



2024 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995
Local Air Quality Management, as amended by the
Environment Act 2021

Date: June 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Sheffield

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year¹.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution².

With reference to the Chief Medical Officer's Annual Report 2022 on Air pollution, outdoor exposure continues to affect people's health throughout their lives, including before birth, in the very young, through to older adults (see Figure ES.1). Exposure to air pollution, indoors and outdoors, over a long period of time, reduces people's life expectancy. There is clear evidence that air pollution contributes to the initiation and development of cardiovascular and respiratory diseases and can cause lung cancer. Evidence of links between exposure to air pollution and a wider range of health effects, such as intra-uterine impacts, adverse birth outcomes, poor early life organ development, diabetes, reduced cognitive performance, and increased dementia risk continues to build, with varying strengths of evidence. Recent research has suggested that long-term exposure to raised

¹ UK Health Security Agency. Chemical Hazards and Poisons Report, Issue 28, 2022.

² Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

concentrations of outdoor air pollution may increase susceptibility to more severe health outcomes, including the risk of hospitalisation due to COVID-19³⁴⁵⁶.

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

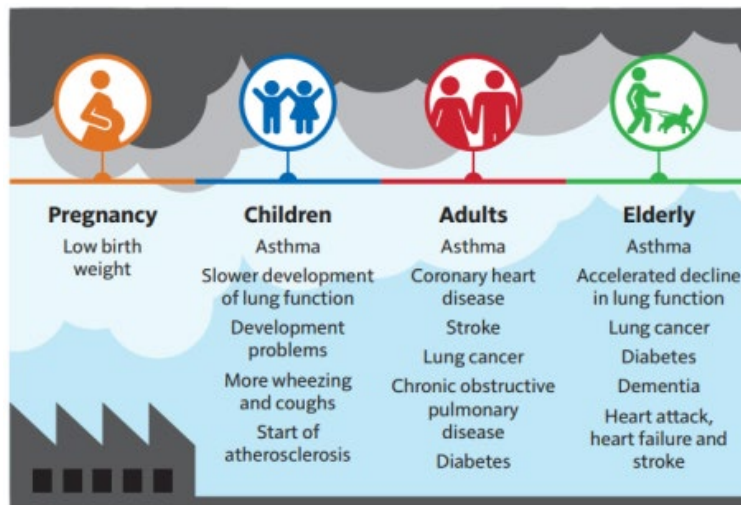
Pollutant	Description
Nitrogen Dioxide (NO ₂)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO ₂)	Sulphur dioxide (SO ₂) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM ₁₀ and PM _{2.5})	<p>Particulate matter is everything in the air that is not a gas.</p> <p>Particles can come from natural sources such as pollen, as well as human-made sources such as smoke from fires, emissions from industry and dust from tyres and brakes.</p> <p>PM₁₀ refers to particles under 10 micrometres. Fine particulate matter or PM_{2.5} are particles under 2.5 micrometres.</p>

³ COMEAP. COMEAP's on-going work on air pollution and COVID-19. Oxon: Committee on the Medical Effects of Air Pollutants; 2020. [Accessed 14 September 2022]. Available from: [Committee on the Medical Effects of Air Pollutants - GOV.UK](#)

⁴ Walton H et al. Investigating links between air pollution, COVID-19 and lower respiratory infectious diseases. London: Environmental Research Group, Imperial College London; 2021. [Accessed 14 September 2022]. Available from: https://www.imperial.ac.uk/media/imperial-college/medicine/sph/environmental-research-group/ReportfinalAPCOVID19_v10.pdf.

⁵ Lavigne E et al. Short-term exposure to ambient air pollution and individual emergency department visits for COVID-19: a case-crossover study in Canada. Thorax. 2022

⁶ Kogevinas M et al. Ambient air pollution in relation to SARS-CoV-2 infection, antibody response, and COVID-19 disease: a cohort study in Catalonia, Spain (COVICAT Study). Environmental health perspectives. 2021;129(11):117003

Figure ES.1 Health impacts of Air Pollution

Source: Chief Medical Officer's Annual Report 2022: Air Pollution, December 2022

In 2010, Sheffield City Council, as part of their duties under Local Air Quality Management (LAQM), declared a districtwide Air Quality Management Area (AQMA) for failure to meet short-term (hourly) and long-term (annual) Air Quality Limit Values for Nitrogen Dioxide (NO₂) gas. At that time, in accordance with LAQM, the council also declared a districtwide AQMA for breach of short-term (24 Hourly mean) Particulate Matter PM₁₀ limits. Data for 2023 indicates that the Sheffield AQMA is still in breach of Air Quality Limit Values for Nitrogen Dioxide (NO₂) gas. In order to meet duties under LAQM, achieve compliance with limits and safeguard health, Sheffield City Council approved an Air Quality Action Plan (AQAP) in 2015 to try and reduce air pollution in order to comply in the shortest possible timeframe, though it is noted that there is further work to be done to achieve this, ensuring it meets local needs and also complement the recently introduced Clean Air Zone (CAZ). Whilst currently Sheffield meets the requirement for having an in-date plan due to the implementation of our local Clean Air Plan in 2022/23, we acknowledge this plan may not address all needs and as such, Sheffield City Council are proposing to develop a new 5-year plan.

In addition to the LAQM Regime, the UK was in breach of EU health-based July 2017 Limit Values for Nitrogen Dioxide (NO₂). The Government named the Sheffield and Rotherham area as one of 28 areas in England where their model indicated concentrations of Nitrogen Dioxide (NO₂) exceed statutory limits and were projected to continue to do so beyond the following 3-4 years. In particular, the Government's new National Air Quality Plan (NAQP) identified a small number of corridors in the Sheffield and Rotherham area which are

predicted to still be breaching the statutory annual average concentration limit of $40\mu\text{g}/\text{m}^3$ for NO_2 by 2021, under a 'Business as Usual' forecast scenario. Defra's NAQP suggests potential breaches of the $40\mu\text{g}/\text{m}^3$ limit on the A630 – A57 Parkway (from M1 J33 to City Centre) and sections of the A61 Inner Relief Road. Therefore, the Government mandated Sheffield City Council to produce a local Clean Air Plan (CAP) on how to achieve compliance across the Sheffield Local Authority area. Following HM Government's guidance, Sheffield City Council developed the CAP using modelling receptors for 4m from the kerbside to determine the most appropriate measures for achieving compliance within the shortest timeframe, the result of which was introduction of a Class C Clean Air Zone (CAZ) with additional measures. Following adoption of the CAP by Sheffield City Council members in 2018 and final approval from His Majesties Government (HMG) in 2022, the CAZ launched on 27 February 2023. The boundary of the CAZ can be seen in Figure ES.2 and details on the CAZ are available from the website at

<https://www.sheffield.gov.uk/campaigns/clean-air-zone-sheffield>

Figure ES.2 – Map of Sheffield City Clean Air Zone Boundary.



** Note the local Clean Air Plan area covers the Local Authority area.*

It must be noted that the criteria for compliance under the EU Regime differs from those associated with Regime known as Local Air Quality Management (LAQM), which accounts for differentiation between what is defined as compliant and subsequent plans.

To meet the need for these two regimes, in 2017, Sheffield City Council also developed and adopted a Clean Air Strategy, which set out the council's goals and actions in order to meet the needs of both areas and act as a bridging policy for the two. Therefore, there are three key policy documents currently governing Air Quality Action within the Sheffield district:

- Sheffield City Council Air Quality Strategy (2017)
- Sheffield Air Quality Action Plan (2015)
- Sheffield City Council Clean Air Plan:
 - Clean Air Zone (CAZ) Class C
 - Arundel Gate Bus Gate
 - Anti-idling measures

Whilst these policy documents remain relevant, and the final local CAP approved by HM Government in 2022 is regarded as meeting our legal obligations in accordance with advice from DEFRA, it is acknowledged that there is a need to update the Strategy and Action Plan to reflect local need and work to complement results of the CAZ and, as such, it is proposed that both documentations are refreshed. Sheffield's own local air quality monitoring suggests that concentrations prior to the pandemic were gradually coming down (see dotted red line on Figure ES.3) with the exception of 2019. In 2020, pandemic measures resulted in districtwide reductions of pollution concentrations and, whilst the percentage of monitoring sites exceeding the $40\mu\text{g}/\text{m}^3$ threshold for NO_2 fell, it did not reach zero, as shown in Figure ES.4. This demonstrates that, even with wide-reaching pandemic measures, compliance was not achieved. In 2021 and 2022, as would be expected, there was an increase in number of sites exceeding the $40\mu\text{g}/\text{m}^3$ threshold, attributed to the return to societal norms. In 2023, monitoring data indicates districtwide reductions and aligns with the expected trend that was occurring pre-pandemic. Specific, in 2022, there were eight locations where concentrations exceeded the annual NO_2 objective at the nearest receptor and six locations likely to exceed the hourly NO_2 objective, whereas in 2023, there were only two exceedances of the annual NO_2 objective at receptors and two sites likely exceeding the hourly objective. The two sites exceeding the Annual NO_2 Objectives are Fitzalan Square & Attercliffe Road / Bodmin Street and the

two sites likely to be exceeding the Hourly NO₂ Objective are Fitzalan Square & Arundel Gate Interchange.

Looking at the data for the last 7 years, including the pandemic period, trends would suggest that 2023 is reflective of post-pandemic norms and, as such, we are satisfied that 2023 is reflective of post-pandemic norms and can be used as the appropriate year for Impact Assessment validation.

Using 2023 data, projecting forward using data from our monitoring locations, it is suggested that NO₂ concentrations at many locations will continue to be problematic up to and beyond 2023.

Figure ES.3 – Annual NO₂ Concentrations (µg/m³) over last 7 years

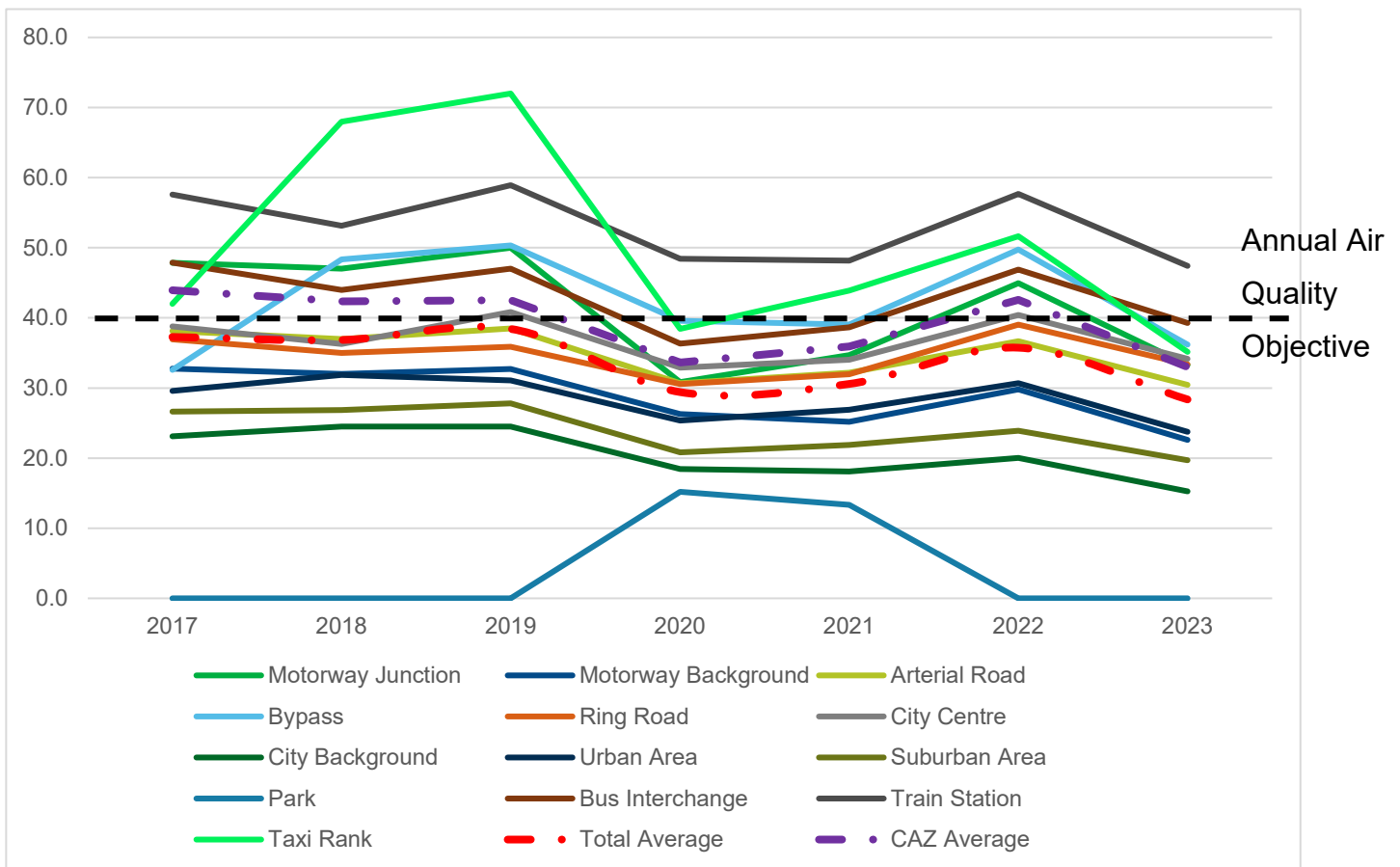
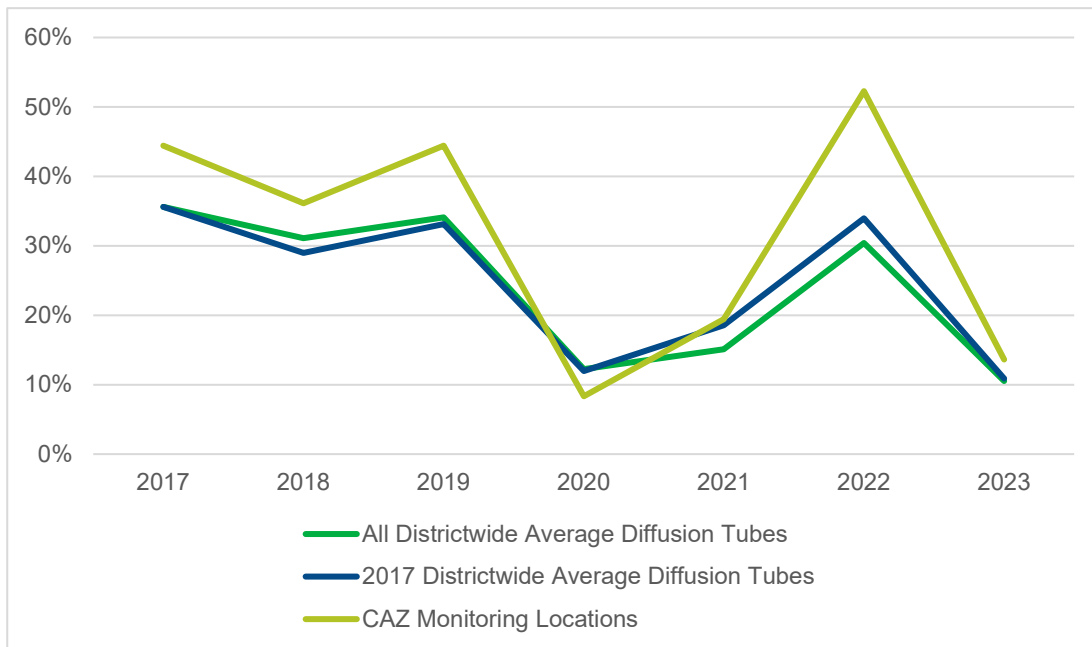


Figure ES.4 – Percentage of monitoring sites exceeding Annual NO₂ Concentrations over last 7 years



In terms of the standards set by the EU for fine Particulate Matter (PM₁₀ and PM_{2.5}) dust pollution, all our monitoring stations are indicating that we now comply, and trends shown in Figures ES.5 and ES.6 show that PM₁₀ and PM_{2.5} concentrations were increasing between 2017 and 2018, but saw slight reductions since that time, including during and post pandemic. In 2022, concentrations for both PM₁₀ and PM_{2.5} increased, though levels remain below the objective and 1 - 4µg/m³ below pre-pandemic levels. In 2023, we saw reduction at all but 1 site for both PM₁₀ and PM_{2.5}. The increase for particulates occurred at the Pond Hill site, which is because of the monitor's proximity to an ongoing city centre development that will be generating dust.

The observed increases in PM for 2022 paralleled weather data, specifically wind speed rather than increases in key polluter sectors. Given that the cost-of-living issue discussed in the ASR 2022 was still an issue in 2023, but concentrations reduced in 2023, this corroborates the hypothesis that the increase in 2022 likely occurred due to external influence rather than an increase in localised solid fuel burning.

Notwithstanding this, 2022 does demonstrate the fragility of current compliance and as such, targeted intervention measures should focus on reductions in all urban contributions to limit higher levels when wind speeds are at their lowest. Although the Sheffield district

complied with standards, and trends have shown reductions between 2018 and 2023, it must also be noted there is no safe limit for Particulate Matter, which is why inclusion of measures to target these pollutants in the next Action Plan is important.

Figure ES.5 – Annual PM₁₀ Concentrations (µg/m³) over last 7 years

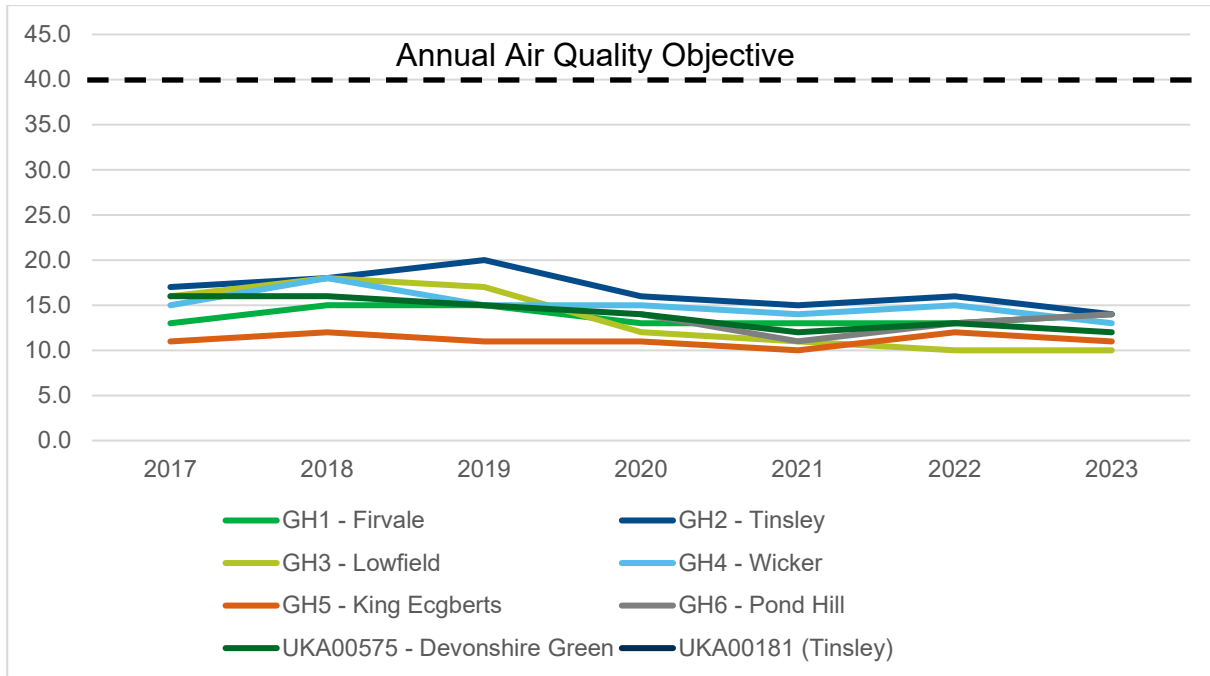
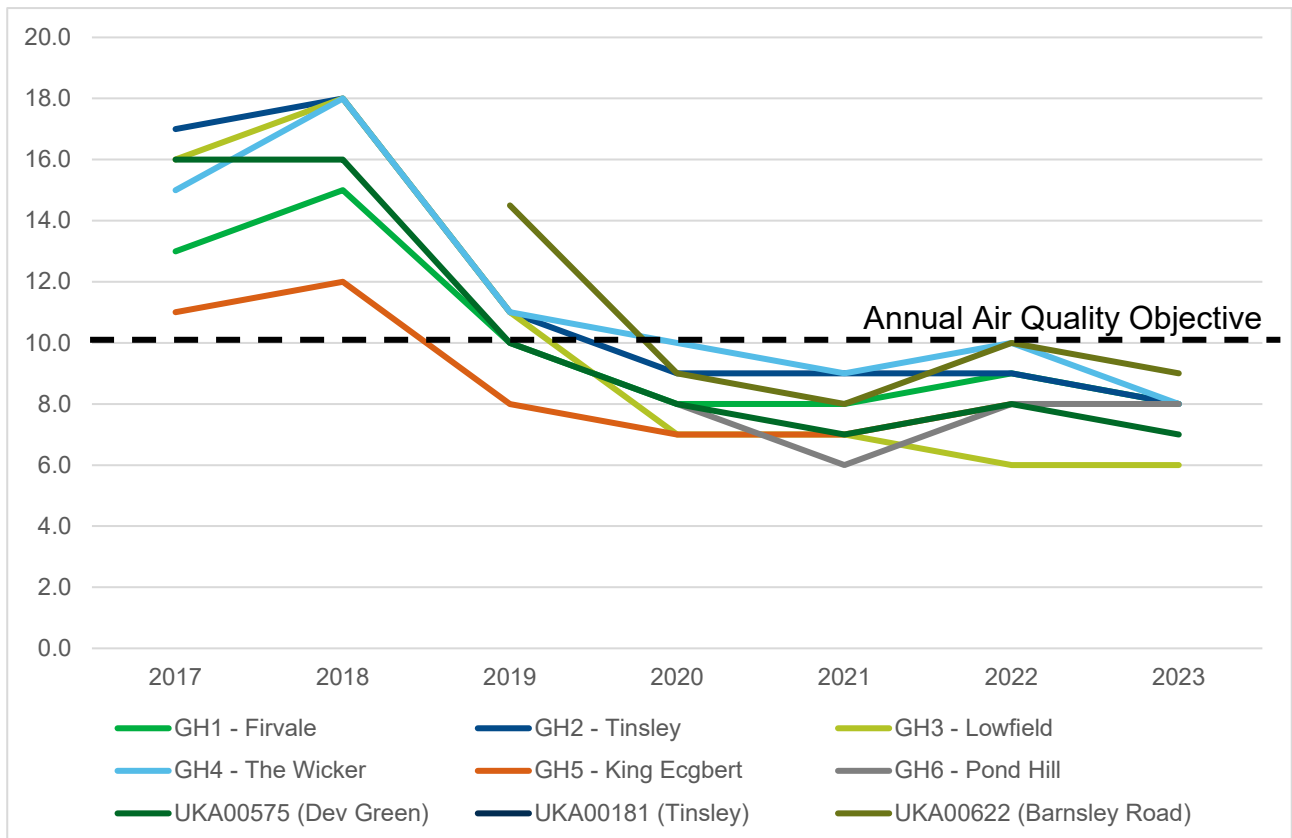


Figure ES.6 – PM_{2.5} Concentrations (µg/m³) over last 7 years



Sheffield City Council also monitors SO₂ at one of our real-time monitoring stations, GH3 at Lowfield School. Since 2019, there has been a communication fault with the device and as such, there is no SO₂ data available for 2023, though it must be noted that, prior to the fault, concentrations were well within compliance and there has been no change in circumstances within the locality, which would change this status.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan⁷ sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter (PM_{2.5}), the pollutant that is of most harmful to human health. The Air Quality Strategy⁸ provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero⁹ details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel in Sheffield and most of the Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by vehicle emissions.

Sheffield City Council currently has 2 key policy documents designed to bring about compliance with NO₂ objectives. Firstly, the 2015 Action Plan still has relevance in delivering widespread district improvement, though it is acknowledged that this document needs updating. The second document is the Council's local Clean Air Plan, adopted in 2022, which in accordance with DEFRA's advice, constitutes meeting the requirement of a plan updated within the last 5 years.

⁷ Defra. Environmental Improvement Plan 2023, January 2023

⁸ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

⁹ DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

Sheffield City Council has taken forward a few direct measures during the current reporting year of 2023 in pursuit of improving local air quality:

- Launch of the Class C CAZ
- Continued delivery of our active travel measures, such as School Streets.
- Installation of a trial bus gate on Arundel Gate
- Anti-idling measures on Arundel Gate
- Administration of financial support funds to help owners of older vehicles to upgrade to cleaner replacement vehicles

Conclusions and Priorities

Data for 2023 indicates that the Sheffield AQMA is still in breach of National Air Quality Limit Values for Nitrogen Dioxide (NO₂) gas. In terms of the standards set by the EU for fine Particulate Matter (PM₁₀ and PM_{2.5}) dust pollution, all our monitoring stations are indicating that the Sheffield City District now complies with the standards.

Sheffield's own local air quality monitoring suggests that concentrations prior to the pandemic were gradually coming down (see dotted red line Figure ES.2) except for 2019. In 2020, there were large reductions observed as a result of COVID-19 pandemic control measures across all sectors within the district, with largest improvements being observed during the period March – July when control measures were strictest. In 2021, concentrations increased 3 -12% for NO₂ at key roadside locations, though some pandemic measures remained for part of the year and, as such, it was expected that the data increase further with a full year of 'business as usual' conditions. In 2022, further increases were observed across all sectors of between 11- 23% on the previous year. In 2023, Sheffield City Council monitoring observed concentration reductions of 1%-60%, which is between 1 and 37µg/m³ at our monitoring locations between 2022 and 2023 with the average reductions for the district being 7µg/m³ (20%). Concentrations have reduced across the district, and levels in 2023 are comparable to levels observed in 2020. These reductions are not just isolated to within or in close proximity to the CAZ, though it is too earlier to discern the impact of the CAZ at this time, given it was only fully operational for 50% of the year.

We are satisfied that 2023 concentrations are reflective of post-pandemic norms and as such can be used as the appropriate year for Impact Assessment validation.

Sheffield City Council has taken forward measures during the current reporting year of 2023 in pursuit of improving local air quality.

Sheffield City Council's air quality priorities for the coming year are to:

- Develop / Update the council's Air Quality Strategy to reflect new National requirements and meet local future needs, setting out the district's Air Quality ambition for the next 5 years
- Evaluate the impact of the Class C Clean Air Zone +and other measures within the local Clean Air Plan

In 2023, Sheffield City Council fully implemented its Clean Air Plan measures to achieve NO₂ reduction in the shortest possible time. Following review of current policy documentation, it is accepted that both the Air Quality Strategy and Action Plan both require updating, though it is also noted the need to understand the real-world impact of the our local Clean Air Plan (CAP) measures (including the CAZ) to ensure Action Plan measures meet future needs. As such, given that the Action Plan has key dependencies linked to understanding of the CAP, the council plan to prioritise the development an overarching strategy in 2024 to set out our ambition for the next 5 years. The council will also begin development of the Action Plan by setting up working groups and starting relevant stakeholder engagement following completion of the strategy, though it must be noted that timescale for creation and finalisation of the Action Plan has the key dependency of concluding the evaluation of the CAP measures, which may elongate the process.

Local Engagement and How to get Involved

Alongside our priority policies is the cross-cutting theme of raising awareness and behaviour change:

- Clean Air Plan Communications Plan: Part of the National Clean Air Plan process to raise awareness of current concentrations and progress made through the Clean Air Plan process.
- Raising awareness: The Government funded 'Air Aware Sheffield' Air Quality campaign, which started in October 2014 and concluded in 2018 after securing additional funding from the Air Quality Grant Scheme 2016-17. This campaign continued to help the Council raise awareness around this key issue, and to engage and encourage everyone to do their bit, including private car drivers.

- Following the successful bid for the Air Quality Grant Scheme 2017-18 by Doncaster Metropolitan Borough Council as lead authority representing all four South Yorkshire authorities, a Fuelling Change campaign with the key aim of encouraging the uptake of low emission vehicles and alternative fuels amongst South Yorkshire drivers, especially car drivers was launched in 2018.

Some additional measures which have been implemented over the last few years and are ongoing, include:

- The South Yorkshire Care4air campaign,
- and ECO Stars Fleet Recognition Scheme.

The engagement with fleet operators through the ECO Stars Fleet Recognition Scheme is recognised nationally, and many other local authorities in England and Scotland have followed suit.

- Behaviour change: We will work with colleagues in Transport, Public Health and beyond, to ensure that public transport, walking and cycling are accessible and easy options.

If you wish to find out more information on air quality, please use the following websites:

<https://www.sheffield.gov.uk/pollution-nuisance/air-quality>

<https://uk-air.defra.gov.uk/>

or contact the council on air.quality@sheffield.gov.uk

Local Responsibilities and Commitment

This ASR was prepared by the City Futures Department of Sheffield City Council with the support and agreement of the following officers and departments:

- City Sustainability
- City Transport

This ASR has been approved by:



Dr Niki Rust

Assistant Director of City Sustainability

And;



Tom Finnegan-Smith

Assistant Director City Transport

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1 Local Air Quality Management

This report provides an overview of air quality in Sheffield City Council during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely, the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Sheffield City Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England are presented in Appendix E, Table E.1.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

A summary of AQMAs declared by Sheffield City Council can be found in Table 2.1. The table presents a description of the 3 AQMAs that are currently designated within Sheffield. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO₂ annual mean;
- PM₁₀ 24-hour mean;
- NO₂ hourly mean.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Sheffield AQMA	2010	NO ₂ Annual Mean	The whole of the Urban area of the City of Sheffield; excluding the Peak Park area	YES	59	49.3	0	Air Quality Action Plan (AQAP) 2015 & CAP 2022	Air Quality Action Plan 2015 and Sheffield & Rotherham Clean Air Plan Full Business Case
Sheffield AQMA	2010	NO ₂ Hourly Mean	The whole of the Urban area of the City of Sheffield; excluding the Peak Park area	YES	55	35*1	0	Air Quality Action Plan (AQAP) 2015 & CAP 2022	Air Quality Action Plan 2015 and Sheffield & Rotherham Clean Air Plan Full Business Case
Sheffield AQMA	2010	PM10 24 Hour Mean	The whole of the Urban area of the City of Sheffield; excluding the Peak Park area	YES	8	1	6	Air Quality Action Plan (AQAP) 2015	Air Quality Action Plan 2015

*1 Concentrations observed at Arundel Gate Interchange & Fitzalan Square above 60µg/m³ at diffusion tube monitoring location, which is indicative of hourly objective exceedance

Sheffield City Council confirm the information on UK-Air regarding their AQMA(s) is up to date

Sheffield City Council confirm that all current AQAPs have been submitted to Defra

2.2 Progress and Impact of Measures to address Air Quality in Sheffield City Council

Defra's appraisal of last year's ASR concluded:

“Overall, the report is generally well-structured and provides extensive discussion regarding the current trends in pollutants, which will prove useful in determining whether the current AQMA should be revoked or if a new AQMA should be declared.”

Sheffield City Council currently has two key policy documents designed to bring about compliance with NO₂ objectives. Firstly, the 2015 Action Plan still has relevance in delivering widespread district improvement, though it is acknowledged that this document is in need of updating. The second document is the Council's Clean Air Plan, adopted in 2022, which in accordance with DEFRA's advice, constitutes meeting the requirement of a plan updated within the last 5 years. For the purposes of this report, we will include progress on both Action Plan and Clean Air Plan measures.

Sheffield City Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Ten measures are included within Table 2.2, with the type of measure and the progress Sheffield City Council have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in the respective Plans:

- [Sheffield City Council Air Quality Action Plan 2015](#) – designed to tackle exceedance of NO₂ and PM₁₀ objective under LAQM.
- [Sheffield City Council Clean Air Plan – Full Business Case 2022](#) – designed to tackle exceedance of NO₂ under national approach.

Key completed measures are:

- Implementation of the Class C CAZ, targeting emissions from HGV's, Buses, Coaches, LGV's and Taxis,
- Delivery of the trial Bus Gate on Arundel Gate Northbound, restricting access to improve flow and reduce emissions along the link.

- Launch of financial support to enable upgrade of older vehicles to cleaner replacements

Sheffield City Council expects the following measures to be completed over the course of the next reporting year:

- Development of a new Clean Air Strategy,
- Assessment of the impact of the Clean Air Zone.

Sheffield City Council's priorities for the coming year are:

- To develop a new Clean Air Strategy; *that will replace the Strategy adopted in 2017. This new strategy will set out the ambition and aims of the district for continued improvement of air quality for the district and outline commitments to work with National Government to achieve the new PM_{2.5} targets. The strategy will also be a policy document, which aligns both the Clean Air Plan and any future Action Plan to ensure continuity across all work areas.*
- To assess the impact of the CAZ; *and determine whether the measure in isolation can achieve the council's ambition of Clean Air specifically for NO₂ or whether further measures are needed.*

Sheffield City Council worked to implement these measures in partnership with the following stakeholders during 2023:

- Internal Council Departments
- Residents and businesses
- Key Anchor Institutions
- Combined Authority
- National Highways
- Environment Agency

The principal challenges and barriers to implementation that Sheffield City Council anticipates facing are:

- Development of the Clean Air Strategy
 - *The key challenges for development of the strategy will centre around availability of officer time and success of engagement with key stakeholder.*

- *There will need to be an agreement with stakeholders on the ambition and aspirations that council wish to set within the strategy, such as pollutant concentration objectives.*
- *The other key challenge be to develop a strategy that compliments existing strategies or those in development, such as the Climate Emergency*
- **Assessment of CAP**
 - *The key challenge to success of the CAP measures relates to public behaviour change responses, the speed at which the fleet across the CAP area renews in response to the CAZ, performance abatement technology for tailpipe emissions and impact of local background chemistry as emissions reduce.*
 - *The other challenge relating to the CAP will centre around how compliance is assessed and for the authority to provide communication to key stakeholders that is clear and does not negatively impact either the CAP process or the LAQM process.*

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Sheffield City Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the NO₂ AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
CAP 1	Class C Clean Air Zone	Promoting Low Emission Transport	Low Emission Zone (LEZ)	2023	Ongoing	Sheffield CC						> 20% (including 7% from do minimum)	All Buses to be best in class Tackle 50% of worst polluting Taxis Tackle 15% of Goods vehicles	Clean Air Zone soft launch Feb 2023, with full implementation completed June 2023	Delivery is ongoing and measure against National AQ assessment process (JAQU)
CAP 2	Bus gate on Arundel Gate	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2023	Ongoing	Sheffield CC						> 20% (including 7% from do minimum)	Number of vehicles accessing area to be reduced	Launched March 2023, enforcement started in June 2023	Delivery is ongoing and measure against National AQ assessment process (JAQU)
CAP 3	Bus Anti-idling measure at Arundel Gate Interchange	Traffic Management	Anti-idling enforcement	2023	Ongoing	Sheffield CC						> 20% (including 7% from do minimum)	Number of vehicles idling to be reduced	Launched 2023	Delivery is ongoing and measure against National AQ assessment process (JAQU)
AQAP 1	Assess Feasibility for a Low Emission Zone Implement Recommendation	Policy Guidance and Development Control	Low Emissions Strategy Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality Sustainable Procurement Guidance	Nov. 2013	Dec. 2015 onwards	Sheffield CC						> 20% (including 7% from do minimum)	All Buses to be best in class Tackle 50% of worst polluting Taxis Tackle 15% of Goods vehicles	Voluntary Bus Agreement established Commitment Statement and policy position endorsed	Lack of sufficient funding to support
AQAP 2	Develop Infrastructure for Refuelling Low Emission Vehicles	Alternatives to private vehicle use Promoting Low Emission Transport	Bus based Park & Ride Car Clubs Rail based Park & Ride Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging Other	Jul-12	Dec. 2015 onwards	Tesco; Meadowhall Bus Interchange; Meadowhall Bus Interchange; Nunnery Square; ITM Power Advanced Manufacturing Park off M1 J33						> 5%	Increased use of Park & Ride Increased number of EV vehicles & recharging Public Health Outcome Framework	Successful £225k bid to Government (DfT) for the installation of further rapid charge points across the region Successful £487,500 bid to OLEV to install 10 rapid chargers	2 fast and 1 rapid charger units installed
AQAP 3	Promote Smarter Travel Choices	Promoting Low Emission Transport	Low Emission Zone (LEZ) Priority parking for LEV's Procuring alternative Refuelling	Jul-15	September 2017 onwards	Sheffield CC						> 5% To reflect Clean Air Zone criteria	Increased number of low emissions Buses & Taxis, EV vehicles & recharging Increased number of people	Sheffield Bus Agreement - 5 year investment plan with annual renewal launched in October 2012 Successful £225k bid to Government (DfT)	Review and update of Sheffield Bus Agreement imminent.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
		Public Information	<p>Infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging</p> <p>Public Vehicle Procurement - Prioritising uptake of low emission vehicles</p> <p>Taxi emission incentives</p> <p>Taxi Licensing conditions</p>										<p>cycling and walking</p> <p>Public Health Outcome Framework</p> <p>Ongoing</p>	<p>for the installation of further rapid charge points across the region</p> <p>Bike Boost / Walk Boost / Bus Boost schemes aimed at commuters</p>	<p>Charge points installed.</p> <p>Ongoing</p>
AQAP 4	Improve Engine Performance of Commercial Diesel Vehicles	Vehicle Fleet Efficiency	<p>Driver training and ECO driving aids</p> <p>Fleet efficiency and recognition schemes</p> <p>Promoting Low Emission Public Transport</p> <p>Testing Vehicle Emissions</p> <p>Vehicle Retrofitting programmes</p> <p>Other</p>	2013	2015 onwards	Sheffield CC's Transport Services / ECO Stars Fleet Recognition Scheme						< 10%	Number of hybrid vehicles purchased; telematics units fitted; Eco driving training completed	6 diesel hybrid mini buses & 18 Hybrid vehicles purchased; at least 120 telematics units fitted; 120 drivers Eco driving trained	Ongoing
AQAP 5	Mitigate the impact of the M1 Motorway (particularly in the Tinsley Area)	<p>Traffic Management</p> <p>Promoting Travel Alternatives</p>	<p>Strategic highway improvements, re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane</p> <p>Encourage / Facilitate home-working</p> <p>Personalised Travel Planning</p> <p>Promote use of rail and inland waterways</p> <p>OTHER</p>	2014	<p>2017</p> <p>Ongoing</p>	Highways England						<p>Neutral</p> <p>Reduce vehicles emissions on to local residential areas</p>	<p>Construction of Smart Motorway All Lane Running</p> <p>Construction of Barrier at M1 J34S On Slip</p>	<p>Completed</p> <p>In consideration – Feasibility Study undertaken</p>	<p>Commissioned, fully operational from March 2017</p> <p>M1 Junction 34 Air and Noise Mitigation Options Study Phase 2 Report produced</p>
AQAP 6	Develop Policies to Support better Air Quality	Policy Guidance and Development Control	<p>Air Quality Planning and Policy Guidance</p> <p>Low Emissions Strategy</p>	Nov. 2015	Dec. 2018 onwards	Sheffield CC's Planning & Development Services						> 15%	<p>All Buses to be best in class</p> <p>Tackle 50% of</p>	Voluntary Bus Agreement established	Implementation is ongoing

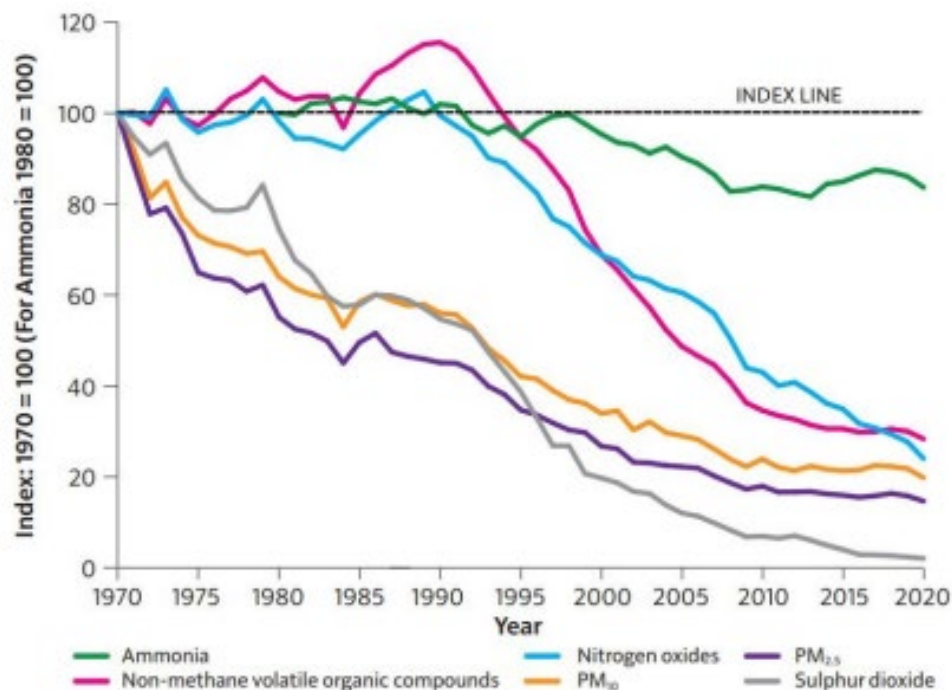
Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
			Other policy Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality Sustainable Procurement Guidance										worst polluting Taxis	Commitment Statement and Policy Statement endorsed	
AQAP 7	Control Industrial Emissions	Environmental Permits	Measures to reduce pollution through IPPC Permits going beyond BAT	Jan-14	Ongoing	Sheffield CC's Environmental Protection Service as well as Environment Agency						Up to 5%	Number of sites inspected and or receiving penalty	Permits are issued in accordance with the Secretary of State's guidance	Implementation is ongoing

2.3 PM_{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy¹⁰, local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM_{2.5}). There is clear evidence that PM_{2.5} (particulate matter smaller than 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Figure 2.1 is taken from the most recent Chief Medical Officer's Annual Report 2022 on Air Quality and shows that most pollutants have seen reductions over the last 20 years for all pollutants, but progress has slowed within the last decade.

Figure 2.1 – National Annual Emission trends



Note: The figure shows trends in annual emissions of particulate matter (PM₁₀ and PM_{2.5}), nitrogen oxides, ammonia, non-methane volatile organic compounds, and sulphur dioxide, 1970 to 2020, expressed as a percentage change from the base year of 1970 (for ammonia the base year is 1980).

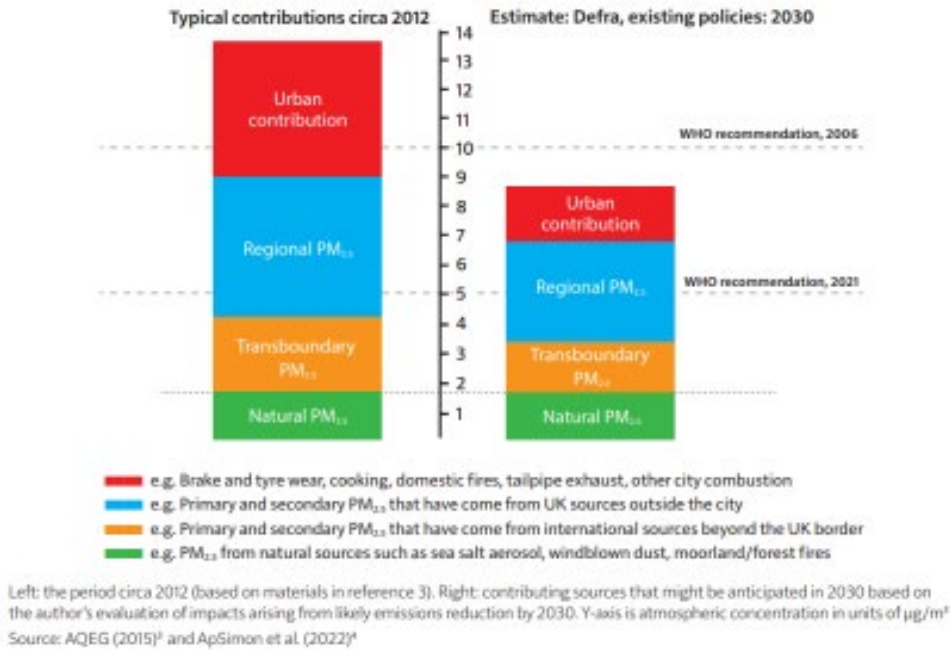
Source: Ricardo Energy & Environment, Defra (2022)²

Whilst current PM_{2.5} objectives are the responsibility of His Majesty's Government, national government policy requires local authority to assist with PM_{2.5} emission reduction. The Air

¹⁰ Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

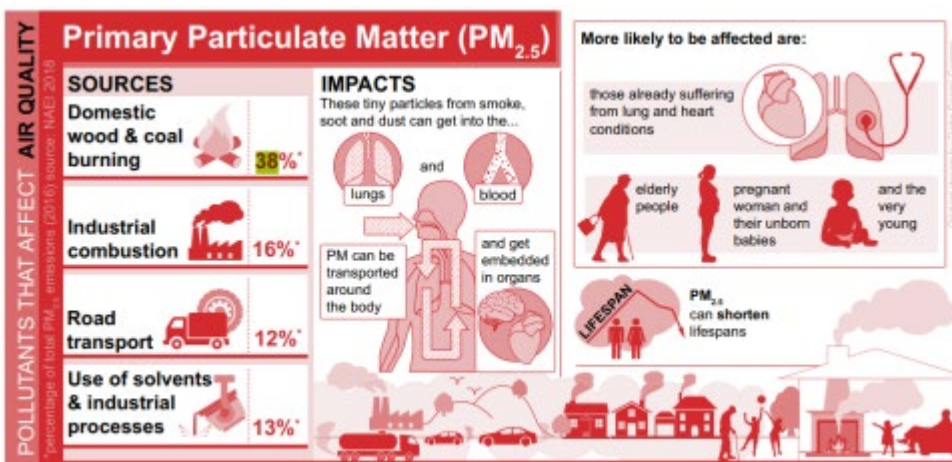
Quality Expert Group provide estimates on current source contribution of PM_{2.5} within a locality, of which the local authority can influence primarily urban contribution (figure 2.2).

Figure 2.2 – Estimated PM_{2.5} Emission contribution



In accordance with the National Air Quality Strategy, emissions improvement for PM_{2.5} is not just isolated to road transport and focus should also be given to industrial activity and large-scale agricultural activities, as well as domestic heating as illustrated in Figure 2.3 taken from the National Clean Air Strategy 2019.

Figure 2.3 – Sources of PM_{2.5} emissions



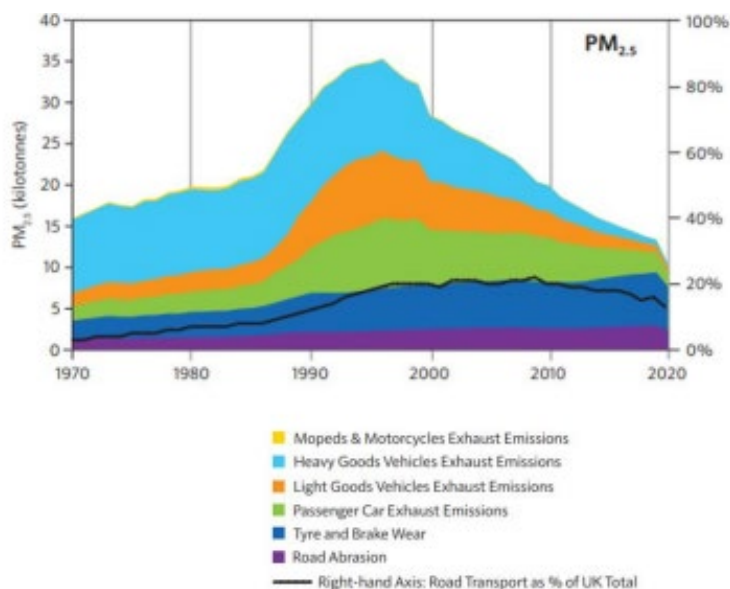
Within the Sheffield locality, primary sources of PM_{2.5} emissions from the area are likely to be from road, industry and domestic heating¹¹. Figures 2.4 and 2.5 taken from the Chief Medical Officer's Annual Report 2022 for Air Quality shows the estimated primary sources for the industrial and transport sector.

Within the Sheffield district, industrial pollution is regulated through the permitting process by the Environment Agency and local authority Environmental Health. As part of the permitting system, industrial businesses are regularly inspected to ensure compliance and, prior to the award of new permits, future emission impact is a key consideration.

With regards to transport emissions, focus has remained on control of tail-pipe emissions and the recently introduced CAZ targets the HGV, Bus, Coach, Taxi and LGV sectors, though it is

noted from Figure 2.3 that further work within the domestic fleet and to create a transport environment to reduce non-tailpipe emissions will be key to future plans in order to meet PM_{2.5} reduction targets.

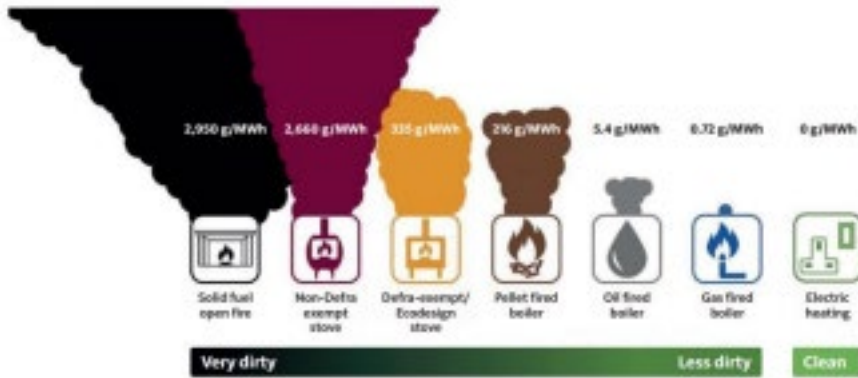
Figure 2.4 – PM_{2.5} emissions from road vehicle sources since 1970



Note: The dashed black line indicates the contribution of road transport to the overall emissions on the right-hand axis.
Source: National Atmospheric Emissions Inventory¹ analysed by Air Quality Consultants Ltd

¹¹ [Emissions of air pollutants in the UK – Particulate matter \(PM10 and PM2.5\) - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/statistics/emissions-of-air-pollutants-in-the-uk-particulate-matter-pm10-and-pm25)

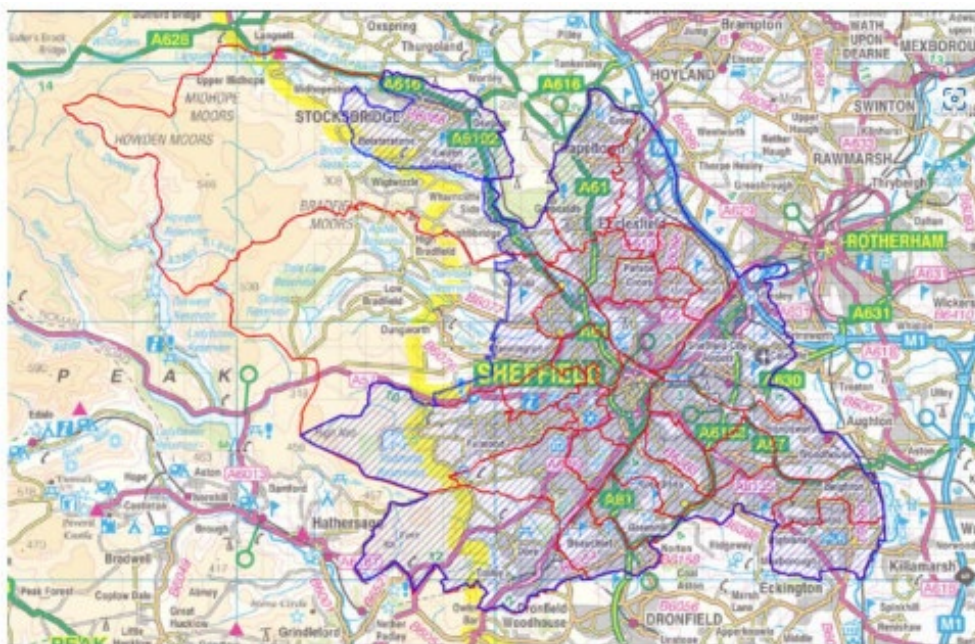
Figure 2.5 – Total UK emissions of SO₂ from industrial sectors reported in the NAEI



Note: The air pollution emissions will also depend on the age of the appliance, how it is maintained and used and the fuel burned (for example, dry or wet wood).
 The following definitions were used: Solid fuel/open fire: wood burned in an open fire. Non-Defra-exempt stove: wood in a conventional stove. Defra-exempt/Ecodesign stove: wood in an advanced/ ecolabelled stove. Pellet fired boiler: wood in pellet stoves and boilers. Oil fired boiler: fuel oil in a medium (>30KWth <1MWth) boiler. Gas fired boiler: natural gas in a small (≤50KWth) boiler.
 Source: Emission factors taken from EMEP 2019 Guidebook⁹ (1A4 small combustion tables). Adapted from the Clean Air Strategy⁹ with updated data

Whilst our preference would be for residents to select the lowest emitting form of heating, to ensure best practice for the use of wood burning stoves within our highest populated areas, the urban area of Sheffield is a smoke control and use of non-compliant fuels and stoves are prohibited. The boundary of the smoke control area is shown within Figure 2.7.

Figure 2.6 – Sheffield City Council Smoke Control Area



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 OS License No. 100018816. 2010
 * Please note: Smoke control areas are within the blue line

With reference to the Public Health Outcomes Frameworks, specifically D1 - Fraction of mortality attributable to particulate air pollution, using the new method of calculation, Sheffield City Council's Fraction of Mortality attributable to particulate air pollution in 2022 is estimated to be 5.17%, which is below the England average of 5.82%. However, this is now slightly higher than the Yorkshire & Humber regional average of 5.11% and remains higher than the South Yorkshire average of 4.98%.

Sheffield City Council is taking the following measures to address PM_{2.5} and recognises that various sources of pollution contribute to PM_{2.5} emissions mobile ones, particularly diesel vehicles / engines, and therefore will maintain its current ongoing mitigation actions in addition to the following measures, referenced earlier, to reduce their emissions:

- Develop a new Clean Air Strategy (as stated earlier) for Sheffield, with the inclusion of local PM_{2.5} targets, which will be designed to complement the new National Air Quality Strategy,
- Upon completion of the strategy, develop a new 5-year Action Plan for Sheffield, which will include a focus on the inclusion of measures that target the reduction of PM_{2.5} concentrations in addition to more traditional transport lead NO₂ measures.
- Sheffield City Council's Environmental Protection continues to enforce within our Smoke Control Areas by undertaking investigation and education works in a reactive method to address local resident complaints.
- Sheffield City Council work with industry which is largely regulated using IPPC (Integrated Pollution Prevention and Control) legislation and businesses, to help them make the most of technological improvements to reduce emissions and to ensure that they meet their legal obligations.

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

This section sets out the monitoring undertaken within 2023 by Sheffield City Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2019 and 2023 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Sheffield City Council undertook automatic (continuous) monitoring at 6 sites during 2023, along with 3 DEFRA monitoring sites within the Sheffield City Council area. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The [Sheffield \(airviro.com\)](https://www.airviro.com) webpage presents automatic monitoring results for Sheffield City Council, also available through the UK-Air website [Data Selector - Defra, UK](https://www.uk-air.org.uk)

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

3.1.2 Non-Automatic Monitoring Sites

Sheffield City Council undertook non- automatic (i.e. passive) monitoring of NO₂ at 189 sites during 2023. There were 2 sets of triplicate tubes (SOCOTEC and Gradko) at GH2, GH3, DEFRA Barnsley Road and DEFRA Devonshire Green; 1 set of SOCOTEC triplicate tubes at DEFRA Tinsley and a duplicate set of SOCOTEC tubes at GH4. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D and online at [Diffusion Tubes \(arcgis.com\)](https://www.arcgis.com). Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B.1. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

Sheffield's own local air quality monitoring suggests that concentrations prior to the pandemic were gradually coming down (see dotted red line Figure 3.1) with the exception of 2019. In 2020, there were large reductions observed because of COVID-19 pandemic control measures across all sectors within the district, with largest improvements being observed during the period March – July when control measures were strictest. In 2021, concentrations increased by 11-12% for NO₂ at key roadside locations compared with the previous year. In 2022, further increases were observed across all sectors of between 11-23% on the previous year. In 2023, Sheffield City Council monitoring observed concentration reductions of 1-60%, which is between 1 and 37µg/m³ at our monitoring locations between 2022 and 2023, with the average reductions for the district being 7µg/m³ (20%). Concentrations have reduced across the district, and levels in 2023 are comparable to levels observed in 2020. These reductions are not just isolated to within or close proximity to the CAZ, so the positive influence in improving the vehicle fleet is being

felt across the city, although it is too early to discern the full impact of the CAZ at this time, given it was only fully operational for 50% of the year.

As well as 2023 concentrations being comparable to pandemic levels (2020), the number of monitoring sites above the UK target limit fell and there were less sites in exceedances in 2023 than there were in 2020 as shown in figure 3.2. It must be noted that CAP exceeding locations are slightly higher than 2020, but this can be accounted for in the increase in CAP monitors post-2020. In 2020, the percentage of monitoring sites exceeding the $40\mu\text{g}/\text{m}^3$ threshold for NO_2 fell, but did not reach zero. This demonstrates that, even with wide-reaching pandemic measures, compliance was not achieved in 2020. In 2021, as would be expected, there was an increase in the number of sites exceeding the $40\mu\text{g}/\text{m}^3$ threshold, attributed to the return to societal norms. Furthermore, the NO_2 concentrations doubled in 2022 on the previous year and was reflective of pre-pandemic numbers. Whilst in 2023 we have seen reductions and concentration akin to 2020, which can only be a positive, as with then, there are sites remaining in exceedance. The annual NO_2 exceedance sites remain in close proximity to the primary road network and concentrations are attributable to transport emissions.

During the pandemic, average hourly figures for NO_2 also fell at both real-time monitors and passive sites, and no sites indicated exceedance of the hourly objective. Since 2020, growing concentrations had resulted in an increase in the number of sites exceeding the indicative threshold of $60\mu\text{g}/\text{m}^3$ for exceedance of short-term NO_2 objectives up to and including 2022. With reductions in 2023 occurring and concentrations being similar to pandemic levels, the number of sites likely to exceed the hourly objective in 2023 has reduced to just two. Of these sites, one is on the road junction of Fitzalan Square and High Street, the other is at the Arundel Gate bus interchange, and both sites are within the curtailage of the CAZ. It is important to note that, of the sites displayed in Figure 3.3, the largest observed reduction are at the Taxi Rank where vehicles have been targeted as part of the CAP approach, and the other largest reduction is on Spital Hill, outside the CAZ boundary on a key road link.

With regards to NO_2 improvement measures, evaluation of the impact from the CAZ will be key in determining the measures required in the next iteration of the council's action plan and, as such, completion of the CAZ evaluation is seen as a key dependency for construction of the Action Plan.

Figure 3.1 – Annual NO₂ Concentrations (µg/m³) over last 7 years

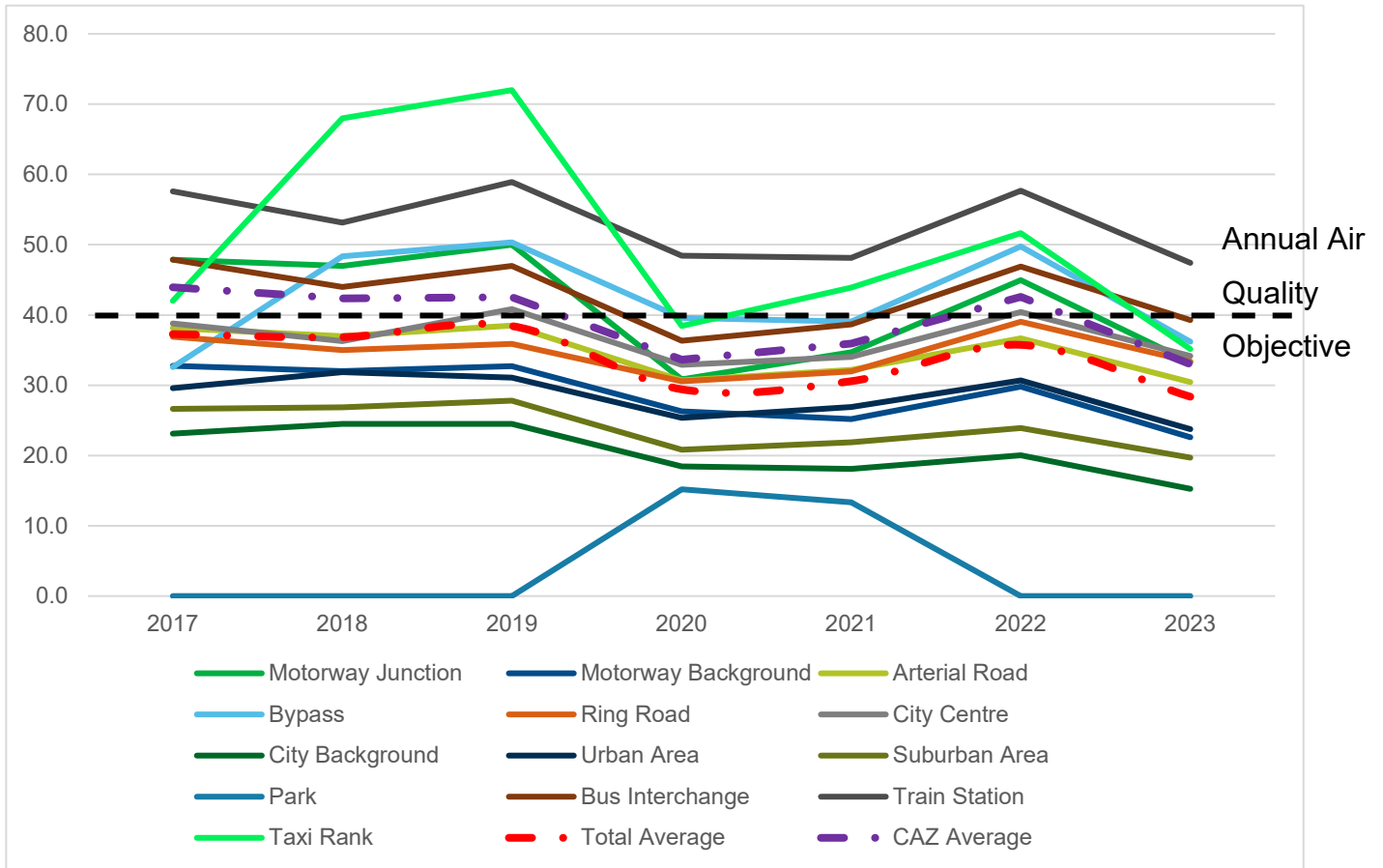


Figure 3.2 – Percentage of monitoring sites exceeding Annual NO₂ Concentrations over last 7 years

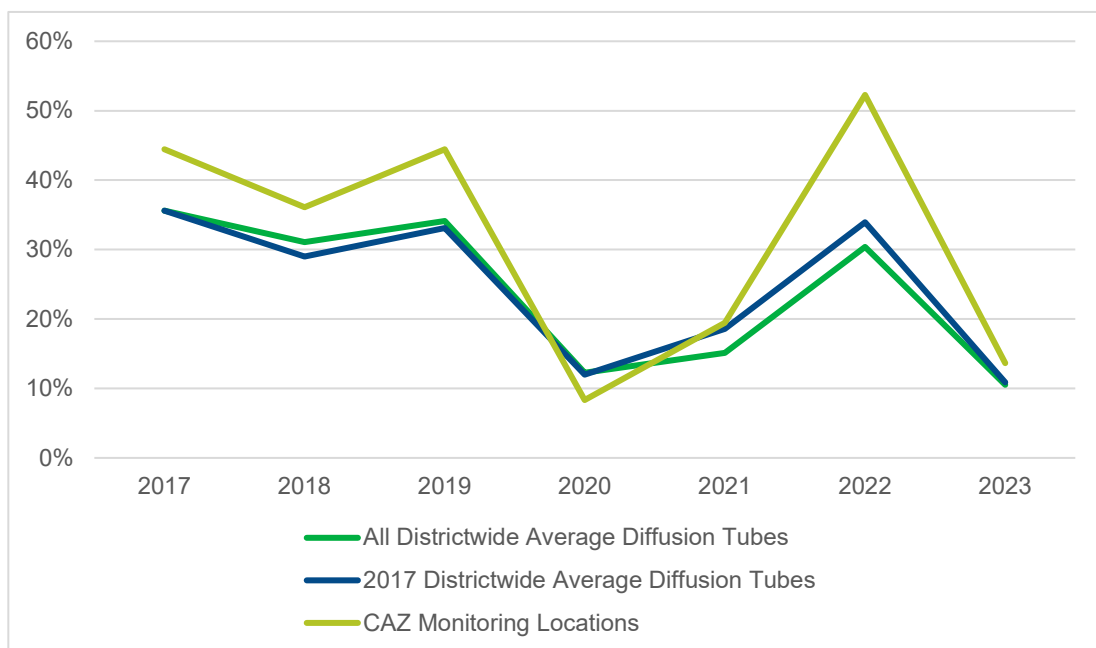
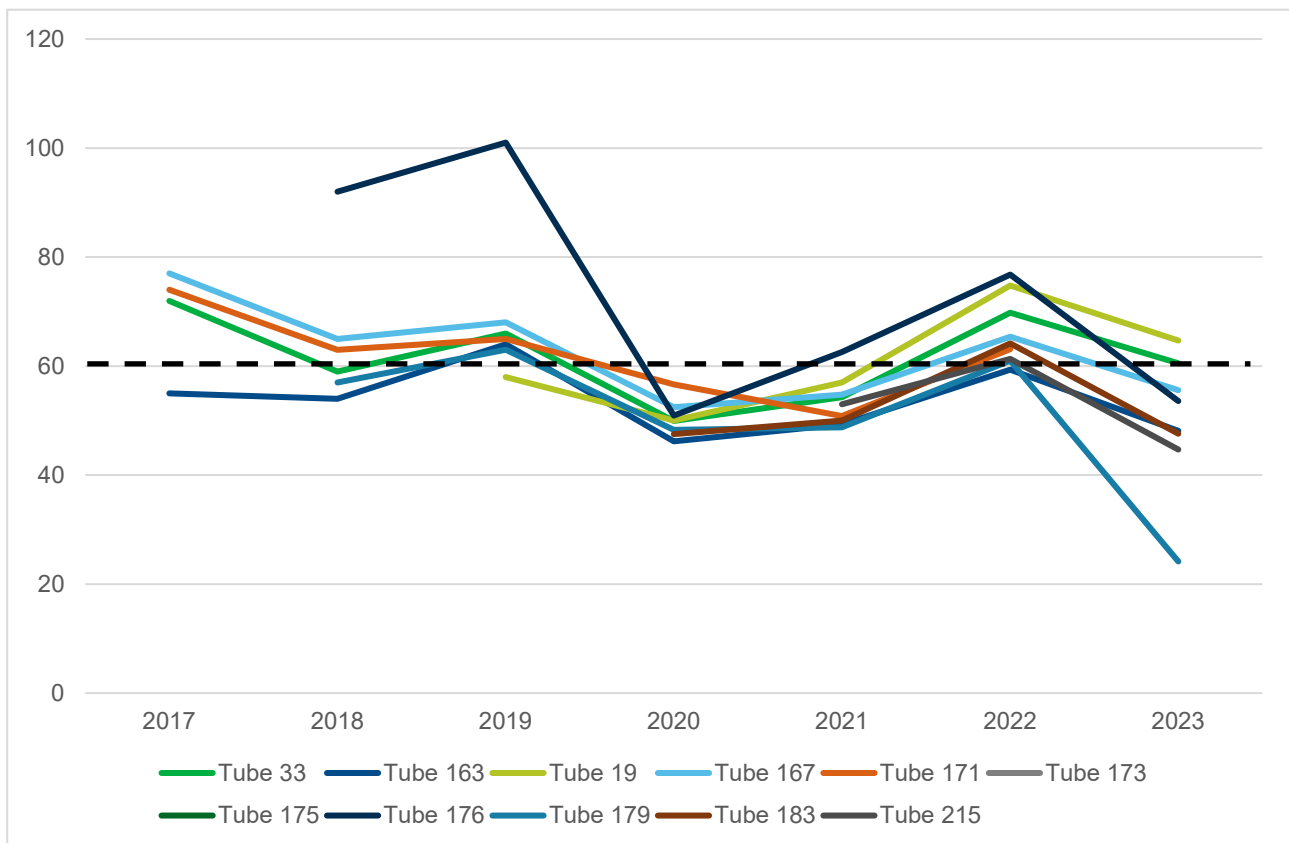


Figure 3.3 – Passive Monitoring Annual NO₂ Concentrations (µg/m³) exceeding 60µg/m³ over last 7 years



3.2.2 Particulate Matter (PM₁₀)

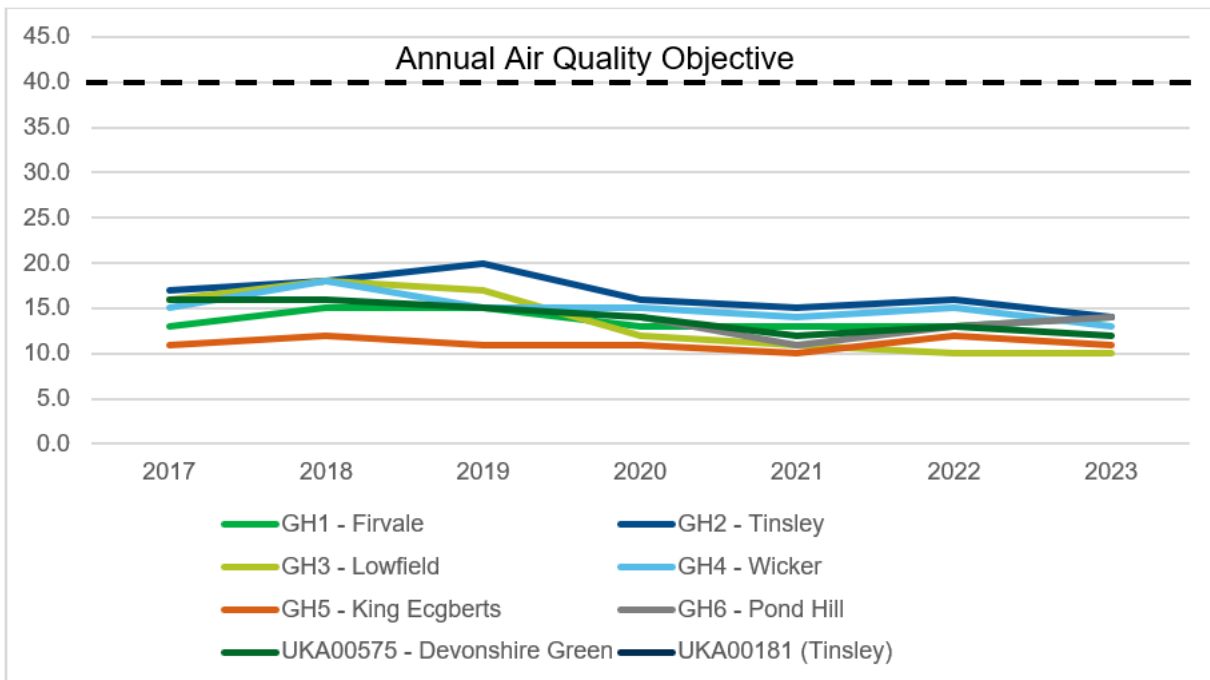
Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM₁₀ annual mean concentrations for the past five years, with the air quality objective of 40µg/m³.

Table A.7 in Appendix A compares the ratified continuous monitored PM₁₀ daily mean concentrations for the past five years with the air quality objective of 50µg/m³, not to be exceeded more than 35 times per year.

In terms of the standards set by the EU for PM₁₀ dust pollution, all our monitoring stations are indicating that we comply for both long- and short-term objectives, with trends shown in Figure 3.4 indicating that PM₁₀ concentrations were increasing between 2017 and 2018, but saw slight reductions since that time, including during the pandemic period (2020-21). In 2022, concentrations for PM₁₀ increased at all but one location, though levels remain below the UK limit and 1 - 4µg/m³ below pre-pandemic levels. In 2023, we observed

reductions at all but one site. The one site in question is at Pond Hill and adjacent to a development site, which accounts for the slight increase. Although the Sheffield district complied with standards and trends have shown reduction between 2018 and 2023, it must also be noted there is no safe limit for Particulate Matter, which is why inclusion of measures to target pollutants in next Action Plan is important.

Figure 3.4 – Annual PM₁₀ Concentrations (µg/m³) over last 7 years



3.2.3 Particulate Matter (PM_{2.5})

Table A.8 in Appendix A presents the ratified and adjusted monitored PM_{2.5} annual mean concentrations for the past five years.

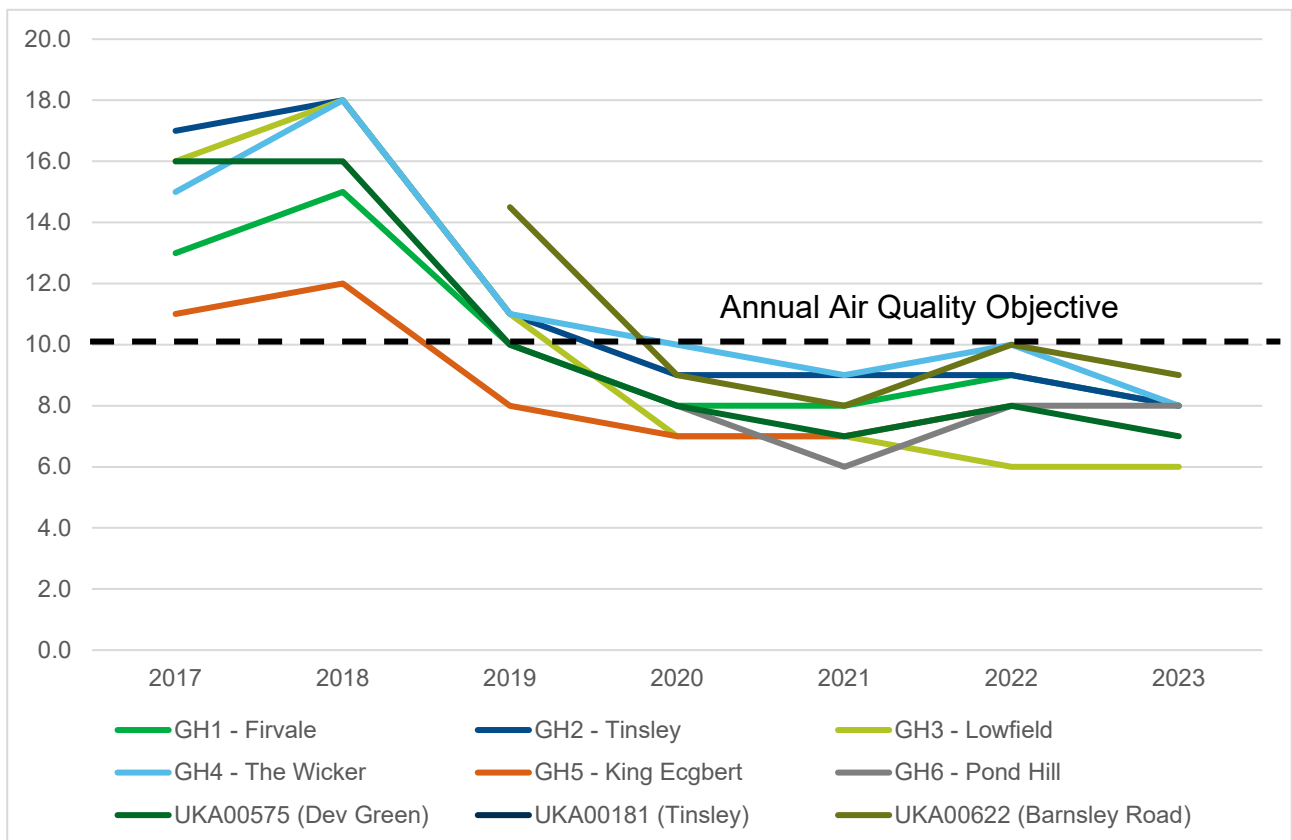
In terms of the standards set by the EU for PM_{2.5} dust pollution, all our monitoring stations are indicating that we comply. Trends shown in Figure 3.5 show that PM_{2.5} concentrations were increasing between 2017 and 2018, but saw slight reductions since that time, including during the pandemic period (2020-21). In 2022, concentrations for PM_{2.5} increased at all but one location, though levels remain below the UK limit and 1 - 4µg/m³ below pre-pandemic levels. In 2023, we saw reduction at all but one site, which mirrored the PM₁₀ observations. As stated in section 3.22, the increase at the Pond Hill site is as a result of the monitors proximity to an ongoing city centre development.

Given that the cost-of-living issue discussed in the ASR 2022 was still present in quarter 1 of 2023, but concentrations reduced in 2023, this corroborates the hypothesis that the

increase in 2022 likely occurred due to external influence rather than an increase in localised solid fuel burning.

Although the Sheffield district complied with standards, and trends have shown reduction between 2018 and 2023, it must also be noted there is no safe limit for Particulate Matter, and increases in 2022 the fragility of current compliance, which is why inclusion of measures to target pollutants in next Action Plan is important.

Figure 3.5 – Annual PM_{2.5} Concentrations (µg/m³) over last 7 years



3.2.4 Sulphur Dioxide (SO₂)

Sheffield City Council monitors SO₂ at one of our real-time monitoring stations, GH3 at Lowfield School. Since 2019, there has been a communication fault with the device, which we have been working with our service providers to resolve. As such, there are no SO₂ data available for 2023, though it must be noted that, prior to the fault, concentrations were well within compliance and there has been no change in circumstances within the locality, which would change this status.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
GH1	Firvale School	Urban Background	436990	390218	NO ₂ , PM _{2.5} , PM ₁₀	YES – SCC City Wide	Chemiluminescence, FIDAS	0	10m	2.5
GH2	Tinsley Infant School	Industrial	440077	390794	NO ₂ , PM _{2.5} , PM ₁₀	YES – SCC City Wide	Chemiluminescence, FIDAS,	0	80m M1	2.5
GH3	Lowfield School	Roadside	435181	385366	NO ₂ , PM _{2.5} , PM ₁₀ , SO ₂	YES – SCC City Wide	Chemiluminescence, FIDAS, UV Fluorescence	0	6m	2.5
GH4	Wicker	Urban Background	435959	388021	NO ₂ , PM _{2.5} , PM ₁₀ , O ₃	YES – SCC City Wide	Chemiluminescence, FIDAS, UV Absorption	5	42m	2.5
GH5	King Egbert School	Urban Background	430977	380760	NO ₂ , PM _{2.5} , PM ₁₀ , O ₃	YES – SCC City Wide	Chemiluminescence, FIDAS, UV Absorption	10	65m	2.5
GH6	Pond Hill	Urban Centre	435704	387286	NO ₂ , PM ₁₀ , PM _{2.5}	YES – SCC City Wide	Chemiluminescence, FIDAS	N/A	5.5m	2.5
UKA00181	Sheffield Tinsley (DEFRA)	Industrial	440238	390588	NO ₂ , PM ₁₀ , PM _{2.5}	YES – SCC City Wide	Chemiluminescence, FIDAS	70	100m M1	3
UKA00575	Sheffield Devonshire Green (DEFRA)	Urban Centre	434816	386990	NO ₂ , PM ₁₀ , PM _{2.5} , O ₃ , Benzene	YES – SCC City Wide	Chemiluminescence, FIDAS, UV Absorption, pumped tube	30	20m	3

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
UKA00622	Sheffield Barnsley Road (DEFRA)	Roadside	436276	389930	NO2. PM2.5	YES – SCC City Wide	Chemiluminescence, BAM	10	5m	2

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable

Table A.2 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
1	Warren lane SCC CW	Roadside	436063	397474	NO2	Yes - SCC City Wide AQMA	10.0	5.0	No	2m
2	7 Bawtry Gate SCC CW	Urban Background	439994	390866	NO2	Yes - SCC City Wide AQMA	5.0	20.0	No	2m
3	47 Bawtry Road SCC CW	Roadside	440045	390884	NO2	Yes - SCC City Wide AQMA	5.0	3.0	No	2m
4	109 Bawtry Road SCC CW	Roadside	440177	390770	NO2	Yes - SCC City Wide AQMA	5.0	3.0	No	2m
5	Suffolk Road SCC CW	Roadside	435749	386727	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
6	Attercliffe Road SCC CW	Roadside	438880	389931	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
7	Pure Gym, St Mary's Road SCC CW	Roadside	435729	386513	NO2	Yes - SCC City Wide AQMA		4.0	No	2m
8	STOPPED 08/23 Parkway Layby 1 SCC CW	Roadside	437164	387687	NO2	Yes - SCC City Wide AQMA		2.5	No	2m
9	Upwell Street SCC CW	Kerbside	437703	390079	NO2	Yes - SCC City Wide AQMA	1.8	0.8	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
10	Greenland Road 1 (Bus stop) SCC CW	Roadside	439355	388385	NO2	Yes - SCC City Wide AQMA		2.5	No	2m
11	Loxley New Road SCC CW	Roadside	432643	389427	NO2	Yes - SCC City Wide AQMA	0.0	3.0	No	2m
12	Greenland Road 2 (Robson) SCC CW	Roadside	439312	388591	NO2	Yes - SCC City Wide AQMA	50.0	2.5	No	2m
13	Bowden Wood Close SCC CW	Roadside	439051	386743	NO2	Yes - SCC City Wide AQMA	20.0	2.0	No	2m
14	Parkway Broad Street SCC CW	Kerbside	436141	387521	NO2	Yes - SCC City Wide AQMA	4.0	0.8	No	2m
16	Derek Dooley Lampost 94 SCC CW	Kerbside	435639	388155	NO2	Yes - SCC City Wide AQMA		0.8	No	2m
17	Duke Street SCC CW	Roadside	436109	387458	NO2	Yes - SCC City Wide AQMA	1.0	3.0	No	2m
18	Waingate SCC CW	Urban Centre	435744	387619	NO2	Yes - SCC City Wide AQMA		1.5	No	2m
19	Fitzalan Square SCC CW	Urban Centre	435714	387476	NO2	Yes - SCC City Wide AQMA	4.0	1.0	No	2m
21	Arundel Gate, Gallery SCC CW	Roadside	435546	387052	NO2	Yes - SCC City Wide AQMA		1.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
22	Fielding Road SCC CW	Roadside	433346	390814	NO2	Yes - SCC City Wide AQMA	2.0	2.0	No	2m
23	Arundel Gate/Surrey Street SCC CW	Roadside	435608	387100	NO2	Yes - SCC City Wide AQMA		4.0	No	2m
24	University Roundabout SCC CW	Roadside	434435	387394	NO2	Yes - SCC City Wide AQMA	5.0	3.0	No	2m
25	Netherthorpe School SCC CW	Roadside	434646	387836	NO2	Yes - SCC City Wide AQMA	5.0	3.0	No	2m
26	Upper Hanover Street SCC CW	Roadside	434403	386966	NO2	Yes - SCC City Wide AQMA	5.0	3.0	No	2m
27	Shoreham Street SCC CW	Roadside	435554	386638	NO2	Yes - SCC City Wide AQMA	3.0	2.0	No	2m
28	St Mary's Road/Charlotte Road SCC CW	Roadside	435313	386367	NO2	Yes - SCC City Wide AQMA		5.0	No	2m
29	Chesterfield Road/Woodseats SCC CW	Roadside	434814	383335	NO2	Yes - SCC City Wide AQMA	5.0	3.0	No	2m
30	Queens Road/Edmund Road SCC CW	Roadside	435499	385690	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
31	Abbeydale Rd/Carter Knowle SCC CW	Roadside	434324	384311	NO2	Yes - SCC City Wide AQMA	5.0	3.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
32	Ecclesall Road SCC CW	Roadside	434299	386275	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
33	Arundel Gate Interchange SCC CW	Roadside	435602	387292	NO2	Yes - SCC City Wide AQMA		1.0	No	2m
34	Pond Street Interchange SCC CW	Kerbside	435700	387256	NO2	Yes - SCC City Wide AQMA		0.8	No	2m
35	Meadowhall Interchange SCC CW	Roadside	439116	391193	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
36	ACE 1 Wicker SCC CW	Urban Centre	435950	387996	NO2	Yes - SCC City Wide AQMA	15.0	43.0	Yes	3m
37	ACE 2 Wicker SCC CW	Urban Centre	435951	387997	NO2	Yes - SCC City Wide AQMA	15.0	43.0	Yes	3m
38	Arundel Gate, Stoddart Building SCC CW	Roadside	435463	386972	NO2	Yes - SCC City Wide AQMA		4.0	No	2m
39	Attercliffe Road, Arooj SCC CW	Roadside	437104	388329	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
40	98 Bawtry Road SCC CW	Roadside	440116	390800	NO2	Yes - SCC City Wide AQMA	4.0	1.0	No	2m
42	Parkway Layby 2 SCC CW	Roadside	437766	387454	NO2	Yes - SCC City Wide AQMA		2.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
43	Bernard Rd SCC CW	Roadside	436646	387756	NO2	Yes - SCC City Wide AQMA		1.0	No	2m
45	Derek Dooley Lamp post 93 SCC CW	Roadside	435789	388072	NO2	Yes - SCC City Wide AQMA		1.0	No	2m
49	STOPPED Bridgehouses Duplicate (Tube 1) SCC CW	Roadside	435435	388020	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
53	Coldwell Lane/Sandygate Road LTP	Suburban	431193	386795	NO2	Yes - SCC City Wide AQMA	10.0	2.0	No	2m
55	Manchester Road/Sale Hill LTP	Roadside	433013	386750	NO2	Yes - SCC City Wide AQMA	10.0	3.0	No	2m
56	Whitham Road/Crookes LTP	Roadside	433327	386862	NO2	Yes - SCC City Wide AQMA	6.0	1.0	No	2m
57	Whitham Road/Moor Oaks LTP	Roadside	433514	387033	NO2	Yes - SCC City Wide AQMA	5.0	1.7	No	2m
59	Western Bank/Clarkson Street LTP	Roadside	434048	387229	NO2	Yes - SCC City Wide AQMA	5.0	2.0	No	2m
60	Brook Hill/Favell Road LTP	Roadside	434352	387348	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
61	DEFRA Barnsley Road (Socotec 2) SCC CW	Roadside	436276	389927	NO2	Yes - SCC City Wide AQMA	20.0	4.0	Yes	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
63	DEFRA Barnsley Road (Socotec 3) SCC CW	Roadside	436277	389928	NO2	Yes - SCC City Wide AQMA	20.0	4.0	Yes	2m
64	DEFRA Tinsley monitor (Tube 1) Socotec	Industrial	440233	390587	NO2	Yes - SCC City Wide AQMA	70.0	100.0	Yes	3m
65	DEFRA Tinsley monitor (Tube 2) Socotec	Industrial	440234	390588	NO2	Yes - SCC City Wide AQMA	70.0	100.0	Yes	3m
66	DEFRA Tinsley monitor (Tube 3) Socotec	Industrial	440235	390589	NO2	Yes - SCC City Wide AQMA	70.0	100.0	Yes	3m
67	Glossop Road/Westbourne Road LTP	Roadside	433429	386728	NO2	Yes - SCC City Wide AQMA	4.0	1.7	No	2m
68	Glossop Road/Clarkehouse Road LTP	Roadside	433936	386893	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
69	West Street/Regent Street LTP	Roadside	434574	387155	NO2	Yes - SCC City Wide AQMA	2.5	2.0	No	2m
70	West Street/Leopold Street LTP	Roadside	435255	387349	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
71	Queens Road - G Casino LTP	Kerbside	435807	386350	NO2	Yes - SCC City Wide AQMA		0.8	No	2m
72	Queens Road - Asda LTP	Roadside	435697	385892	NO2	Yes - SCC City Wide AQMA		3.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
73	463 Queens Road LTP	Kerbside	435490	385660	NO2	Yes - SCC City Wide AQMA	2.0	0.7	No	2m
74	London Road -Sark Road LTP	Roadside	435182	385241	NO2	Yes - SCC City Wide AQMA		1.0	No	2m
75	London Road -Ponsfords LTP	Roadside	435161	384986	NO2	Yes - SCC City Wide AQMA		1.5	No	2m
76	Chesterfield Road - Meersbrook Park LTP	Roadside	434965	384613	NO2	Yes - SCC City Wide AQMA	1.0	2.5	No	2m
77	513 Chesterfield Road LTP	Roadside	434679	383718	NO2	Yes - SCC City Wide AQMA		2.5	No	2m
78	Chesterfield Road - Olivet Road LTP	Roadside	434857	382968	NO2	Yes - SCC City Wide AQMA	2.5	2.0	No	2m
79	Chesterfield road - Charles Ashmore LTP	Roadside	434906	381857	NO2	Yes - SCC City Wide AQMA	15.0	2.0	No	2m
80	Meadowhead Road LTP	Roadside	435135	381355	NO2	Yes - SCC City Wide AQMA	6.0	1.0	No	2m
81	Lowfield School GH3-1 Socotec	Urban Centre	435238	385397	NO2	Yes - SCC City Wide AQMA	0.0	7.0	Yes	3m
82	Lowfield School GH3-2 Socotec	Urban Centre	435239	385398	NO2	Yes - SCC City Wide AQMA	0.0	7.0	Yes	3m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
83	Lowfield School GH3-3 Socotec	Urban Centre	435240	385399	NO2	Yes - SCC City Wide AQMA	0.0	7.0	Yes	3m
84	Tinsley GH2-1 CoLo	Industrial	440084	390760	NO2	Yes - SCC City Wide AQMA	4.0	15.0	Yes	3m
85	Tinsley GH2-2 CoLo	Industrial	440085	390761	NO2	Yes - SCC City Wide AQMA	4.0	15.0	Yes	3m
86	Tinsley GH2-3 CoLo	Industrial	440086	390762	NO2	Yes - SCC City Wide AQMA	4.0	15.0	Yes	3m
87	Sheffield Devonshire Green AUN CoLo	Urban Centre	434803	386947	NO2	Yes - SCC City Wide AQMA	30.0	20.0	Yes	3m
88	Sheffield Devonshire Green AUN CoLo	Urban Centre	434804	386948	NO2	Yes - SCC City Wide AQMA	30.0	20.0	Yes	3m
89	Sheffield Devonshire Green AUN CoLo	Urban Centre	434805	386949	NO2	Yes - SCC City Wide AQMA	30.0	20.0	Yes	3m
90	Attercliffe Common (Terry Street) LSTF	Roadside	438582	389616	NO2	Yes - SCC City Wide AQMA		2.5	No	2m
91	Attercliffe Road (Bodmin Street) LSTF	Roadside	437928	388800	NO2	Yes - SCC City Wide AQMA	2.0	1.6	No	2m
92	Attercliffe Road (Staniforth Road) LSTF	Kerbside	437690	388529	NO2	Yes - SCC City Wide AQMA		0.8	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
93	Attercliffe Road (Tesco) LSTF	Roadside	436350	388234	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
94	Savile Street East (Gripple) LSTF	Roadside	437019	388826	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
95	Brightside Lane (Stevenson Road) LSTF	Roadside	437461	389311	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
96	Brightside Lane (Forgemaster) LSTF	Roadside	438393	390232	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
97	Brightside Lane (Jenkin Road) LSTF	Roadside	438610	390614	NO2	Yes - SCC City Wide AQMA	6.5	2.5	No	2m
98	Meadowhall Road (M1 34N) LSTF	Roadside	439167	391698	NO2	Yes - SCC City Wide AQMA		1.5	No	2m
99	Sheffield Road (M1 34S) LSTF	Roadside	439717	390826	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
102	Beeley Wood Road A61 Hills	Kerbside	433250	391115	NO2	Yes - SCC City Wide AQMA	12.0	0.8	No	2m
103	Winster Road A61 Hills	Roadside	433455	390473	NO2	Yes - SCC City Wide AQMA	4.5	1.0	No	2m
109	163 Handsworth Road/ Parkway R/A Comm	Roadside	440213	387006	NO2	Yes - SCC City Wide AQMA	3.0	2.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
110	12 Town Street Comm	Roadside	439943	390948	NO2	Yes - SCC City Wide AQMA	2.5	1.5	No	2m
111	10 Siemens Close Comm	Roadside	440036	390822	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m
112	Greasebro Road Comm	Roadside	439813	390743	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m
113	342 Sheffield Rd Comm	Roadside	440014	391178	NO2	Yes - SCC City Wide AQMA	0.0	4.0	No	2m
115	53 Newburn Drive Comm	Roadside	440046	390737	NO2	Yes - SCC City Wide AQMA	0.0	4.0	No	2m
116	30 Siemens Close Comm	Roadside	439994	390810	NO2	Yes - SCC City Wide AQMA	0.0	5.0	No	2m
117	Wicker Comm	Roadside	435909	388070	NO2	Yes - SCC City Wide AQMA	0.0	1.4	No	2m
118	Ladys Bridge Comm	Roadside	435736	387820	NO2	Yes - SCC City Wide AQMA	1.0	3.0	No	2m
119	Gibraltar Street Comm	Roadside	435239	387899	NO2	Yes - SCC City Wide AQMA	0.0	3.0	No	2m
120	Penistone Road Comm	Roadside	434806	388216	NO2	Yes - SCC City Wide AQMA		1.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
121	73 Burngreave Road Comm	Roadside	435843	388814	NO2	Yes - SCC City Wide AQMA	2.0	2.0	No	2m
122	Darnall Post Office Comm	Roadside	439377	387792	NO2	Yes - SCC City Wide AQMA	0.0	7.0	No	2m
124	584 Staniforth Rd Comm	Roadside	438997	387923	NO2	Yes - SCC City Wide AQMA	0.0	3.5	No	2m
125	Don Valley Leeds Road Comm	Roadside	438121	388922	NO2	Yes - SCC City Wide AQMA		1.8	No	2m
126	Waverley Cottages Comm	Roadside	440559	387357	NO2	Yes - SCC City Wide AQMA	4.0	1.0	No	2m
128	Stocksbridge Lidl Comm	Roadside	427261	398422	NO2	Yes - SCC City Wide AQMA		1.0	No	2m
130	Deepcar Carr Road Comm	Roadside	428818	397977	NO2	Yes - SCC City Wide AQMA	1.0	1.0	No	2m
131	Derbyshire La Comm	Roadside	435338	382923	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m
132	146 Abbeydale Road Comm	Roadside	434868	385276	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m
133	150 Abbeydale Road Comm	Roadside	434862	385269	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
134	Barkers Pool Taxi Rank Comm	Kerbside	435283	387222	NO2	Yes - SCC City Wide AQMA		0.6	No	2m
135	Pingle Rd/Whirlowdale Cres Comm	Roadside	432870	383387	NO2	Yes - SCC City Wide AQMA	0.0	4.0	No	2m
136	Totley All Saints School Comm	Suburban	430881	379724	NO2	Yes - SCC City Wide AQMA	30.0	15.0	No	2m
138	Opposite 150 Abbeydale Road Comm	Roadside	434885	385286	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m
139	35 Montgomery Road Comm	Suburban	434372	385218	NO2	Yes - SCC City Wide AQMA	0.0	14.0	No	2m
140	Zeds Nether Edge Road Comm	Roadside	434200	384869	NO2	Yes - SCC City Wide AQMA	0.0	3.5	No	2m
141	Clifford School Psalter Lane Comm	Urban Background	433650	385574	NO2	Yes - SCC City Wide AQMA	1.0	2.0	No	2m
142	Hunters Bar Juniors Comm	Urban Background	433378	385701	NO2	Yes - SCC City Wide AQMA	0.0	6.0	No	2m
143	7 Psalter Lane Comm	Urban Background	434069	385673	NO2	Yes - SCC City Wide AQMA	0.0	4.0	No	2m
144	Cemetery Rd, Sharrowhead R/about Comm	Urban Background	434128	385719	NO2	Yes - SCC City Wide AQMA	0.0	4.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
145	981 Abbeydale Road Comm	Roadside	433640	383391	NO2	Yes - SCC City Wide AQMA	3.5	1.0	No	2m
146	La Scala Comm	Roadside	433601	383337	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m
147	102 Archer Road Comm	Roadside	434188	383548	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m
148	Chippendale Comm	Roadside	434123	383874	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m
149	879 Abbeydale Road Comm	Roadside	434143	383915	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m
150	Books on the Park, 749 Ecclesall Rd/Marmion Rd Comm	Roadside	432964	385619	NO2	Yes - SCC City Wide AQMA	0.0	6.0	No	2m
151	Unique Hair, 828 Ecclesall Rd/Greystones Rd Comm	Roadside	432828	385402	NO2	Yes - SCC City Wide AQMA	0.0	4.5	No	2m
152	Midgeleys Greengrocer, 946 Ecclesall Rd/Psalter La Comm	Roadside	432822	384990	NO2	Yes - SCC City Wide AQMA	0.0	4.5	No	2m
153	Ecclesall Fisheries, 97 Ecclesall Rd South Comm	Roadside	432651	384491	NO2	Yes - SCC City Wide AQMA	0.0	2.5	No	2m
154	Knowle La/Ecclesall Rd South Bus Terminus Comm	Roadside	432428	384276	NO2	Yes - SCC City Wide AQMA		0.8	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
155	Ecclesall Junior School - Ringinglow Rd Comm	Roadside	432241	384593	NO2	Yes - SCC City Wide AQMA	1.5	0.5	No	2m
156	High Storrs School Comm	Roadside	431908	384518	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
157	Silverdale School Comm	Urban Background	431538	383992	NO2	Yes - SCC City Wide AQMA	0.0	10.0	No	2m
158	Huntley Road Ecclesall Infants Comm	Urban Background	432055	384648	NO2	Yes - SCC City Wide AQMA	0.0	3.0	No	2m
159	265 Abbeydale Road Comm	Urban Background	434821	385142	NO2	Yes - SCC City Wide AQMA	0.0	5.5	No	2m
160	Butterworth Cycles Comm	Urban Background	434522	384654	NO2	Yes - SCC City Wide AQMA	0.0	3.5	No	2m
161	Woodseats School Bus stop Comm	Roadside	434797	383255	NO2	Yes - SCC City Wide AQMA	0.0	2.5	No	2m
162	Woodseats School traffic lights Comm	Roadside	434814	383252	NO2	Yes - SCC City Wide AQMA	4.0	1.5	No	2m
163	Midland Station Opposite WH Smith Comm	Other	435810	386918	NO2	Yes - SCC City Wide AQMA		20.0	No	2m
164	Midland Station Platform 1A South Comm	Other	435841	386872	NO2	Yes - SCC City Wide AQMA		8.5	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
165	Midland Station Platform 1B Comm	Other	435849	387031	NO2	Yes - SCC City Wide AQMA		10.0	No	2m
166	Midland Station Footbridge Comm	Other	435867	386955	NO2	Yes - SCC City Wide AQMA		30.0	No	2m
167	Midland Station Platform 3A/2B North Comm	Other	435873	387004	NO2	Yes - SCC City Wide AQMA		4.0	No	2m
168	Midland Station Platform 2A Comm	Other	435871	386905	NO2	Yes - SCC City Wide AQMA		7.0	No	2m
169	Midland Station Platform 5A Comm	Other	435880	386888	NO2	Yes - SCC City Wide AQMA		9.0	No	2m
170	Midland Station Platform 5B Waiting room Comm	Other	435883	386956	NO2	Yes - SCC City Wide AQMA		11.0	No	2m
172	Midland Station Platform 6B Comm	Other	435916	386973	NO2	Yes - SCC City Wide AQMA		9.0	No	2m
174	Midland Station Platform 8A Comm	Other	435919	386934	NO2	Yes - SCC City Wide AQMA		4.0	No	2m
175	Sheaf Street station side crossing Comm	Kerbside	435812	387005	NO2	Yes - SCC City Wide AQMA		1.0	No	2m
176	Station Taxi Rank 1 Comm	Other	435818	386889	NO2	Yes - SCC City Wide AQMA		3.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
178	Orphanage Rd/Barnsley Rd Comm	Roadside	435797	389600	NO2	Yes - SCC City Wide AQMA	5.0	4.0	No	2m
179	Spital Hill Comm	Roadside	436069	388328	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
180	Owler La/Firth Park Rd Comm	Roadside	436595	390242	NO2	Yes - SCC City Wide AQMA	5.0	2.0	No	2m
181	Rutland Road BG Comm	Roadside	435537	389218	NO2	Yes - SCC City Wide AQMA		1.5	No	2m
182	Astrea Academy, Andover Street Comm	Urban Background	435450	388650	NO2	Yes - SCC City Wide AQMA	2.0	2.0	No	2m
183	Herries Rd/Barnsley Rd Comm	Kerbside	436499	390182	NO2	Yes - SCC City Wide AQMA		0.7	No	2m
184	Meersbrook Bank School Comm	Roadside	434741	384237	NO2	Yes - SCC City Wide AQMA	0.0	1.5	No	2m
185	Valley Rd/Chesterfield Rd Jc Comm	Roadside	434989	384691	NO2	Yes - SCC City Wide AQMA	5.0	2.0	No	2m
186	Ann's Grove School Comm	Urban Background	435489	385101	NO2	Yes - SCC City Wide AQMA	0.0	4.0	No	2m
187	9 Ripley Street Comm	Roadside	433350	389387	NO2	Yes - SCC City Wide AQMA	0.0	2.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
188	South Rd/Walkley Rd Comm	Roadside	433147	388796	NO2	Yes - SCC City Wide AQMA	5.0	2.0	No	2m
189	Morley Street/Rivelin Bank Road Comm	Roadside	432768	389097	NO2	Yes - SCC City Wide AQMA	6.0	1.0	No	2m
190	Hollins Lane Comm	Roadside	432271	388570	NO2	Yes - SCC City Wide AQMA	20.0	1.0	No	2m
191	South Road/Highton Street Comm	Roadside	433238	388666	NO2	Yes - SCC City Wide AQMA	15.0	2.0	No	2m
192	Hunter's Bar School potting area North Comm	Urban Background	433266	385705	NO2	Yes - SCC City Wide AQMA	5.0	5.0	No	2m
193	Hunter's Bar School potting area West Comm	Urban Background	433251	385695	NO2	Yes - SCC City Wide AQMA	5.0	5.0	No	2m
194	Hunter's Bar School playground South Comm	Urban Background	433267	385684	NO2	Yes - SCC City Wide AQMA	5.0	10.0	No	2m
199	Arts Tower Entrance, Bolsover Street Comm	Kerbside	434173	387484	NO2	Yes - SCC City Wide AQMA		1.0	No	2m
200	Crookes Valley Road/Crookesmoor Road Comm	Roadside	433750	387724	NO2	Yes - SCC City Wide AQMA	1.5	1.0	No	2m
201	Springvale Road/Commonside Comm	Roadside	433486	387994	NO2	Yes - SCC City Wide AQMA		1.8	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
202	Asda Walkley Comm	Roadside	433236	388668	NO2	Yes - SCC City Wide AQMA		1.5	No	2m
203	Ped. Crossing Toyne Street Jc Comm	Kerbside	432822	387795	NO2	Yes - SCC City Wide AQMA	4.0	1.0	No	2m
206	Rutland Road Comm	Roadside	435334	389097	NO2	Yes - SCC City Wide AQMA		2.5	No	2m
208	Longley Avenue West Comm	Roadside	434720	390560	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
209	Shirecliffe Road Comm	Roadside	435304	389577	NO2	Yes - SCC City Wide AQMA		5.8	No	2m
210	Ebenezer St/A61 SCC CW	Roadside	435018	387999	NO2	Yes - SCC City Wide AQMA	3.0	1.5	No	2m
212	Blast Lane/Parkway SCC CW	Urban Centre	436146	387608	NO2	Yes - SCC City Wide AQMA	10.0	5.0	No	2m
213	Matilda St SCC CW	Roadside	435578	386555	NO2	Yes - SCC City Wide AQMA	0.5	1.5	No	2m
214	Arley St/St Mary's Gate SCC CW	Roadside	435023	386344	NO2	Yes - SCC City Wide AQMA	50.0	3.0	No	2m
215	Sheaf St station side lamp post Comm	Roadside	435763	386944	NO2	Yes - SCC City Wide AQMA		5.0	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
216	Handsworth Rd/Richmond Rd bus stop Comm	Roadside	440913	386218	NO2	Yes - SCC City Wide AQMA	9.5	1.5	No	2m
217	Halfway School Comm	Roadside	443572	381395	NO2	Yes - SCC City Wide AQMA	3.0	1.5	No	2m
218	Toll House Burngreave Comm	Roadside	435650	389350	NO2	Yes - SCC City Wide AQMA	15.0	2.0	No	2m
219	Sheaf Street opposite station (low) Comm	Roadside	435770	386979	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
220	Hangingwater Road LTP	Roadside	431740	385914	NO2	Yes - SCC City Wide AQMA	4.5	1.5	No	2m
221	Norfolk Park Road LTP	Roadside	435967	386210	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
222	Cemetery Road SCC CW	Roadside	434676	386171	NO2	Yes - SCC City Wide AQMA		1.5	No	2m
223	Bramall Lane SCC CW	Roadside	435233	385961	NO2	Yes - SCC City Wide AQMA		2.0	No	2m
224	Burngreave Rd/Brunswick Rd SCC CW	Roadside	436092	388590	NO2	Yes - SCC City Wide AQMA	7.4	2.0	No	2m
225	Crookesmoor Rd/Northumberland Rd LTP	Roadside	433473	387456	NO2	Yes - SCC City Wide AQMA		1.5	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
226	Sheaf Street Blade (high) Comm	Roadside	435755	386938	NO2	Yes - SCC City Wide AQMA		4.0	No	3m
227	Sheaf St opposite station (high) Comm	Roadside	435770	386979	NO2	Yes - SCC City Wide AQMA		3.0	No	3m
228	Sheaf Street lamp post 37 Comm	Roadside	435881	387162	NO2	Yes - SCC City Wide AQMA		3.0	No	2m
229	Sheaf Street lamp post 38 Comm	Roadside	435898	387153	NO2	Yes - SCC City Wide AQMA		2.5	No	2m
230	Station background Comm	Roadside	435805	386906	NO2	Yes - SCC City Wide AQMA		8.0	No	2m
231	DEFRA Barnsley Road (Socotec 1) SCC CW	Roadside	436276	389927	NO2	Yes - SCC City Wide AQMA	20.0	4.0	No	2m
232	Lowfield School GH3-1 (Gradko) LTP	Urban Centre	435238	385397	NO2	Yes - SCC City Wide AQMA	0.0	7.0	Yes	3m
233	Lowfield School GH3-2 (Gradko) LTP	Urban Centre	435238	385397	NO2	Yes - SCC City Wide AQMA	0.0	7.0	Yes	3m
234	Lowfield School GH3-3 (Gradko) LTP	Urban Centre	435238	385397	NO2	Yes - SCC City Wide AQMA	0.0	7.0	Yes	3m
236	DEFRA Barnsley Road monitor (Tube 1) Gradko	Roadside	436276	389927	NO2	Yes - SCC City Wide AQMA	20.0	4.0	Yes	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
237	DEFRA Barnsley Road monitor (Tube 2) Gradko	Roadside	436276	389927	NO2	Yes - SCC City Wide AQMA	20.0	4.0	Yes	2m
238	DEFRA Barnsley Road monitor (Tube 3) Gradko	Roadside	436276	389927	NO2	Yes - SCC City Wide AQMA	20.0	4.0	Yes	2m
239	GH2-1 Tinsley Gradko	Industrial	440084	390760	NO2	Yes - SCC City Wide AQMA	4.0	15.0	Yes	3m
240	GH2-2 Tinsley Gradko	Industrial	440084	390760	NO2	Yes - SCC City Wide AQMA	4.0	15.0	Yes	3m
241	GH2-3 Tinsley Gradko	Industrial	440084	390760	NO2	Yes - SCC City Wide AQMA	4.0	15.0	Yes	3m
242	AURN-1 Devonshire Green Gradko	Urban Centre	434803	386947	NO2	Yes - SCC City Wide AQMA	30.0	20.0	Yes	3m
243	AURN-2 Devonshire Green Gradko	Urban Centre	434803	386947	NO2	Yes - SCC City Wide AQMA	30.0	20.0	Yes	3m
244	AURN-3 Devonshire Green Gradko	Urban Centre	434803	386947	NO2	Yes - SCC City Wide AQMA	30.0	20.0	Yes	3m
245	Clarkehouse/Broomgrove Lane	Roadside	433646	386577	NO2	Yes - SCC City Wide AQMA	0.0	1.7	No	2m
246	Clarkehouse/Ash Grove	Roadside	433588	386528	NO2	Yes - SCC City Wide AQMA	12.0	2.3	No	2m

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube Co-located with a Continuous Analyser?	Tube Height (m)
247	Newbould Lane	Roadside	433603	386625	NO2	Yes - SCC City Wide AQMA	4.0	2.4	No	2m
248	Parkway Inbound (Subway)	Roadside	437213	387656	NO2	Yes - SCC City Wide AQMA	0.0	12.0	No	2m
249	Abbeyfield House	Urban Background	435772	389421	NO2	Yes - SCC City Wide AQMA	0.0	40.0	No	2m

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
GH1	436990	390218	Urban Background	79	79	30	23	21	18	15
GH2	440077	390794	Urban Industrial	69	69	31	23	27	28	27
GH3	435181	385366	Roadside	66	66	31	22	27	27	25
GH4	435959	388021	Urban Background	100	100	32	26	26	26	26
GH5	430977	380760	Urban Background	98	98	11	8	11	7	6
GH6	435704	387286	Urban Centre	87	87	=	30	38	33	31
UKA00575 (Dev Green)	434816	386990	Urban Background	100	100	26	18	20	18	16
UKA00181 (Tinsley)	440238	390588	Urban Industrial	99	99	27	22	23	24	20
UKA00622 (Barnsley Road)	436275	389926	Roadside	97	97	38	32	35	34	34

☒ Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.

☒ Reported concentrations are those at the location of the monitoring site (annualised, as required), i.e. prior to any fall-off with distance correction.

☒ Where exceedances of the NO₂ annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2023.

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.4 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
1	436063	397474	Roadside	92.3	92.3	29.0	21.7	20.8	24.0	19.0
2	439994	390866	Urban Background	100	100.0	39.0	30.6	31.3	35.0	29.7
3	440045	390884	Roadside	100	100.0	44.0	34.9	36.2	46.3	36.9
4	440177	390770	Roadside	100	100.0	35.0	28.2	28.1	33.8	27.2
5	435749	386727	Roadside	90.4	90.4		33.8	34.9	44.5	34.4
6	438880	389931	Roadside	100	100.0	40.0	34.0	33.5	43.5	35.2
7	435729	386513	Roadside	100	100.0		32.9	34.1	39.7	32.0
8	437164	387687	Roadside	86	50.0	58.0	44.1	45.5	58.3	53.0
9	437703	390079	Kerbside	92.3	92.3	38.0	32.9	33.6	35.3	34.6
10	439355	388385	Roadside	100	100.0	31.0	24.5	26.3	33.1	29.9
11	432643	389427	Roadside	100	100.0	34.0	27.5	29.8	33.2	29.9
12	439312	388591	Roadside	100	100.0	40.0	33.1	32.2	42.3	32.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
13	439051	386743	Roadside	82.7	82.7	34.0	26.8	24.1	31.2	23.7
14	436141	387521	Kerbside	90.4	90.4	38.0	30.5	31.8	38.0	30.9
16	435639	388155	Kerbside	100	100.0	44.0	35.3	38.1	46.2	37.3
17	436109	387458	Roadside	92.3	92.3	42.0	36.0	36.9	43.5	37.1
18	435744	387619	Urban Centre	100	100.0	47.0	42.3	44.3	54.9	47.0
19	435714	387476	Urban Centre	92.3	92.3	58.0	50.0	57.0	74.8	64.7
21	435546	387052	Roadside	92.3	92.3	45.0	37.0	37.7	47.5	34.9
22	433346	390814	Roadside	92.3	92.3	37.0	28.7	28.2	32.8	27.4
23	435608	387100	Roadside	100	100.0	39.0	30.3	34.1	40.0	32.7
24	434435	387394	Roadside	100	100.0	40.0	29.7	31.8	41.5	35.7
25	434646	387836	Roadside	100	100.0	35.0	26.8	24.7	32.9	24.4
26	434403	386966	Roadside	100	100.0	40.0	31.6	33.2	41.3	25.5
27	435554	386638	Roadside	92.3	92.3	47.0	36.7	39.0	44.0	33.7
28	435313	386367	Roadside	100	100.0		28.1	31.4	32.7	28.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
29	434814	383335	Roadside	100	100.0	36.0	25.9	28.9	27.9	27.5
30	435499	385690	Roadside	100	100.0	41.0	31.0	34.6	35.5	31.8
31	434324	384311	Roadside	100	100.0	38.0	30.8	31.7	38.9	31.7
32	434299	386275	Roadside	100	100.0	40.0	28.8	30.3	31.2	23.5
33	435602	387292	Roadside	100	100.0	<u>66.0</u>	49.9	54.3	<u>69.8</u>	<u>60.5</u>
34	435700	387256	Kerbside	100	100.0	50.0	36.5	39.3	49.4	38.4
35	439116	391193	Roadside	100	100.0	37.0	31.8	32.5	35.7	33.8
36	435950	387996	Urban Centre	100	100.0	29.0	23.6	23.5	26.6	21.5
37	435951	387997	Urban Centre	100	32.7	28.0	23.1	23.2	24.2	19.8
38	435463	386972	Roadside	100	100.0	48.0	38.9	41.7	50.8	39.2
39	437104	388329	Roadside	75	75.0	45.0	33.6	33.7	38.0	30.8
40	440116	390800	Roadside	100	100.0	43.0	33.4	35.1	39.8	30.2
42	437766	387454	Roadside	90.4	90.4	59.0	47.8	47.6	59.8	46.1
43	436646	387756	Roadside	92.3	92.3		39.3	41.3	41.5	38.8

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
45	435789	388072	Roadside	100	100.0	31.0	28.3	29.6	35.7	27.3
49	435435	388020	Roadside	0	0.0	36.0	32.4	31.5	41.9	-
53	431193	386795	Suburban	100	100.0	19.0	14.6	13.9	15.7	13.1
55	433013	386750	Roadside	100	100.0	34.0	27.7	29.3	34.6	27.4
56	433327	386862	Roadside	80.8	80.8	44.0	34.7	38.2	44.6	35.1
57	433514	387033	Roadside	100	100.0	38.0	30.1	33.6	38.2	29.3
59	434048	387229	Roadside	100	100.0	42.0	37.2	41.2	45.9	37.7
60	434352	387348	Roadside	100	100.0	32.0	26.1	28.3	31.9	24.2
61	436276	389927	Roadside	92.3	92.3		32.1	34.1	28.6	32.4
63	436277	389928	Roadside	90.4	90.4		31.7	33.4	28.9	32.6
64	440233	390587	Industrial	100	100.0		26.6	23.6	24.5	19.4
65	440234	390588	Industrial	100	100.0		24.6	23.3	27.0	19.6
66	440235	390589	Industrial	100	100.0		26.2	23.2	26.6	20.7
67	433429	386728	Roadside	90.4	90.4	34.0	27.8	31.6	36.1	27.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
68	433936	386893	Roadside	84.6	84.6	29.0	24.5	25.2	28.4	23.1
69	434574	387155	Roadside	100	100.0	37.0	26.7	28.7	32.4	27.3
70	435255	387349	Roadside	92.3	92.3	42.0	23.8	23.8	27.7	21.0
71	435807	386350	Kerbside	90.4	90.4	44.0	37.8	38.1	41.8	33.5
72	435697	385892	Roadside	100	100.0	37.0	31.6	34.9	35.6	30.0
73	435490	385660	Kerbside	90.4	90.4	51.0	42.3	43.9	50.6	41.1
74	435182	385241	Roadside	92.3	92.3	42.0	34.0	39.0	42.4	35.4
75	435161	384986	Roadside	90.4	90.4	48.0	37.8	43.2	47.6	40.9
76	434965	384613	Roadside	100	100.0	41.0	32.1	37.4	40.3	31.9
77	434679	383718	Roadside	90.4	90.4	31.0	23.9	25.8	27.3	22.9
78	434857	382968	Roadside	100	100.0	41.0	30.0	37.0	41.5	34.3
79	434906	381857	Roadside	100	100.0	31.0	24.0	26.2	30.0	22.8
80	435135	381355	Roadside	100	100.0	27.0	20.6	21.8	24.1	17.6
81	435238	385397	Urban Centre	92.3	92.3					23.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
82	435239	385398	Urban Centre	100	100.0	31.0	25.0	25.4	30.2	23.6
83	435240	385399	Urban Centre	100	100.0	30.0	24.4	25.1	29.6	24.3
84	440084	390760	Industrial	100	100.0	33.0	24.8	25.3	29.5	21.7
85	440085	390761	Industrial	90.4	90.4	33.0	24.3	24.9	30.3	21.5
86	440086	390762	Industrial	100	100.0	33.0	24.6	23.8	28.7	22.1
87	434803	386947	Urban Centre	100	100.0	27.0	18.4	18.1	21.6	15.8
88	434804	386948	Urban Centre	100	100.0	27.0	17.4	18.4	21.5	15.8
89	434805	386949	Urban Centre	100	100.0	26.0	18.0	18.2	20.9	16.2
90	438582	389616	Roadside	92.3	92.3	41.0	30.7	31.3	36.6	29.4
91	437928	388800	Roadside	90.4	90.4	48.0	37.7	44.4	56.3	44.9
92	437690	388529	Kerbside	82.7	82.7	48.0	37.7	39.1	48.8	37.8
93	436350	388234	Roadside	90.4	90.4	42.0	33.6	35.4	42.0	32.5
94	437019	388826	Roadside	75	75.0	34.0	26.4	26.4	31.6	24.1
95	437461	389311	Roadside	92.3	92.3	43.0	34.8	35.8	40.5	32.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
96	438393	390232	Roadside	100	100.0	45.0	35.6	34.7	44.0	35.0
97	438610	390614	Roadside	100	100.0	56.0	44.0	45.7	58.6	48.8
98	439167	391698	Roadside	100	100.0	54.0	40.0	42.1	52.7	39.5
99	439717	390826	Roadside	67.3	67.3	50.0	30.8	34.7	44.5	34.0
102	433250	391115	Kerbside	92.3	92.3	38.0	29.4	31.5	32.8	25.9
103	433455	390473	Roadside	100	100.0	51.0	40.3	42.8	51.3	38.2
109	440213	387006	Roadside	100	100.0		35.3	33.8	39.5	31.7
110	439943	390948	Roadside	90.4	90.4	37.0	30.6	29.9	35.6	27.1
111	440036	390822	Roadside	100	100.0	35.0	26.0	24.6	29.4	23.3
112	439813	390743	Roadside	100	100.0	31.0	25.8	24.9	27.9	20.7
113	440014	391178	Roadside	90.4	90.4	33.0	25.0	23.5	29.1	21.2
115	440046	390737	Roadside	100	100.0	40.0	32.7	29.5	42.0	31.3
116	439994	390810	Roadside	100	100.0	44.0	30.2	27.4	36.4	24.4
117	435909	388070	Roadside	82.7	82.7	39.0	31.2	30.8	40.1	32.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
118	435736	387820	Roadside	92.3	92.3	35.0	27.5	26.8	32.3	25.1
119	435239	387899	Roadside	76.9	76.9	32.0	22.9	21.8	25.2	20.1
120	434806	388216	Roadside	100	100.0	46.0	36.1	36.9	46.4	35.7
121	435843	388814	Roadside	84.6	84.6	39.0	33.9	37.0	44.5	38.4
122	439377	387792	Roadside	100	100.0	33.0	25.8	25.0	28.2	20.9
124	438997	387923	Roadside	100	100.0	35.0	28.3	28.0	31.3	26.1
125	438121	388922	Roadside	100	100.0	29.0	22.6	22.6	24.7	19.9
126	440559	387357	Roadside	84.6	84.6	32.0	26.0	25.8	28.4	23.1
128	427261	398422	Roadside	82.7	82.7	31.0	25.6	26.0	27.9	21.6
130	428818	397977	Roadside	90.4	90.4	32.0	24.6	25.3	25.6	19.5
131	435338	382923	Roadside	100	100.0	18.0	14.5	14.7	15.9	12.0
132	434868	385276	Roadside	82.7	82.7	36.0	21.7	21.4	20.4	23.6
133	434862	385269	Roadside	82.7	82.7	21.0	16.1	22.9	28.4	11.5
134	435283	387222	Kerbside	100	100.0	37.0	23.0	21.9	26.5	19.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
135	432870	383387	Roadside	82.7	82.7	16.0	18.9	11.7	9.9	7.7
136	430881	379724	Suburban	42.3	42.3		7.6	8.6	9.2	7.4
138	434885	385286	Roadside	48.1	48.1		27.8	34.5	33.3	27.7
139	434372	385218	Suburban	100	100.0	20.0	15.0	16.2	16.6	13.6
140	434200	384869	Roadside	100	100.0	19.0	13.8	15.5	15.5	12.3
141	433650	385574	Urban Background	92.3	92.3	18.0	13.3	15.7	14.2	13.1
142	433378	385701	Urban Background	100	100.0	26.0	18.9	21.7	21.1	16.9
143	434069	385673	Urban Background	92.3	92.3	32.0	23.9	23.9	27.9	21.5
144	434128	385719	Urban Background	92.3	92.3	31.0	22.2	22.5	24.5	19.2
145	433640	383391	Roadside	100	100.0	36.0	29.8	32.7	32.4	22.2
146	433601	383337	Roadside	90.4	90.4	37.0	29.1	31.9	35.4	29.0
147	434188	383548	Roadside	84.6	84.6	27.0	21.5	20.5	21.9	17.5
148	434123	383874	Roadside	90.4	90.4	37.0	29.1	32.9	34.2	27.0
149	434143	383915	Roadside	100	100.0	35.0	27.7	31.2	31.6	26.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
150	432964	385619	Roadside	90.4	90.4	29.0	22.9	23.5	25.2	20.8
151	432828	385402	Roadside	90.4	90.4	30.0	22.6	22.2	27.2	20.3
152	432822	384990	Roadside	90.4	90.4	28.0	20.1	22.5	22.7	18.9
153	432651	384491	Roadside	90.4	90.4	42.0	30.8	32.8	39.3	32.6
154	432428	384276	Roadside	90.4	90.4	35.0	27.0	28.4	32.8	24.5
155	432241	384593	Roadside	90.4	90.4	25.0	18.9	19.1	19.0	15.8
156	431908	384518	Roadside	90.4	90.4	19.0	13.7	13.5	14.8	11.6
157	431538	383992	Urban Background	90.4	90.4	13.0	9.8	9.8	9.2	8.1
158	432055	384648	Urban Background	90.4	90.4	14.0	10.2	9.5	9.7	7.7
159	434821	385142	Urban Background	92.3	92.3	32.0	23.9	26.0	31.4	24.4
160	434522	384654	Urban Background	92.3	92.3	39.0	30.8	33.4	40.7	33.0
161	434797	383255	Roadside	73.1	73.1	35.0	26.3	27.0	33.1	21.0
162	434814	383252	Roadside	92.3	92.3	37.0	25.8	27.7	32.7	25.5
163	435810	386918	Other	100	100.0	64.0	46.2	49.3	59.3	48.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
164	435841	386872	Other	90.4	90.4	47.0	37.7	39.0	44.7	38.1
165	435849	387031	Other	100	100.0	53.0	45.7	43.6	53.4	44.1
166	435867	386955	Other	100	100.0	57.0	48.7	48.4	59.9	48.0
167	435873	387004	Other	92.3	92.3	<u>68.0</u>	52.5	54.8	<u>65.4</u>	55.6
168	435871	386905	Other	100	100.0	59.0	55.1	50.5	59.6	50.0
169	435880	386888	Other	100	100.0	51.0	47.0	44.5	50.4	42.6
170	435883	386956	Other	100	100.0	58.0	38.2	48.6	58.4	51.3
172	435916	386973	Other	100	100.0	57.0	48.9	44.2	53.5	47.4
174	435919	386934	Other	100	100.0	58.0	51.5	47.4	56.0	46.4
175	435812	387005	Kerbside	100	100.0	<u>67.0</u>	45.7	55.5	<u>65.6</u>	49.9
176	435818	386889	Other	100	100.0	<u>101.0</u>	50.9	<u>62.5</u>	<u>76.8</u>	53.6
178	435797	389600	Roadside	100	100.0	47.0	38.0	37.4	50.5	38.8
179	436069	388328	Roadside	92.3	92.3	<u>63.0</u>	48.3	48.7	<u>61.0</u>	24.1
180	436595	390242	Roadside	100	100.0	48.0	39.3	37.4	49.7	35.5

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
181	435537	389218	Roadside	100	100.0		37.5	38.3	46.8	34.8
182	435450	388650	Urban Background	82.7	82.7		19.0	18.1	17.8	13.4
183	436499	390182	Kerbside	100	100.0		47.5	50.0	<u>64.2</u>	47.6
184	434741	384237	Roadside	92.3	92.3	20.0	13.8	15.0	16.9	13.1
185	434989	384691	Roadside	82.7	82.7	41.0	31.3	36.3	37.9	32.1
186	435489	385101	Urban Background	82.7	82.7	37.0	27.4	29.0	30.1	28.1
187	433350	389387	Roadside	82.7	82.7	36.0	26.6	27.3	28.6	24.6
188	433147	388796	Roadside	82.7	82.7	43.0	30.4	30.9	36.7	30.4
189	432768	389097	Roadside	90.4	90.4	33.0	22.9	22.4	27.3	20.9
190	432271	388570	Roadside	84.6	84.6	29.0	22.1	22.0	25.0	21.5
191	433238	388666	Roadside	100	100.0	23.0	18.9	19.0	22.0	17.8
192	433266	385705	Urban Background	84.6	84.6	25.0	15.2	16.4	19.1	13.8
193	433251	385695	Urban Background	84.6	84.6	28.0	19.9	18.7	23.7	16.9
194	433267	385684	Urban Background	76.9	76.9	22.0	15.9	15.8	18.4	13.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
199	434173	387484	Kerbside	51.9	51.9		25.9	29.6	35.9	24.5
200	433750	387724	Roadside	17.3	17.3		30.2	33.6	36.8	-
201	433486	387994	Roadside	51.9	51.9		19.0	20.8	24.2	18.8
202	433236	388668	Roadside	32.7	32.7		22.4	24.5	28.7	22.0
203	432822	387795	Kerbside	51.9	51.9		20.5	23.5	24.5	20.2
206	435334	389097	Roadside	90.4	90.4		38.8	37.6	44.6	35.2
208	434720	390560	Roadside	82.7	82.7		13.8	13.7	14.2	11.5
209	435304	389577	Roadside	82.7	82.7		21.1	22.7	24.8	21.0
210	435018	387999	Roadside	100	100.0			23.8	29.0	22.7
212	436146	387608	Urban Centre	100	100.0			36.0	36.5	32.0
213	435578	386555	Roadside	100	100.0			26.9	36.0	25.5
214	435023	386344	Roadside	100	100.0			36.2	39.1	31.4
215	435763	386944	Roadside	82.7	82.7			53.0	61.3	44.7
216	440913	386218	Roadside	92.3	92.3			31.3	34.9	26.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
217	443572	381395	Roadside	100	100.0			32.4	37.7	25.8
218	435650	389350	Roadside	100	100.0			30.5	37.5	27.3
219	435770	386979	Roadside	84.6	84.6				46.9	38.1
220	431740	385914	Roadside	100	100.0				20.7	17.9
221	435967	386210	Roadside	90.4	90.4				34.2	31.8
222	434676	386171	Roadside	100	100.0				23.8	18.2
223	435233	385961	Roadside	82.7	82.7				33.0	24.9
224	436092	388590	Roadside	100	100.0				52.4	39.7
225	433473	387456	Roadside	100	100.0				17.2	15.8
226	435755	386938	Roadside	92.3	92.3				53.3	43.6
227	435770	386979	Roadside	100	100.0				-	37.6
228	435881	387162	Roadside	84.6	84.6				-	48.3
229	435898	387153	Roadside	59.6	59.6				51.7	55.6
230	435805	386906	Roadside	92.3	92.3				-	32.0

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
231	436276	389927	Roadside	100	100.0				36.0	31.1
232	435238	385397	Urban Centre	100	100.0				31.4	25.5
233	435238	385397	Urban Centre	100	100.0				32.1	25.6
234	435238	385397	Urban Centre	100	100.0				31.6	25.6
236	436276	389927	Roadside	100	100.0				36.2	31.9
237	436276	389927	Roadside	100	100.0				38.7	32.4
238	436276	389927	Roadside	100	100.0				38.5	32.9
239	440084	390760	Industrial	100	100.0				32.7	23.4
240	440084	390760	Industrial	100	100.0				32.7	23.5
241	440084	390760	Industrial	100	100.0				31.4	24.7
242	434803	386947	Urban Centre	100	100.0				20.1	16.2
243	434803	386947	Urban Centre	100	100.0				19.8	16.7
244	434803	386947	Urban Centre	100	100.0				20.2	16.3
245	433646	386577	Roadside	100	100.0				28.0	22.4

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
246	433588	386528	Roadside	92.3	92.3				28.5	23.1
247	433603	386625	Roadside	100	100.0				28.2	21.6
248	437213	387656	Roadside	100	50.0					20.2
249	435772	389421	Urban Background	90	76.9					13.9

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.

Diffusion tube data has been bias adjusted.

Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction.

Notes:

The annual mean concentrations are presented as $\mu\text{g}/\text{m}^3$.

Exceedances of the NO₂ annual mean objective of $40\mu\text{g}/\text{m}^3$ are shown in **bold**.

NO₂ annual means exceeding $60\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

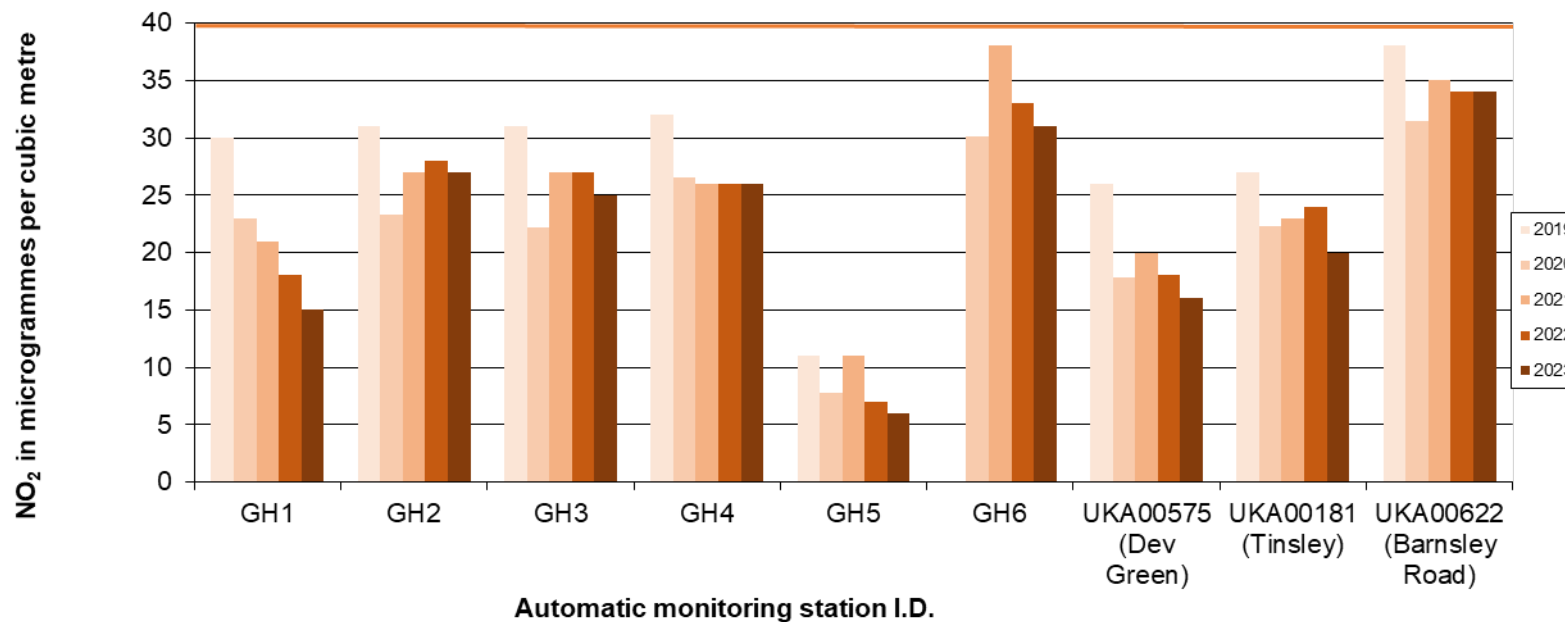
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

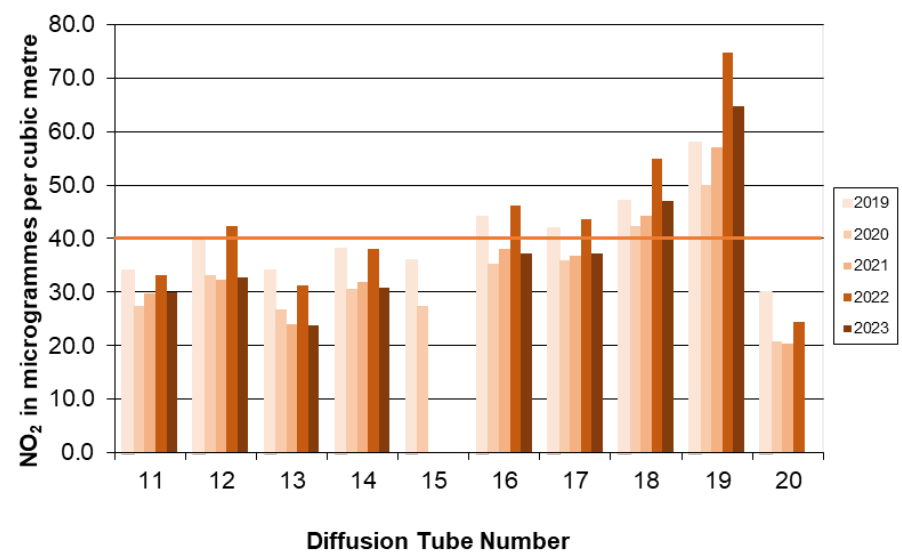
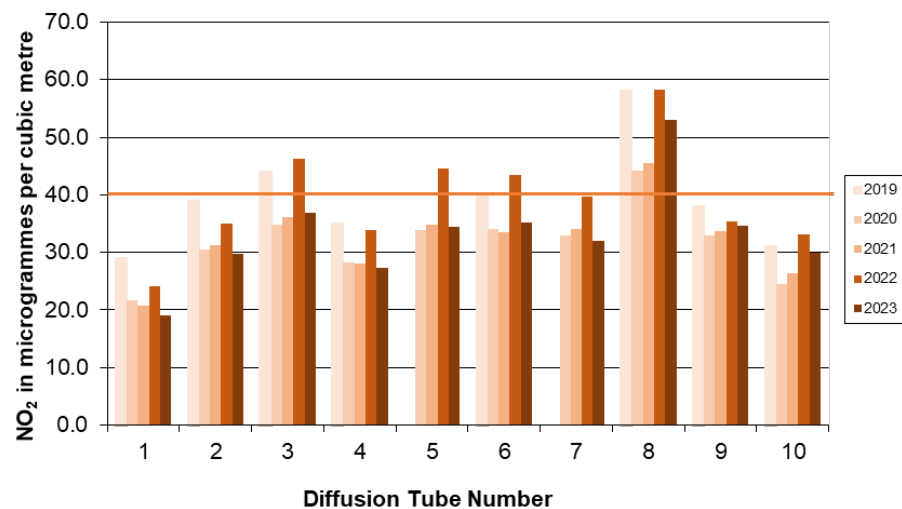
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

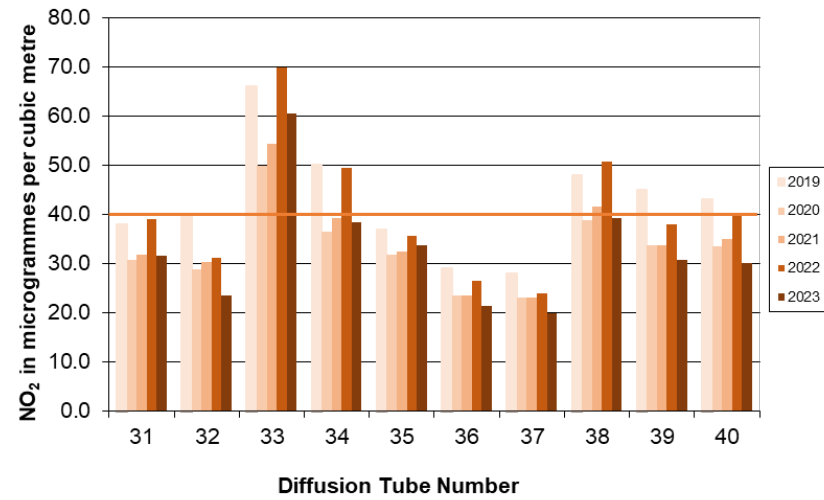
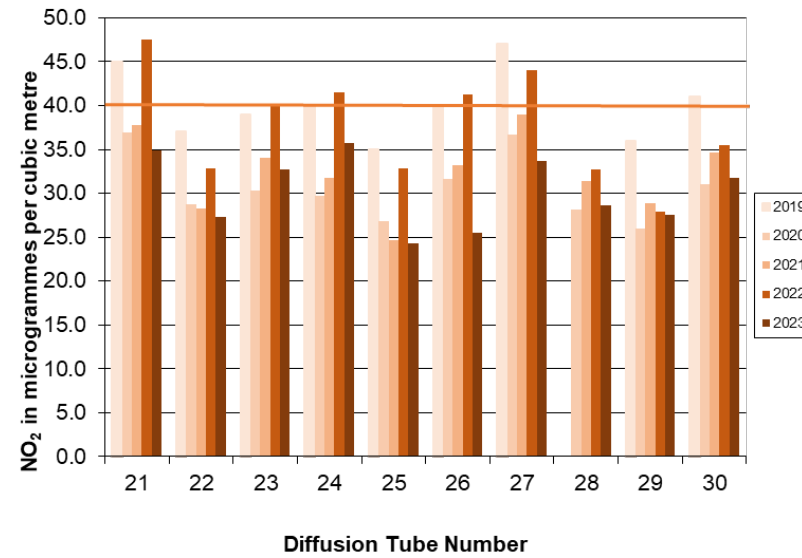
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

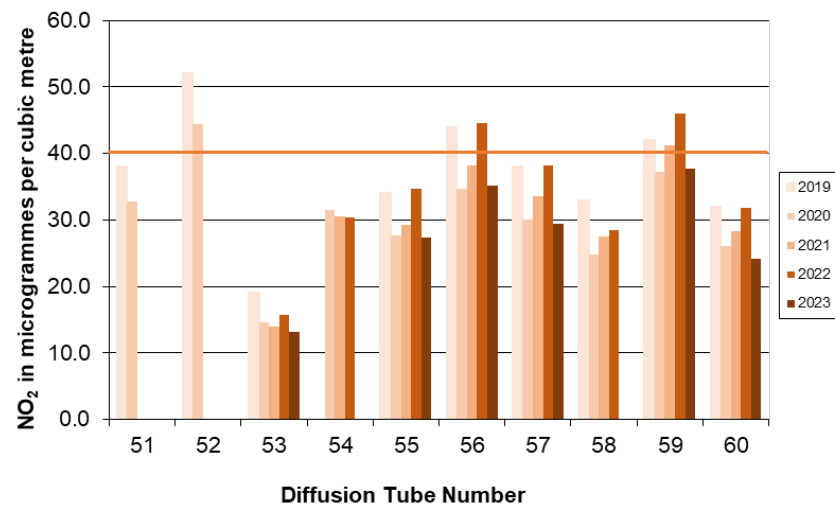
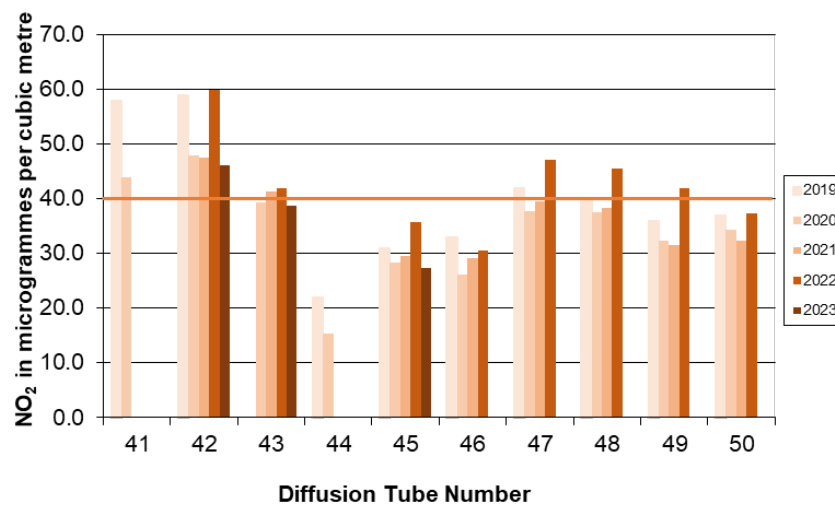
(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

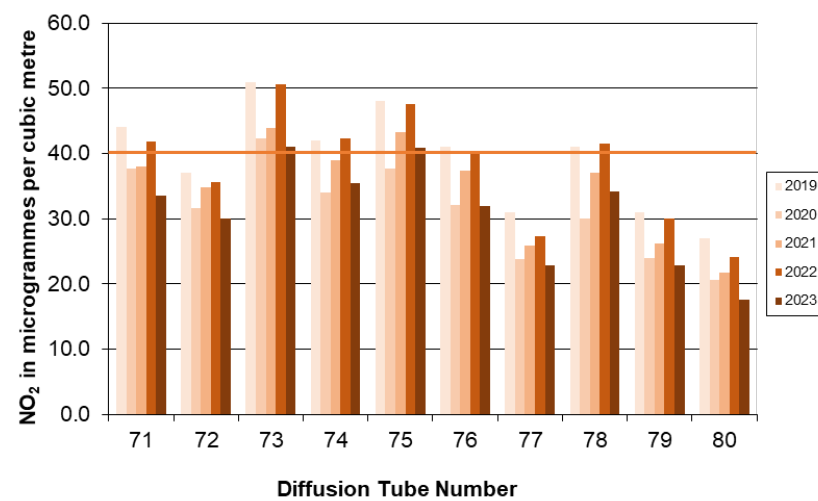
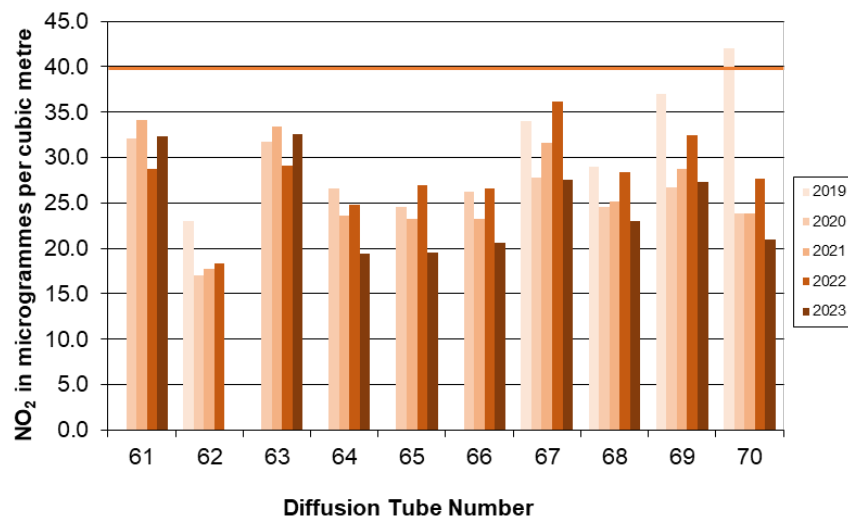
Figure A.1 – Trends in Annual Mean NO₂ Concentrations

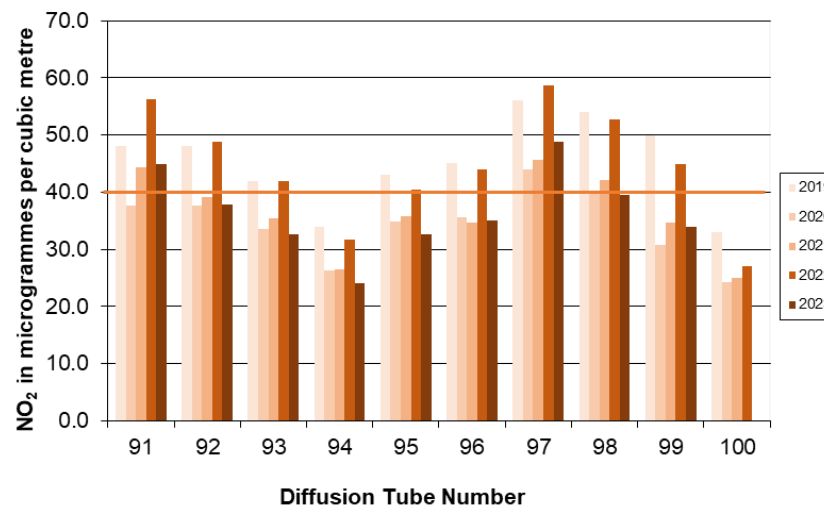
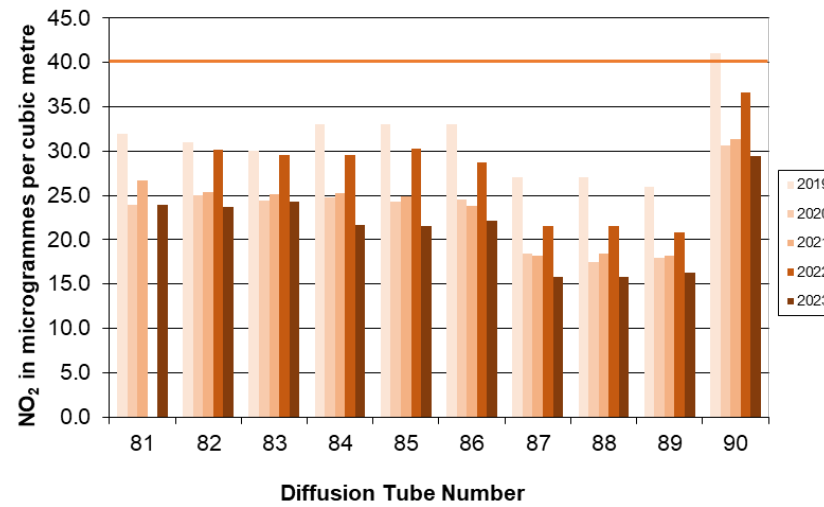


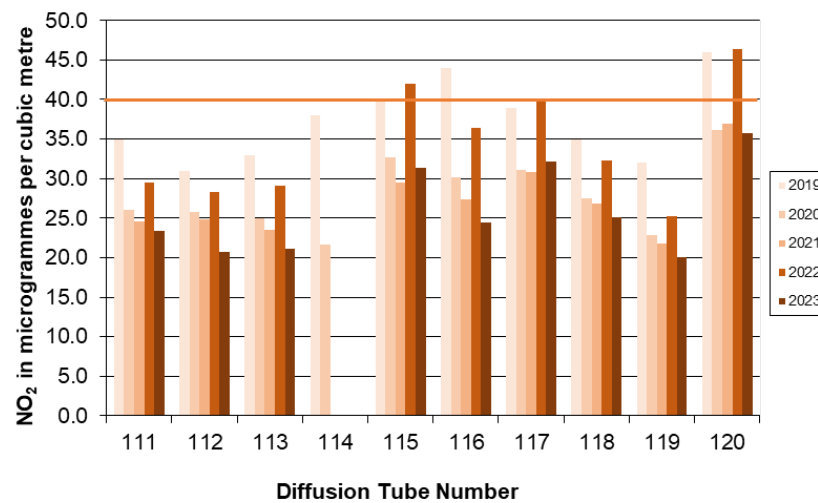
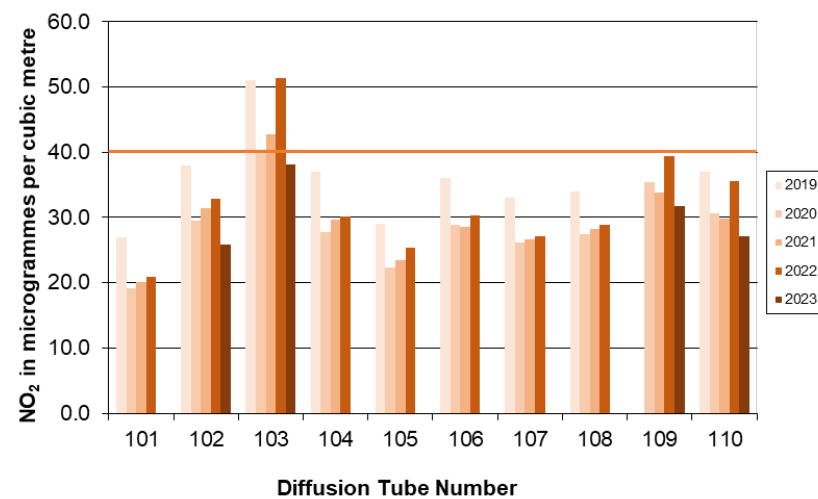


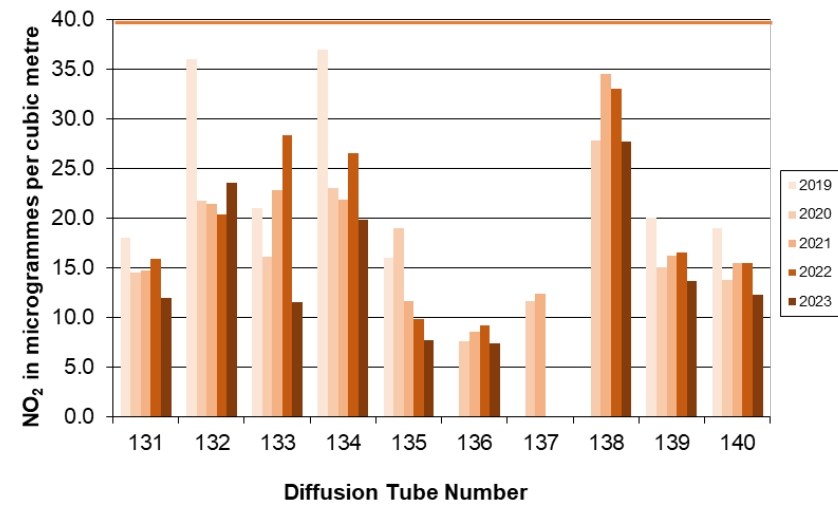
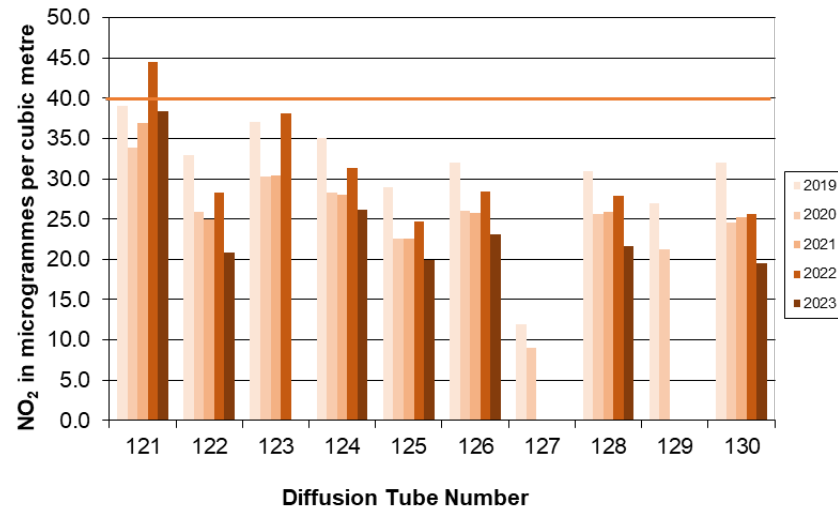


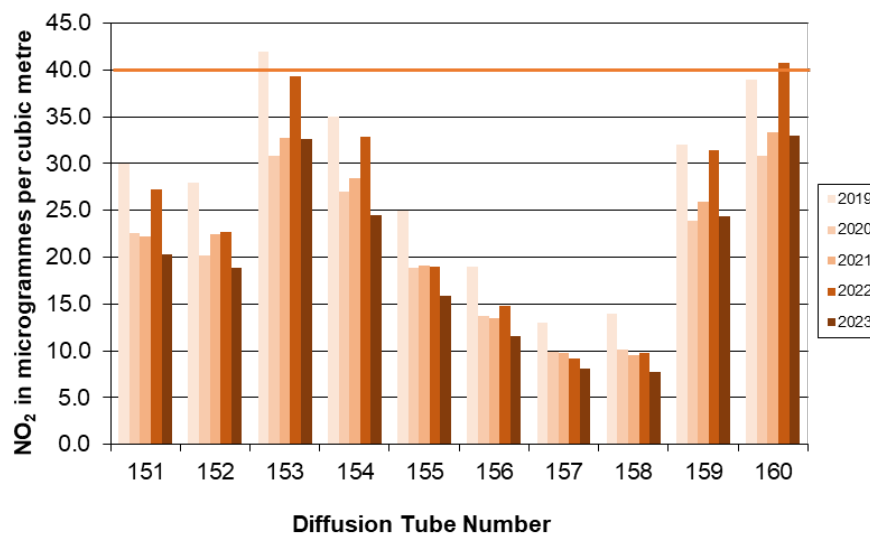
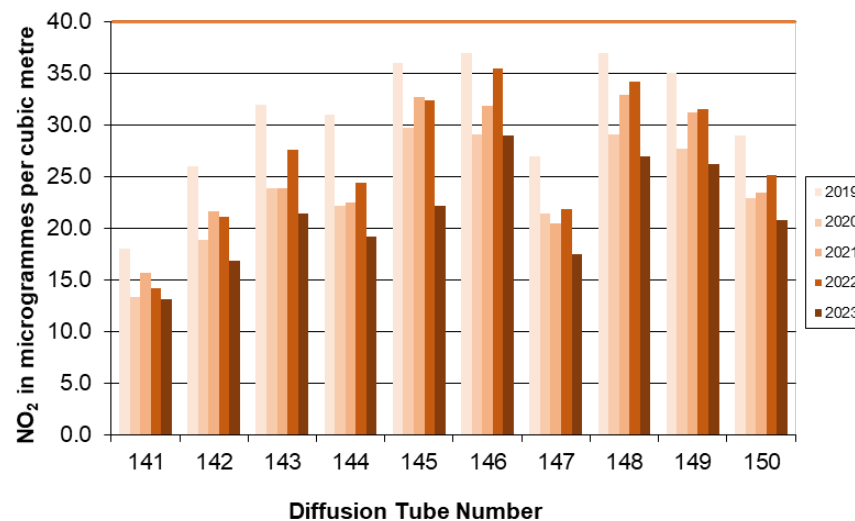


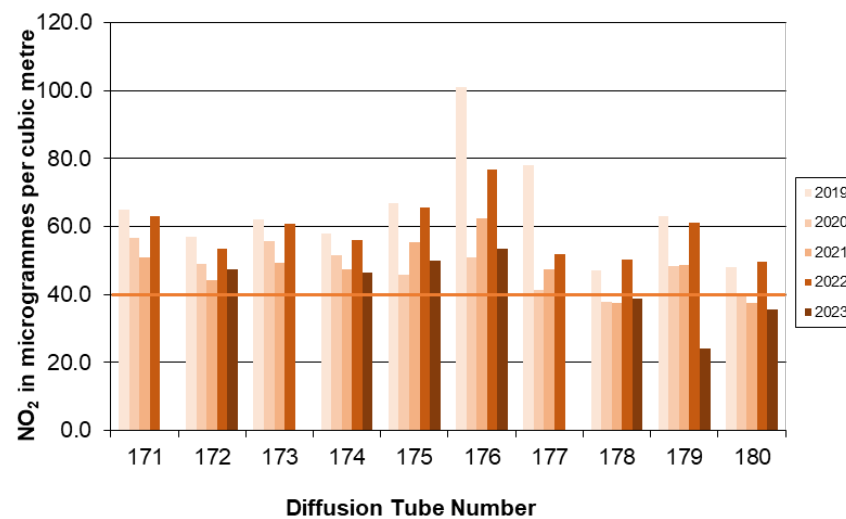
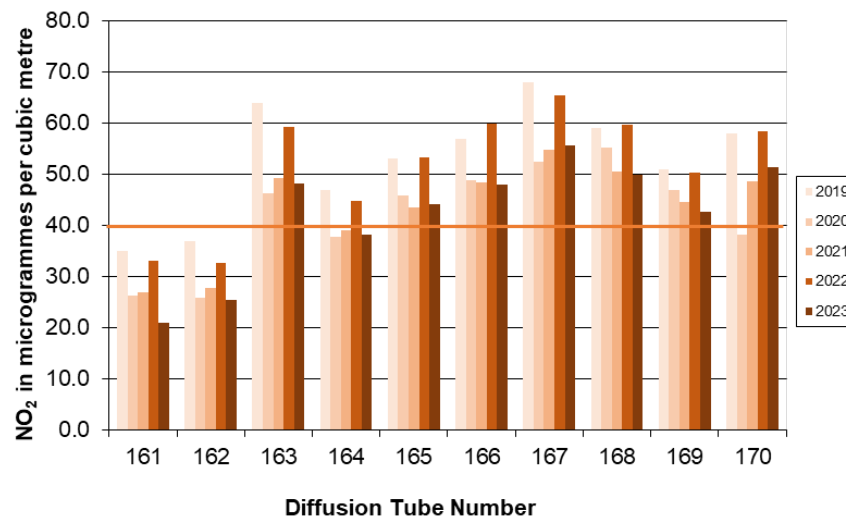


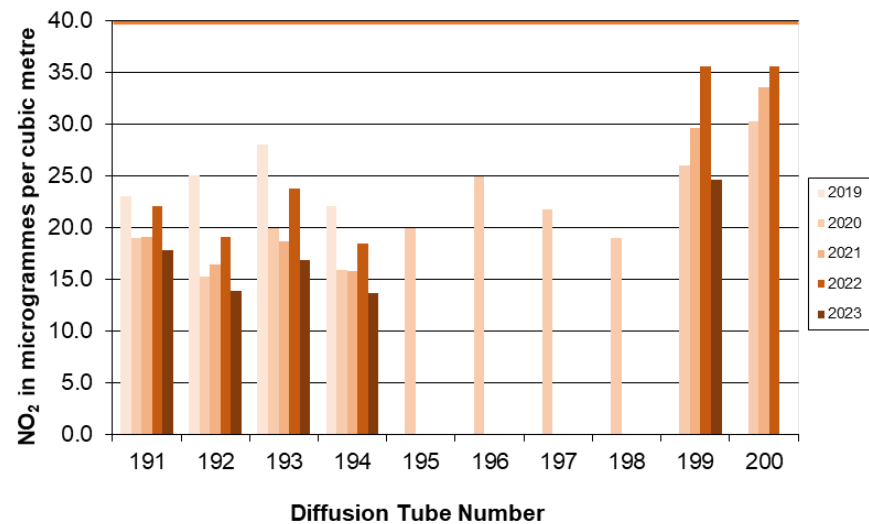
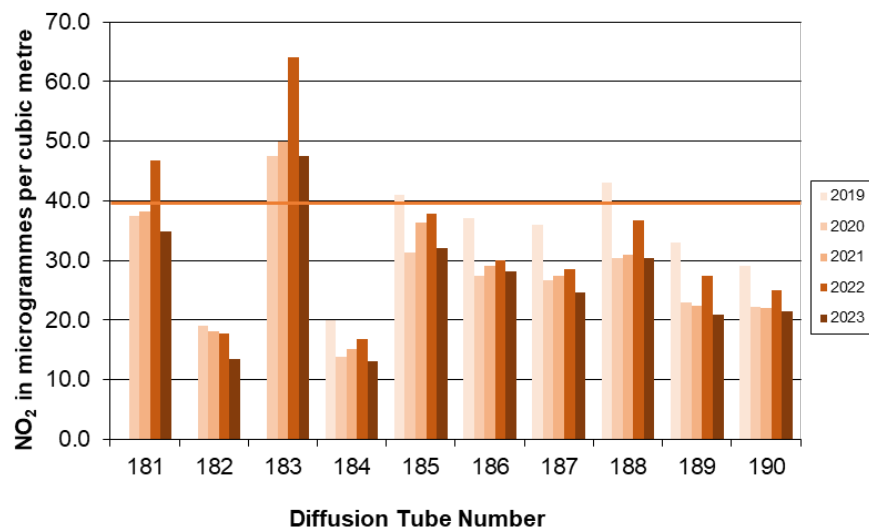


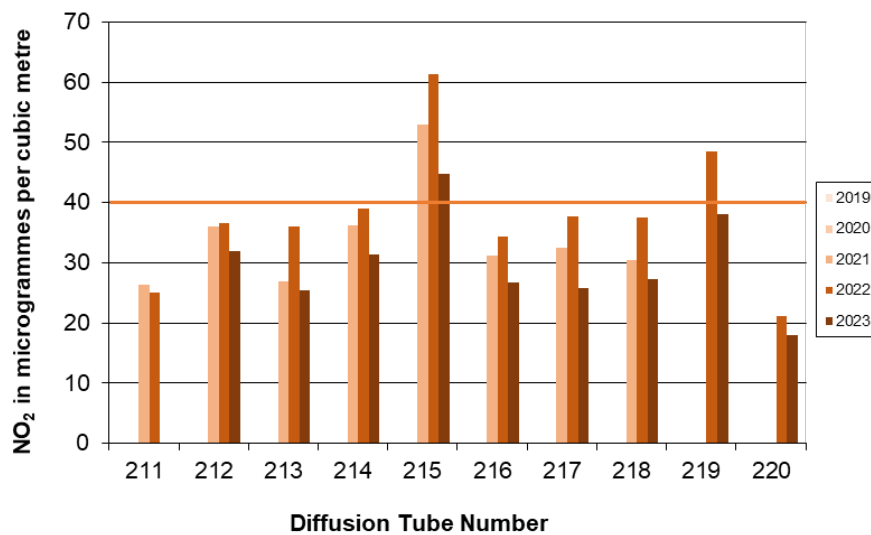
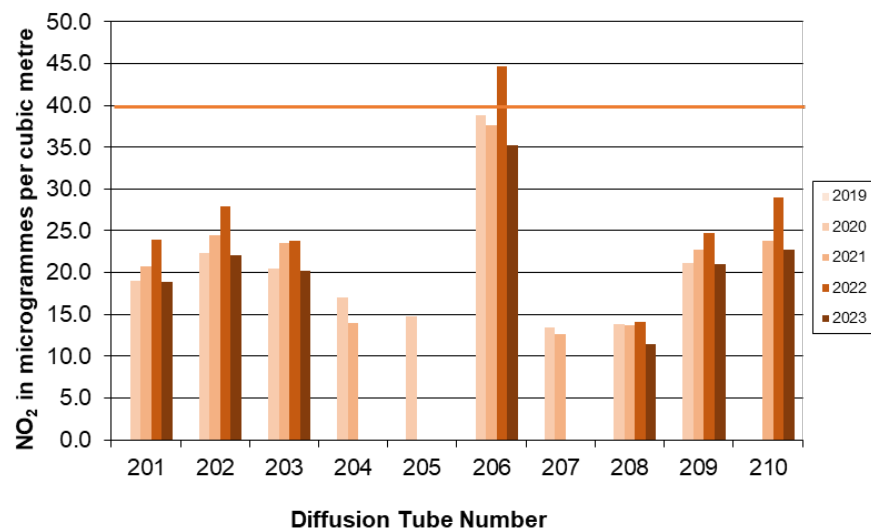


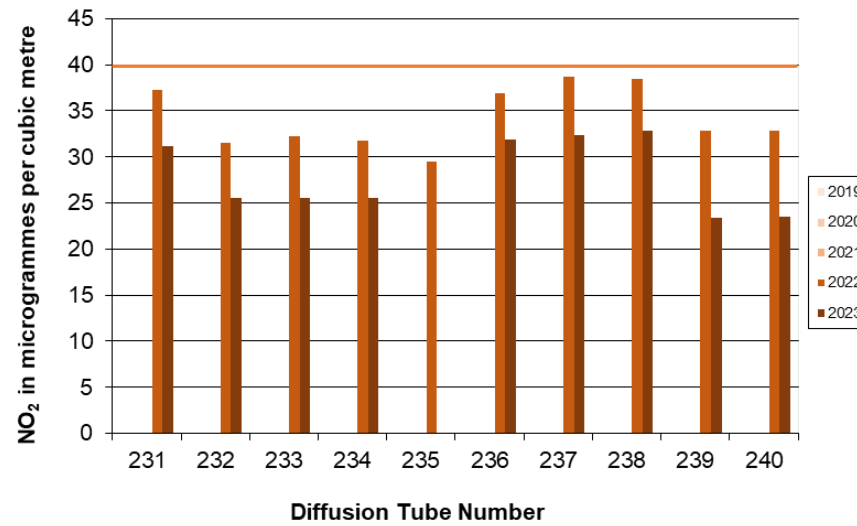
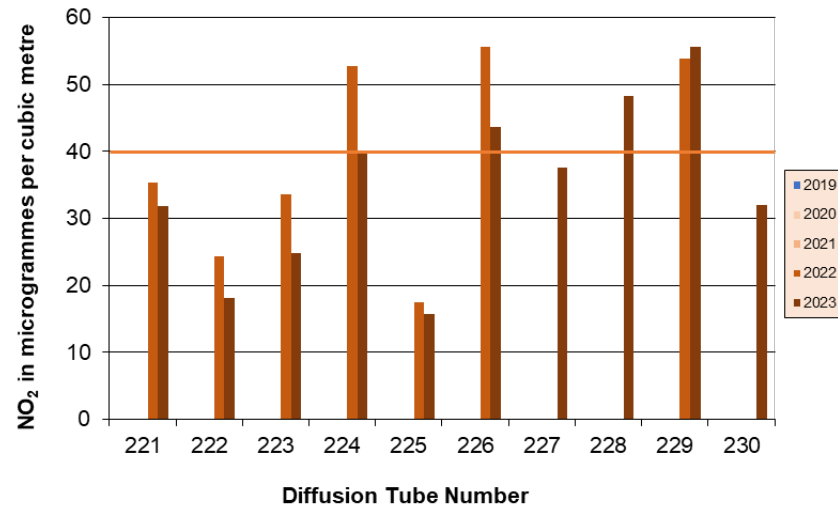












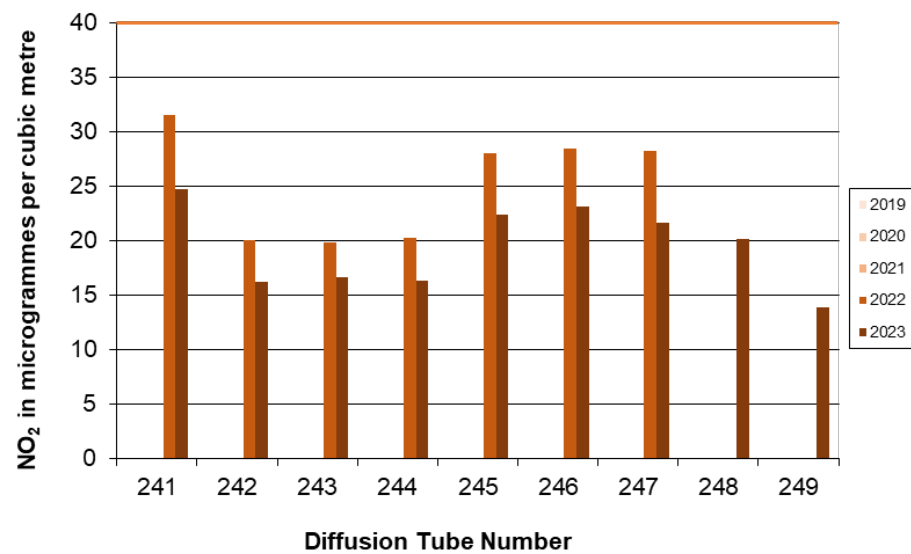


Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
GH1	436990	390218	Urban Background	79	79	0	0	0	0	0
GH2	440077	390794	Urban Industrial	69	69	0	0	0	0	0 (77)
GH3	435181	385366	Roadside	66	66	0	2	1	0	0 (84)
GH4	435959	388021	Urban Background	100	100	0	1	0	0	0
GH5	430977	380760	Urban Background	98	98	0	2	0	0	0
GH6	435704	387286	Urban Centre	87	87	-	3 (65)	0	0	0
UKA00575 (Dev Green)	434816	386990	Urban Background	100	100	0 (98)	0	0 (80)	0	0
UKA00181 (Tinsley)	440238	390588	Urban Industrial	99	99	0	0	0	0(102)	0
UKA00622 (Barnsley Road)	436275	389926	Roadside	97	97	0	0	0	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m³ have been recorded.

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.2 – Trends in Number of NO₂ 1-Hour Means > 200µg/m³

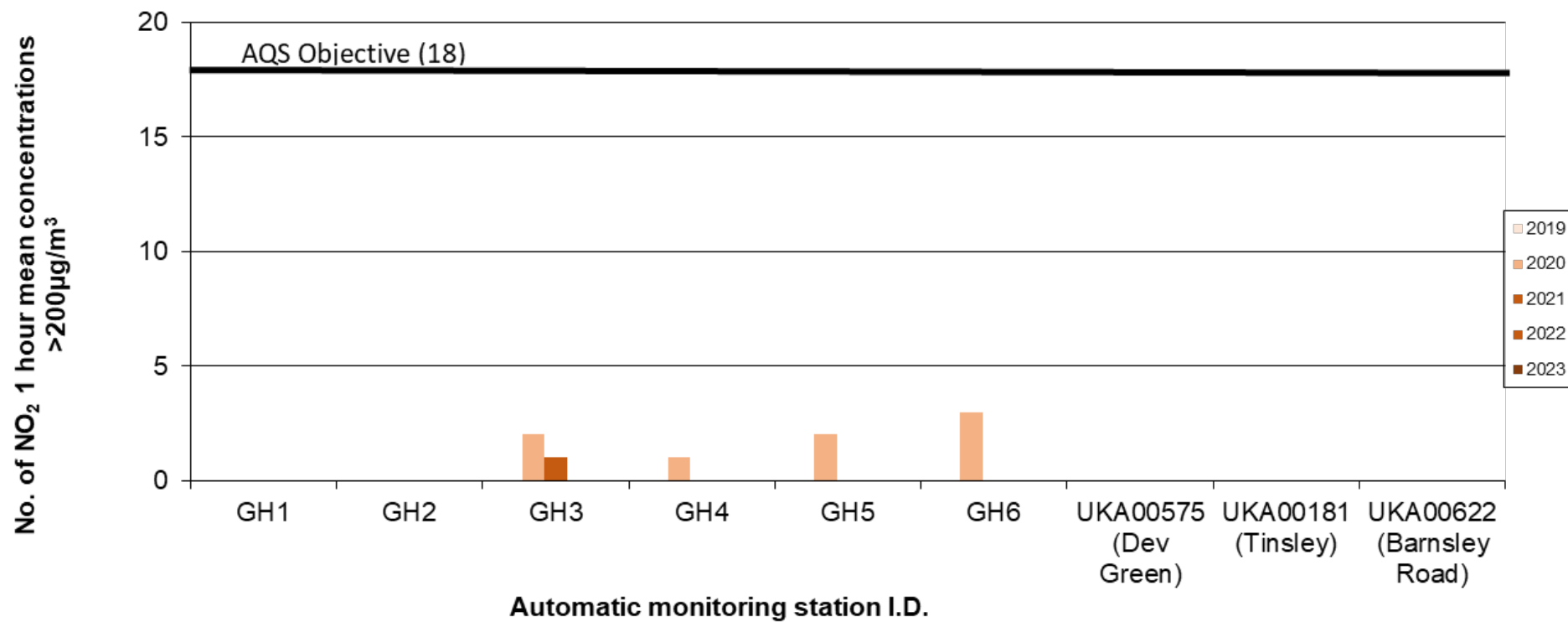


Table A.6 – Annual Mean PM₁₀ Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
GH1	436990	390218	Urban Background	100	100	15	15	13	13	14
GH2	440077	390794	Urban Industrial	100	69	20	16	15	16	14
GH3	435181	385366	Urban Background	100	100	17	12	11	10	10
GH4	435959	388021	Urban Background	95	95	15	15	14	15	13
GH5	430977	380760	Urban Background	100	52	11	11	10	12	11
GH6	435704	387286	Urban Centre	86	86	-	14	11	13	14
UKA0057 5 (Dev Green)	434816	386990	Urban Background	99	99	15	14	12	13	12
UKA0018 1 (Tinsley)	440238	390588	Urban Industrial	99	99	-	-	-	17	14

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.

Notes:

The annual mean concentrations are presented as µg/m³.

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.3 – Trends in Annual Mean PM₁₀ Concentrations

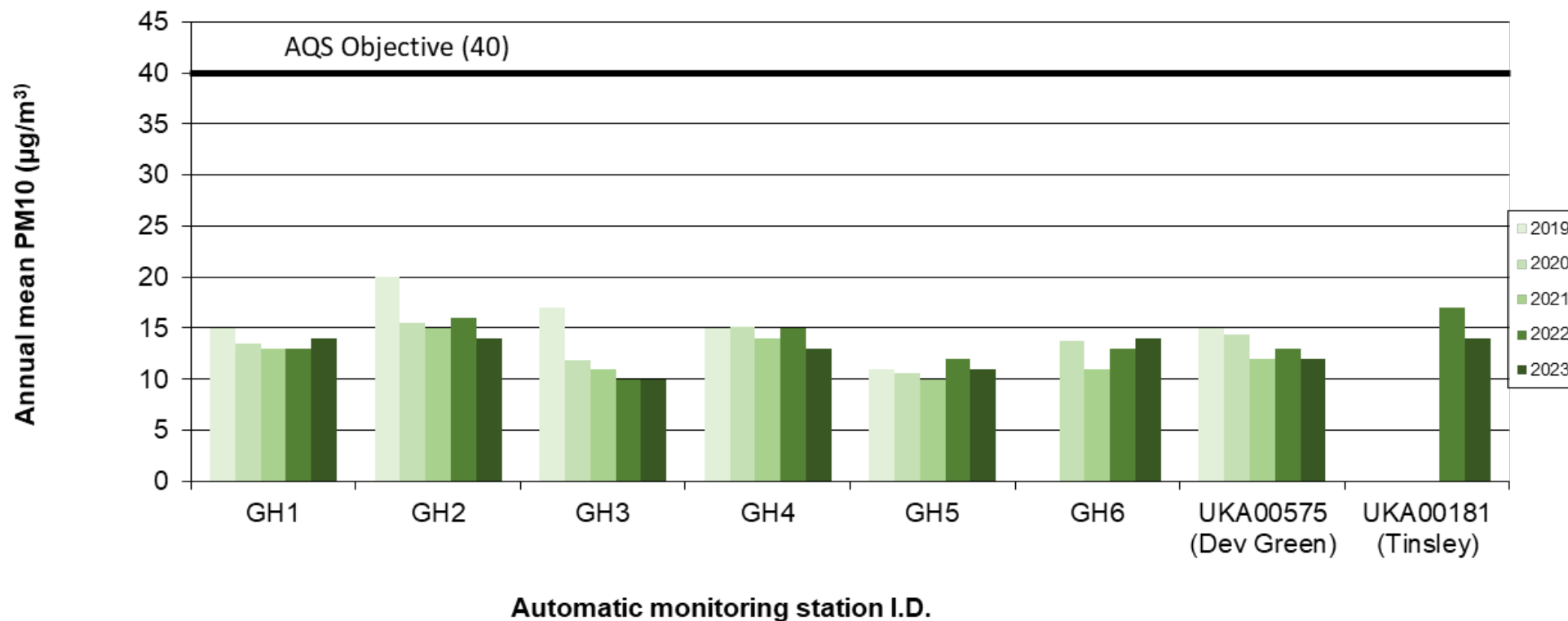


Table A.7 – 24-Hour Mean PM₁₀ Monitoring Results, Number of PM₁₀ 24-Hour Means > 50µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
GH1	436990	390218	Urban Background	100	100	6 (28)	0 (29)	1	0	1
GH2	440077	390794	Urban Industrial	100	69	0 (25)	2 (30)	1 (27)	0	0
GH3	435181	385366	Urban Background	100	100	14	2	1	0	0
GH4	435959	388021	Urban Background	95	95	2 (28)	6	2	0	1
GH5	430977	380760	Urban Background	100	52	3 (21)	2	1	0	0
GH6	435704	387286	Urban Centre	86	86	-	4 (21)	2	1	6
UKA0057 5 (Dev Green)	434816	386990	Urban Background	99	99	7	5	6	5	1
UKA0018 1 (Tinsley)	440238	390588	Urban Industrial	99	99	-	-	-	0	0

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m³ have been recorded.

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.4 – Trends in Number of 24-Hour Mean PM₁₀ Results > 50µg/m³

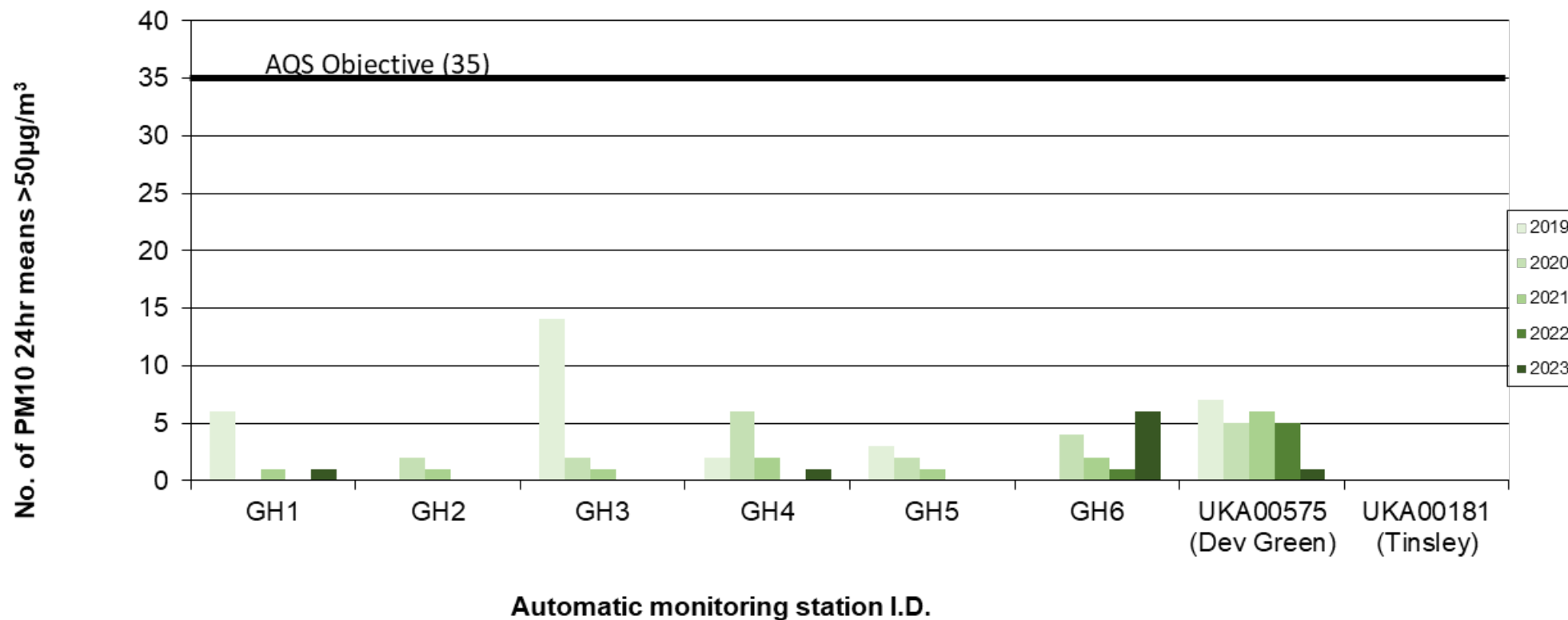


Table A.8 – Annual Mean PM_{2.5} Monitoring Results (µg/m³)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2023 (%) ⁽²⁾	2019	2020	2021	2022	2023
GH1	436990	390218	Urban Background	100	100	10	8	8	9	8
GH2	440077	390794	Urban Industrial	100	69	11	9	9	9	8
GH3	435181	385366	Urban Background	100	100	11	7	7	6	6
GH4	435959	388021	Urban Background	93	93	11	10	9	10	8
GH5	430977	380760	Urban Background	100	52	8	7	7	8	8
GH6	435704	387286	Urban Centre	86	86	-	8	6	8	8
UKA0057 5 (Dev Green)	434816	386990	Urban Background	99	99	10	8	7	8	7
UKA0018 1 (Tinsley)	440238	390588	Urban Industrial	99	99	-	-	-	8	7
UKA0062 2 (Barnsley Road)	436275	389926	Roadside	96	96	14.5	9	8	10	9

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.

Notes:

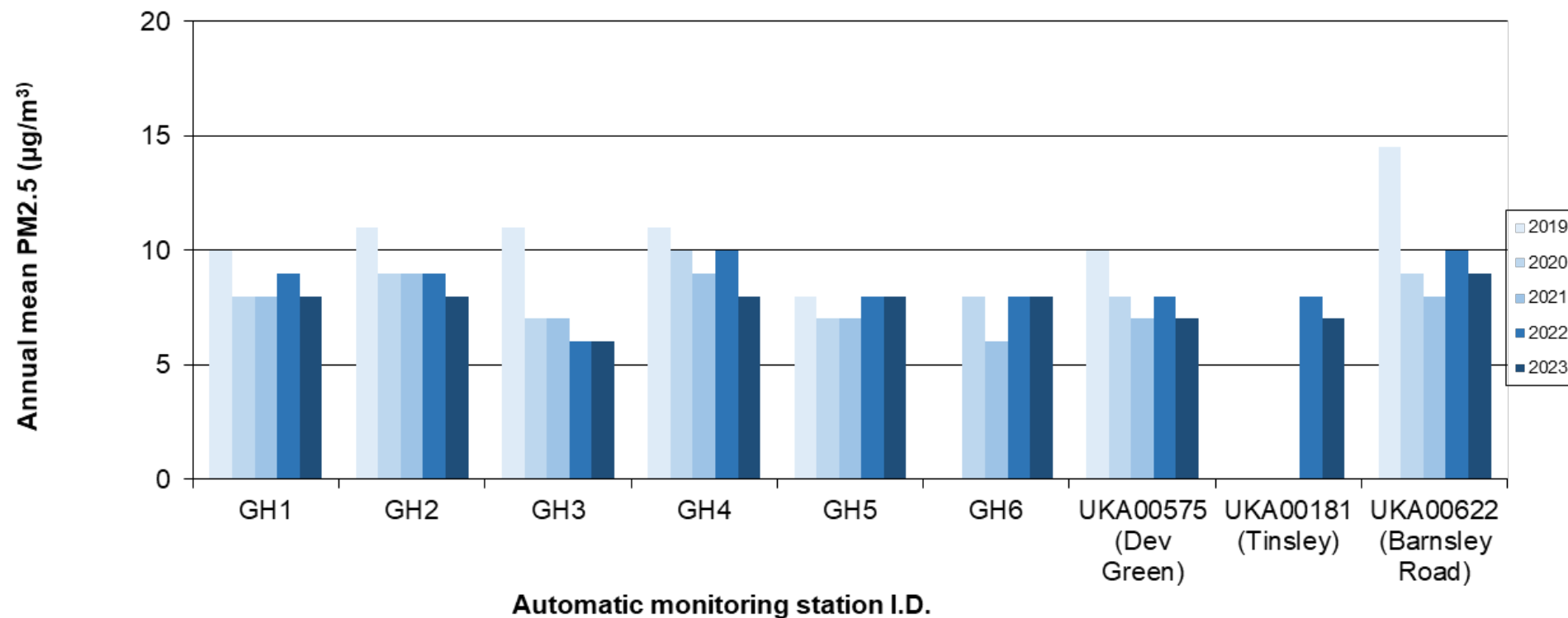
The annual mean concentrations are presented as µg/m³.

All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Figure A.5 – Trends in Annual Mean PM_{2.5} Concentrations



Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.79 or 0.86)	Annual Mean: Distance Corrected to Nearest Exposure	Comment / Bias Adjustment used
1	436063	397474	28.5	17.6	27.5	29.6	25.0	20.0	17.7	15.9	28.2	29.8	24.5		24.0	19.0	-	0.79
2	439994	390866	51.4	47.4	35.7	38.4	32.3	25.4	32.9	33.6	34.2	40.8	39.3	39.4	37.6	29.7	-	0.79
3	440045	390884	61.7	55.5	41.0	44.0	37.2	38.1	36.2	43.8	48.4	51.2	53.2	50.3	46.7	36.9	32.6	0.79
4	440177	390770	50.5	41.7	35.7	32.2	23.1	22.1	28.1	27.4	36.3	34.6	46.8	35.2	34.5	27.2	-	0.79
5	435749	386727	54.6	43.8	44.3	51.1	40.9	39.3	35.2	36.6	48.2	46.8		37.7	43.5	34.4	-	0.79
6	438880	389931	54.9	49.5	40.2	40.7	42.5	41.8	37.4	42.6	43.0	43.6	53.3	44.8	44.5	35.2	-	0.79
7	435729	386513	47.5	49.0	46.0	45.3	39.9	35.5	34.2	34.5	40.3	42.0	33.6	38.9	40.6	32.0	-	0.79
8	437164	387687	66.6		64.0	66.8	66.7	56.4	58.2						63.1	53.0	-	0.79
9	437703	390079	44.6	34.7	46.9	51.9	49.9	46.2		36.5	43.0	46.6	47.9	33.3	43.8	34.6	-	0.79
10	439355	388385	45.6	40.8	41.4	44.3	37.8	27.9	24.6	30.2	41.4	40.8	46.4	33.2	37.9	29.9	-	0.79
11	432643	389427	34.5	39.0	42.9	43.9	49.5	39.1	29.0	33.6	42.3	38.6	38.0	23.2	37.8	29.9	-	0.79
12	439312	388591	51.9	48.8	47.7	22.4	42.6	36.2	32.2	39.2	45.1	43.7	49.0	37.1	41.3	32.6	-	0.79
13	439051	386743	35.3			34.4	27.8	24.1	26.6	28.3	35.6	32.8	35.5	19.4	30.0	23.7	-	0.79
14	436141	387521	43.8	50.9		39.8	34.8	29.7	31.9	34.0	43.3	38.6	41.9	41.0	39.1	30.9	-	0.79
16	435639	388155	58.2	52.9	47.6	45.8	48.7	38.5	38.6	34.1	49.3	51.3	53.4	48.0	47.2	37.3	-	0.79
17	436109	387458	59.6	56.6	53.1	46.0	40.1	40.3	39.6	41.1	42.7	45.3	52.4		47.0	37.1	35.6	0.79
18	435744	387619	72.9	69.8	66.1	57.1	47.0	40.5	57.5	54.4	65.8	60.4	61.6	61.2	59.5	47.0	-	0.79
19	435714	387476	97.5	88.4	86.9	75.3	67.0	58.4	78.7	85.6	90.7	83.9	88.1		81.9	64.7	49.3	0.79

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.79 or 0.86)	Annual Mean: Distance Corrected to Nearest Exposure	Comment / Bias Adjustment used
21	435546	387052		52.7	47.1	46.1	40.3	38.2	39.7	41.6	46.8	50.0	42.2	40.6	44.1	34.9	-	0.79
22	433346	390814	47.8	39.7	34.6	31.9	29.7	18.6	32.2	26.1	36.2	42.2	41.9		34.6	27.4	-	0.79
23	435608	387100	46.3	52.7	47.1	52.0	45.7	18.3	28.6	34.2	39.3	48.3	51.4	32.8	41.4	32.7	-	0.79
24	434435	387394	63.7	59.9	49.4	40.4	36.9	29.2	39.3	37.9	49.6	47.9	37.5	50.2	45.2	35.7	-	0.79
25	434646	387836	36.7	35.5	33.4	30.5	28.0	25.2	22.2	25.8	34.5	34.6	33.8	29.7	30.8	24.4	-	0.79
26	434403	386966	38.7	33.9	33.9	36.6	36.2	29.0	24.4	29.6	35.1	31.7	36.3	21.6	32.3	25.5	-	0.79
27	435554	386638	51.6	50.3	44.3	45.4	43.5	33.3	29.2	38.2	44.8	41.8	47.3		42.7	33.7	-	0.79
28	435313	386367	40.4	41.5	37.1	42.7	37.5	35.7	23.4	33.2	37.2	37.2	46.2	23.0	36.3	28.6	-	0.79
29	434814	383335	32.8	45.8	41.0	40.1	37.6	32.9	22.5	28.7	35.3	37.5	41.7	21.9	34.8	27.5	-	0.79
30	435499	385690	47.9	46.7	42.2	42.9	35.6	34.5	30.2	34.7	42.9	45.2	47.8	31.7	40.2	31.8	-	0.79
31	434324	384311	43.9	49.5	41.4	37.8	37.1	36.7	37.9	38.1	41.1	42.5	38.6	36.6	40.1	31.7	-	0.79
32	434299	386275	42.3	39.1	32.2	31.1	28.4	25.1	22.8	26.5	30.2	30.2	18.2	30.7	29.7	23.5	-	0.79
33	435602	387292	91.1	86.2	86.7	79.7	64.7	36.6	73.8	71.5	82.2	80.6	87.3	78.5	76.6	60.5	-	0.79
34	435700	387256	56.8	60.2	44.9	53.0	44.5	37.9	41.4	44.5	56.3	48.9	58.4	35.9	48.6	38.4	-	0.79
35	439116	391193	50.1	42.3	44.6	43.0	39.6	38.2	34.6	38.5	50.4	45.8	46.2	40.0	42.8	33.8	-	0.79
36	435950	387996	36.7	25.6	29.3	25.3	21.6	19.2	26.7	20.6	28.3	29.4	31.1	32.3	27.2	21.5	-	0.79
37	435951	387997									26.0	30.6	32.1	23.4	28.0	19.8	-	0.79
38	435463	386972	60.1	45.3	56.1	49.0	49.8	43.9	45.7	43.7	54.8	54.1	51.8	41.6	49.7	39.2	-	0.79
39	437104	388329	52.8	48.5		38.3	33.0	35.6	28.6	38.6		48.6	26.8		39.0	30.8	-	0.79
40	440116	390800	37.1	44.7	44.4	38.0	34.3	26.5	27.6	32.4	48.7	39.9	45.7	39.5	38.2	30.2	-	0.79
42	437766	387454	73.2	51.6	61.5	64.1	62.5	48.9	55.0	59.9	66.2	66.7		32.1	58.3	46.1	-	0.79

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.79 or 0.86)	Annual Mean: Distance Corrected to Nearest Exposure	Comment / Bias Adjustment used
43	436646	387756	62.6	26.4	51.9	53.2	47.8	42.7	42.4	41.2	59.1	59.3	53.6		49.1	38.8	-	0.79
45	435789	388072	39.7	33.5	37.8	40.7	29.9	29.6	25.9	29.1	36.6	40.5	38.5	33.1	34.6	27.3	-	0.79
49	435435	388020														-	-	
53	431193	386795	15.0	17.5	17.0	12.0	13.0	15.4	13.0	14.3	16.3	18.3	18.7	12.5	15.2	13.1	-	0.86
55	433013	386750	31.0	35.2	34.0	36.0	30.0	36.3	22.4	30.5	30.5	37.8	33.3	25.2	31.9	27.4	-	0.86
56	433327	386862	42.0	50.6		38.0	34.0	36.2	36.3		45.3	41.6	45.6	38.7	40.8	35.1	-	0.86
57	433514	387033	31.0	39.3	38.0	36.0	31.0	34.7	29.8	29.9	36.8	38.9	34.1	30.0	34.1	29.3	-	0.86
59	434048	387229	49.0	49.6	46.0	43.0	39.0	39.3	40.5	39.7	44.5	49.9	45.3	39.8	43.8	37.7	30.6	0.86
60	434352	387348	28.0	25.3	28.0	31.0	30.0	29.3	23.9	23.8	27.8	35.6	33.5	21.9	28.2	24.2	-	0.86
61	436276	389927	41.9	40.1	39.2	44.8	49.0	34.0		36.0	42.0	42.3	46.7	34.5	41.0	32.4	-	0.79
63	436277	389928	48.6	45.1	43.4	44.7	50.6	37.5	27.9	35.7	41.1	43.9		35.3	41.3	32.6	-	0.79
64	440233	390587	38.1	25.6	28.6	23.0	19.4	17.7	19.4	20.9	25.8	26.1	28.9	21.4	24.6	19.4	-	0.79
65	440234	390588	37.7	17.6	26.1	25.9	20.5	16.7	20.6	22.4	25.9	27.2	32.0	24.5	24.8	19.6	-	0.79
66	440235	390589	38.4	33.4	26.4	24.2	18.2	18.5	21.0	20.7	25.8	30.1	31.8	25.5	26.2	20.7	-	0.79
67	433429	386728	31.0	34.5	31.0	35.0	34.0		25.1	30.9	30.5	39.2	35.7	26.0	32.1	27.6	-	0.86
68	433936	386893	29.0	29.8	29.0	28.0	24.0	24.1	20.8	21.4		30.4	31.6		26.8	23.1	-	0.86
69	434574	387155	33.0	37.0	30.0	34.0	35.0	34.5	22.3	27.9	28.8	38.4	35.3	24.6	31.7	27.3	-	0.86
70	435255	387349	30.0		26.0	26.0	23.0	20.2	18.9	21.5	22.9	28.9	27.7	23.3	24.4	21.0	-	0.86
71	435807	386350	36.0	42.3		47.7	42.2	39.0	28.1	34.0	38.9	44.5	45.8	30.0	39.0	33.5	-	0.86
72	435697	385892	34.0	36.3	40.6	40.9	34.2	35.9	26.6	32.4	31.8	33.9	43.8	28.3	34.9	30.0	-	0.86
73	435490	385660	52.0	57.2	50.9	48.8	45.0	42.1	40.5	45.3	45.5	51.1		47.1	47.8	41.1	33.9	0.86

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.79 or 0.86)	Annual Mean: Distance Corrected to Nearest Exposure	Comment / Bias Adjustment used
74	435182	385241	43.0	45.4	47.6	42.0	36.2	38.7	34.5	37.9	42.1	41.4	44.4		41.2	35.4	-	0.86
75	435161	384986	50.0	52.5	49.5	48.2	42.5		43.0	42.9	47.1	49.2	52.9	45.4	47.6	40.9	-	0.86
76	434965	384613	31.0	39.2	36.9	45.4	40.0	38.0	29.2	33.1	38.7	41.5	41.6	30.7	37.1	31.9	-	0.86
77	434679	383718	30.0	31.6		26.8	21.1	23.0	22.9	21.0	28.6	29.3	32.9	26.0	26.7	22.9	-	0.86
78	434857	382968	40.0	48.1	44.6	41.5	35.1	32.3	36.1	36.4	42.9	37.4	45.4	38.3	39.8	34.3	-	0.86
79	434906	381857	28.0	29.9	29.3	25.0	22.8	20.0	23.5	24.3	25.7	30.0	34.8	25.6	26.6	22.8	-	0.86
80	435135	381355	24.0	23.6	23.4	19.5	16.3	15.2	17.3	15.7	21.4	23.0	26.5	19.5	20.4	17.6	-	0.86
81	435238	385397	28.1	35.0	33.6		26.7	26.7	22.8	26.5	31.8	33.4	32.0	36.1	30.2	23.9	-	0.79
82	435239	385398	32.0	33.6	34.6	32.1	26.0	22.3	24.2	24.6	29.7	34.2	34.1	31.6	29.9	23.6	-	0.79
83	435240	385399	33.2	35.1	33.1	31.8	26.2	26.2	24.5	26.4	29.8	31.8	35.9	35.0	30.8	24.3	-	0.79
84	440084	390760	31.7	34.5	30.1	28.0	20.6	20.3	25.3	24.3	29.6	30.7	30.9	22.9	27.4	21.7	-	0.79
85	440085	390761	38.7	20.1	30.3	29.2	19.0	19.9	26.3	25.9	30.1	31.3		28.3	27.2	21.5	-	0.79
86	440086	390762	36.0	33.7	29.5	28.5	21.2	18.5	26.1	25.1	28.6	25.9	34.2	29.0	28.0	22.1	-	0.79
87	434803	386947	25.7	16.9	22.0	22.4	17.8	15.1	13.6	15.0	21.4	22.8	26.4	20.2	19.9	15.8	-	0.79
88	434804	386948	20.9	25.1	20.3	22.2	18.0	15.1	13.0	13.7	21.4	22.5	27.1	21.2	20.0	15.8	-	0.79
89	434805	386949	23.2	24.7	22.9	22.4	17.8	14.0	13.2	15.1	20.9	25.9	26.2	20.4	20.6	16.2	-	0.79
90	438582	389616	27.3		41.8	38.8	35.8	29.4	33.5	35.9	43.0	48.5	39.1	36.0	37.2	29.4	-	0.79
91	437928	388800	66.1	43.9		68.2	60.5	60.7	45.1	50.6	62.2	65.2	48.0	55.1	56.9	44.9	40.9	0.79
92	437690	388529	68.5	32.6		53.7	41.7	44.5	41.9	44.2	51.0	43.7	56.2		47.8	37.8	-	0.79
93	436350	388234	53.8	48.9	42.0	45.1	34.6	29.6	35.5	34.3	45.3	44.7		39.3	41.2	32.5	-	0.79
94	437019	388826	32.2		34.2	33.9	26.7	27.1	25.4	23.0	35.6	36.8			30.5	24.1	-	0.79

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95	437461	389311	53.2	42.5	48.2	40.9	38.9	38.7	32.2	35.6	47.0	34.1	42.4		41.2	32.6	-	0.79
96	438393	390232	48.2	51.8	46.3	41.4	38.8	34.5	38.7	35.9	45.2	45.8	56.4	48.2	44.3	35.0	-	0.79
97	438610	390614	71.9	67.0	67.0	58.9	54.1	51.0	53.9	52.6	71.7	62.8	69.9	59.8	61.7	48.8	39.2	0.79
98	439167	391698	43.5	52.8	60.2	58.8	50.2	47.3	39.4	39.9	64.7	50.9	48.9	43.8	50.0	39.5	-	0.79
99	439717	390826			43.3	40.8	35.6	34.2	38.4	37.5	43.6	40.2			39.2	34.0	-	0.79
102	433250	391115	39.0	33.7	34.6	39.1	32.0	31.4	27.5	23.0	39.4	37.4	23.5		32.8	25.9	-	0.79
103	433455	390473	59.0	53.7	53.6	54.5	46.0	39.0	45.9	39.0	56.6	54.4	33.8	44.3	48.3	38.2	28.9	0.79
109	440213	387006	51.7	51.4	41.7	39.8	45.1	27.7	34.3	35.0	37.0	41.9	38.9	36.9	40.1	31.7	-	0.79
110	439943	390948	45.0	43.9		32.6	28.5	19.4	31.3	30.1	37.4	33.6	43.0	32.1	34.3	27.1	-	0.79
111	440036	390822	37.1	37.6	28.1	29.6	24.4	20.0	24.9	26.2	29.7	30.8	37.2	28.9	29.5	23.3	-	0.79
112	439813	390743	25.9	16.2	32.8	35.7	29.8	19.5	21.2	23.8	24.8	24.6	33.0	27.2	26.2	20.7	-	0.79
113	440014	391178	30.2	23.7	25.8	29.7	32.2	22.1	22.4	22.8	30.9	29.9		24.8	26.8	21.2	-	0.79
115	440046	390737	46.4	44.9	38.7	37.8	34.1	30.0	46.3	42.3	44.1	38.2	40.1	32.8	39.6	31.3	-	0.79
116	439994	390810	31.2	26.0	32.7	32.1	30.5	21.3	30.2	29.3	31.5	35.9	32.5	37.3	30.9	24.4	-	0.79
117	435909	388070	46.3	47.5	43.6	38.3	36.2		35.3	34.8	37.4	40.8	47.0		40.7	32.2	-	0.79
118	435736	387820	33.8	36.3	34.9	32.3	27.5	25.4	25.3	26.3	34.0	36.1	37.6		31.8	25.1	-	0.79
119	435239	387899			28.5	27.5	23.2	23.0	19.9	19.9	28.5	27.7	30.3		25.4	20.1	-	0.79
120	434806	388216	59.0	54.9	44.0	47.1	39.9	32.5	40.3	38.4	50.0	42.0	52.6	41.9	45.2	35.7	-	0.79
121	435843	388814		57.5	57.2	53.4	47.2	43.3	40.2	46.0	52.7	45.7	43.1		48.6	38.4	34.9	0.79
122	439377	387792	30.2	32.3	31.6	31.0	26.1	22.8	23.1	26.0	28.0	15.6	23.0	27.1	26.4	20.9	-	0.79
124	438997	387923	41.4	40.7	32.2	34.4	36.3	25.3	31.2	30.3	34.3	29.0	35.7	26.1	33.1	26.1	-	0.79

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125	438121	388922	40.4	21.4	27.4	20.9	18.5	15.9	16.1	19.6	24.6	40.5	31.9	24.5	25.1	19.9	-	0.79
126	440559	387357	39.8	35.5	28.4			20.4	27.0	28.3	27.1	31.3	33.0	21.1	29.2	23.1	-	0.79
128	427261	398422	25.8			35.5	30.0	28.1	25.9	21.4	30.6	24.6	27.9	23.4	27.3	21.6	-	0.79
130	428818	397977	19.3	32.0	29.6	28.1	23.4	20.9	19.1		26.4	27.4	21.4	24.2	24.7	19.5	-	0.79
131	435338	382923	16.6	19.3	12.4	18.9	15.6	15.0	8.3	11.7	15.5	17.0	19.3	12.8	15.2	12.0	-	0.79
132	434868	385276	40.1	39.1	22.0	22.0	22.0	22.0	29.4	29.4	36.4	36.4			29.9	23.6	-	0.79
133	434862	385269	11.9	18.6	14.4	14.4	14.4	14.4	13.0	13.0	16.0	16.0			14.6	11.5	-	0.79
134	435283	387222	32.0	28.1	28.4	32.8	22.7	20.2	16.0	18.1	22.7	26.1	33.1	21.6	25.2	19.9	-	0.79
135	432870	383387	14.2	10.8	8.7	8.7	8.7	8.7	7.1	7.1	12.0	12.0			9.8	7.7	-	0.79
136	430881	379724	9.9		9.0	10.4	8.3	8.5							9.2	7.4	-	0.79
138	434885	385286	37.1	42.8					29.6	29.6	35.4	35.4			35.0	27.7	-	0.79
139	434372	385218	24.3	14.6	19.2	16.8	12.6	12.5	11.7	12.7	14.9	19.4	32.7	15.6	17.3	13.6	-	0.79
140	434200	384869	18.9	11.2	15.8	18.1	17.4	14.3	10.3	12.0	15.2	18.5	22.5	12.9	15.6	12.3	-	0.79
141	433650	385574	22.7	12.4	15.9	19.2	17.1	12.0	12.5	13.8	16.9	20.3	20.1		16.6	13.1	-	0.79
142	433378	385701	28.1	11.2	20.3	26.0	25.1	17.9	14.7	18.6	21.2	26.4	28.3	18.3	21.3	16.9	-	0.79
143	434069	385673		30.1	32.3	29.6	33.3	35.7	22.3	19.6	30.7	25.6	16.4	23.2	27.2	21.5	-	0.79
144	434128	385719		19.7	31.1	23.1	21.1	21.0	20.2	22.5	29.5	25.6	31.8	21.9	24.3	19.2	-	0.79
145	433640	383391	28.6	28.0	32.0	31.5	27.6	26.4	20.9	25.8	29.9	33.8	25.4	26.8	28.1	22.2	-	0.79
146	433601	383337	40.0	28.4	41.6	39.7	38.4	38.9	31.1	38.1	39.2	34.2		34.3	36.7	29.0	-	0.79
147	434188	383548	23.7	22.7	22.6	23.3	23.2	16.9		19.0		25.1	22.9	21.9	22.1	17.5	-	0.79
148	434123	383874	34.4	25.3	38.5	38.4	39.7	35.0	28.6		36.5	35.2	30.3	33.4	34.1	27.0	-	0.79

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149	434143	383915	33.7	24.9	36.7	38.1	32.7	30.7	30.0	33.8	36.4	36.3	38.4	27.2	33.2	26.3	-	0.79
150	432964	385619	25.5	31.5	29.7	34.9	24.6	29.9	20.2	20.7	25.9	24.8		21.4	26.3	20.8	-	0.79
151	432828	385402	30.3	21.7	30.2	29.7	25.7	21.6	20.1	22.8	27.4	28.7		23.8	25.6	20.3	-	0.79
152	432822	384990	29.8	23.3	24.4	27.6	24.0	23.3	18.4	20.8	25.1	27.2		19.1	23.9	18.9	-	0.79
153	432651	384491	32.7	48.8	44.1	52.8	46.6	49.7	30.3	36.1	48.7	40.7		23.7	41.3	32.6	-	0.79
154	432428	384276	32.1	30.3	32.0	40.0	35.5	34.3	26.7	26.2	33.3	29.6		20.6	31.0	24.5	-	0.79
155	432241	384593	18.7	20.9	18.9	24.8	17.7	20.5	15.0	15.3	24.5	25.5		18.5	20.0	15.8	-	0.79
156	431908	384518	14.6	17.0	15.6	20.0	15.1	14.5	10.2	9.7	15.0	16.0		13.3	14.6	11.6	-	0.79
157	431538	383992	7.9	12.6	10.8	14.5	9.6	9.6	6.5	6.9	9.9	15.5		9.3	10.3	8.1	-	0.79
158	432055	384648	9.8	10.4	9.5	12.0	8.3	8.6	6.9	7.0	10.5	12.9		11.6	9.8	7.7	-	0.79
159	434821	385142	33.7	33.1	35.1	35.6	30.1	27.6	21.1	32.3	29.7		33.0	28.8	30.9	24.4	-	0.79
160	434522	384654	49.6	36.9	47.9	47.9	44.9	43.7	29.7	40.9	40.7		43.2	33.7	41.7	33.0	-	0.79
161	434797	383255	41.8	18.2		32.6	24.9	28.7	20.7	28.0	27.2			16.6	26.5	21.0	-	0.79
162	434814	383252	42.9	27.5	39.0	35.9	24.4	29.9	28.3	30.5	35.0		35.2	25.8	32.2	25.5	-	0.79
163	435810	386918	61.1	62.2	66.0	79.3	78.5	67.2	52.8	57.6	54.7	52.8	53.5	45.5	60.9	48.1	-	0.79
164	435841	386872	40.7	57.8	47.4	61.7	53.4		34.7	45.8	46.4	51.0	50.0	42.0	48.3	38.1	-	0.79
165	435849	387031	57.8	54.5	60.8	66.0	56.3	53.2	47.5	53.3	58.4	54.1	56.3	52.3	55.9	44.1	-	0.79
166	435867	386955	60.5	53.4	65.8	76.3	73.6	62.0	51.5	61.6	58.3	53.3	56.9	56.3	60.8	48.0	-	0.79
167	435873	387004		81.4	83.6	78.3	76.4	65.6	64.9	67.1	67.0	60.3	64.5	65.1	70.4	55.6	-	0.79
168	435871	386905	31.6	80.8	71.1	78.7	77.7	66.3	59.5	64.6	53.6	55.6	58.9	60.5	63.2	50.0	-	0.79
169	435880	386888	52.1	50.0	59.2	70.3	77.2	53.0	49.7	53.2	54.3	42.9	38.4	46.3	53.9	42.6	-	0.79

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170	435883	386956	60.1	65.1	70.4	76.4	78.6	69.8	61.4	65.7	62.6	56.2	51.8	61.8	65.0	51.3	-	0.79
172	435916	386973	55.9	64.8	62.9	66.1	72.6	55.6	58.4	53.8	58.6	53.9	57.1	60.1	60.0	47.4	-	0.79
174	435919	386934	60.5	70.1	68.7	59.8	59.8	56.4	60.0	56.3	55.7	48.1	48.8	60.7	58.7	46.4	-	0.79
175	435812	387005	62.0	73.6	64.1	74.0	79.5	52.6	47.6	54.2	61.3	70.8	69.4	48.6	63.1	49.9	-	0.79
176	435818	386889	65.0	88.9	86.5	86.8	78.2	73.8	55.3	59.8	53.7	60.7	57.1	48.3	67.8	53.6	-	0.79
178	435797	389600	50.3	48.3	48.8	52.3	58.4	49.2	40.5	43.3	51.6	53.9	48.0	45.0	49.1	38.8	33.2	0.79
179	436069	388328		48.0	33.6	32.7	21.6	24.9	21.7	18.7	35.8	34.6	39.4	25.2	30.6	24.1	-	0.79
180	436595	390242	21.3	39.6	54.6	50.6	46.6	48.7	44.0	43.5	52.3	53.0	38.6	45.9	44.9	35.5	-	0.79
181	435537	389218	38.8	32.1	49.6	51.6	44.6	42.7	39.5	35.7	57.7	46.8	47.8	41.6	44.0	34.8	-	0.79
182	435450	388650	19.4	19.3			15.1	13.5	10.6	12.4	19.1	22.9	21.0	16.2	17.0	13.4	-	0.79
183	436499	390182	43.9	53.0	64.7	72.0	68.0	66.1	51.9	57.0	71.4	72.1	50.3	52.2	60.2	47.6	-	0.79
184	434741	384237	24.4	9.0	16.1	19.6	14.7	12.8	13.8	17.7	16.4		20.2	18.1	16.6	13.1	-	0.79
185	434989	384691	43.3	49.2	37.6	52.2	59.4	30.3	25.7		35.5		43.4	30.3	40.7	32.1	-	0.79
186	435489	385101	49.5	34.4	34.1	40.7	36.7		22.4	37.5	33.4		33.9	33.6	35.6	28.1	-	0.79
187	433350	389387	23.9	28.1	37.8	39.0	26.3	32.2	27.8			33.6	33.8	28.5	31.1	24.6	-	0.79
188	433147	388796		39.8	38.8	38.8	29.9	36.8	36.9	36.9	48.9	40.5		37.2	38.5	30.4	-	0.79
189	432768	389097	34.0	33.5	23.5	27.3	21.0	24.5	28.2		27.3	26.8	23.4	21.7	26.5	20.9	-	0.79
190	432271	388570	30.0	14.3	26.0			45.3	26.0	22.4	27.6	26.6	28.8	25.0	27.2	21.5	-	0.79
191	433238	388666	27.8	26.7	22.6	25.1	18.7	18.5	18.1	16.2	23.2	23.0	27.7	22.9	22.5	17.8	-	0.79
192	433266	385705	26.0		18.6	20.9	15.2	14.7	13.6	13.6	17.1	16.0	19.6		17.5	13.8	-	0.79
193	433251	385695	24.0		22.1	24.0	16.5	18.3	17.8	17.8	23.6	22.2	27.3		21.4	16.9	-	0.79

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194	433267	385684	24.0		12.9	21.5	14.5	14.2	12.0	12.0		22.9	21.4		17.3	13.6	-	0.79
199	434173	387484		23.8				37.8	20.4	30.7	23.8		40.8		29.6	24.5	-	0.79
200	433750	387724							28.9				26.7		27.8	-	-	0.79
201	433486	387994		19.9				23.5	28.9	19.9	18.5		25.3		22.7	18.8	-	0.79
202	433236	388668		39.5				21.2	14.9		23.8				24.9	22.0	-	0.79
203	432822	387795		39.5				21.1	21.8	22.2	16.3		24.8		24.3	20.2	-	0.79
206	435334	389097	46.8	36.6	49.9	46.1	46.3	50.4	43.4	35.7	48.5	50.9		35.9	44.6	35.2	-	0.79
208	434720	390560	15.5	17.7	14.3	15.8	16.8	11.9	10.8	10.6	15.1	17.0			14.6	11.5	-	0.79
209	435304	389577	24.1	20.5	27.9	30.6	34.6	30.0	23.6	17.9	27.2	29.3			26.6	21.0	-	0.79
210	435018	387999	37.2	31.4	30.2	28.1	25.1	20.5	18.5	23.3	29.3	37.2	37.6	26.7	28.8	22.7	-	0.79
212	436146	387608	45.3	48.4	33.1	42.3	37.9	34.8	32.8	31.1	44.0	48.5	45.7	41.5	40.5	32.0	-	0.79
213	435578	386555	40.9	27.1	36.9	37.9	31.4	26.9	24.7	29.9	35.8	38.0	27.5	30.4	32.3	25.5	-	0.79
214	435023	386344	45.1	41.3	48.8	52.7	37.5	50.4	21.5	36.6	40.1	52.7	17.1	32.8	39.7	31.4	-	0.79
215	435763	386944	59.0	42.2	63.8		77.8	57.6	46.2	53.8	57.0	55.2		53.0	56.6	44.7	-	0.79
216	440913	386218		42.5	35.7	38.1	17.7	28.0	25.8	32.3	32.4	47.1	41.7	29.4	33.7	26.6	-	0.79
217	443572	381395	38.5	28.7	31.4	34.7	32.4	31.8	25.6	30.7	36.2	36.7	35.6	29.8	32.7	25.8	-	0.79
218	435650	389350	37.4	28.4	41.0	38.8	32.4	34.2	27.8	27.3	44.9	41.4	37.5	23.6	34.6	27.3	-	0.79
219	435770	386979	60.2	57.7	53.1		43.2	39.0	33.2	44.3	54.3		49.7	48.0	48.3	38.1	-	0.79
220	431740	385914	24.0	24.0	23.0	19.0	19.0	19.0	18.0	17.9	19.6	24.1	27.2	15.8	20.9	17.9	-	0.86
221	435967	386210	38.0	43.3	39.3	37.7	36.2		34.0	35.3	34.5	37.4	39.7	31.7	37.0	31.8	-	0.86
222	434676	386171	17.7	21.6	29.0	28.8	24.8	24.2	11.3	18.2	20.6	30.1	28.1	21.7	23.0	18.2	-	0.79

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.79 or 0.86)	Annual Mean: Distance Corrected to Nearest Exposure	Comment / Bias Adjustment used
223	435233	385961	33.7			37.0	35.5	22.8	23.9	27.5	32.6	35.0	39.8	26.9	31.5	24.9	-	0.79
224	436092	388590	56.3	53.0	43.1	52.5	54.4	48.2	43.2	44.7	56.5	51.8	49.8	48.8	50.2	39.7	31.4	0.79
225	433473	387456	21.0	19.8	20.0	18.0	15.0	16.2	12.6	14.7	16.7	25.2	24.0	17.2	18.4	15.8	-	0.86
226	435755	386938	67.0	59.0	64.5	66.6	57.4	44.3	38.6	43.4	48.1		68.3	50.3	55.2	43.6	-	0.79
227	435770	386979	57.0	58.9	46.9	46.5	42.7	41.5	40.9	42.0	50.0	53.2	48.0	43.8	47.6	37.6	-	0.79
228	435881	387162	76.0		54.0	65.0	56.2	48.6		60.5	64.4	63.1	68.5	54.6	61.1	48.3	-	0.79
229	435898	387153	81.0	79.3	56.8			57.2	59.9	63.4				66.3	66.3	55.6	-	0.79
230	435805	386906	50.0	29.1	36.3	47.6	41.4	37.7	28.2	37.3	39.8	48.7	49.3		40.5	32.0	-	0.79
231	436276	389927	49.6	45.9	38.4	46.4	41.5	40.4	20.1	34.2	43.9	42.7	40.6	29.0	39.4	31.1	-	0.79
232	435238	385397	33.7	35.6	30.8	30.6	24.3	25.0	23.9	26.5	31.2	31.4	33.5	30.0	29.7	25.5	-	0.86
233	435238	385397	32.6	35.6	31.5	30.0	24.5	26.0	23.9	25.7	29.7	31.0	34.7	32.1	29.8	25.6	-	0.86
234	435238	385397	34.3	33.3	33.9	30.7	25.0	25.0	23.6	26.3	30.3	31.2	34.6	28.8	29.7	25.6	-	0.86
236	436276	389927	44.6	37.9	39.9	39.7	34.6	36.2	28.4	31.1	38.8	38.1	42.3	33.3	37.1	31.9	-	0.86
237	436276	389927	44.8	38.3	39.2	36.4	36.9	38.1	30.4	33.2	39.6	40.0	40.3	34.8	37.7	32.4	-	0.86
238	436276	389927	44.3	41.8	40.7	40.3	36.9	37.8	30.5	32.6	41.1	40.5	40.4	32.1	38.2	32.9	-	0.86
239	440084	390760	30.7	33.3	28.7	24.2	21.4	20.9	23.2	25.7	30.2	29.0	32.7	25.8	27.2	23.4	-	0.86
240	440084	390760	33.3	34.8	27.6	23.8	21.2	21.7	27.0	25.0	29.3	26.5	33.7	24.0	27.3	23.5	-	0.86
241	440084	390760	36.7	34.8	30.8	27.0	22.6	21.7	27.9	25.5	29.9	29.1	32.7	26.4	28.8	24.7	-	0.86
242	434803	386947	22.8	20.6	18.6	16.5	16.9	15.7	13.1	14.4	20.2	24.1	25.3	17.5	18.8	16.2	-	0.86
243	434803	386947	24.0	24.3	20.2	16.3	16.8	16.1	13.2	14.8	20.5	24.4	24.8	17.2	19.4	16.7	-	0.86
244	434803	386947	23.3	23.1	18.0	19.5	16.1	14.9	13.2	14.1	20.8	24.1	25.9	15.0	19.0	16.3	-	0.86

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.79 or 0.86)	Annual Mean: Distance Corrected to Nearest Exposure	Comment / Bias Adjustment used
245	433646	386577	29.5	28.9	32.8	33.2	27.9	27.3	17.7	23.5	29.5	34.2	28.8	26.7	28.3	22.4	-	0.79
246	433588	386528		15.7	24.5	31.4	32.4	32.6	24.1	27.8	30.9	38.8	32.8	30.8	29.3	23.1	-	0.79
247	433603	386625	27.3	28.7	28.0	29.7	26.4	25.7	23.3	22.6	25.7	32.1	31.8	26.7	27.3	21.6	-	0.79
248	437213	387656							16.2	19.9	26.5	32.0	30.5	27.0	25.4	20.2	-	0.79
249	435772	389421			17.3	16.6	14.0	12.3	14.2	12.4		32.3	19.6	19.7	17.6	13.9	-	0.79

- All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.
- Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.
- Local bias adjustment factor used.
- National bias adjustment factor used.
- Where applicable, data has been distance corrected for relevant exposure in the final column.
- Sheffield City Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

Majority of Sheffield City Council Tubes are analysed by SOCOTEC. Tubes using Gradko bias adjustment are either entitled LTP or Gradko in the site name in table A.2. If the site name in table A.2. does not have LTP or Gradko in it, the tube data has been adjusted using the SOCOTEC bias adjustment.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

New or Changed Sources Identified Within Sheffield City Council During 2023

Sheffield City Council has not identified any new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Sheffield City Council During 2023

QA/QC of Diffusion Tube Monitoring

Supply was undertaken by both Socotec and Gradko during 2023. To distinguish suppliers the 'Site name' column in table A.2 contains the suffix 'Gradko' or 'LTP' for Gradko supplied tubes; all other tubes have been supplied by SOCOTEC Didcot. The preparation method for all the tubes was 50% TEA in acetone. The tubes were exposed using the 2023 Diffusion Tube Monitoring Calendar.

Latest results for Socotec and Gradko in the AIR NO₂ PT, rounds AR055, AR056, AR058 and AR059 show performance as averaging 100% of results as satisfactory for the period January to October 2023. No results for the rest of 2023 were available at the time of writing.

Adjustments to the raw results for annualisation and distance, where necessary, were undertaken in the DTDPT spreadsheet and the results of these calculations can be seen in the tables above. As the DTDPT only caters for a single tube supplier the bias calculations were conducted prior to the values being uploaded to the spreadsheet. The calculations are included below.

Diffusion Tube Annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%. Annualisation was required for a number of non-automatic monitoring sites and this was undertaken in the Diffusion Tube Data Processing Tool and the results are provided in Table C.1.

Table C.1 – Annualisation Summary (concentrations presented in $\mu\text{g}/\text{m}^3$)

Diffusion Tube ID	Annualisation Factor DEFRA Barnsley Gawber	Annualisation Factor DEFRA Barnsley Road	Annualisation Factor DEFRA Devonshire Green	Annualisation Factor DEFRA Tinsley	Average Annualisation Factor	Raw Data Simple Annual Mean ($\mu\text{g}/\text{m}^3$)	Annualised Data Simple Annual Mean ($\mu\text{g}/\text{m}^3$)
8	1.0906	1.0256	1.0717	1.0663	1.0635	49.9	53.0
37	0.8483	0.9308	0.8766	0.9213	0.8943	22.1	19.8
99	1.1117	1.0524	1.0879	1.1352	1.0968	31.0	34.0
136	1.0412	0.9883	1.0166	1.0290	1.0188	7.3	7.4
138	1.0233	1.0192	1.0006	0.9668	1.0025	27.6	27.7
161	1.1077	1.0397	1.0901	1.0689	1.0766	21.0	-
199	1.0610	1.0349	1.0754	1.0348	1.0515	23.3	24.5
201	1.0610	1.0349	1.0754	1.0348	1.0515	17.9	18.8
202	1.1826	1.0543	1.1431	1.1093	1.1224	19.6	22.0
203	1.0610	1.0349	1.0754	1.0348	1.0515	19.2	20.2
229	1.0950	1.0542	1.0845	1.0154	1.0623	52.4	55.6
248	0.9787	1.0249	1.0122	1.0176	1.0083	20.0	20.2

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. The inability of the calculation spreadsheet to cater for more than one supplier has meant that as previously advised by the Helpdesk, monthly results were bias adjusted before being entered. For the completion of Table B.1 the raw monthly data has been used. The methodology outlined in LAQM.TG(22) Box 7-14 has not been used as this only caters for a change of supplier part way through a monitoring period. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the

relevant laboratory and preparation method. The National Factors for SOCOTEC & Gradko have been included in Table C.2, but it is felt that given the good data capture, a local factor is more appropriate to use for Bias Adjustment process.

Sheffield City Council have applied a local bias adjustment factor (0.79 on SOCOTEC tubes and 0.86 on Gradko tubes) to the 2023 monitoring data. These factors have been calculated utilising data from the DEFRA sites at Devonshire Green and Barnsley Road for the Gradko tubes and Devonshire Green, Barnsley Road and Tinsley for the SOCOTEC tubes. A summary of bias adjustment factors used by Sheffield City Council over the past five years is presented in Table C.2.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Factor Used: Local or National	Local Factor	National Factor	Adjustment Factor Used
2023	Local	0.79 (SOCOTEC Tubes) 0.86 (Gradko Tubes)	SOCOTEC 0.77 Gradko 0.83	0.79 (SOCOTEC Tubes) 0.86 (Gradko Tubes)
2022	Local	0.99 (SYAQS Tubes) 0.89 (Gradko Tubes) 0.88 (SOCOTEC Tubes)	SOCOTEC 0.76 Gradko 0.82	0.99 (SYAQS Tubes) 0.89 (Gradko Tubes) 0.88 (SOCOTEC Tubes)
2021	Local	0.93 (SYAQS Tubes)	South Yorkshire AQS 0.77	0.93 (SYAQS Tubes)
2020	Local	0.93 (SYAQS Tubes)	South Yorkshire AQS 0.77	0.93 (SYAQS Tubes)
2019	Local	0.98 (SYAQS Tubes)	South Yorkshire AQS 1.01	0.98 (SYAQS Tubes)

Table C.3 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1 Barnsley Rd Gradko	Local Bias Adjustment Input 2 Dev Green Gradko	Local Bias Adjustment Input 3 Barnsley Rd SOCOTEC	Local Bias Adjustment Input 4 Dev Green SOCOTEC	Local Bias Adjustment Input 5 Tinsley SOCOTEC
Periods used to calculate bias	12	12	12	12	12
Bias Factor A	0.87 (0.83 – 0.92)	0.84 (0.79 – 0.9)	0.82 (0.75 – 0.9)	0.79 (0.76 – 0.83)	0.77 (0.74 – 0.8)
Bias Factor B	15% (9% - 20%)	19% (11% - 27%)	22% (12% - 33%)	26% (20% - 31%)	30% (25% - 35%)

	Local Bias Adjustment Input 1 Barnsley Rd Gradko	Local Bias Adjustment Input 2 Dev Green Gradko	Local Bias Adjustment Input 3 Barnsley Rd SOCOTEC	Local Bias Adjustment Input 4 Dev Green SOCOTEC	Local Bias Adjustment Input 5 Tinsley SOCOTEC
Diffusion Tube Mean ($\mu\text{g}/\text{m}^3$)	38	19	40	20	26
Mean CV (Precision)	4%	4%	8%	5%	6%
Automatic Mean ($\mu\text{g}/\text{m}^3$)	33.0	16	33	16	20
Data Capture	98%	100%	98%	100%	99%
Adjusted Tube Mean ($\mu\text{g}/\text{m}^3$)	33 (31 – 35)	16 (15 – 17)	33 (30 – 36)	16 (15 – 17)	20 (19 – 20)

Notes:

A combined local bias adjustment factor of 0.79 for Gradko tubes and 0.86 for SOCOTEC tubes has been used to bias adjust the 2023 diffusion tube results.

As previously recommended by the LAQM helpdesk the data has been adjusted using the above Bias Adjustment Factors before entering into the DTDPT and then a single bias adjustment factor of 1 has been used in the spreadsheet.

NO₂ Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO₂ concentrations corrected for distance are presented in Table B.1.

Table C.4 – Non-Automatic NO₂ Fall off With Distance Calculations (concentrations presented in µg/m³)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
3	3.0	8.0	36.9	20.1	32.6	
8	2.5		53.0	20.2	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
16	0.8		37.3	20.5	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
17	3.0	4.0	37.1	17.32244	35.6	
18	1.5		47.0	20.52496	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to</i>

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
						<i>Relevant Exposure and Distance to Kerb of Nearest Road</i>
19	1.0	5.0	64.7	17.3	49.3	<i>Predicted concentration at Receptor above AQS objective.</i>
33	1.0		60.5	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
34	0.8		38.4	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
38	4.0		39.2	14.9	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to</i>

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
						<i>Kerb of Nearest Road</i>
42	2.0		46.1	12.8	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
43	1.0		38.8	20.2	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
59	2.0	7.0	37.7	13.7	30.6	
73	0.7	2.7	41.1	12.6	33.9	
75	1.5		40.9	13.4	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 -</i>

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
						<i>Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
91	1.6	3.6	44.9	22.6	40.9	<i>Predicted concentration at Receptor above AQS objective.</i>
92	0.8		37.8	22.6	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
97	2.5	9.0	48.8	18.7	39.2	<i>Predicted concentration at Receptor within 10% the AQS objective.</i>
98	1.5		39.5	15.5	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
103	1.0	5.5	38.2	11.2	28.9	

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
121	2.0	4.0	38.4	17.0	34.9	
163	20.0		48.1	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
164	8.5		38.1	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
165	10.0		44.1	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
166	30.0		48.0	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
167	4.0		55.6	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
168	7.0		50.0	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
169	9.0		42.6	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure</i>

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
						<i>and Distance to Kerb of Nearest Road</i>
170	11.0		51.3	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
172	9.0		47.4	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
174	4.0		46.4	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
175	1.0		49.9	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
176	3.0		53.6	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
178	4.0	9.0	38.8	13.9	33.2	
183	0.7		47.6	13.9	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
215	5.0		44.7	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
219	3.0		38.1	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
224	2.0	9.4	39.7	17.0	31.4	
226	4.0		43.6	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted)	Background Concentration	Concentration Predicted at Receptor	Comments
227	3.0		37.6	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
228	3.0		48.3	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>
229	2.5		55.6	17.3	-	<i>Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road</i>

QA/QC of Automatic Monitoring

QA/QC is carried out in-house utilising the Council's Airviro modelling and data collection software. Calibrations are carried out monthly and ratification is carried out as results are uploaded. Service visits were carried out at 6 monthly intervals unless urgent attention was required, in which case a call out to the Service and Maintenance provider would be issued.

Live data is available for the [Sheffield City Council monitoring stations](#) and the 3 [DEFRA monitoring stations](#)

PM₁₀ and PM_{2.5} Monitoring Adjustment

The type of PM₁₀/PM_{2.5} monitors utilised within Sheffield City Council do not require the application of a correction factor.

Automatic Monitoring Annualisation

Annualisation was required at the GH2 and GH5 sites data capture was 69% and 52% respectively for 2023.

Site ID	Annualisation Factor DEFRA Barnsley Road	Annualisation Factor DEFRA Dev Green	Annualisation Factor DEFRA Tinsley	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
GH2 (NO ₂)	1.023719	1.056075	1.029583	1.036459	26.11	27.06	
GH3 (NO ₂)	1.042212	1.080311	1.043426	1.055316	23.58	24.88	

Site ID	Annualisation Factor DEFRA Dev Green	Annualisation Factor DEFRA Tinsley	Annualisation Factor DEFRA Chesterfield Loundsley Green	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
GH2 (PM ₁₀)	0.951508	0.939579	0.95987	0.950319	14.46	13.74269	
GH5 (PM ₁₀)	0.89139	0.887849	0.90349	0.894243	11.89	10.63	

Site ID	Annualisation Factor DEFRA Barnsley Road	Annualisation Factor DEFRA Dev Green	Annualisation Factor DEFRA Tinsley	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
GH2 (PM _{2.5})	0.97356	0.96324	0.95727	0.96469	8.35	8.05	

Site ID	Annualisation Factor DEFRA Barnsley Road	Annualisation Factor DEFRA Dev Green	Annualisation Factor DEFRA Tinsley	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
GH5 (PM2.5)	0.96435	0.89240	0.88815	0.91497	8.25	7.55	

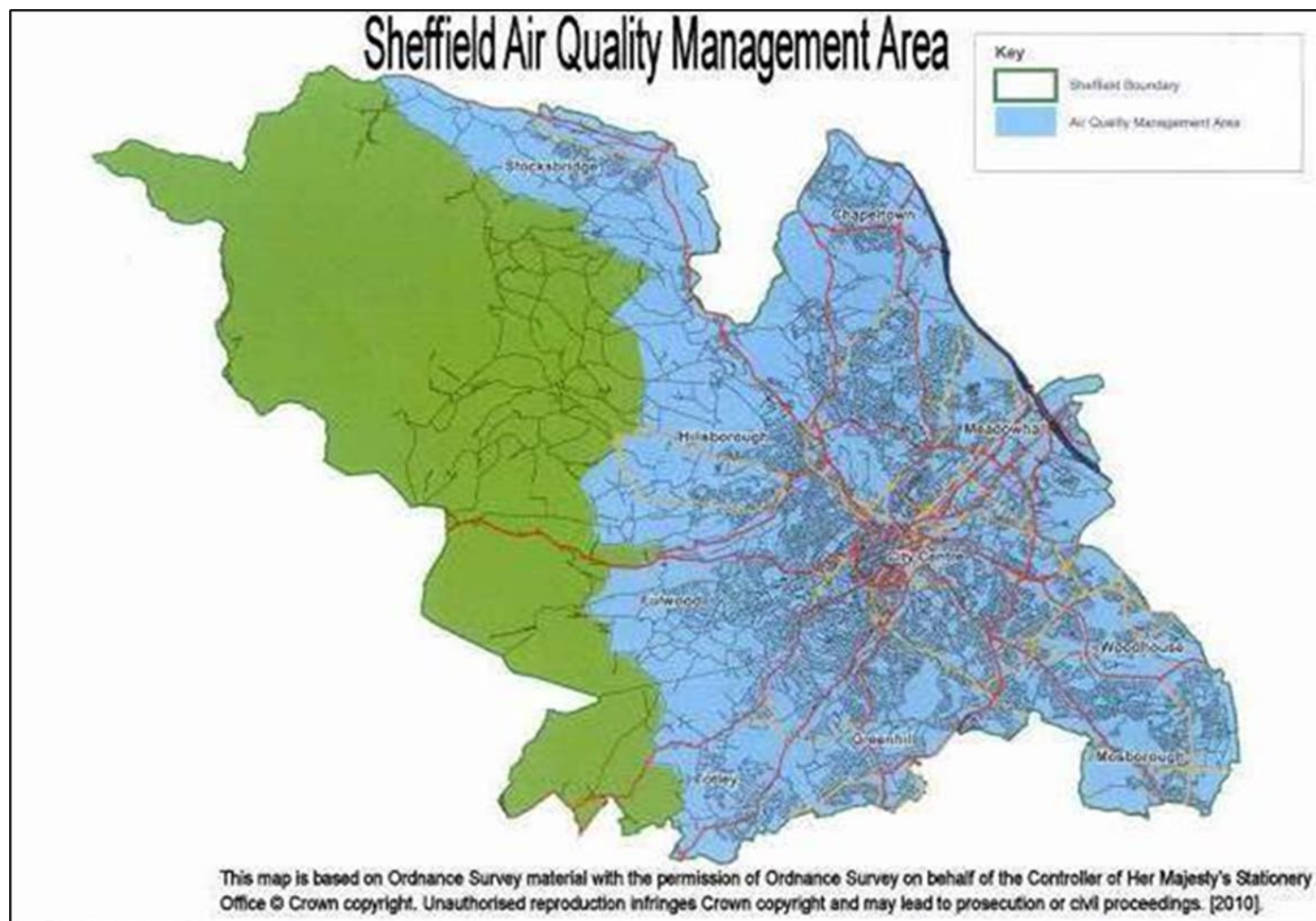
NO₂ Fall-off with Distance from the Road

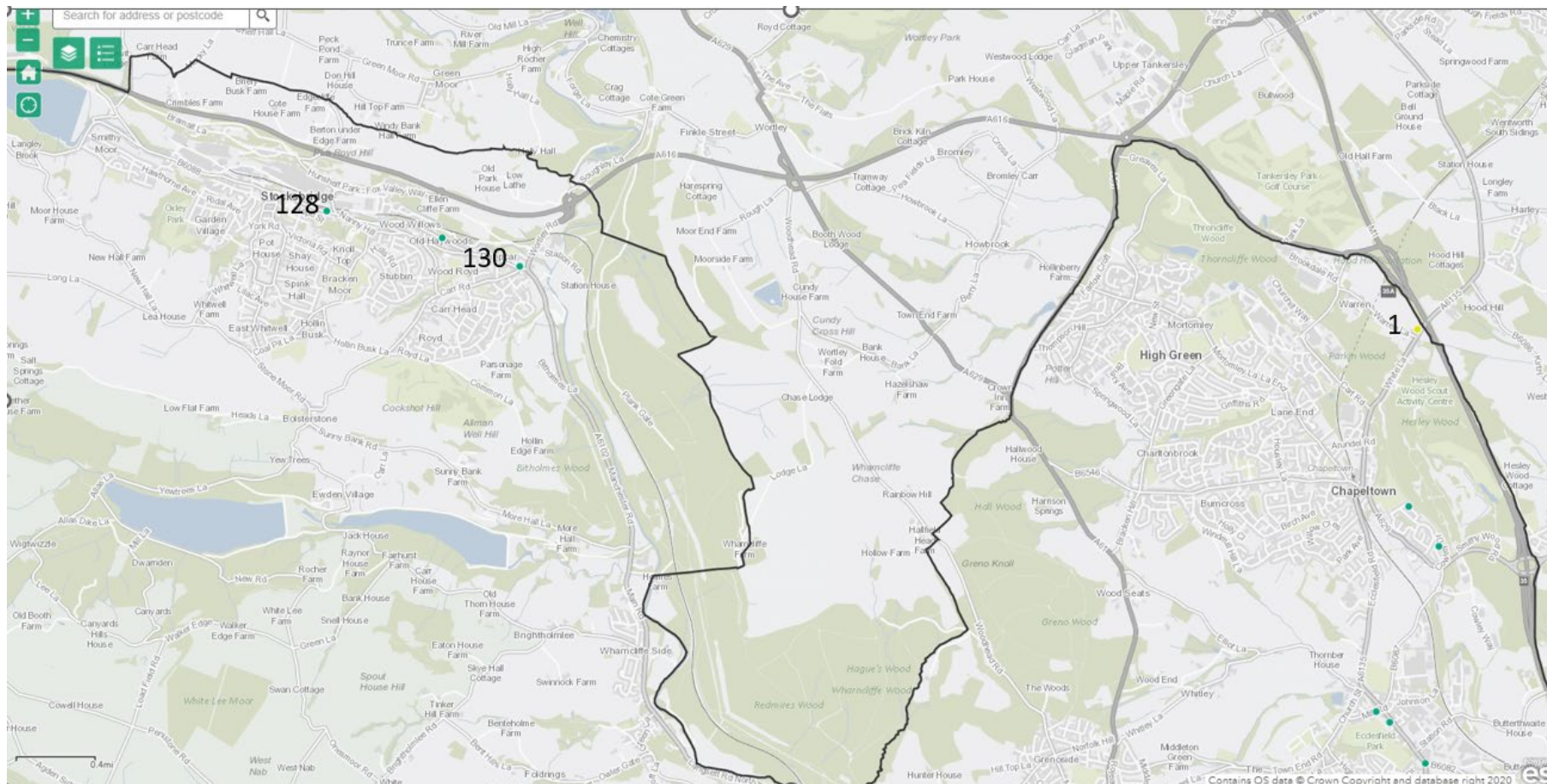
Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO₂ concentration at the nearest location relevant for exposure has been estimated using the NO₂ fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO₂ concentrations corrected for distance are presented in Table A.3.2

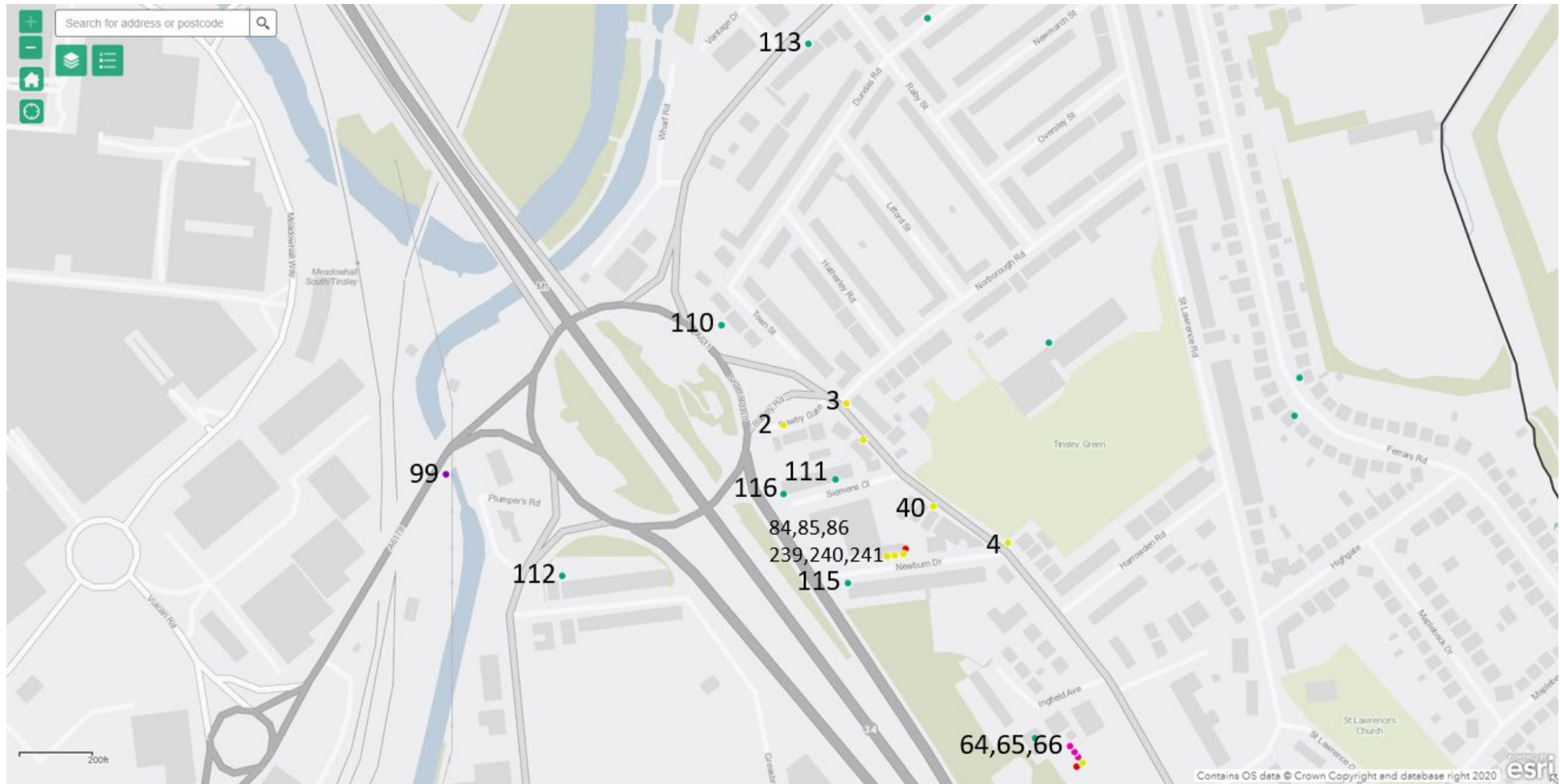
No automatic NO₂ monitoring locations within Sheffield City Council required distance correction during 2022.

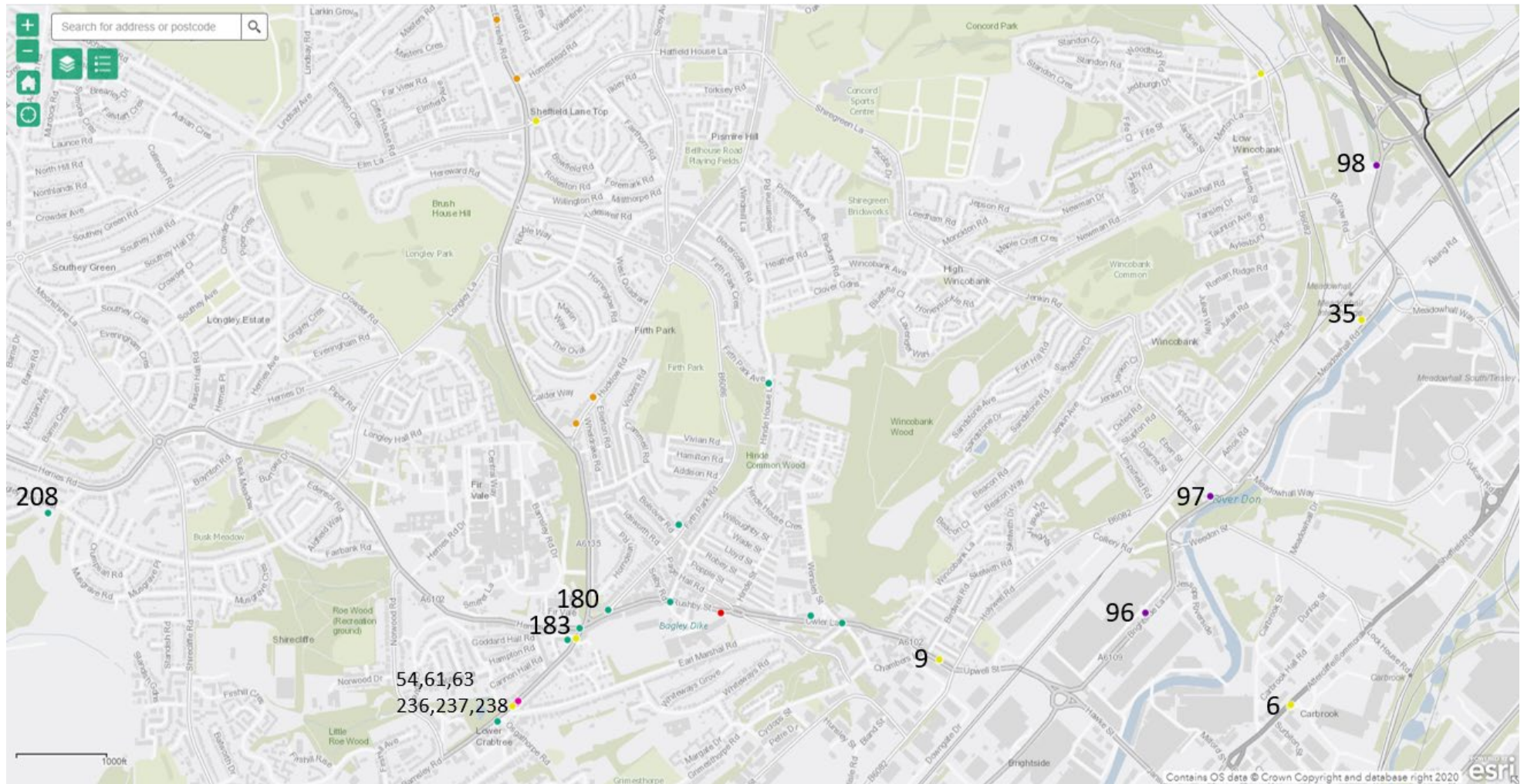
Appendix D: Map(s) of Monitoring Locations and AQMAs

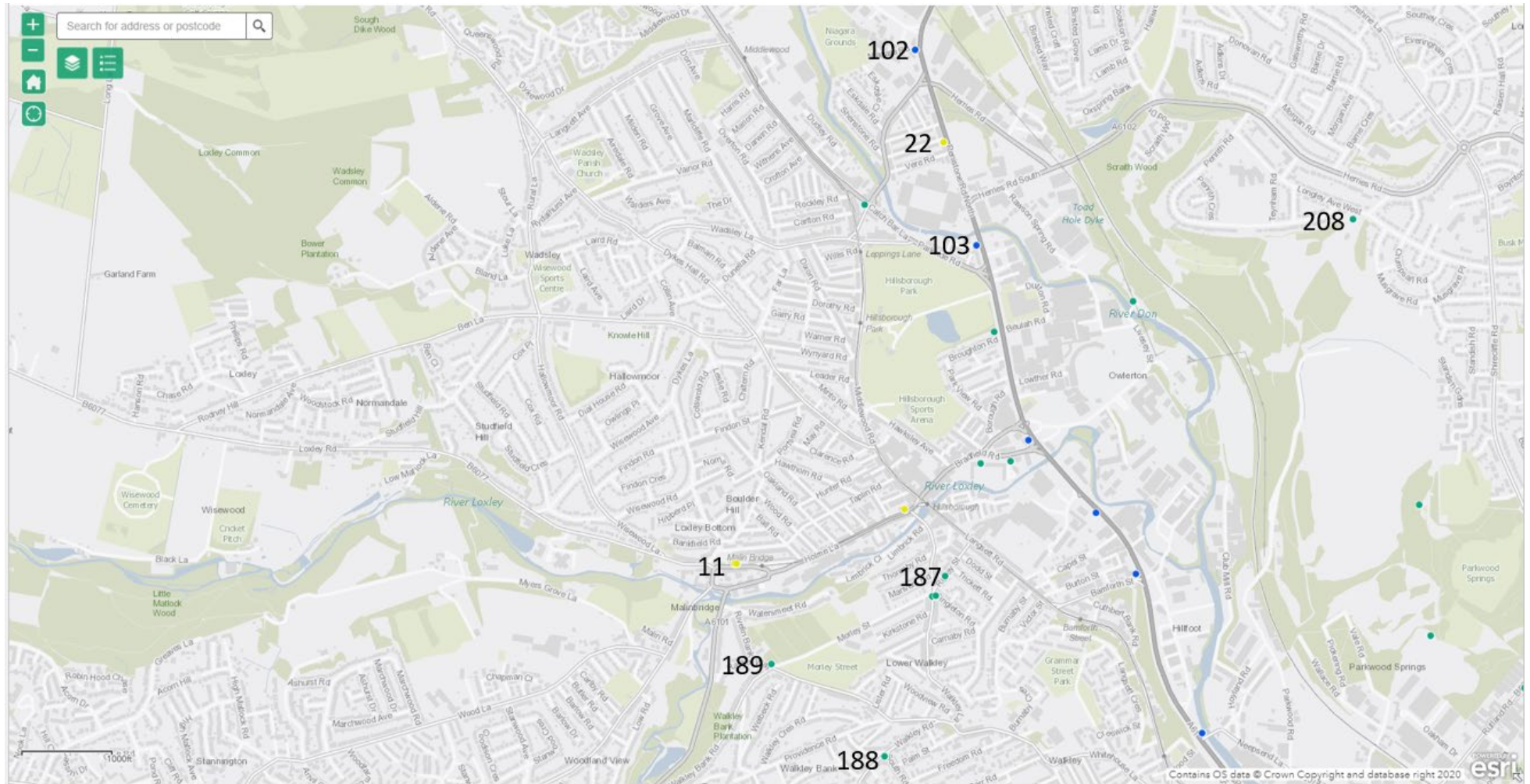
Figure D.1 – Map of Non-Automatic Monitoring Site

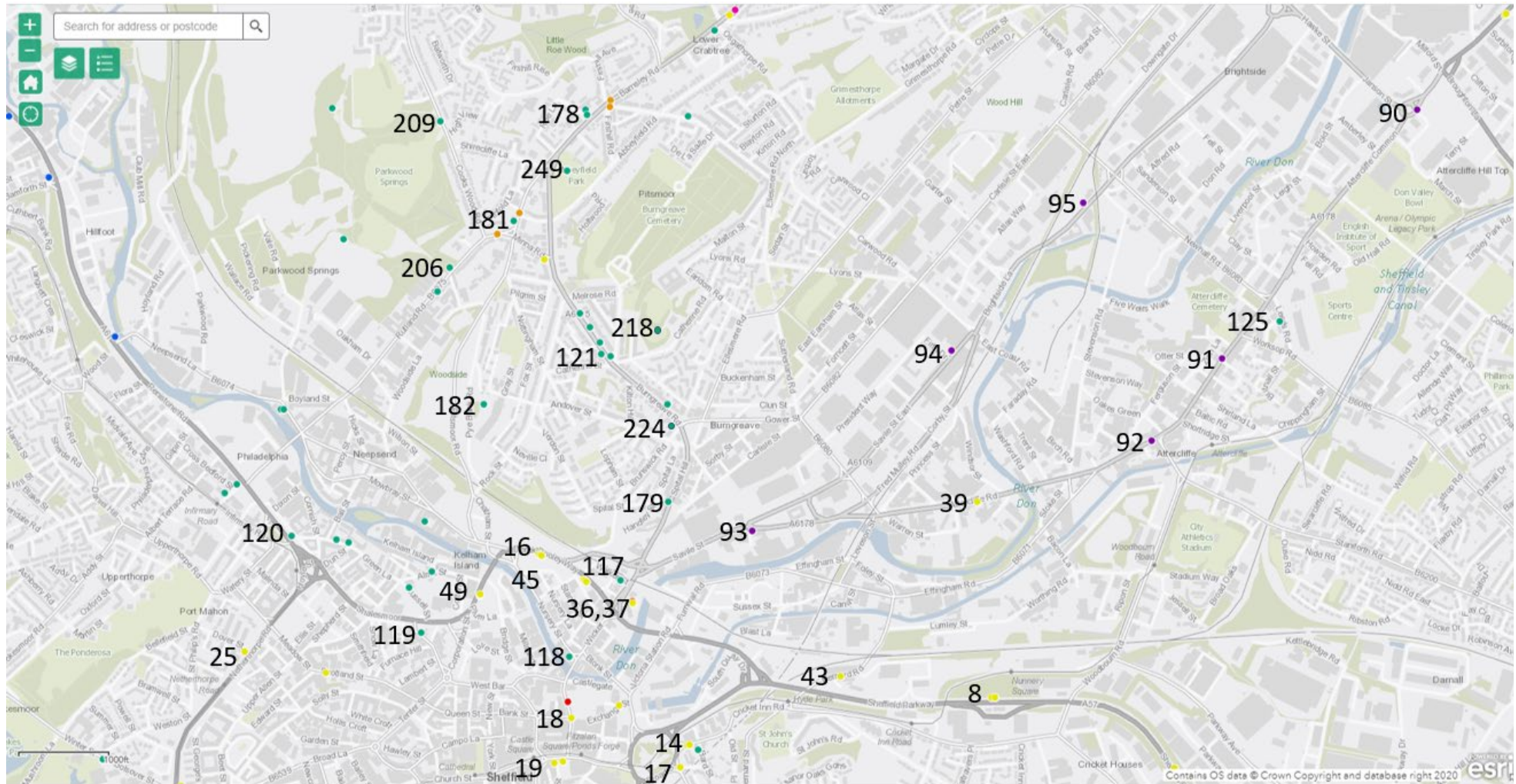


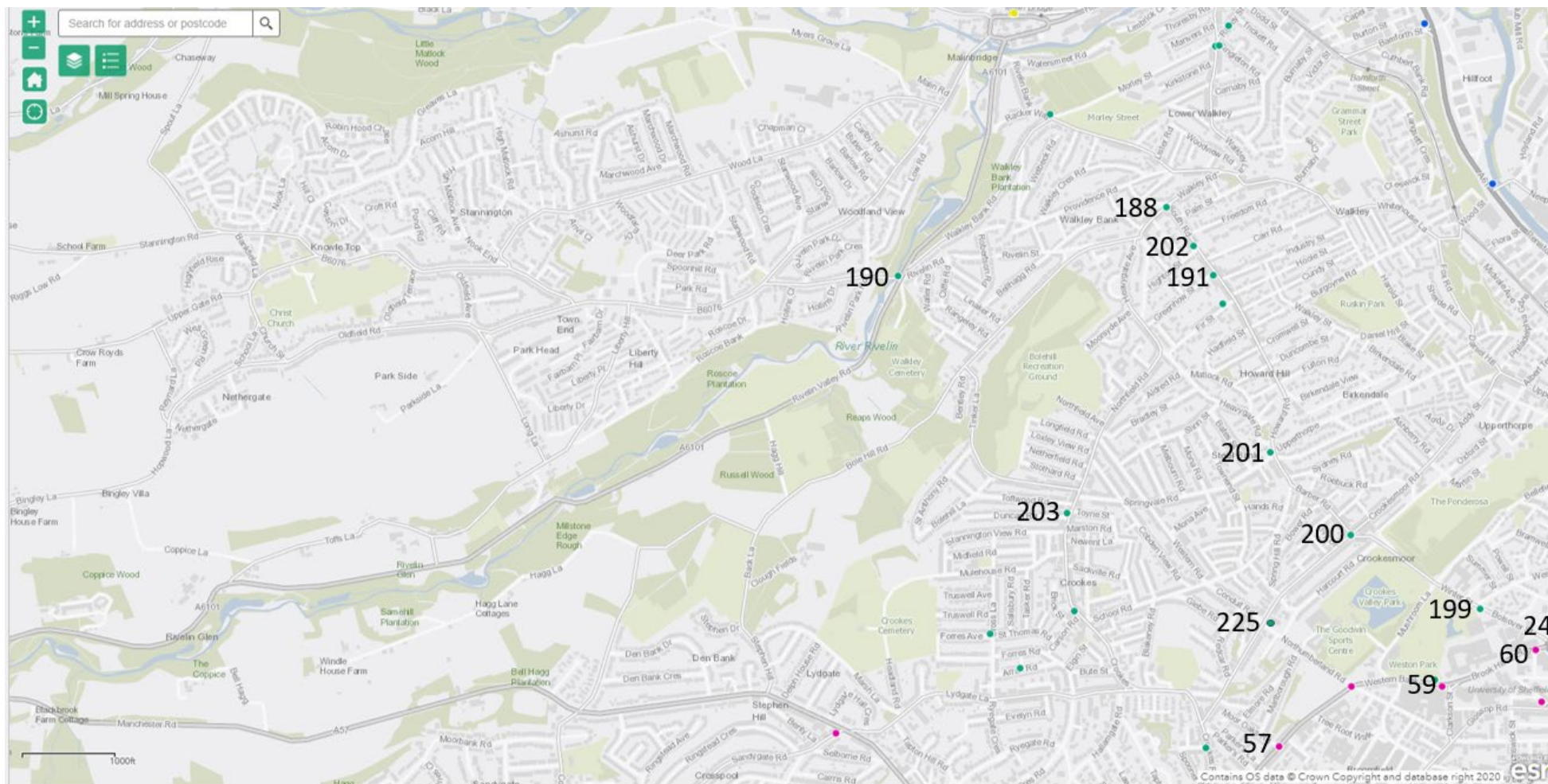


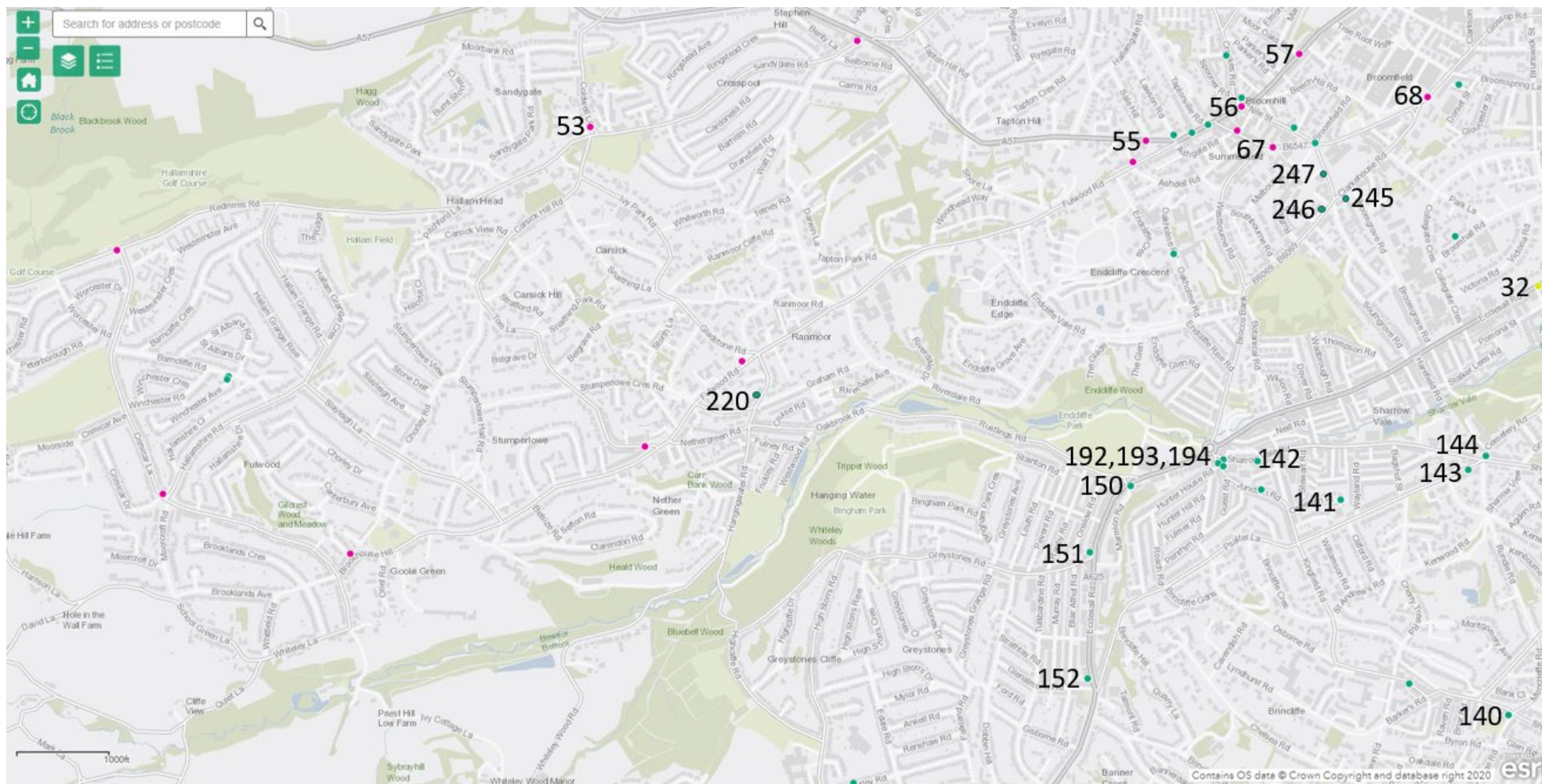


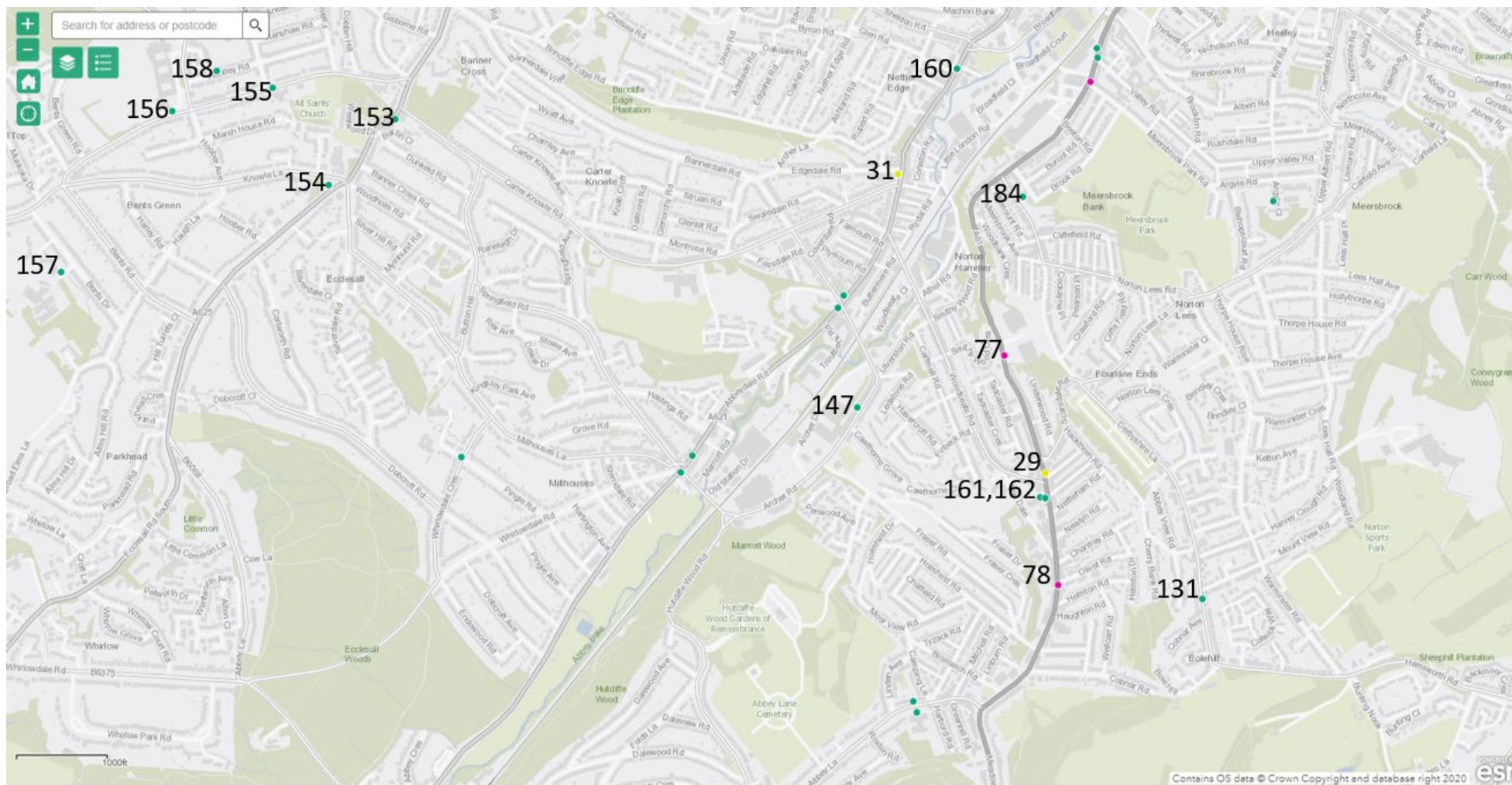


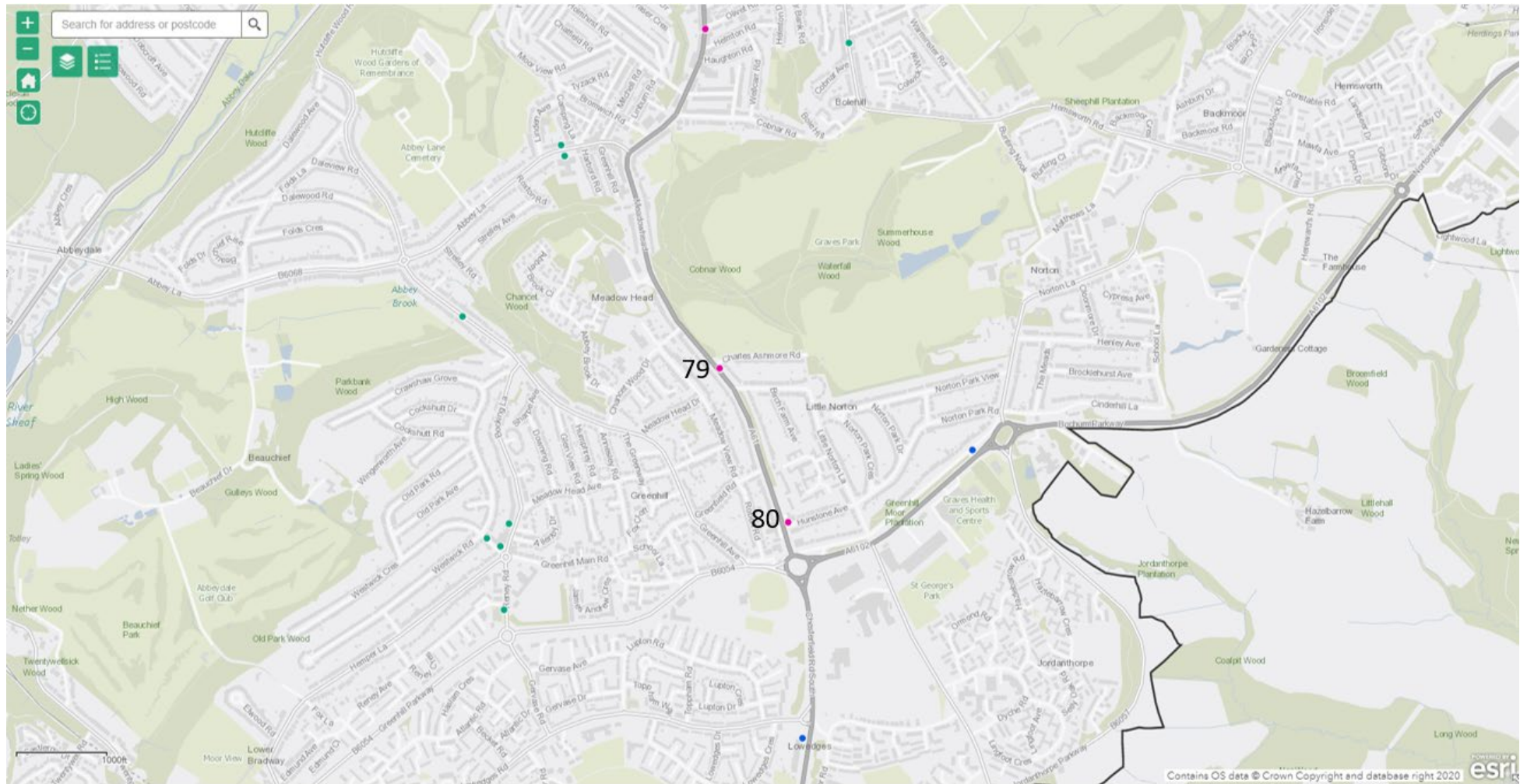


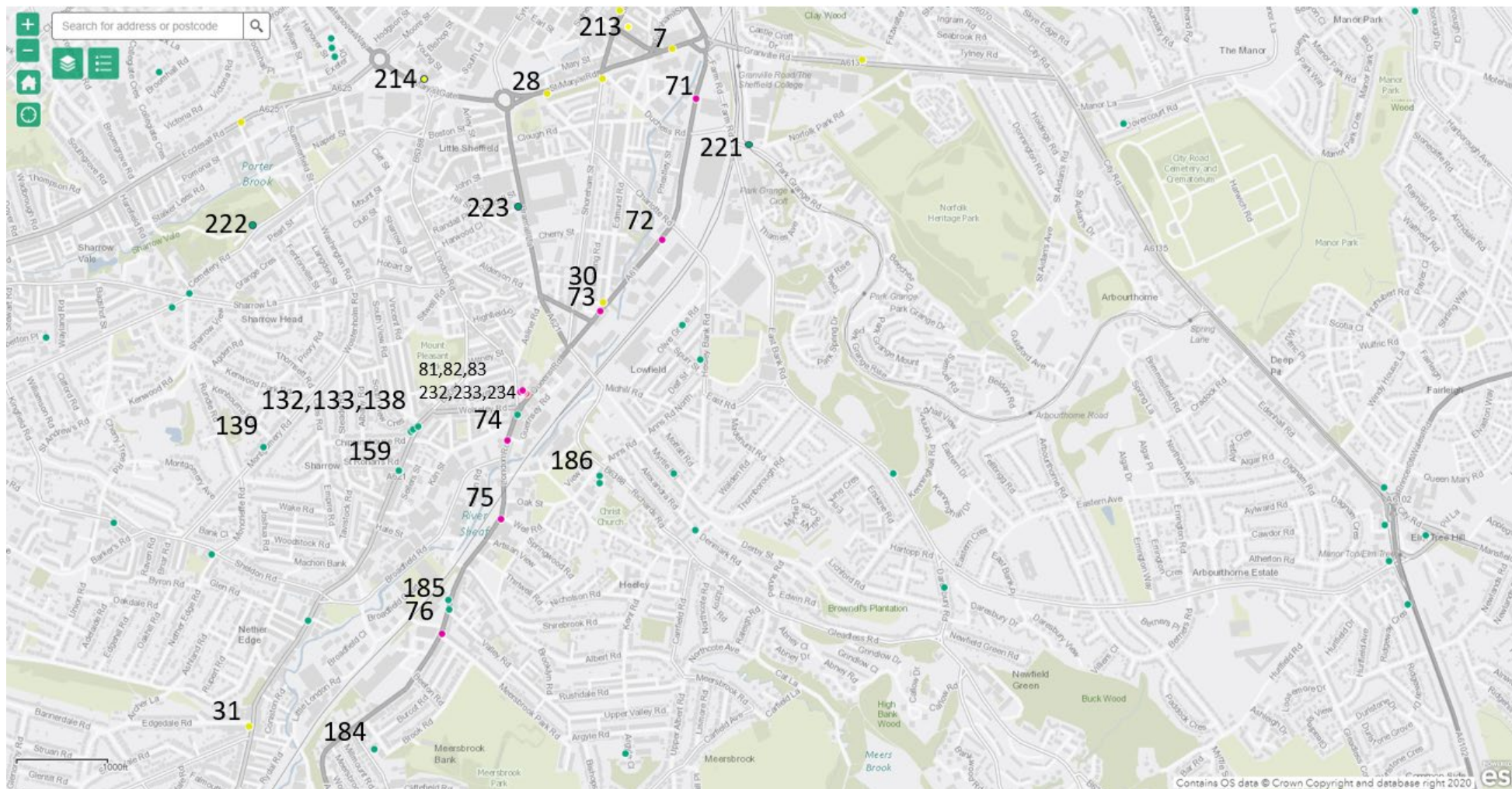


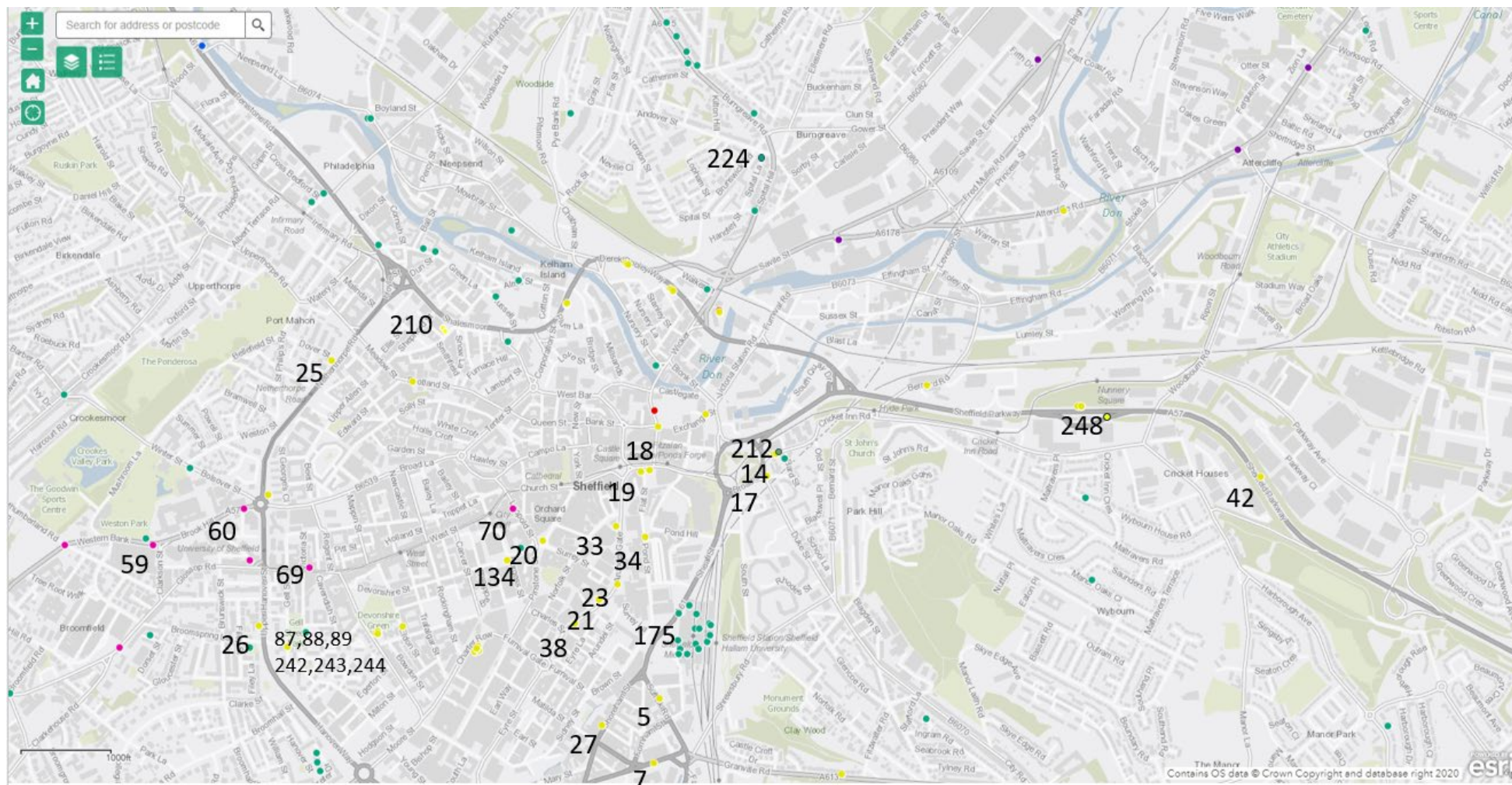


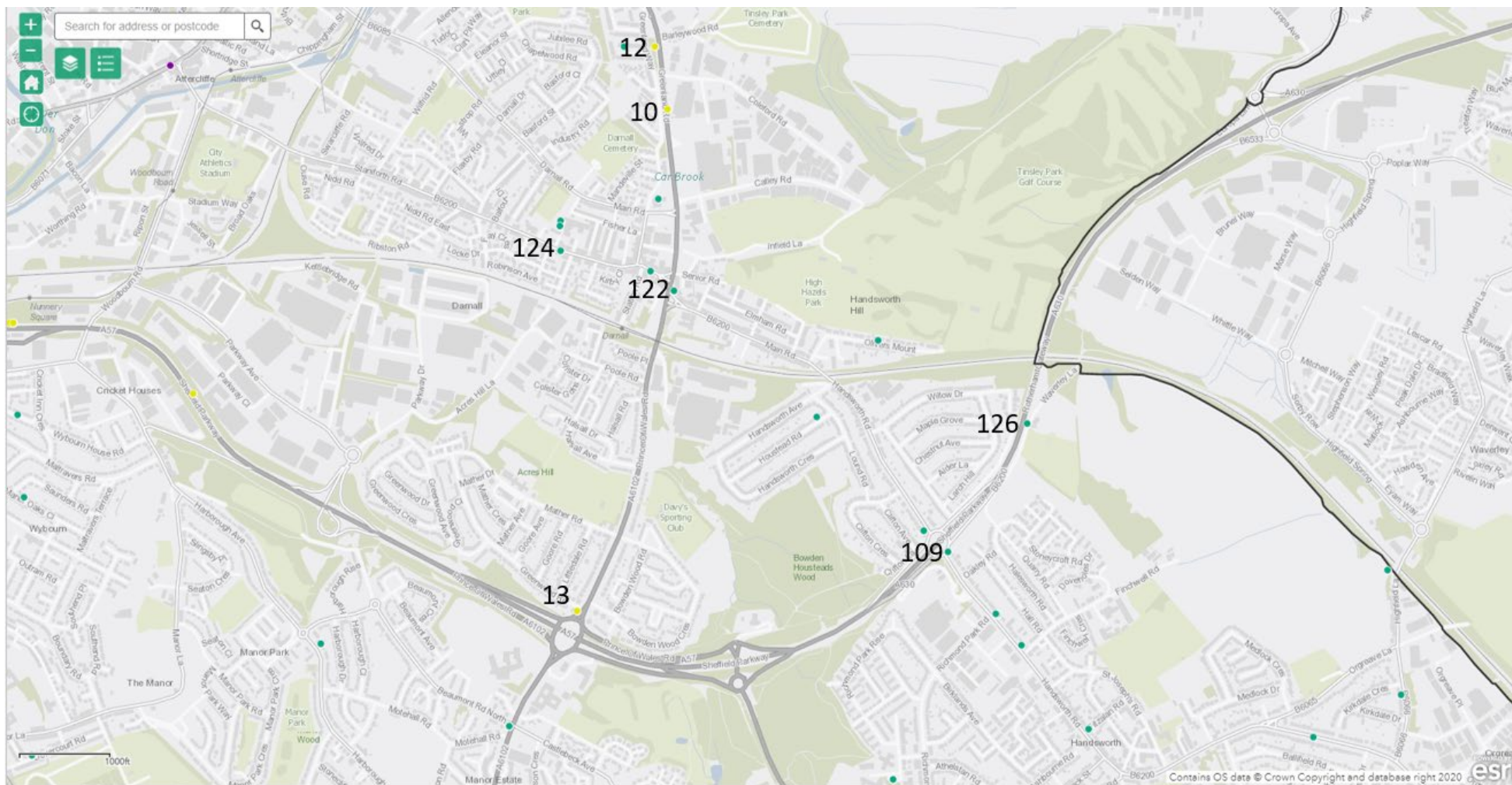


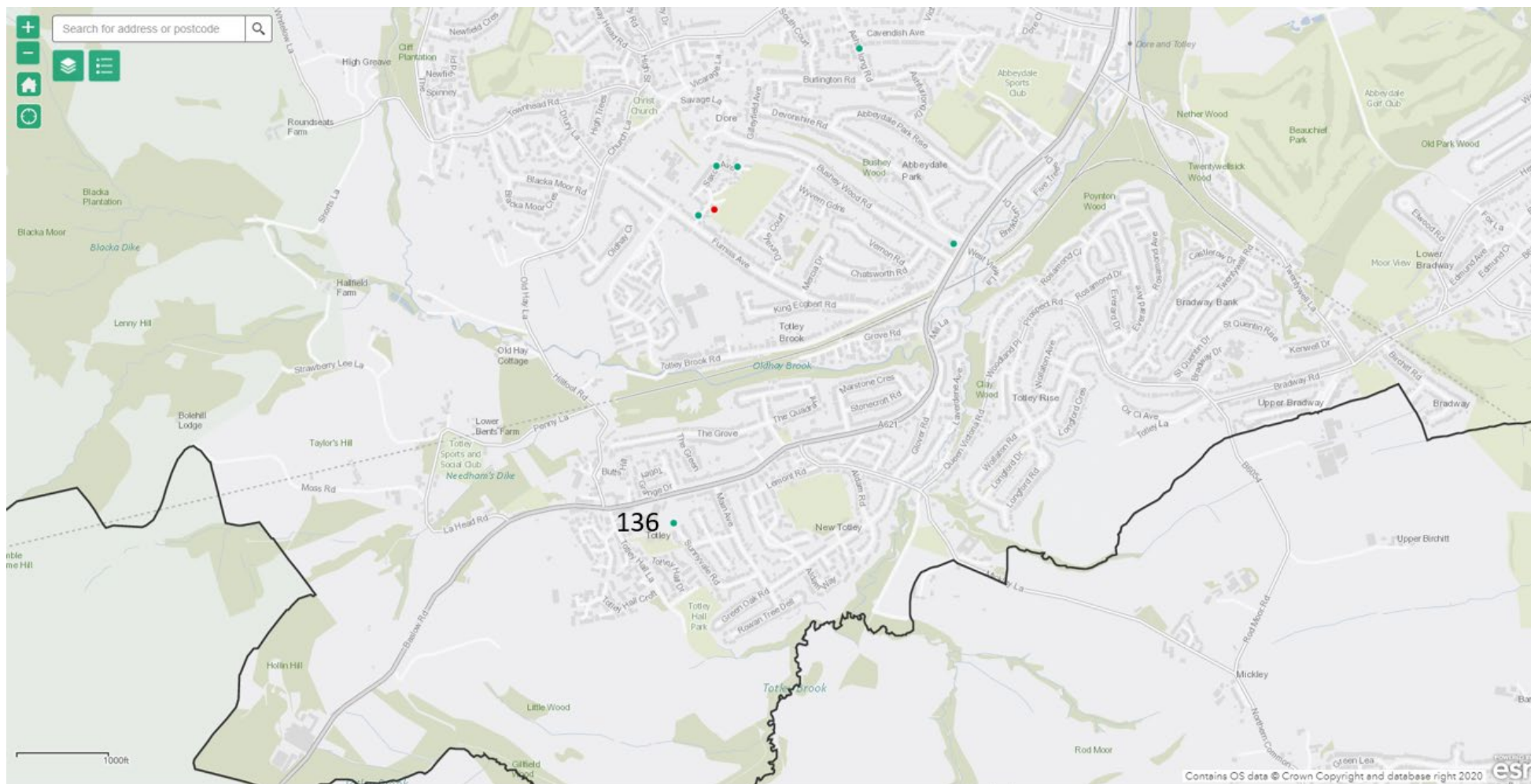


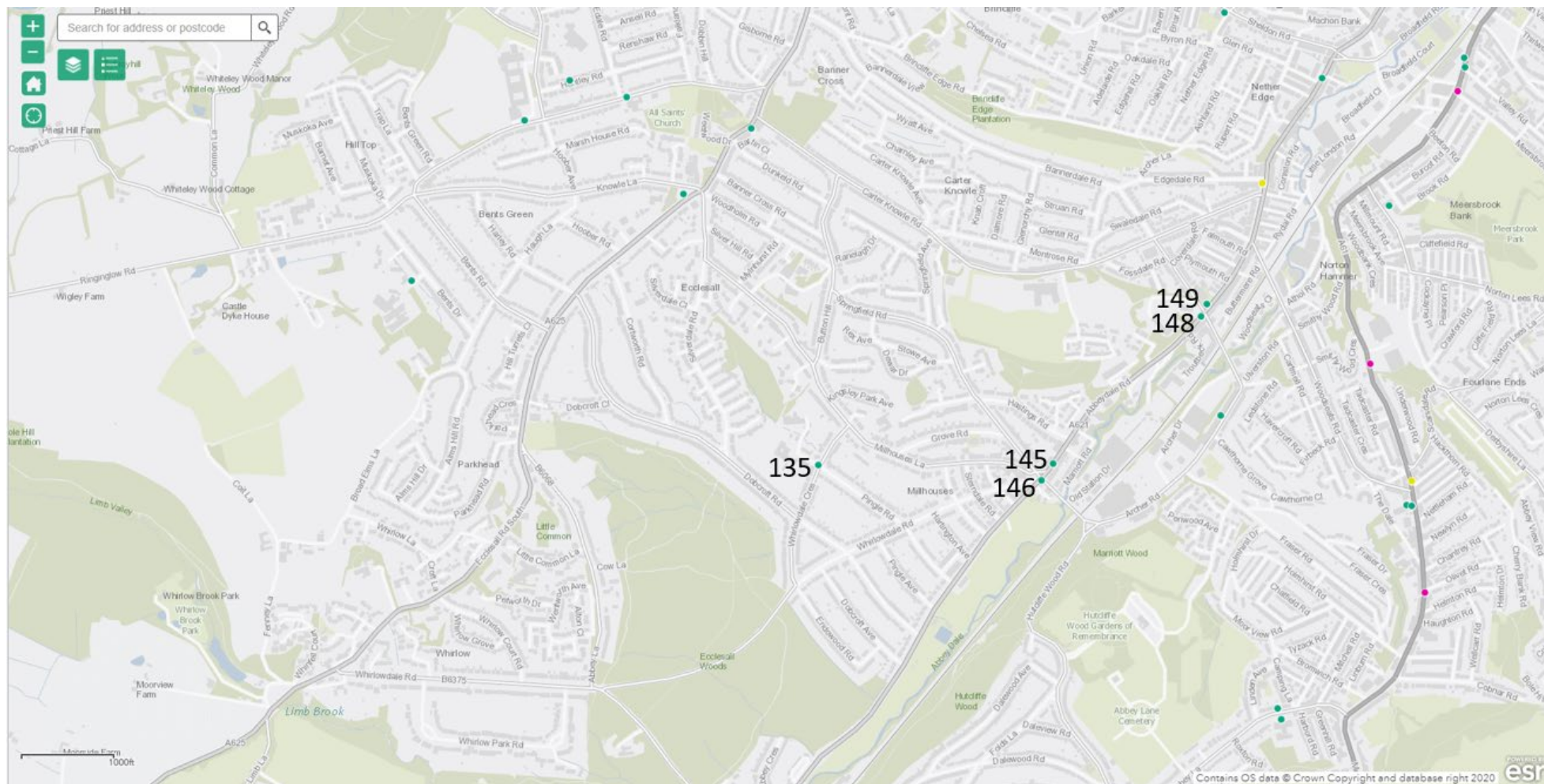


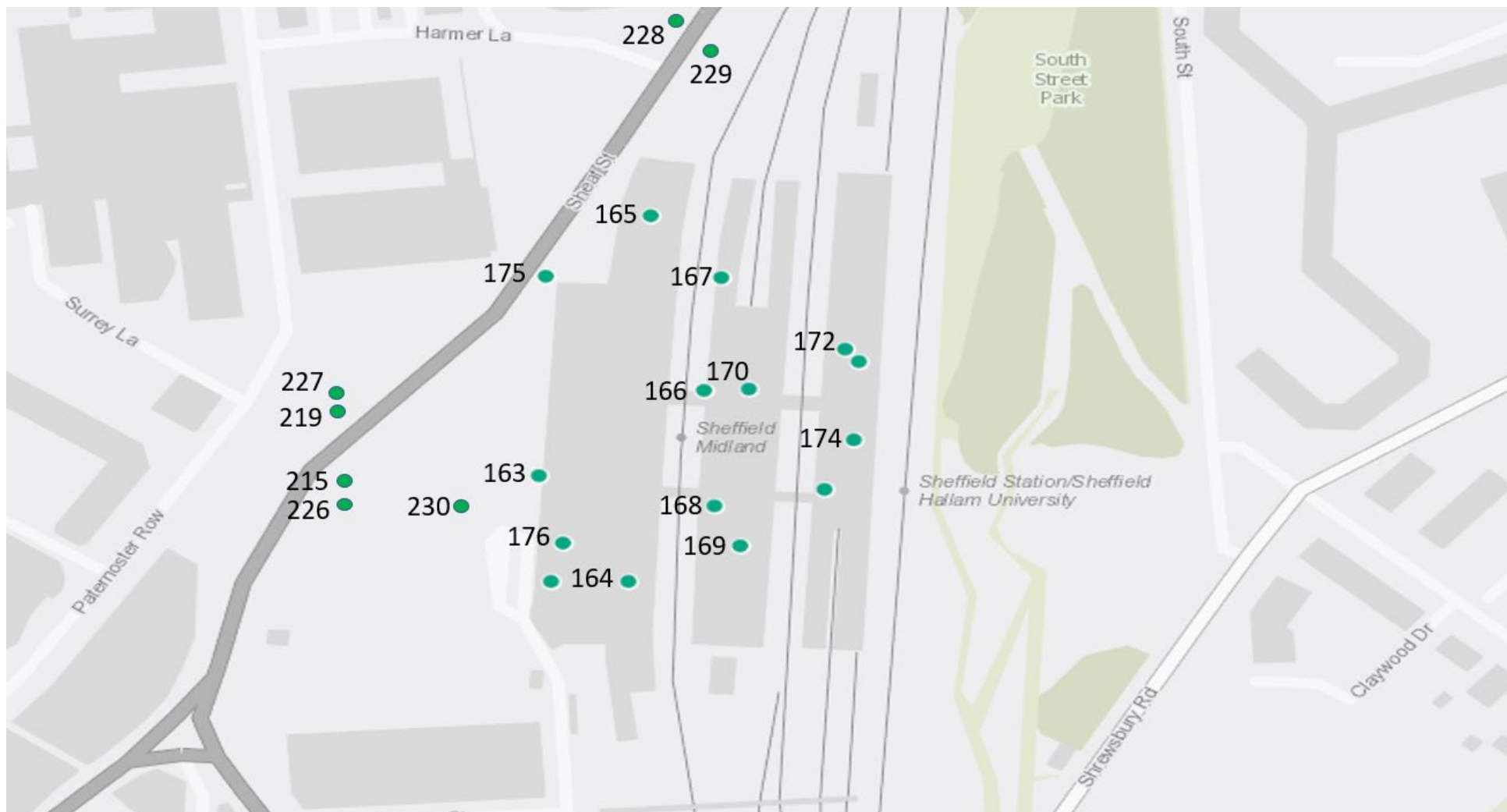


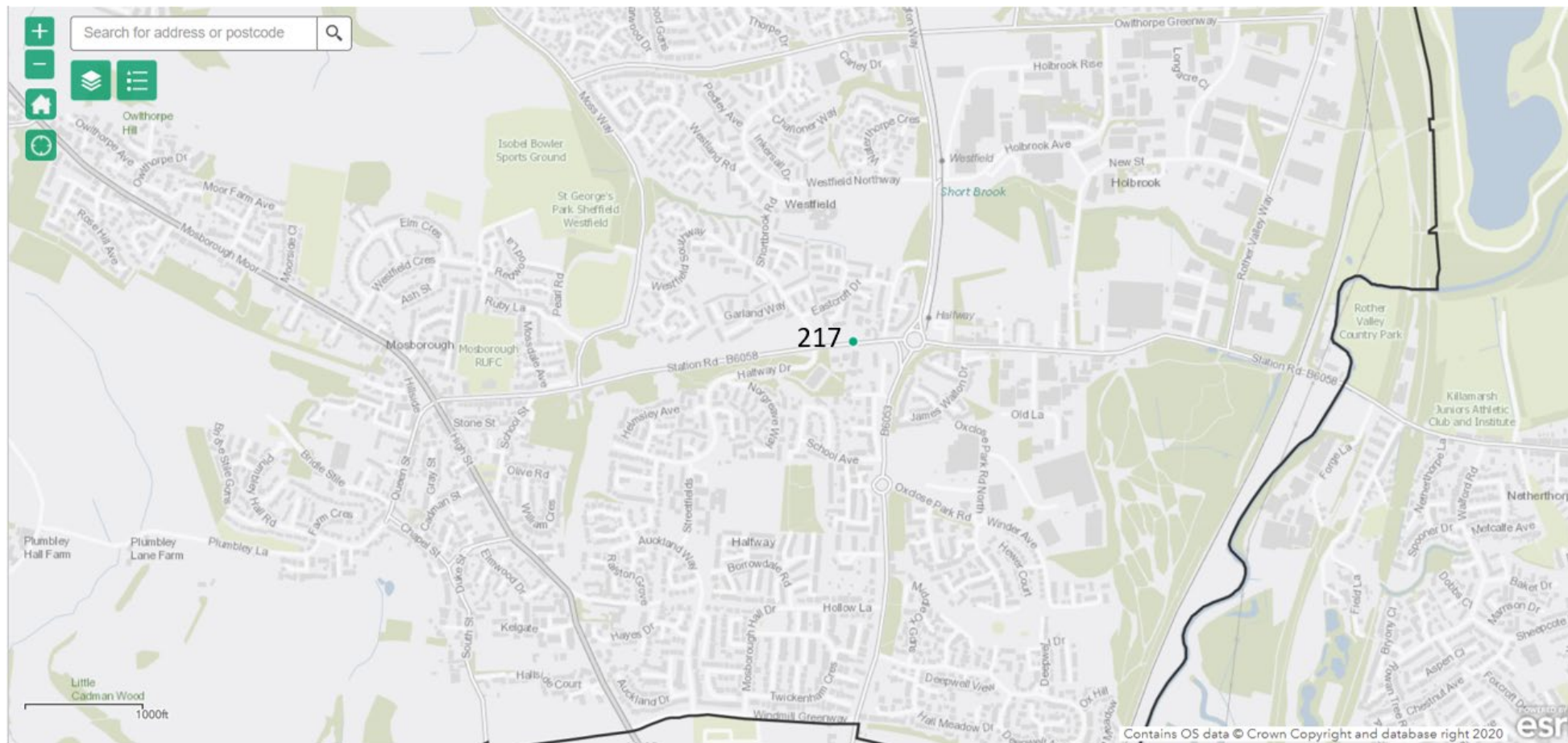


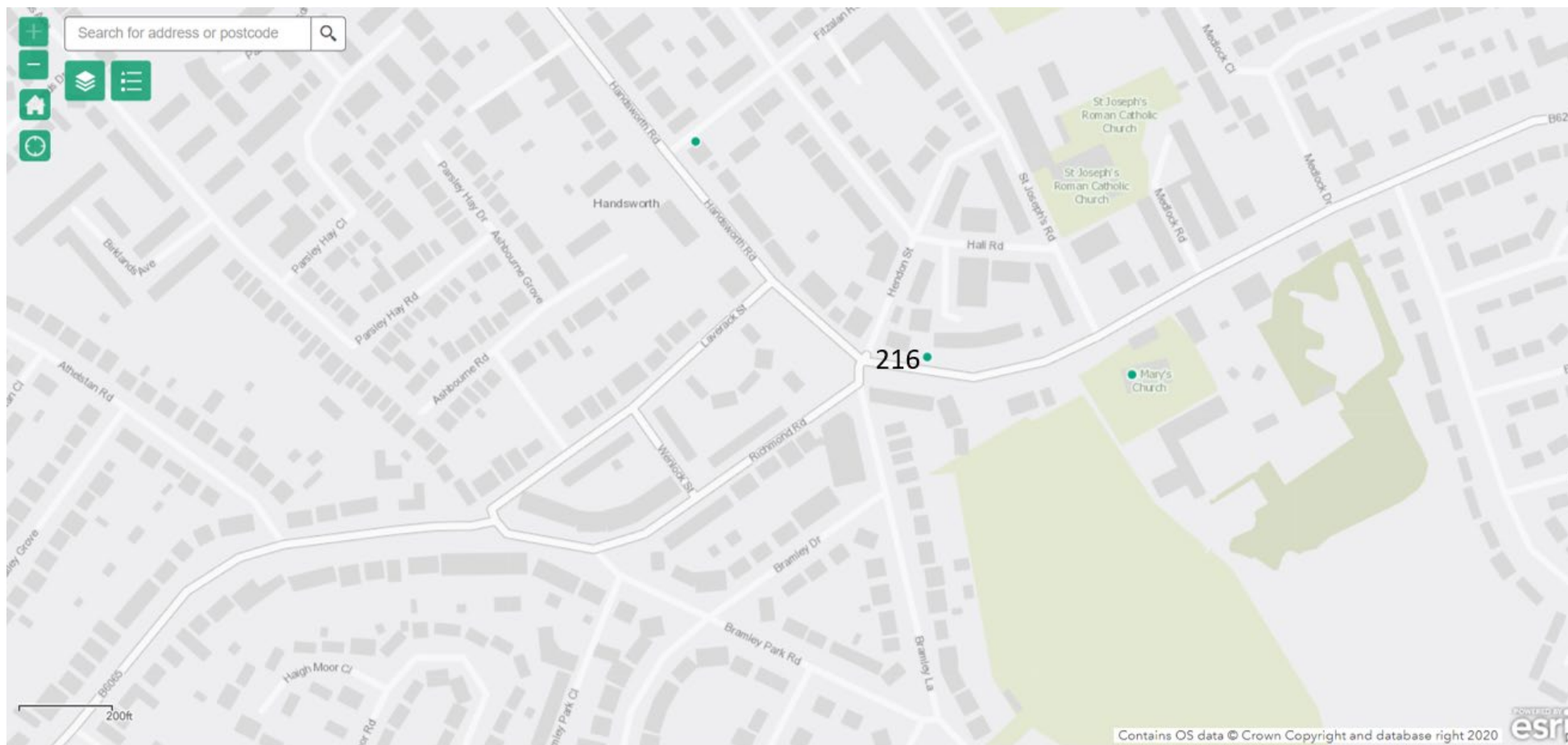












An online zoomable map is also available at [Diffusion Tubes \(arcgis.com\)](https://arcgis.com).

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England¹²

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO ₂)	200µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO ₂)	40µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM ₁₀)	40µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO ₂)	125µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO ₂)	266µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

¹² The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Chemical hazards and poisons report: Issue 28. June 2022. Published by UK Health Security Agency
- Air Quality Strategy – Framework for Local Authority Delivery. August 2023. Published by Defra.