49</sup> The lack of satisfaction with Heathrow Airport’s air quality communication is greater in the open survey where only 18% find it effective compared to 49% who find it ineffective.

<sup>49</sup> Focused survey: E1. Overall, how effectively, if at all, do you think Heathrow airport communicates and engages with the local community on air quality specifically? Open link survey: E1. Overall, how effectively, if at all, do you think Heathrow airport communicates and engages with the local community on air quality? Base: All respondents (Focused survey=754, Open link survey=516) Those aged 18-29 (focused survey = 138) Those aged 60+ (focused survey = 192)

Perceived effectiveness is lower amongst older residents with 44% of participants in the 18-29 age group finding Heathrow’s communications effective compared to just 25% of those aged 60+.

**There is strong interest in learning more about air quality monitoring, its impact on local residents and how to protect oneself from air pollution.**



Over 7 in 10 open link survey respondents are interested in learning more about how air quality is monitored locally (74%), learning more about the impact of specific activities on air quality locally (73%) and in finding out more about how to protect oneself when air quality levels are high (71%).<sup>50</sup> There is also interest in visiting the Heathrow Airwatch website (63%) and in searching online for

<sup>50</sup> Open link survey: E2. Thinking about air quality specifically, to what extent, if at all, would you be interested in...?: All respondents (n=516).

more information about air quality locally (62%). Interest is lower for hearing from Heathrow Airport directly on air quality, either by email (55%), post or letter (35%) or on social media (34%).

## 5.4 Views on Heathrow Airport's air quality targets and commitments

### Key findings:

- There is little understanding of what Heathrow Airport is doing to improve air quality locally, with one fifth (21%) claiming awareness of Heathrow's 2.0 Sustainability Strategy before being surveyed, and only 3% claiming to know what the strategy includes.
- Despite this, local residents feel that the airport has a responsibility to mitigate the impact the airport's activities on air quality and prioritise local communities' health.
- Local residents broadly feel Heathrow's targets are ambitious and necessary, but some residents question whether Heathrow is being held accountable to ensure it achieves them, and whether the airport would be fined if the targets are not achieved. They also feel the targets place a large deal of the responsibility on passengers rather than being in the airport's direct control.
- Initially, local residents approve of the range of actions and commitments Heathrow Airport has outlined to improving air quality, feeling the airport is taking the right measures to achieve its targets. However, residents raise some important considerations to ensure the commitments have a real impact and do not adversely affect its neighbouring residents.
- There are mixed levels of confidence in Heathrow's ability to achieve its air quality targets. However, local residents outline some actions that could help gain further confidence including, having an independent party that oversees and scrutinises Heathrow Airport's air quality actions, further communicating its air quality work, and outlining how it works with external parties (such as local councils and weather stations) to improve air quality reporting.

### 5.4.1 Awareness of Heathrow 2.0 Sustainability Strategy

**There is very little awareness of Heathrow's 2.0 Sustainability Strategy across the public domain.**

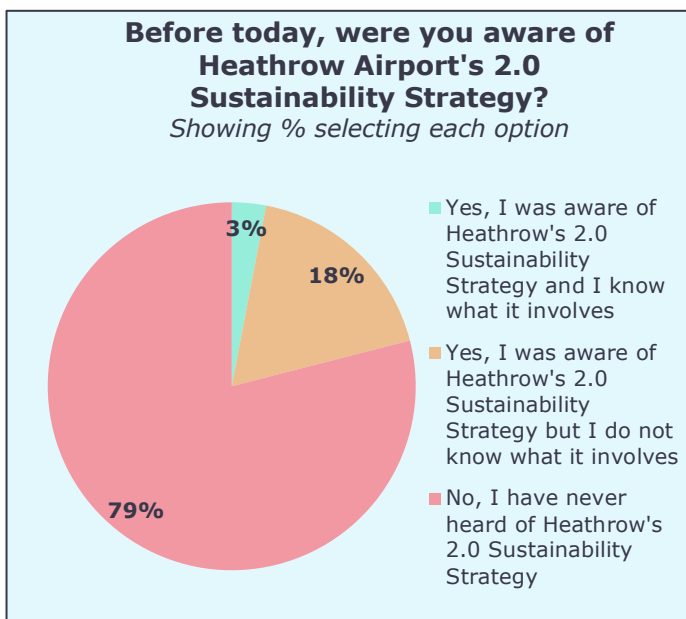
No focus group participants had heard of the strategy plan by name, and many were unaware that Heathrow had been actively trying to improve air quality. Similarly, only a third (32%) of focused survey respondents claim to be aware of

Heathrow Airport's commitments to improving air quality, with only 4% claiming to be very aware.<sup>51</sup>



Awareness is significantly higher among those in Heathrow's neighbouring villages (43%) compared to wider residents (27%). Awareness is also higher among those living within 3 miles of the airport (40%), those with connections to Heathrow (60%)\* compared to the wider sample, as well as among those who claim to be concerned about air quality (36%) compared to those who feel not very or at all concerned (26%).

**Specific awareness of the Heathrow 2.0 Sustainability Strategy is similarly low among focused survey respondents, with only one fifth (21%) claiming awareness before being surveyed.<sup>52</sup>**



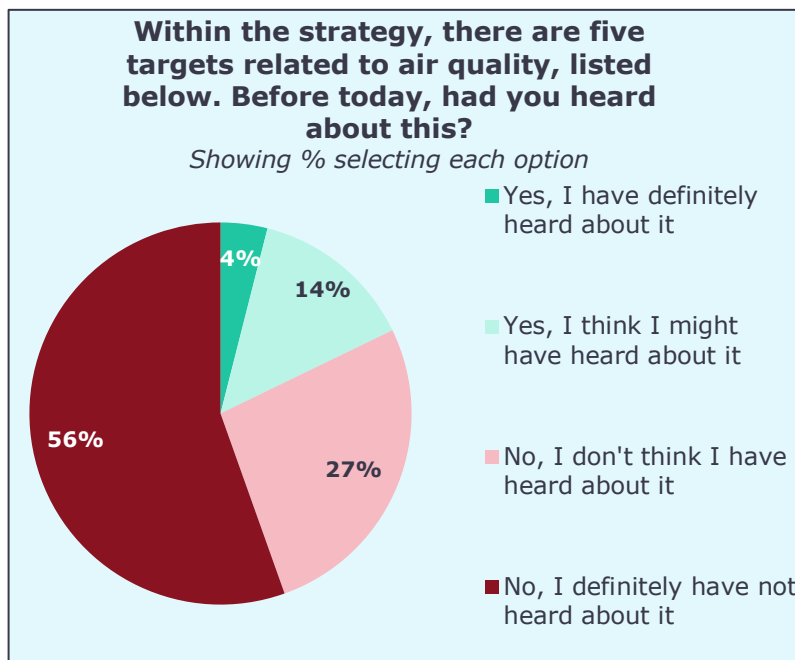
Awareness is higher among those with connections to Heathrow (57%)\* and those who live within 3 miles of the airport (29%) compared to the wider sample, as well as among those who claim to be concerned about air quality (25%), compared to those who feel not very or not at all concerned (16%).

When asked if they had heard of Heathrow's 2.0 Sustainability Strategy before, four fifths (8/10) of webinar poll respondents claim to have 'definitely' heard of it.

<sup>51</sup> Focused survey: A6. How aware, if at all, would you say you are of Heathrow Airport's commitments to improving air quality? Base: All respondents (n=754); Heathrow neighbours (n=204); Non-Heathrow neighbours (n=550); \*Connections to Heathrow (n=82); Concerned about air quality (n=448); Not concerned about air quality (n=295).

<sup>52</sup> Focused survey: A9. Before today, were you aware of Heathrow Airport's 2.0 Sustainability Strategy? Base: All respondents (n=754); \*Connections to Heathrow (n=82); Concerned about air quality (n=448); Not concerned about air quality (n=295).

**Awareness of specific targets within the Heathrow 2.0 Sustainability Strategy is even lower, at only 17% overall.**



Higher awareness is claimed by Heathrow neighbours (25%) compared to non-Heathrow neighbours (14%) and those with connections to Heathrow (48%) compared to the wider sample<sup>53</sup>. Claimed awareness from respondents who are very concerned about air quality (28%) did not change when shown specific targets from the Strategy.

Still, while there is very limited awareness of the Heathrow 2.0 strategy among those engaged, and a sense from all residents that Heathrow does little to advertise its air quality commitments specifically, most residents acknowledge that they have never proactively searched for the information. They also note that the bulk of information they receive concerning Heathrow is about a potential third runway.

*"Nothing, other than charging for drop-off and reducing the wait time which was seen as being a money-making exercise rather than one for the benefit of the air quality."* (Focus group participant, Harmondsworth, Harlington, Sipson, Hayes)

Despite this, the general assumption is that Heathrow airport does have targets relating to this area and has commitments to reduce air pollution, even if they have not been sufficiently communicated.

**There is also a general consensus that air quality should be a key priority for Heathrow Airport even prior to learning about its actions and commitments.**

All local residents feel that the airport has a responsibility to take steps to mitigate against the impact the airport's activities have on the environment and local communities' health. Local residents agree that it is a concern that affects

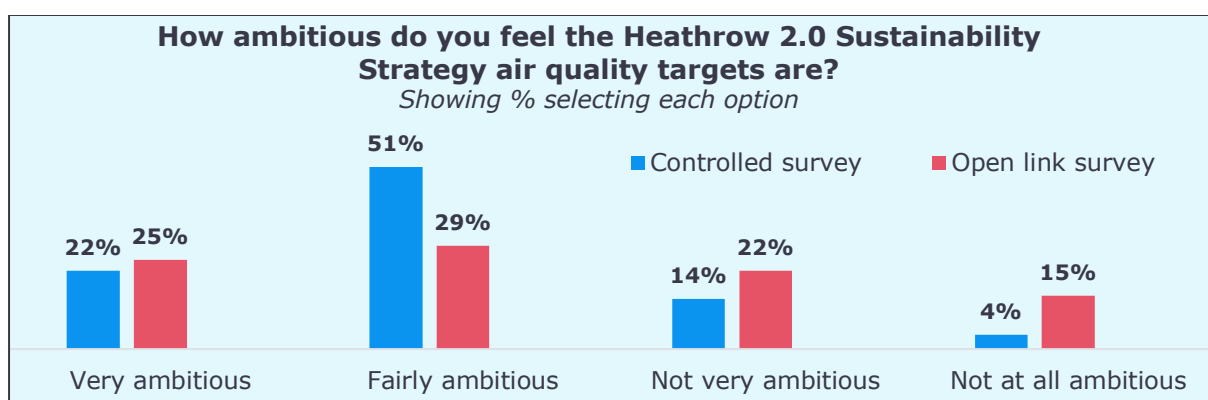
<sup>53</sup> Focused survey: A10. In 2022, Heathrow published the Heathrow 2.0 Sustainability Strategy which outlined its actions and commitments to reaching Net Zero. Within the strategy, there are five targets related to air quality. Before today, had you heard about this? Base: All respondents (n=754); Heathrow neighbours (n=204); Non-Heathrow neighbours (n=550); Connections to Heathrow (n=82); Very concerned about air quality (n=151).

their lives, even if they don't consciously think about it on a daily basis. Prior to learning about Heathrow's actions and commitments set out in the sustainability strategy, local residents highlight two key expectations.

### 5.4.2 Views on Heathrow's air quality targets

Heathrow's air quality targets are positively received overall, with local residents feeling that Heathrow is demonstrating a commitment to improving air quality and minimising negative environmental impacts. Many local residents agree that the targets sound great in theory and would be impactful if achieved.

Positivity is also high among focused survey respondents, with almost three quarters (72%) feeling the targets are ambitious. Open link survey respondents are more sceptical, with only half (53%) viewing the targets as ambitious, while just under half (4/9) of webinar poll respondents view the targets as ambitious.<sup>54</sup>



### The targets are felt to be necessary and meet residents' expectations for Heathrow Airport, but there is doubt from some about Heathrow's commitment to achieving these targets.

Many note that all major companies set sustainability targets, and they would expect no less from Heathrow. As a result of this, scepticism leads some local residents to query whether Heathrow is genuinely committed to improving air quality, or whether it is part of the corporate trend to greenwash and improve brand reputation.

*"I think it's a huge PR thing for them. It would be a good thing to focus on if they meant it but it's a huge PR thing to make sure that they can carry on making money and they're shown to be eco-conscious. So that those who care about that when buying things will feel okay buying from Heathrow."* (Focus group participant, Hounslow)

*"Why is the Heathrow Express so expensive when the Elizabeth line is so much cheaper? It feels like money is the primary motive."* (Focus group participant, Cranford)

<sup>54</sup> How ambitious do you feel the Heathrow 2.0 Sustainability Strategy air quality targets are? Base: All respondents (Focused survey=754, Open link survey=516, Webinar=9).

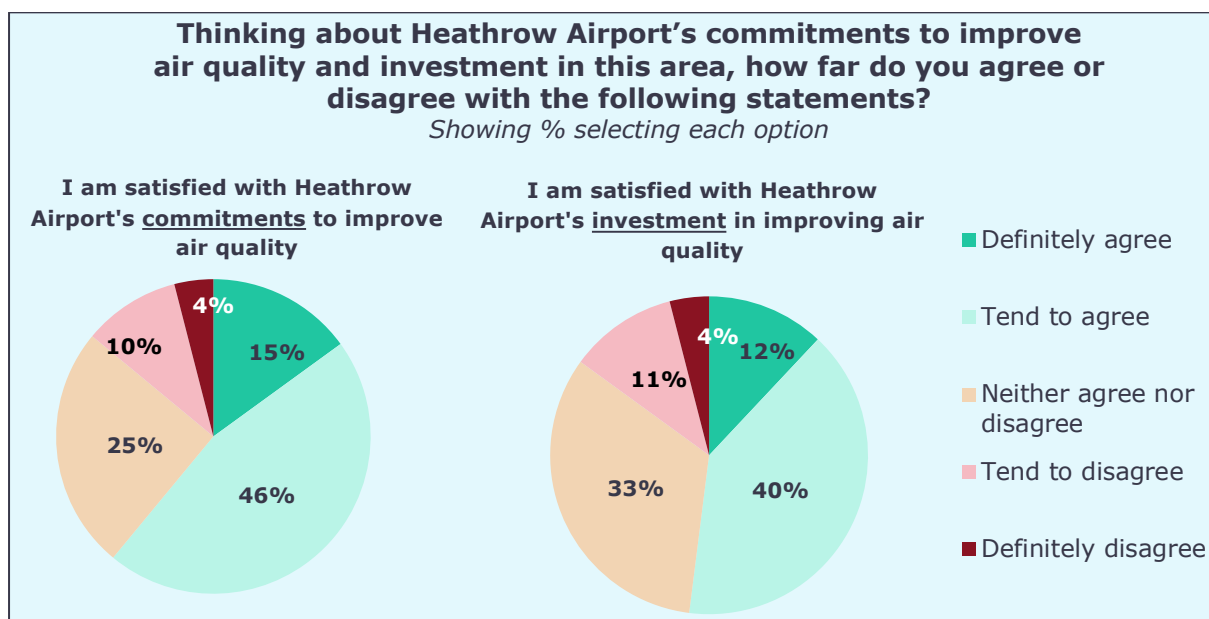
**Some also question whether Heathrow is being incentivised to introduce these targets, if it is being monitored by external parties to ensure it achieves them, and whether it will be fined if the targets are not achieved.**

Prior to seeing the detail behind the targets, some residents noted that the targets seemed quite ambitious and somewhat unrealistic, with questions about the logistics of some targets’ implementation and/or achievability being raised. While some feel unachievable due to infrastructure weaknesses or overreliance on behaviour change, others (e.g. electric planes and biofuels) feel too technical for some participants to comment on. Very few have heard of work being done to make these a reality, which makes residents hesitant that they could be a prospect soon.

*"Electric planes? That just won't ever work."* (Focus group participant, Colnbrook, Langley, Longford)

*"I left working from Heathrow in 2015, and I never saw any incentivised travel."* (Focus group participant, Cranford)

**Respondents’ satisfaction with the commitments themselves is higher than satisfaction with Heathrow’s investment in improving air quality.**



After being shown Heathrow’s targets, almost two thirds (61%) of focused survey respondents are satisfied with Heathrow’s commitments to improve air quality, while just over half (52%) are satisfied with its level of investment.<sup>55</sup>

<sup>55</sup> Focused survey: A15. Thinking about Heathrow Airport's commitments to improve air quality and investment in this area, how far do you agree or disagree with the following statements? Base: All respondents (n=754); Aware of Heathrow’s commitments (n=238); Confidence in Heathrow Airport achieving its AQ targets (n=384); Perceive Heathrow’s AQ targets as ambitious (n=550); Caring responsibilities (n=257); 18-29 (n=138); 30-44 (n=245); 60+ (n=192).



Satisfaction with the commitments is significantly higher among those already aware of them (74%), those confident they will be achieved (85%), and those with caring responsibilities of a minor (70%). Satisfaction with Heathrow's investment is also higher among those groups (69%, 76%, 65%), as well as among those who perceive the targets as ambitious (62%).

Satisfaction with the commitments is also significantly higher among those aged 18-29 (70%) and 30-44 (66%) compared to those aged 60+ (52%), as is satisfaction with Heathrow's investment (58% and 59% vs. 43%).

### **5.4.3 Views on Heathrow's actions and commitments to achieving its air quality targets**

**Overall, there is approval of Heathrow's actions and commitments, and most feel Heathrow Airport is aiming to take the right measures to achieve its targets.**

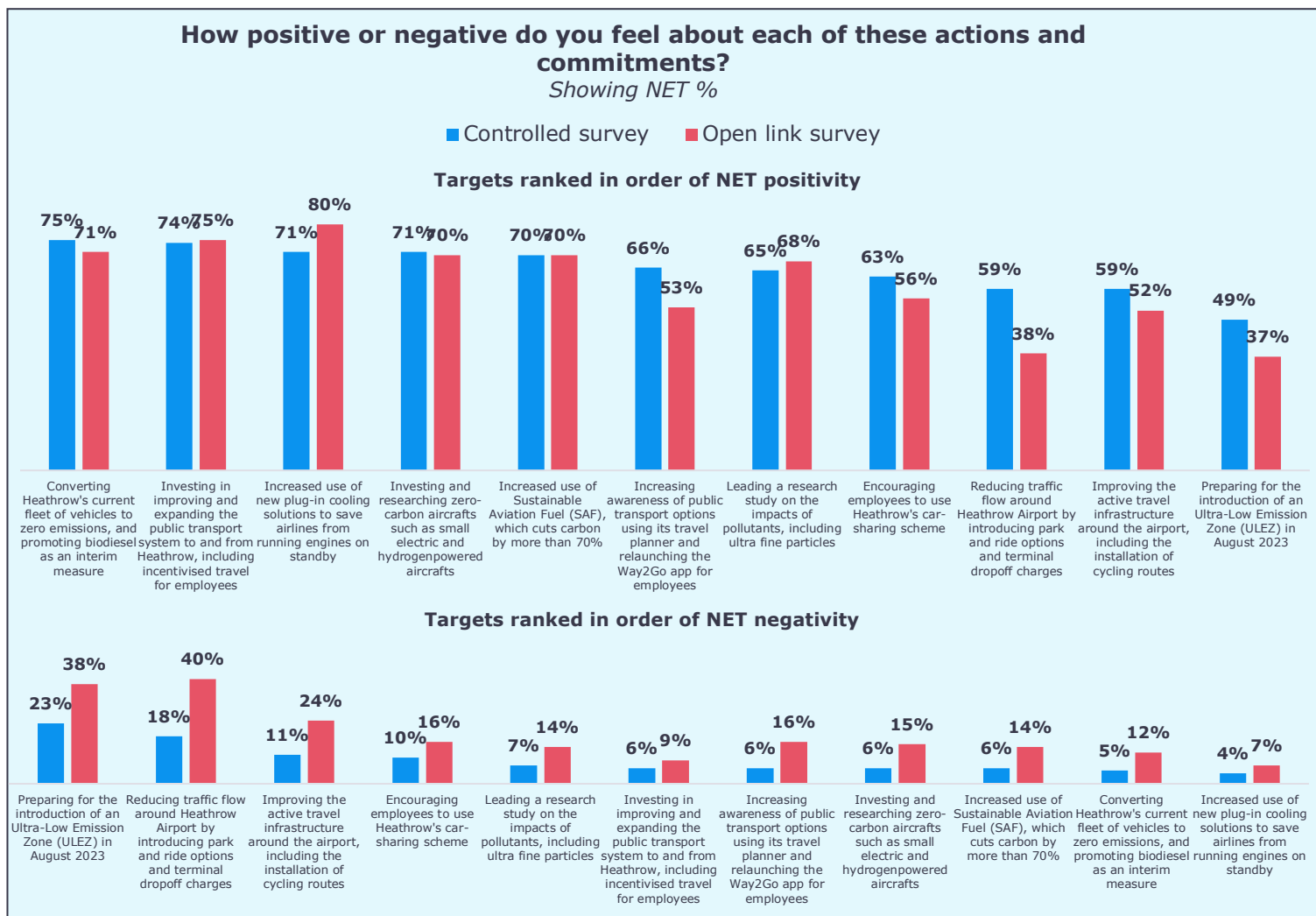
Detail around actions and commitments helps to allay residents' concerns about how some targets will be achieved.

When shown Heathrow's actions and commitments, focused survey respondents feel most positive about converting Heathrow's current fleet of vehicles to zero emissions and promoting biodiesel as an interim measure (75% of the focused survey sample feeling this is a positive commitment) and about investing in improving and expanding the public transport system to and from Heathrow, including incentivised travel for employees (74% feeling this is a positive commitment).<sup>56</sup>

Positivity is lowest in response to preparing for the introduction of an Ultra-Low Emission Zone (ULEZ) in August 2023 (49% feeling this is a positive commitment), reducing traffic flow around Heathrow Airport by introducing park and ride options and terminal drop-off charges (59% feeling this is a positive commitment), and improving the active travel infrastructure around the airport, including the installation of cycling routes (59% feeling this is a positive commitment).

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<sup>56</sup> Heathrow Airport has outlined the following actions and commitments in order to achieve its air quality targets. How positive or negative do you feel about each of these actions and commitments? Base: All respondents (Focused survey=754, Open link survey=516).



Similarly, open link survey respondents feel most positive about increased use of new plug-in cooling solutions to save airlines from running engines on standby (80%) and investing in improving and expanding the public transport system to and from Heathrow, including incentivised travel for employees (75%). They are least positive about the introduction of an Ultra-Low Emission Zone (ULEZ) in August 2023 (37%).

When asked which of Heathrow's actions and commitments to improving air quality are most important, about half (4/7) of webinar poll respondents point to 'investing in improving and expanding the public transport system'.

Open link survey respondents were additionally asked what other air quality targets they would like to see Heathrow focus on, with responses prioritising:

- Targeting road vehicles (16%), including: making improvements to public transport; addressing congestion; shifting to electric and renewable vehicles; reducing staff car usage; reducing taxi related air pollution; and encouraging more cycle routes.

- Reducing aircraft emissions (16%), including: reducing airplane emissions; using cleaner aviation fuel; developing new aviation technology; and banning dumping of fuel.
- Reducing or reorganising flights (10%), including: reducing flights; having more efficient organisation of flights; fewer flights at anti-social hours; and banning private jets.
- Reducing air pollution and emissions at Heathrow (7%), including: Heathrow being made accountable and to comply with standards; sustainable airport parking practices; introducing green initiatives at Heathrow (e.g. green spaces); cancelling any expansion to the airport; improving transport infrastructure around Heathrow; and addressing air quality in train stations.
- Reducing air pollution and emissions more broadly (5%), including: targeting ultra-fine particles; focusing on becoming Net Zero; reducing air pollution.

22% of open link survey respondents also list other actions Heathrow can take in direct and indirect relation to targets, including 5% suggesting there need to be improvements to the set targets and 2% wanting to see a focus on public health of the workforce / local residents. 6% of open survey respondents feel Heathrow should also be focusing on reducing noise pollution.

On discussion of these commitments, concerns remain about the more ambitious targets, and about Heathrow's focus overall.

### **Residents have doubts about the existing public transport network's capacity to facilitate Heathrow's public transport goals.**

There is approval of the suggested improvements to public transport in the local area (e.g. more bus links and direct routes to the airport). Most residents also note the introduction of terminal drop-off charges and reduced waiting times, feeling this has proved a deterrent for some, though assessments of its effectiveness vary.

*"I've got the bus before because it's much easier and you avoid the drop off charges which are really expensive, so clearly they are trying to get people not to drive to the airport."* (Focus group participant, Hounslow)

*"In the last two years a new bus has started up and it runs straight Colnbrook and goes to Heathrow, so that must be one of the things that they started."* (Focus group participant, Colnbrook, Langley, Longford)

However, there is still considerable scepticism around the public transport target (have at least 45% of passengers using public transport to get to the airport by 2026), as residents feel that public transport infrastructure around Heathrow, while good, is not efficient or well-connected enough to make this figure feel achievable. Notably, many feel that Heathrow's public transport improvements to date have overlooked the local area and residents, focusing instead on main hubs that provide connections to London or other major destinations. In fact,

local residents report significant cuts to the local public transport network in recent years.

While there is concern about overambition, many point out that Heathrow's challenges can also be attributed to external factors such as lack of government funding and strike action.

*"It is the infrastructure around Heathrow and how it works. The timing of the trains, space for baggage, not crowded. It's not just a Heathrow problem."* (Focus group participant, Feltham)

*"How are they going to achieve the public transport use to 45%?"* (Focus group participant, Cranford)

**There is also uncertainty about the car-sharing target (have no more than 57% of colleagues coming to work in single-occupancy cars by 2026), with some feeling this target is unrealistic and unfair.**

This concern is particularly pronounced among those with connections to Heathrow as former employees or through current employees. Most local residents are sceptical about the ability of staff car-sharing to alleviate traffic. Many argue that in reality, staff would still drive into neighbouring towns and park on private streets then hop on the staff shuttle, thus taking up road and parking space in the local area. Many also admit that they would not have any interest in sharing a car with colleagues in the early hours of the morning or waiting for a ride home with colleagues in the afternoon.

*"It's unrealistic, what about my daughter who needs to get home at 5am? She can't take public transport for safety and then she loses her job?"* (Focus group participant, Feltham)

*"If you're investing in infrastructure, you need to make sure that [it] will be used and make a difference. There needs to be a consequence if colleagues come in single-occupancy cars."* (Focus group participant, Cranford)

**Crucially, local residents are not convinced that the measures will result in significant change and do not go far enough at offsetting current airport activities.**

Local residents feel that the measures outlined are comparatively unimpactful when held up against the negative impact Heathrow has on the local area and environment. They also express scepticism about the potential for these targets to really add up to make a significant difference.

*"I mean, I'd be intrigued to see the levels of pollution that you'd get from public transport. Obviously, you can get more people on them so if six people decided to take the bus rather than drive, what is the difference between using their cars per hour in terms of pollution?"* (Focus group participant, Stanwell)

Many point out that it's likely that Heathrow can have an impact with regards to the emissions that are within its control, but convincing members of the public to change their behaviour will be very difficult — and potentially distracts from more important measures Heathrow should be taking.

*"People in our area aren't generally getting around by public transport to the airport. I think Heathrow has got more control over the air side vehicles, airport vehicles. The public transport — that's going to be harder for them, even getting a bus to happen."* (Focus group participant, Stanwell)

*"Some of this is a waste of money — who is going to cycle into the airport?"* (Focus group participant, Cranford)

*"People prefer to travel by car because there is no incentive to come via another way. Time to travel by car takes about the same as getting public transport, and this is mainly because of the cost."* (Focus group participant, Cranford)

**There is a sense that some targets (specifically ones related to increasing public transport use and ULEZ) are too reliant on public behaviour change as opposed to being delivered by the airport.**

Local residents feel Heathrow's actions should focus on elements within airport's direct control, for example replacing or making airport vehicles more efficient (ground access vehicles or aircraft) rather than on passengers' travel to the airport.

Many feel Heathrow also has the potential to drive wider change by pressuring airlines and partners. For example, imposing a tax on less efficient planes that pollute more or charge inefficient planes more for landing slots to incentivise more sustainable practises from the partners. This is in addition to suggestions from residents that Heathrow could increase the use of sustainable aviation fuel or look to reduce the number of flights altogether.

*"If an airline doesn't fit in with their sustainability programme and they're going to stop them from achieving their targets, then charge them more for their slots or reduce their slots."* (Focus group participant, Hounslow)

*"Why is SAF is only being used for 0.5%? It feels so minor. I'd want to understand more about it. Why aren't we investing loads into it? That feels like the most amazing stat I've read today."* (Focus group participant, Cranford)

*"The airport probably should be leading the way in terms of making sure their vehicles are good before making the public do the same. Can't they do it a bit sooner?"* (Focus group participant, Hounslow)

Contributing to concerns about impact is the fear from some that Heathrow's general focus on emissions and sustainable alternatives may indicate a reliance on carbon offsetting, or a wider Net Zero preoccupation, rather than making tangible improvements to air quality in the local area (e.g. by reducing flights).

*"An ambitious target is measuring air [pollution], setting an average, and then reducing the amount by a certain %. Net Zero is a buzzword right now – you can offset it, but that pollution is still being emitted locally."* (Focus group participant, Cranford)

*"Carbon offsetting is seriously flawed"* (Webinar attendee)

### **There are also fears that Heathrow's targets and commitments could adversely affect local residents.**

Whilst many feel the targets sound positive in theory, local residents question the application of some in practice. Some simply note that the solutions Heathrow offers will not lead to significant improvements in the area, and in fact will make their lives more difficult.

As a result, some measures do elicit a strong negative emotion from some residents. They fear that those close to Heathrow will end up being penalised either directly (e.g. being charged more to travel around their local area / on certain roads) or indirectly (e.g. increased traffic or road closures as a result of more Heathrow buses / shuttles). Exacerbating this is the sense that public transport is already felt to be inefficient and costly for local residents as a result of proximity to Heathrow and high levels of congestion, and the ULEZ charge has already made travelling in the area more difficult for some.

The existing impact of traffic on areas local to Heathrow is a pressing concern for many local residents. At CISHA's community engagement events, residents of Stanwell Moor note breaches of the Controlled Parking Zones (CPZs) by taxis and waiting vehicles idling with their vehicles running, and not enough done to fine those in areas they shouldn't be. Residents of Stanwell Moor, Colnbrook, and Harmondsworth report lorries and vans cutting through villages and causing congestion, with not enough fines or traffic restrictions implemented for these vehicles.

Many residents feel Heathrow is not taking into account the ongoing impact of any airport activity on people in the area and the potential impact of new measures introduced. These measures are thus dismissed as an attempt to appease the public rather than improving the lives of those in neighbouring towns. Few have felt a tangible improvement to their lives as a result of Heathrow's actions so far, and they feel this will not be any different.

*"They've already invested in public transport, and it's not seen as running efficiently, and is very expensive for local residents."* (Focus group participant, Harmondsworth, Harlington, Sipson, Hayes)

*"How can terminal drop off charges reduce pollution? It just makes us angry."* (Focus group participant, Colnbrook, Langley, Longford)

*"Why do they waste money on a travel planner that no one is going to use?"* (Focus group participant, Colnbrook, Langley, Longford)

*"Are they going to start charging us who live around here? Closing roads for Heathrow buses?"* (Focus group participant, Feltham)

**Local residents call for Heathrow to develop initiatives specifically for them and the local area, in a bid to compensate for the inconveniences that the airport causes residents.**

For example, many residents feel more free or incentivised transport options are needed, and that they should be expanded to those in the local area and Heathrow passengers as well as employees, to make public transport a significantly more cost-effective and attractive option for all and thus make a tangible difference.

They also note a need for public transport infrastructure improvements to meet the needs of all employees and passengers, particularly by being made more accessible for those with children and disabilities (e.g. through step-free access), and making trains and buses more frequent and spacious for passengers with luggage.

Others suggest schemes that could focus on residents' health and wellbeing more widely e.g. Heathrow healthcare provision, research into health impacts, or relocation assistance.

*"They should do something for locals, like bus passes or something."*  
(Focus group participant, Colnbrook, Langley, Longford)

*"There should be another scheme for residents if they want to move away from the area."* (Focus group participant, Colnbrook, Langley, Longford)

*"It would be nice if they did something that favoured residents around Heathrow, something for parking. So we don't get all these strangers coming in our area to park."* (Focus group participant, Colnbrook, Langley, Longford)

*"They should do a health study, something in the areas around Heathrow and how health has changed overtime for residents."* (Focus group participant, Colnbrook, Langley, Longford)

**There is also a need for Heathrow to increase awareness of its targets and commitments among local residents.**

Residents also note that Heathrow should do more to increase awareness of its initiatives since many have never heard of Heathrow Airwatch, the Heathrow travel planner or know about the various ways in which Heathrow is trying to tackle poor air quality. However, they note that this information needs to be available in accessible formats, so that different societal groups will not be excluded.

*"What they could do is definitely advertise that better."* (Focus group participant, Colnbrook, Langley, Longford)

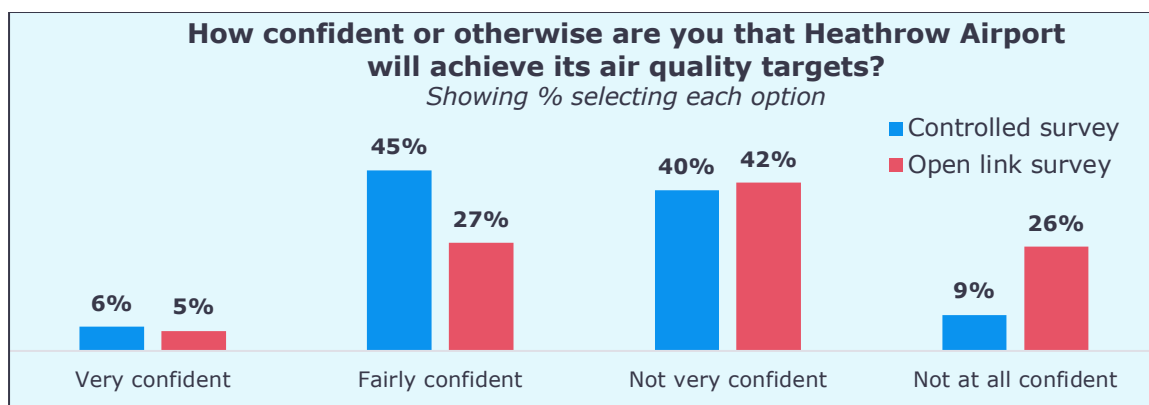
*"I have never heard of the Heathrow travel planner. I'll just use Google or something."* (Focus group participant, Colnbrook, Langley, Longford)

*"What about older people? How will they see this information? I mean I can barely tell when a bus is coming on my phone, it's too high tech for me. I'm also not on social media."* (Focus group participant, Colnbrook, Langley, Longford)

#### 5.4.4 Confidence in Heathrow achieving its targets

##### Most local residents feel optimistic but uncertain that the targets are realistic.

Focused survey respondents are similarly divided: 51% feel confident and 49% do not feel confident that Heathrow will achieve its air quality targets (confidence is lower amongst open link survey respondents, with only 32% feeling confident, while 68% do not feel confident).<sup>57</sup>



Compared to the wider sample, those who have connections to Heathrow (71%), those who are already aware of Heathrow’s commitments (70%), those who perceive Heathrow’s targets as ambitious (57%), and those who perceive Heathrow’s communications on air quality as effective (84%) are significantly more likely to feel confident Heathrow will achieve its air quality targets. In addition:

- Heathrow neighbours (58%) feel significantly more confident than non-Heathrow neighbours (48%) about the targets being achieved.
- Those aged 18-29 (62%) and 30-44 (58%) feel significantly more confident than those aged 45-59 (44%) and 60+ (40%).

<sup>57</sup> How confident or otherwise are you that Heathrow Airport will achieve its air quality targets? (Focused survey=754, Open link survey=516). Focused survey: Heathrow neighbours (n=204); Non-Heathrow neighbours (n=550); 18-29 (n=138); 30-44 (n=245); 45-59 (n=176); 60+ (n=192); Living in current area for less than 10 years (n=315); Living in current area for more than 10 years (n=439); Health conditions (n=145); No health conditions (n=566); Caring responsibilities for children under 18 (n=257); No caring responsibilities for children under 18 (n=497); Connections to Heathrow (n=82)\*; Aware of Heathrow’s commitments (n=238); Perceive Heathrow’s AQ targets as ambitious (n=550); Perceive Heathrow’s communications on air quality as effective (n=222).



- Respondents living in the local area for less than 10 years (60%) feel significantly more confident than those living in the local area for more than 10 years (44%).
- Those with caring responsibilities for children under the age of 18 (60%) feel significantly more confident than those without caring responsibilities (46%).
- Respondents with no health conditions (53%) feel significantly more confident than those with health conditions (38%).

**Local residents feel uncertain about Heathrow’s capabilities but recognise that not all shortcomings are the airport’s responsibility.**

Many believe Heathrow can achieve initiatives that are somewhat within its control e.g. reducing carbon emissions from aircrafts, however it has a very low chance of impacting ground transport. They feel that while Heathrow might have the commitment to achieve its targets, it may lack the ability, especially where actions are felt to be out of its control (e.g. infrastructure issues, airline compliance with zero-carbon measures). They note that Heathrow cannot make an impact without support from its partners, particularly airlines and governmental bodies.

Of open link survey respondents who do not feel confident that Heathrow will achieve its targets, 6% feel there are variables or outside forces that can impact its ability to achieve them, while 5% feel the targets are unrealistic and Heathrow does not have the capacity to meet them. 3% feel there is a lack of support from Government for these targets. Where this is the case, residents are hesitant to assign blame to Heathrow — but feel a more honest assessment of its targets, or more detailed information about how they will be achieved, may alleviate doubt.

*"It's not Heathrow that makes the decision on what goes in and out of the airport, it's the airlines, so they have to put their trust in them. Particularly when it comes to SAF and designing the planes to be more environmentally friendly." (Focus group participant, Hounslow)*

*"There are too many factors that need to be looked at and things to be improved even reconfigured in order to achieve the targets which will also involve, other services such as public transport organisations, unions and governmental support." (Open link survey respondent)*

*"Heathrow always seems like an airport that strives to be modern and meet its goals, but I don't know for sure that the goals will be met in a reasonable timeframe." (Open link survey respondent)*

**Further information about who is responsible for setting, funding, and evaluating targets would relieve some uncertainty around Heathrow’s commitments.**

There is interest in knowing who exactly is setting the targets Heathrow is aiming for, and whether Heathrow's targets are a result of government intervention or incentivisation. Where this is unclear, the assumption that Heathrow's targets aim to meet "bare minimum" standards set externally rather than demonstrating independent ambition can lead to uncertainty about Heathrow's dedication to making these improvements.

In line with this, 6% of open link survey respondents who do not feel confident about Heathrow achieving its targets express doubts about Heathrow's commitment to air quality more generally and to meeting its targets specifically, while 10% feel that Heathrow is primarily concerned with profit, and 3% feel any efforts made are corporate greenwashing.

In addition, some residents express uncertainty about the funding needed to achieve these targets, welcoming information about whether Heathrow is receiving external funding for this purpose and reassurances that this funding will not be pulled or re-allocated. 4% of open link survey respondents feel doubt about the amount of investment required, and that Heathrow has sufficient budget to achieve its targets.

Residents also note a lack of clarity around target measuring and reporting, wanting to know how often progress will be assessed and declared. In particular, residents question how Heathrow is being held accountable for these targets and whether there will be any consequences or amends if targets are missed. 4% of open link survey respondents feel that Heathrow does not keep its promises, with 3% feeling progress is too slow, and 3% feeling the information Heathrow provides is flawed, vague, or inaccurate.

*"There is clearly no commitment at all to improve air quality, as they are continuing to pursue a third runway. The measures outlined are gestures, designed to put a smokescreen around the issue. It isn't working – no one is convinced."* (Open link survey respondent)

*"Environmental plans are always the first to be dropped when the going gets tough. The powers-that-be react too much to short-term issues and don't keep their focus on the long-term strategies."* (Open link survey respondent)

*"I have been working at Heathrow for over 33 years [and] have seen the commitment placed by employers in Heathrow Airport towards air quality policies. From my experience over this period, the profits of organisations have always taken precedence before environmental policies."* (Open link survey respondent)

*"[I] believe the commitments are more aligned to the business securing growth and expansion and the positive publicity needed to support that, rather than the wellbeing of the many impacted by increased poor air quality."* (Open link survey respondent)

**Many residents also feel that Heathrow could do more as an organisation to reduce pollution within and around the airport, as opposed to focusing on measures that the public should adopt or that rely too much on public behaviour change.**

Local residents feel the targets could be more ambitious, particularly those relating to the sustainability of aircraft and Heathrow ground vehicles, which they see as primarily within Heathrow's control or sphere of influence, while a few suggest that Heathrow could look at addressing the root cause of the problem by reducing air travel or varying flight paths.

*"There is no talk about the airport reducing its air travel. The local area will still be impacted by air pollution locally, even if emissions are reduced."* (Focus group participant, Cranford)

*"Targets are unrelated to air quality measures. All are relying on access transport. What about active travel? What about low sulphur jet fuel? Electric taxiing?"* (Webinar attendee)

Some open link survey respondents who do not feel confident about Heathrow's ability to achieve its targets similarly feel Heathrow could be doing more and adjusting its focus, with 7% citing its plans to expand as a source of scepticism, while 6% feel the targets and Heathrow's efforts to meet them are not ambitious enough, 6% feel not enough is being done about emissions from planes, and 5% feel Heathrow's past performance casts doubt on its dedication and ability to achieve its targets.

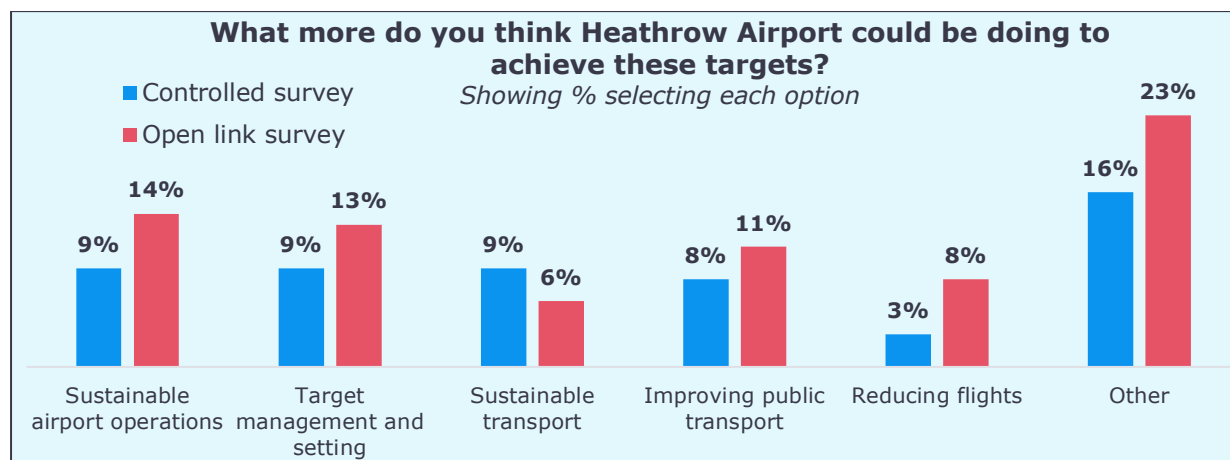
*"The primary focus of the airport is to make money, the airport doesn't care about the local community it just wants to be seen as doing something to improve air quality. Biggest polluter at an airport is aircraft emissions... but to cut the amount of planes will reduce profits so it's never going to happen. Encouraging staff to car share and creating an app on transport links looks good so they will do that, this makes no difference to residents."* (Open link survey respondent)

Still others feel Heathrow should equally prioritise other issues that have a negative impact on the local area, e.g. noise pollution, which they feel has a more tangible impact on their lives.

*"I think Heathrow can already improve some aspects of residents' life around the airport. I'm disturbed by constant noise and pollution smell from airplanes above my house and I don't feel like Heathrow does enough for me. When I need to take a flight from this airport, I still need to pay full amount on everything, even to drop-off!"* (Open link survey respondent)

*"Air quality and noise monitoring for all impacted areas around flight paths and areas impacted by vectoring."* (Webinar attendee)

Survey respondents similarly feel Heathrow could and should be doing more to achieve its targets and improve air quality, with additional priorities closely reflecting the concerns of local residents we spoke to.<sup>58</sup>



Respondents suggest Heathrow should work on:

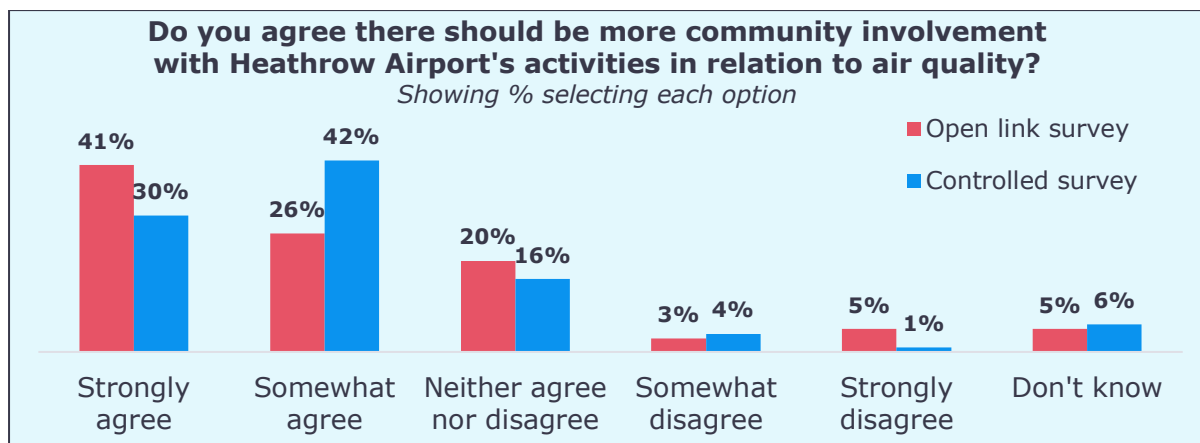
- Sustainable airport operations (9% in the focused survey, 14% in the open link survey), including: encouraging fuel-efficient and eco-friendly aircrafts; cancelling the third runway plan; making the flight scheduling more efficient; introducing sustainable parking measures; and incorporating renewable energy into infrastructure (e.g. solar power).
- Target management and setting (9%, 13%), including: intensifying efforts to achieve targets and ensuring decisions are followed through; introducing penalties for failing to achieve targets; and doing more to enforce measures.
- Sustainable transport (9%, 6%), including: encouraging electric vehicle usage; promoting / incentivising use of sustainable transport; and improving cycle facilities.
- Improving public transport (8%, 11%), including: improving frequency and accessibility; making public transport more affordable.
- Reducing flights (3%, 8%), including: reducing flights; reducing lights at antisocial hours; banning private jet use.

Other suggestions include better communication around targets (16%) and introducing additional traffic measures (23%). In addition, respondents would like to see reduced noise pollution, improved service at the airport, taxation changes to help achieve targets, incorporating new technology, and more tree planting and increased landscaping.

**There is strong agreement that there should be greater community involvement from Heathrow Airport in relation to air quality, with 72%**

<sup>58</sup> What more do you think Heathrow Airport could be doing to achieve these targets? (Focused survey=754, Open link survey=516).

**of respondents from the focused survey sample agreeing and 67% in the open link survey.<sup>59</sup>**



Focused survey respondents living within 3 miles of Heathrow are significantly more likely to strongly agree that there should be more community involvement (40%) than the wider sample (30%).

Those who agree that there should be more community involvement would like to see increased communication, which includes updates on the commitments and progress against the targets. Local residents feel it is important to be conscious of accessibility differences and for communications to be made available across a range of formats, including online, print, and catering to the languages spoken in the local area. Local residents would also like to receive open invitations to consultations and meetings to be privy to updates and share their views.

*"Consultations with communities across all areas regarding all services that can affect them before implementing. ULEZ for example did not seek any views from local communities which are affected, or those affected were not aware they could voice concerns or problems."*  
 (Open link survey respondent)

*"[I'd like to receive] Email notifications, webinars, social media posts."*  
 (Open link survey respondent)

<sup>59</sup> Focused survey: E3. Open link survey: E5. CISHA oversees forums including a Local Community Forum and Noise and Airspace Community Forum that discuss airport related issues. Do you agree there should be more community involvement with Heathrow Airport's activities in relation to air quality? Base: all respondents (Focused survey=754 Open link survey=516) Living within 3 miles of Heathrow (Focused survey=156)

## 6. Resident recommendations

This review on community views on air quality outlines a series of recommendations for how Heathrow Airport can improve its air quality actions and commitments to further benefit local communities. The recommendations fall into five broad categories, relating to:

1. Building evidence on the impact of air pollution around Heathrow Airport on public health.
2. Expanding the monitoring infrastructure around Heathrow Airport.
3. Improving the way Heathrow Airport displays air quality data and information.
4. Introducing independent oversight over Heathrow Airport's air quality targets.
5. Setting air quality targets and expectations for airlines and other airport suppliers.

The recommendations are unpacked in further detail below:

### 1. Building evidence on the impact of air pollution around Heathrow Airport on public health

While there is evidence of the impact of different pollutants on human health, local residents feel it is important that a review is conducted of the impact of air pollutants on those living around Heathrow Airport. Specifically, local residents call for a review of the impact of UFPs on human health, as well as the impact of living below the flight path. On deliberation, local residents link the high perceived incidence of health conditions locally with air pollution produced by aviation and airport activity – they therefore want to see concrete evidence to either support or refute this perception. Given Heathrow Airport's impact on local residents' lives, it is felt to be the airport's responsibility to commission this study through an independent, expert body.

### 2. Expanding the monitoring infrastructure around Heathrow Airport

While some locations are seen to have good air quality monitoring coverage, there are seen to be some important gaps in this. Therefore, residents suggest:

#### a) Installing additional air quality monitors, including:

- i. **below the flights paths.** The current lack of air quality monitors installed below the flight paths generates distrust and concern regarding Heathrow Airport. Local residents feel the airport is purposefully omitting collecting data from these locations due to a perception that levels will be higher than at other locations around the airport, and more likely to breach target levels.
- ii. **within the airport perimeter.** Local residents point to a lack of air quality monitors within the airport as a major oversight. A high proportion of local residents are employees of the airport or have

friends and family who are and feel the quality of air should be monitored to ensure its safe to work.

- iii. **in local areas.** Residents also highlight additional locations where they would like to see further air quality monitors for better coverage within their local area. Notable locations include South Buckinghamshire, Old Windsor, Putney, Slough and Fulham. There is recognition that Heathrow Airport will need to work in collaboration with local authorities and councils in the expansion of this monitoring network.

- b) Monitoring and reporting on UFPs.** As one of the busiest airports in the world, local residents feel Heathrow should pioneer the introduction of UFP monitoring, particularly given the current evidence suggesting a strong link between aviation activity and UFP concentrations.

More broadly, local residents expect Heathrow to give clear evidence that it is continuing to expand and maintain its air quality monitoring infrastructure in the areas that are considered most important and impacted. This could be through publicly responding to the new air quality monitor locations suggested in this research or by communicating where residents should or should not expect new monitors to be installed and the rationale for this.

### **3. Improving the way Heathrow Airport communicates and displays air quality data and information**

Local residents feel it is important to engage with air pollution levels and protect oneself. However, Heathrow Airport's current air quality reporting and communication is felt to be insufficient and does not account for current levels of knowledge and the low salience of the issue. In order to improve its communications, local residents suggest a number of actions, including:

- a) Proactively communicating and engaging with local residents on air quality.** While air quality is a low salience topic, local residents stress the importance of learning about the topic given its impact on human health. However, Heathrow Airport is felt to do little to communicate on the topic, generating a sense of distrust that they have something to hide. Local residents expect Heathrow Airport to proactively engage with them on air quality by raising awareness of the Heathrow Airwatch website using a range of channels, including social media, newsletters, local press and magazines. More broadly, there is also strong appetite to hear about how one can reduce air pollution and stay protected when levels of air pollution are high, with many feeling it is Heathrow Airport's responsibility to disseminate this information given its impact on the local area.
- b) Leveraging sources and channels that local residents currently use.** For example, working with third parties to introduce air quality reporting on weather channels and apps, or providing live air quality summaries in out-of-home locations such as electronic billboards or bus

stops. By normalising engagement with air quality data, local residents will become more knowledgeable and seek further information.

**c) Making the Heathrow Airwatch website more user friendly.** The Heathrow Airwatch website is seen to be outdated and in need of modernising. Within this update, local residents would expect the following:

- Historical data on air quality in the local area to be brought to the forefront of the website.
- Contextual data and comparisons to be included so residents can understand how air quality in their local area fares against other major locations.
- Information on how the current levels of air pollution could be affecting health, and how local residents can protect themselves when concentrations of air pollutants are high.
- An opt in option for residents to receive push notifications and alerts when levels of air pollution are high within their local area.
- Taking data visualisation inspiration from other institutions such as the Mayor of London, Breathe London, TfL and other major airports could help identify improved ways of displaying and communicating air quality data.

#### **4. Introducing independent oversight over Heathrow Airport's air quality targets**

Heathrow Airport's air quality targets are seen as ambitious by most, though they are also felt to place too much responsibility on passengers and residents rather than on the airport itself. As such, local residents feel it is important to introduce an independent body which oversees Heathrow Airport's air quality work. The independent body would be responsible for:

- Setting or approving the air quality targets and commitments
- Overseeing its monitoring and tracking
- Keeping the airport accountable for achieving its targets
- Setting fines and penalties if the targets and commitment are not achieved

Local residents expect to see consequences for Heathrow Airport not achieving its targets and for breaching guidance through the introduction of penalties or fines. These penalties should be used to offset the perceived poor levels of air quality locally, given local residents are being affected by the airport activity contributing to poor air quality.

#### **5. Review the air quality targets and expectations for airlines and other airport suppliers**

Local residents recognise that Heathrow Airport has significant influence and political power as a major international airport. There is therefore seen to be an important opportunity for the airport to leverage this influence by setting air



quality targets and expectations for the organisations within its supply chain, be that airlines or construction companies. This could be done by:

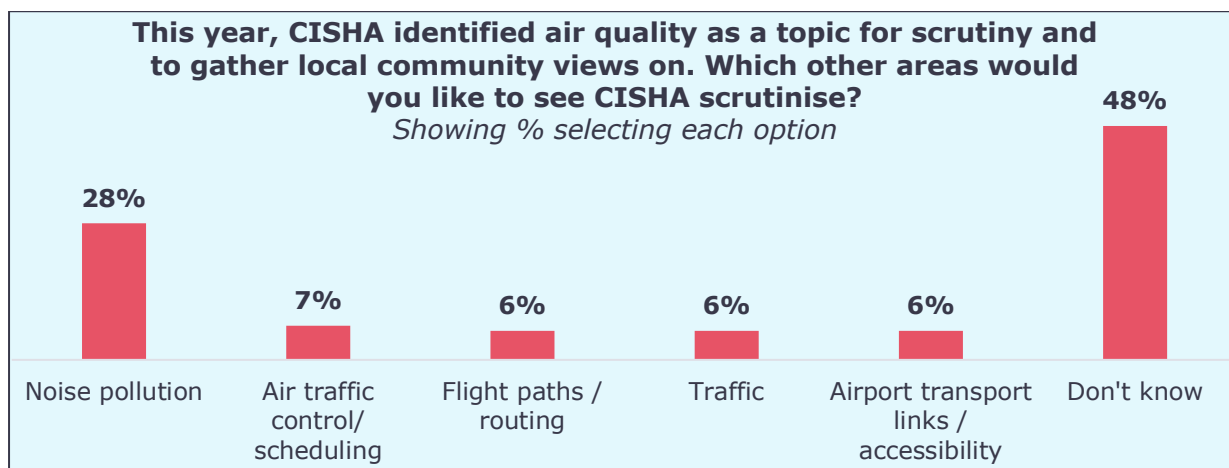
- Requiring air pollutant emission measuring and reporting amongst suppliers
- Reviewing the air pollution limits for across its supply chain, going above and beyond legislation and setting more ambitious targets
- Setting fines and penalties if the targets and commitments are not achieved, and using that funding to offset and improve air pollution locally

## 7. Appendix

### 7.1 Future areas for CISHA to scrutinise

**Noise pollution and the health impacts of air pollution are seen as the most important areas for CISHA to scrutinise.**

Participants in focus groups, the focused survey, open link survey, and webinar were asked which areas CISHA should focus on beyond air quality<sup>60</sup>.



The most front of mind issue for further focus is aircraft noise pollution and its impact on local residents. Many cite a previous scheme that supported Heathrow residents to replace their windows to combat noise pollution, and the need for the scheme to resume.

*"I want them to focus on noise and bring the window scheme back."*  
 (Focus group participant, Colnbrook, Langley Longford)

*"Noise pollution from planes coming into land - we have experienced a noticeable increase in noise from aircrafts in our area in the last year."*  
 (Open link survey participant)

The impact of poor air quality and pollutants emitted from airport activity on the health of local residents is also identified as an important area for CISHA to explore as a next step to this project. Anecdotally, residents start associating health conditions with air pollution on learning more about air quality, and feel it is important that a study is conducted to verify or refute this assumed link.

*"I want CISHA working at the local mortuary investigating the effects that Heathrow's air pollution had on every single death of every single local resident."*  
 (Open link survey participant)

<sup>60</sup> Open link survey: E4. The Council for the Independent Scrutiny of Heathrow Airport (CISHA) ensures independent oversight of the way Heathrow engages with stakeholders and all those impacted by the airport including local communities. This year, CISHA identified air quality as a topic for scrutiny and to gather local community views on. Which other areas would you like to see CISHA scrutinise? Base: all respondents (n=516)

*"They should do a health study, something in the areas around Heathrow and how health has changed overtime for residents."*

(Focus group participant, Colnbrook, Langley Longford)

Air control and flight scheduling, flight path control and its impact on air quality, traffic and airport transport are identified as further topics of interest for CISHA to scrutinise in future.

*"Increase area of oversight to those areas overflowed by aircraft on take-off and approach to Heathrow and at an altitude of less than 5000ft, particularly monitoring Ultra Fine Particles (UFPs)."*

(Open link survey participant)

*"Noise is the number one problem. Traffic congestion is also a big problem around the airport. A high proportion of the vehicle traffic on the M25 and M4 is going to and from the airport. It would be good to know more about this and peak times and periods. Given that much of the emphasis in the airport's pollution polices is about encouraging the use of public transport it would be good to know how well or not this operates."*

(Open link survey participant)

## 7.2 Works cited and other sources consulted

### Works Cited:

- Air Quality Consultants Limited, 2023. *London City Airport AQ Monitoring Network*. [Online]  
Available at: <https://lcy.aqconsultants.co.uk/>
- Air Quality England, n.d. *Hertfordshire and Bedfordshire Air Pollution Alert System, the free air pollution alert messaging system*. [Online]  
Available at: <https://www.airqualityengland.co.uk/local-authority/knr-subscription>
- Bay Area Air Quality Management District, 2023. *Spare the Air*. [Online]  
Available at: <https://www.baaqmd.gov/about-air-quality/spare-the-air>
- Breathe London, Imperial College London, 2023. *About the Breathe London Network*. [Online]  
Available at: <https://www.breathelondon.org/about>
- Carpenter, S., Rand, N. & Stacey, B., 2023. *Heathrow Airwatch Quarterly Report for January to March*, s.l.: Ricardo Energy & Environment. [Online]  
Available at:  
[http://www.heathrowairwatch.org.uk/documents/Heathrow\\_Q1\\_2023.html](http://www.heathrowairwatch.org.uk/documents/Heathrow_Q1_2023.html)
- Carpenter, S., Rand, N. 2022. *Air Quality at Heathrow Airport 2022*, s.l.: Ricardo Energy & Environment. [Online]  
Available at:  
[http://www.heathrowairwatch.org.uk/documents/Heathrow\\_2022\\_Annual\\_Report\\_Issue\\_2.html](http://www.heathrowairwatch.org.uk/documents/Heathrow_2022_Annual_Report_Issue_2.html)
- DEFRA, UK AIR, n.d. *Air Quality Objectives Update*. [Online]  
Available at: [https://uk-air.defra.gov.uk/assets/documents/Air\\_Quality\\_Objectives\\_Update\\_20230403.pdf](https://uk-air.defra.gov.uk/assets/documents/Air_Quality_Objectives_Update_20230403.pdf)
- DEFRA, UK AIR, n.d. *Monitoring Networks*. [Online]  
Available at: <https://uk-air.defra.gov.uk/networks/site-types>
- DEFRA, UK AIR, n.d. *Monitoring Networks: Brief History*. [Online]  
Available at: <https://uk-air.defra.gov.uk/networks/brief-history>
- DEFRA, UK AIR, n.d. *UK Air Quality Limits*. [Online]  
Available at: <https://uk-air.defra.gov.uk/air-pollution/uk-eu-limits>
- DEFRA, 2007. *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 1)*. [Online]  
Available at:  
<https://assets.publishing.service.gov.uk/media/5a758459ed915d731495a940/pb12654-air-quality-strategy-vol1-070712.pdf>

- DEFRA, 2023 *England Fine Particulate Matter Targets*. [Online] Available at: <https://uk-air.defra.gov.uk/pm25targets/overview>
- Diaz, E., 2019. *Summary of Heath Research on Ultrafine Particles*, s.l.: Washington State Department of Health.
- Donaldson, K. et al., 2001. Ultrafine particles. *Occupational and environmental medicine*, 58(3).
- GOV.UK, DEFRA, 2019. *Air Quality: explaining air pollution – at a glance*. [Online] Available at: <https://www.gov.uk/government/publications/air-quality-explaining-air-pollution/air-quality-explaining-air-pollution-at-a-glance#:~:text=Air%20quality%20is%20the%20term,with%20lung%20or%20heart%20conditions>.
- Heathrow Airport, 2022. *Heathrow 2.0: Connecting People and Planet. Our Sustainability Strategy*. [Online] Available at: <https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/further-reading/Heathrow%202.0%20Connecting%20People%20and%20Planet%20FINAL.pdf>
- Heathrow Airport, 2022. *Surface Access Strategy*. [Online] Available at: <https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/about/company-information/2022-Surface-Access-Strategy.pdf>
- Heathrow Airwatch, 2019. *Air Quality around Heathrow Airport Q4 Briefing*. [Online] Available at: [http://www.heathrowairwatch.org.uk/documents/AQ\\_briefing\\_2019\\_Q4.pdf](http://www.heathrowairwatch.org.uk/documents/AQ_briefing_2019_Q4.pdf)
- Heathrow Airwatch, n.d. *Compliance Dashboard*. [Online] Available at: <http://www.heathrowairwatch.org.uk/dashboard/>
- Heathrow Airwatch, n.d. *Custom Graphs*. [Online] Available at: <http://www.heathrowairwatch.org.uk/data/graphs#graphResultsArea>
- Heathrow Airwatch, n.d. *Monitoring Methods*. [Online] Available at: <http://www.heathrowairwatch.org.uk/air-quality?view=methods>
- Heathrow Airwatch, n.d. *Website analytics* [Online]
- Hudda, N. & Fruin, S., 2016. International Airport Impacts to Air Quality: Size and Related Properties of Large Increases in Ultrafine Particle Number Concentrations. *Environmental Science & Technology*, 50(7).

- Hudda, N. et al., 2014. Emissions from an International Airport Increase Particle Number Concentrations 4-fold at 10 km Downwind. *Environmental Science & Technology*, 48(12).
- Janssen, N. et al., 2022. *Effects of long-term exposure to ultrafine particles from aviation around Schiphol Airport*, s.l.: National Institute for Public Health and the Environment, Government of the Netherlands.
- Kwon, H.-S., Carlsten, C. & Ryu, M. H., 2020. Ultrafine particles: unique physicochemical properties relevant to health and disease. *Experimental & Molecular Medicine*, 52(318-328).
- London Air, n.d. *Air Pollution Guide: London History*. [Online] Available at: <https://www.londonair.org.uk/londonair/guide/londonhistory.aspx#:~:text=It%20is%20often%20assumed%20that,of%20the%201950s%20and%2060s>
- London City Airport, 2022. *Annual Performance Report 2022*, [Online] Available at: [https://assets.ctfassets.net/lmkdg513arga/3joCgrjNriaKGEtSq7kL5K/5ad24bfaea0c370298920d9b986a06b5/AP\\_2022.pdf](https://assets.ctfassets.net/lmkdg513arga/3joCgrjNriaKGEtSq7kL5K/5ad24bfaea0c370298920d9b986a06b5/AP_2022.pdf)
- London Stansted Airport, 2010. *Creating an atmosphere for change: Stansted Air Quality Strategy 2010-2015*. [Online] Available at: <https://assets.live.dxp.maginrastructure.com/f/73114/x/7303c1fd92/air-quality-strategy-stansted.pdf>
- McCarthy, 2023. Air Quality Monitoring at Stansted Airport 2022. [Online] Available at: <https://assets.live.dxp.maginrastructure.com/f/73114/x/a38552c016/air-quality-monitoring-report-stansted-airport-2022-issue-2.pdf>
- Møller, K. et al., 2014. Occupational exposure to ultrafine particles among airport employees--combining personal monitoring and global positioning system. *PLoS One*, 9(9).
- Moreno-Ríos, A. L., Tejeda-Benítez, L. P. & Bustillo-Lecompte, C. F., 2022. Sources, characteristics, toxicity, and control of ultrafine particles: An overview. *Geoscience Frontiers*, 13(1).
- Reigate and Banstead Borough Council and London Gatwick Airport, 2019. *Air Quality Monitoring Report*, s.l.: GATCOM Steering Group. [Online] Available at: [https://www.gatcom.org.uk/wp-content/uploads/2021/07/Item5a\\_GSGReport\\_Annex1\\_AQreport2020.pdf](https://www.gatcom.org.uk/wp-content/uploads/2021/07/Item5a_GSGReport_Annex1_AQreport2020.pdf)
- Schiphol Airport, n.d. *Improving Air Quality*. [Online] Available at: <https://www.schiphol.nl/en/schiphol-group/page/improving-air-quality/>

- Stacey, B., 2019. Measurement of ultrafine particles at airports: A review. *Atmospheric Environment*, Volume 198.
- Stacey, B., Harrison, R. & Pope, F., 2021. Evaluation of aircraft emissions at London Heathrow Airport. *Atmospheric Environment*, Volume 254.
- UK Parliament, 2023. *Air Quality: policies, proposals and concerns*. [Online] Available at: <https://commonslibrary.parliament.uk/research-briefings/cbp-9600/>
- World Health Organisation, 2021. *What are the WHO Air quality guidelines?* [Online] Available at: <https://www.who.int/news-room/feature-stories/detail/what-are-the-who-air-quality-guidelines>
- World Health Organisation, 2021. *WHO global air quality guidelines*, s.l.: World Health Organisation. [Online] Available at: <https://iris.who.int/bitstream/handle/10665/345329/9789240034228-eng.pdf?sequence=1>

World Health Organisation. n.d. *Database on source apportionment studies for particulate matter*. [Online] Available at: [Who.int/data/gho/data/themes/air-pollution/source-apportionment-db](http://Who.int/data/gho/data/themes/air-pollution/source-apportionment-db)

#### **Other sources consulted:**

- Heathrow Airport, 2022. *Heathrow's Net Zero Plan*. [Online] Available at: <https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/further-reading/Heathrow%20Net%20Zero%20Plan%20FINAL.pdf>
- Heathrow Airport, 2023. *Heathrow's Sustainability Report 2022*. [Online] Available at: <https://www.heathrow.com/content/dam/heathrow/web/common/documents/company/heathrow-2-0-sustainability/further-reading/Heathrows Sustainability Report 2022.pdf>
- Tremper, A. H., Jephcote, C., Gulliver, J., Hibbs, L., Green, D. C., Font, A., Priestman, M., Hansell, A. L., & Fuller, G. W. 2022. Sources of particle number concentration and noise near London Gatwick Airport. *Environment international*, 161, 107092.
- DEFRA, UK AIR, n.d. *Pollution forecast*. [Online] Available at: <https://uk-air.defra.gov.uk/forecasting/>
- European Commission, 2019. *Ultrafine particles and health impact: revising EU policy*. [Online] Available at: <https://cordis.europa.eu/article/id/415545-ultrafine-particles-and-health-impact-revising-eu-policy>
- Riley, K., Cook, R., Carr, E., Manning, B. 2021. A systematic review of the impact of commercial aircraft activities on air quality near airports. *City and Environment Interactions*, Volume 111.

- Riley, E. A., Gould, T., Hartin, K., Fruin, S. A., Simpson, C. D., Yost, M. G., & Larson, T. 2016. Ultrafine particle size as a tracer for aircraft turbine emissions. *Atmospheric environment*, 139, 20–29.



## 7.3 Detailed sampling

### Scoping interview participating stakeholders:

Organisation	Name
<b>CISHA</b>	Mark Izatt
	Rebecca Cox
<b>Heathrow Airport</b>	Matt Prescott
	James Holmes
	Andy Knight
	Tim Leech
	Rosie Howell
<b>Local Community Forum</b>	Roger Green
<b>Ricardo</b>	Honor Puciato
<b>Stop Heathrow Expansion</b>	Justine Bayley
	Rob Barnstone

### Focus groups sample breakdown:

37 participants took part in the focus groups					
<b>Age</b>	18-29	<b>N=3</b>	<b>Living address</b>	Cranford	<b>N=5</b>
	30-39	<b>N=8</b>		Hounslow	<b>N=8</b>
	40-49	<b>N=12</b>		Feltham	<b>N=7</b>
	50-59	<b>N=9</b>		Stanwell	<b>N=6</b>
	60+	<b>N=5</b>		Colnbrook, Langley, Longford	<b>N=6</b>
<b>Gender</b>	Woman	<b>N=21</b>		Harmondsworth, Harlington, Sipson, Hayes	<b>N=5</b>

			<b>Parental Responsibility</b>	None	<b>N=23</b>
	Man	<b>N=6</b>		Child 0-11	<b>N=7</b>
				Child 12-18	<b>N=7</b>
<b>Ethnicity</b>	White	<b>N=19</b>	<b>Level of concern about air quality</b>	Highly concerned	<b>N=13</b>
	Ethnic minority	<b>N=18</b>		Fairly concerned	<b>n=19</b>
<b>SEG</b>	ABC1	<b>N=25</b>		Not concerned	<b>N=5</b>
	C2DE	<b>N=12</b>	<b>Perceptions of Heathrow</b>	Very Positive	<b>N=4</b>
<b>Working at Heathrow Airport</b>	Self/family member	<b>N=33</b>		Somewhat Positive	<b>N=18</b>
	None	<b>N=4</b>		Neutral	<b>N=7</b>
				Somewhat Negative	<b>N=7</b>
			Very negative	<b>N=1</b>	

**Focused survey sample qualifying postcodes:**

<b>Heathrow neighbours</b>	<b>Non-Heathrow neighbours</b>	
TW4	TW1	SL1
TW5	TW2	SL2
TW6	TW3	SL3
TW14	TW7	SL4
TW15	TW8	UB4
TW19	TW9	UB5
SL0	TW10	UB6
UB1	TW11	UB8
UB2	TW12	UB10
UB3	TW13	W7
UB7	TW16	W13
	TW17	W5
	TW18	W3
	TW20	W4

### Map of qualifying postcodes

