GMCA GREATER MANCHESTER COMBINED AUTHORITY

2022 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, 2023.

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Executive Summary: Air Quality in Our Area

Air Quality in Greater Manchester

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas[1,2].

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

Greater Manchester has a population of more than 2.8 million residents in 10 districts over an area of approximately 500 square miles. Within the conurbation there is a mix of high-density urban areas, suburbs, semi-rural and rural locations, and the area is characterised by the strong regional centre of Manchester, Salford Quays and Trafford Park.

This Annual Status Report has been prepared to fulfil Greater Manchester authorities' duties under the Environment Act 1995 and specifically reports air quality based on the Local Air Quality Management (LAQM) monitoring regime and its progress of actions within the AQAP (Air Quality Action Plan). It is however important to note that Greater Manchester is currently developing a Clean Air Plan (CAP) to tackle exceedances of NO_2 at the roadside in compliance with a government direction. The Clean Air Plan has its own monitoring regime, which has different criteria to LAQM and as such the "CAP" monitoring results are included in this document but are reported separately.

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[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

[3] Defra. Air quality appraisal: damage cost guidance, January 2023

[4] Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

Long-term trends show that there has been an improvement in air quality. However, the COVID-19 pandemic and its associated travel restrictions reduced exceedances so significantly (to just 2 exceedances of the nitrogen dioxide (NO_2) annual mean objective in 2020, measured at manual/diffusion tube sites), that in the short-term since 2020, it appears that NO_2 concentrations in Greater Manchester have been increasing. However, when compared to 2019 levels there has been a significant improvement.

With regards to the LAQM results in 2022, 16 exceedances of the annual mean objective for NO_2 were recorded across the city-region at non-automatic stations, and one at the Manchester Oxford Road automatic monitoring site – which historically has often recorded the highest NO_2 concentration in the city-region. This compares with 60 and 3 exceedances respectively in 2019.

In 2022, we have seen an increasing concern with safe limits of Particulate Matter, especially the fine particulates known as $PM_{2.5}$. Government reviews have led to the introduction of 2 new legally binding air quality targets for $PM_{2.5}$ to be met by 2040, including an annual mean target concentration of 10 ug/m3. At the eight automatic monitoring stations where $PM_{2.5}$ was measured in both 2021 and 2022, all but one have recorded a higher concentration in 2022 (typically an increase of 1µg/m^3); with three out of ten monitors measuring an annual mean of 10µg/m^3 and four measuring 11µg/m^3. Equally, we can see an increase in annual mean concentrations of PM_{10} in 2022: however, these concentrations remain well below the annual mean objective.

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 Plan[5] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term $PM_{2.5}$ targets. The National Air Quality Strategy, published in April 2023, will provide more information on local authorities' responsibilities to work towards these new targets and

[5] Defra. Environmental Improvement Plan 2023, January 2023

reduce $PM_{2.5}$ in their areas. The Road to Zero[6] details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

The 10 Greater Manchester local authorities continue to action a number of measures to address air pollution contained within the Greater Manchester Air Quality Action Plan (AQAP), in addition to developing a Clean Air Plan as directed by Government.

As a way of background, the AQAP was produced in 2016 following a programme of consultation and workshops with key stakeholders, including the Greater Manchester local authorities, Public Health England (now UK Health Security Agency), Transport for Greater Manchester (TfGM) and Highways England (now National Highways), to obtain feedback on the new measures proposed in the draft plan.

Policies and actions were subsequently identified and divided into the following broad subjects, based on the area and type of effects that may be achieved:

- **Development management and planning regulation:** including standardisation of regulation and policy across the Greater Manchester region.
- **Freight and HGVs:** there are several opportunities to reduce emissions associated with the movement of freight and goods by road.
- **Buses:** Buses have a vital role to play in transporting the public and give opportunities to improve air quality. New legislative developments, the creation of the future Greater Manchester bus strategy and improvements to vehicle standards will all assist in ensuring that bus continues to play a vital role into the future, carrying the majority of public transport journeys made within the conurbation.
- **Cycling:** Existing strategies and initiatives encourage cycling.
- **Travel Choices:** Encouraging the public and businesses to make sustainable travel choices is essential in realising lasting air quality benefits.

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

- **Cars:** Measures to reduce emissions from cars and reduce the number of vehicle trips can deliver real improvements.
- **Information and resources:** Educating and informing the public, businesses and policy makers is seen as vital in bringing air quality improvements.

Much of this report is set out according to these themes. In 2022, progress has been made on a number of actions in the Air Quality Action Plan. Highlights include:

- The Bee Network – Greater Manchester's vision for an integrated transport system joining together buses, rail, trams, cycling and walking, continued development throughout 2022. 35 improved cycling and walking routes have now opened in Greater Manchester, supported by TfGM-led sustainable travel promotion schemes. In 2022, over 20km of new and upgraded cycling and walking routes were completed in Greater Manchester, with many more stretches of connecting networks being enabled.
- Forming a vital part of the Bee Network, the countdown to Bus Franchising continued in 2022. It will bring the bus network back under local control and provides enormous opportunities to clean up the fleet. An order has been placed for 170 new, state of the art electric buses – which will be brought into the network by 2024, on top of a further 50 electric Bee Network buses that will be operating from September 2023, with 50 more on the roads from March 2024.
- The Bee Network Cycle Hire scheme continued rolling out in 2022, and now includes over 1,500 bikes across Manchester, Trafford, and Salford. As of March 2023, the scheme had nearly 50,000 active users – all contributing to clean air and improved physical health within the City Centre.

- The Clean Air GM website saw a huge uplift in traffic to the site, with 1,305,102 unique pageviews in 2022.
- Across the city-region, schools and colleges continued to receive Active Travel grants in 2022, with over £360,000 now spent on initiatives that support cycling, walking and wheeling to school. 13 School Streets were delivered in Greater Manchester in 2022, providing cleaner and safer air for our children.

- Air Quality Grant funding from Defra has been used to inform residents about some of the health impacts of wood-burning stoves, along with safer ways of burning solid fuel.

Clean Air Plan Update

The Clean Air Plan has its own monitoring regime, which has different criteria to LAQM. NO_2 levels are measured against the long-term annual mean legal limit of 40µg/m^3.
The original Greater Manchester Clean Air Plan would have introduced charges for some of the most polluting vehicles from May 2022, as well funding for the upgrade of some vehicle types, with the intention of bringing NO_2 within the annual mean legal limit in the shortest possible time and by 2024 at the latest. There were no plans for charges for private cars, motorcycles and mopeds.

The original Greater Manchester Clean Air Plan was paused with the agreement of government pending a review. This is because the pandemic resulted in significant vehicle supply chain issues, rising vehicle prices, and a cost-of-living crisis. The original Clean Air Plan was no longer the right solution and could have caused significant financial hardship.

Government issued a new direction that Greater Manchester should review the original GM Clean Air Plan and deliver a new plan to bring NO_2 levels within legal limits in the shortest possible time and by 2026 at the latest.

In July 2022, Greater Manchester submitted to government the case for a new investment-led, non-charging Clean Air Plan to improve air quality without causing harm to jobs, livelihoods and businesses. In January 2023, government asked Greater Manchester for additional evidence to support its case for an investment-led, non-charging Clean Air Plan, and also to model the case for the new GM Clean Air Plan against the 'benchmark' of a charging zone in the regional centre.

Greater Manchester's leaders remain committed to an investment-led, non-charging Clean Air Plan and an update is due to be provided to members of the Greater Manchester Air Quality Administration Committee at its meeting in July 2023.

Conclusions and Priorities

The 2022 ASR covers in detail progress on all actions listed in the Air Quality Action Plan and includes information on the development of the GM CAP and a summary of CAP air quality monitoring results.

The GM local authorities carry out air quality monitoring for NO_2 using a combination of:

- Continuous automatic monitoring sites: There are currently 22 continuous air quality monitoring stations,[7] twelve of which are located at the roadside.
- Diffusion tubes: 434 sites are set up for Local Air Quality Management (LAQM) purposes. In addition, 432 sites are set up for GM Clean Air Plan monitoring and evaluation purposes[8], an increase of 210 sites from the previous year.

Details of these sites as well as data for 2022 can be found at Appendix A and Appendix B.

Maps showing the location of the LAQM monitoring sites are provided in Appendix D and on the **CleanAirGM Data Hub.**[9]

[7] One of the 22 sites had low data capture during 2022. Another site, Manchester Bridge St, had under 25% data capture and so results have only been included at points and should be treated with caution. See Appendix D.
[8] 222 of these were active for the full 2021 calendar year.

[9] www.cleanairgm.com/datahub

Table ES1 below summarises NO_2 concentrations and exceedances of the annual mean objective (AMO) across sites set up for Local Air Quality Management (LAQM) purposes (automatic and non-automatic) across GM in 2022.

Table ES1: Summary of LAQM NO_2 monitoring in GM in 2022

Authority	Automatic sites (with valid data capture 2022)[10]	Non-automatic sites	Concentration range (all sites) (µg/m^3)	Exceedances of NO_2 Annual Mean (non-automatic sites)		Increase / Decrease of Exceedances on Year
				In AQMA	Outside AQMA	
Bolton MBC	1	47	39.7 - 10.7	-	-	-1
Bury MBC	3	20	**40.5** - 20.9	1	-	0
Manchester CC	4	40	**49.8** - 15.2	4	-	1
Oldham MBC	1	27	**47** - 15.4	3	-	1
Rochdale MBC	1	26	36.4 - 12.9	-	-	0
Salford CC	3	49	**45.2** - 11.9	3	1	1
Stockport MBC	2	30	36.0 - 6.8	-	-	0
Tameside MBC	2	52	**45.9** - 9.8	3	-	1
Trafford MBC	3	18	31.7 - 11.5	-	-	0
Wigan MBC	2	125	**45.3** - 12.9	-	1	0
Total	22	434	**49.8** - 6.8	14	2	3

Trends in NO_2 concentrations across sites set up for LAQM purposes in Greater Manchester in 2022 can be summarised as follows:

- The highest NO_2 annual mean concentration recorded at an automatic site in 2022 was 43µg/m^3, measured at Oxford Road, Manchester. This annual mean concentration is down from 44µg/m^3 in 2021, and is the lowest annual mean concentration recorded at this monitoring station (aside from 2020). When adjusted for relevant exposure, the 2022 annual mean concentration is 38.4µg/m^3.
- In 2022, three of the 22 automatic air quality monitoring sites which were operational in 2021 have recorded increases in NO_2 annual mean concentrations of just 1µg/m^3.

[10] >25% (3 months or more) data capture.

Four automatic monitoring sites recorded the same concentration as 2021. 14 monitoring sites recorded a decrease compared with 2021 of between 1 µg/m^3 and 3.3 µg/m^3.

- There have been no exceedances of the NO_2 1-hour mean objective in 2022. Nor was there an exceedance of this objective in 2021.
- Of all 434 LAQM diffusion tubes operating across Greater Manchester in 2022, the highest annual mean concentration recorded was 49.8µg/m³ at Oxford St in Manchester,[11] which is inside the AQMA, when adjusted for relevant exposure the annual mean concentration is 46.2 µg/m³.
- Of the 427 LAQM diffusion tube sites operating in Greater Manchester in 2022 that were operating in 2021, 207 recorded higher annual means than the previous year of up to 11.8µg/m³, 10 remained the same concentration, and 210 recorded lower annual means than 2021 of up to -14.1 µg/m³.

In 2022 across sites set up for LAQM purposes, 16 exceedances of the AMO (Annual Mean Objective) for NO_2 (40 µg/m^3) were recorded by diffusion tubes. This is an increase of 3 from 2021, which has been seen as a recovery year after notably low number of exceedances in 2020 due to the lockdown measures during the COVID-19 pandemic, but still an improvement on 2019 where 60 diffusion tube locations exceeded the AMO.

Two of the exceedances in 2022 were recorded at non-automatic sites located outside of the AQMA, in Salford (SA86 on Bury Old Rd, next to the AQMA boundary) and in Wigan (WI180 – 4 Winwick Lane, Wigan). Exceedances at these sites are acknowledged and mitigation measures are being explored in Wigan, but in the case of any exceedances outside of the AQMA, and in agreement with Defra, the decision to declare an additional AQMA or to expand the current AQMA is being delayed until the outcome of the new GM CAP is determined.

For PM_{10} in 2022, increased concentrations of between 1 and 4µg/m^3 were recorded at 14 of the 19 automatic monitoring sites operating in 2021. The increase of 4µg/m^3 was recorded at Trafford monitoring station, potentially as a result of increased domestic burning in the area. The rest of the sites monitored the same concentration in 2022 as in 2021. There were no recorded exceedances of the annual mean objective (40µg/m^3) for PM_{10} in 2022.

[11] Annual Mean Concentration at the monitoring site Manchester 29A– i.e. not distance corrected for relevant exposure. Distance corrected concentration at this site is 46.2ug/m^3.

In 2022, two additional monitoring stations recorded $PM_{2.5}$ concentrations, bringing the total in GM to ten. Of the ten monitoring stations operational in 2022, seven recorded an increase in annual mean concentrations of between 0.7 and 2 µg/m^3, while the other original site, Tameside A635, recorded the same concentration as 2021. All monitoring stations were compliant with the national air quality objective for $PM_{2.5}$ (25 µg/m^3) in 2022.

The GM Clean Air Plan also monitors NO_2, using diffusion tubes[12]. However, the GM Clean Air Plan monitoring sites are sited according to EU Air Quality Directive requirements. Further explanation can be found in Section 2.3.2 of this report.

In 2022 a 12-month diffusion tube survey was carried out at 499 monitoring locations in Greater Manchester. The additional sites were installed at all roads predicted to exceed the limit values by the CAP target determination process, including at some locations adjacent to sections of the road network operated by National Highways. Results that can be compared with the annual average standard are available at 432 locations, following a review of data capture and siting criteria.

CAP air quality monitoring data showed 95 locations where exceedances of the nitrogen dioxide annual mean limit value in Greater Manchester were indicated, with a further 108 locations considered to be at risk of exceeding the limit. Of these the majority of new exceedances (45) were recorded at newly installed sites identified as at risk of poor air quality by the CAP modelling, and 5 sites that were not in exceedance in 2021 have increased to above the limit value in 2022.

The CAP monitoring data indicates that air pollution has increased compared with 2021, but is below levels recorded pre-pandemic in 2019. Analysis of the factors influencing pollution emissions and air quality indicate that the concentrations have been affected by:

- An increase in car traffic compared with 2021, and associated congestion although traffic is still below 2019;
- Differing weather conditions during in 2022 compared with 2021, reducing dispersion of pollutants – likely driven by warmer sunnier conditions over the year; and

[12] The GM Clean Air Plan monitor those sites where “target determination” modelling predicted illegally high levels of NO_2 in 2021. See cleanairgm.com for more detail.

- Bus fleet emissions as a result of the impact of the variable performance of the government's bus retrofit programme. (See page xi)

Table ES2 below summarises NO_2 concentrations and exceedances of the annual mean across sites set up for GM CAP purposes in 2022, with further details given under Section 2.4: "CAP Monitoring Results 2022".

Table ES2: Summary of GMCAP NO_2 monitoring in GM in 2022

Authority	Non-automatic sites	Concentration range (all sites) (µg/m^3)	No. Exceedances
Bolton MBC	32	**44.4**-20.1	4
Bury MBC	37	**45.1** – 25.9	7
Manchester CC	159	**64.7** – 19.1	48
Oldham MBC	19	**44.9** – 27.7	5
Rochdale MBC	15	**41.5** – 27.5	1
Salford CC	60	**47.6** – 24.7	13
Stockport MBC	47	**50.8** - 19	8
Tameside MBC	32	**67.3** – 23.1	8
Trafford MBC	18	**40.6** – 22.0	0
Wigan MBC	13	**44.9** – 25.1	1
Total	**432**		**95**

During 2022, overall regional Highways traffic levels were approximately 7.5% higher than in 2021.[13] Other modes of transport also saw sharp increases across Greater Manchester in 2022: Bus by 35.9%, Metrolink by 56.8%, Rail by 47.3% and Cycling by 30.7%; collectively this increase in travel behaviour indicates a return to travel similar to pre-pandemic.

In April 2023 Government advised TfGM that it is to pause any new spending on bus retrofit as they now have evidence that bus retrofit solutions that have been fitted and in real world use have variability in performance.

A remote sensing monitoring campaign conducted in 2022 has concluded that the Selective Catalytic Reduction (SCR) technology on retrofitted buses is not reducing NO_x emissions to the levels expected. The monitoring also showed significant variation in primary NO_2 (also known as 4-NO_2) emissions from different bus models with different retrofit technologies.

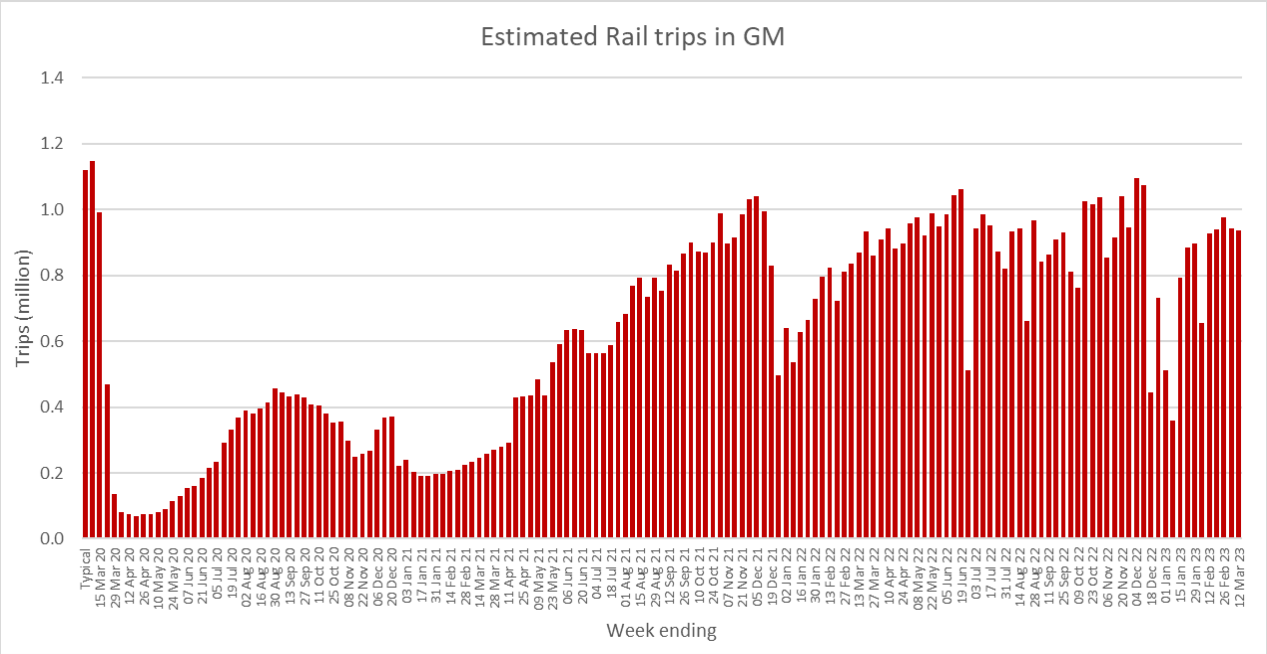
Nitrogen dioxide levels in GM are likely to have been influenced by Selective Catalytic Reduction (SCR) technology on retrofitted buses. At the end of May 2023, 925 vehicles had been fully retrofitted in the GM Bus retrofit programme.

Government is undertaking a six-month focused research programme to quickly investigate the causes of poor performance and scope how performance can be improved, reporting in the Autumn.

The overall increase in rail patronage results from a lower 2021 baseline disguises disruption to the network caused by industrial action throughout the latter half of 2022. Figure ES1 below depicts significant dips in rail patronage in Greater Manchester caused by industrial action in June and December 2022, with the intervening period displaying less consistent level of patronage, potentially caused by lowered passenger confidence. As of mid-March 2023, rail patronage remains 17% below the equivalent period pre-pandemic.

[13] GM Road Traffic estimate derived from 110+ ATC across GM. The 7.5% increase in Highways trips is a result of most of 2022 being free from COVID restrictions that encouraged people to minimize journeys for work and other purposes, once the plan B restrictions were lifted on 27 January 2022. In contrast, 2021 saw significant periods of restrictions. This increase in traffic will also have impacted levels of congestion across the road network, as volumes returned closer to pre-pandemic levels.

Figure ES1: Week-on-week estimated Rail trips in GM, 2012 - 2022



The private vehicles on our roads are also changing, and in doing so are changing the profile of emissions across Greater Manchester. New car registrations are down in 2022 from 2021 by 2% nationwide, although Battery-powered EVs and Hybrid EVs have enjoyed increased sales year-on-year by 40.1% and 27.6% respectively.[14] The number of used car transactions in 2022 was down 8.5% nationwide and 7.3% in the North West in 2022 from 2021, as a result of supply chain restraints.[15]

Local Engagement and How to get Involved

The Clean Air Greater Manchester website (**cleanairgm.com**) has been a key development in the local authorities' communication and engagement with the GM public since its launch in 2018. Dedicated Facebook (**facebook.com/cleanairgm**) and Twitter (**@CleanAirGM**) channels were also launched, with the conversation being tracked using the hashtag #cleanairgm.

cleanairgm.com contains a wealth of information and data on local air quality, the GM CAP, and how individuals can play their part and tips on reducing and avoiding air

[14] Society of Motor Manufacturers and Traders (SMMT), Dec 22 New Car Registrations (LINK)

[15] Society of Motor Manufacturers and Traders (SMMT), Used car sales: Q4 2022, (LINK)

pollution. A Schools section is also included on the website that includes a free air quality toolkit for schools to download.

Local Responsibilities and Commitment

This ASR was prepared by the Greater Manchester Air Quality Working Group, with the support and agreement of the officers listed on page 2 of the report. This ASR has been approved by:

Bury MBC: Chris Horth, Unit Manager – Environment Team

Bolton MBC: Andrew Bolan, Head of Service, Regulatory Services

Manchester CC: James Tate, Interim Head of Infrastructure & Environment

Oldham Council: Neil Crabtree, Head of Public Protection

Rochdale MBC: Nicola Rogers, Assistant Director, Information, Customers & Communities

Salford CC: Rob Owen, Head of Highways and Network Management

Stockport MBC: Sue Stevenson, Head of Highways and Transportation

Tameside MBC: Emma Varnam, Assistant Director Operations and Neighbourhoods

Trafford MBC: Nigel Smith, Head of Public Protection

Wigan MBC: Julie Middlehurst, Assistant Director, Infrastructure & Regulatory Services

Greater Manchester Director of Public Health Lead for Clean Air: Jilla Burgess-Allen Stockport MBC[16]

If you have any comments on this ASR please send them to:

TfGM, 2 Piccadilly Place, Manchester, M1 3BG. Email info@cleanairgm.com

[16] This has also been reviewed by Dr. Kristina Poole, Consultant in Health Protection & Head of Health Protection (Greater Manchester), UK Health Security Agency.

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Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in Greater Manchester during 2022. 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 Greater Manchester to improve air quality and any progress that has been made.

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

2 Actions to Improve Air Quality

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 must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Greater Manchester can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries, is available online at https://uk-air.defra.gov.uk/aqma/maps. Alternatively, see Appendix D, a map of air quality monitoring locations in relation to the AQMA(s).

The air quality objectives pertinent to the current AQMA designation relate to the NO_2 annual 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
AQMA Greater Manchester	Declared 01/05/2016	NO2 annual mean	An area covering the 10 districts of Greater Manchester, including arterial routes, district centres, and airport.	YES	58.7[17]	46.2[18]	0	Greater Manchester Air Quality Action Plan 2016-2021, (16.12.2016)	https://cleanairgm.com/technical-documents/

☒ **Greater Manchester confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **Greater Manchester confirm that all current AQAPs have been submitted to Defra.**

[17] Oxford Road, Distance corrected.

[18] Diffusion Tube on Oxford Street, Manchester. Distance corrected.

Progress and Impact of Measures to address Air Quality in Greater Manchester

The following sections of the report are organised as follows: Section 2.2.1 provides Transport for Greater Manchester's city-region-wide updates, often impacting many or all 10 Local Authorities. Section 2.2.2 provides more in-depth updates from each of the 10 Local Authorities. Local Authorities are organised alphabetically.

Each Section provides updates according to the measures outlined in the 2016 – 2021 Greater Manchester Air Quality Action Plan.

A shorter summary of city-region wide updates can be viewed at Table 2.2.

2.1.1 Progress on actions across Greater Manchester

Development management and planning regulation

(AQAP 1.1 & 1.2) Development management and planning regulation

Updates on these actions are given by district below.

(AQAP 1.3) Cumulative Development Database

This database is no longer being updated as it was not providing LA Officers with any useful additional insight.

(AQAP 1.4) Clean Air Zone Appraisal

Further details of the current status of the Clean Air Plan in Greater Manchester are described above.

(AQAP 1.5) 20mph Zones

Updates on this action are given by district below.

(AQAP 1.6) Encouraging Travel Planning

TfGM's Partnerships and Engagement team uses tactical partnerships to engage with large and networked employers and partner organisations. This includes business and employer membership networks, representative organisations and Local Authority business facing teams, to ensure engagement can be delivered at scale across the ten districts of GM.

The Business Engagement (BE) team has regular meetings with the 10 Local Authority business teams, which provides an opportunity to offer updates on high level activities and receive insight and feedback about localised business transport issues.

The team uses tactical partnerships to help shape campaigns. This new approach, which engages local authorities and businesses from the start of campaign planning, means that stakeholders have an active role in the formation of campaigns. A recent example of this is the It's Your Move Active Travel campaign, where TfGM is working with the local authorities to select dates, and what activations and schemes should be celebrated within each borough.

In July 2021, TfGM's Partnerships & Engagement team launched the Business Travel Portal which provides a comprehensive collection of support, offers and guidance for businesses and employers who want to support sustainable travel to the workplace, for both workforce and visitors. The portal provides information on local and national corporate ticketing offers for public transport, rethinking the commute, encouraging active travel amongst employees, and more broadly access to information about wider support available to businesses. The portal is updated approximately every four months to keep information up-to-date and relevant.

Practical resources on the portal include a Business Commuter Toolkit to support businesses to assess and review their commuter planning – supporting the increasing number of businesses contacting TfGM looking to encourage more sustainable travel, including re-thinking how they and their workforce commute. This was co-designed with partners such as the Growth Company, business-facing Local Authority teams and business and employer representatives to support its development.

The Business Travel Network newsletter is circulated every month to approximately 430 members and includes information on projects and developments relevant to employers, business portal advertisement, current campaigns, and news from partners.

The BE team launched a Business Transport Survey on 13 March 2023 to understand the opportunities and challenges to businesses taking up sustainable travel for their employees and business operations. Responses will be used to inform the development of the Bee Network and the information, advice and resources targeted to employers. This will be rolled out in 6 months phases to monitor progress.

The BE team have been working since the New Year to set up a Business Travel Forum (BTF). The objective of the BTF is that the forum will represent businesses of Greater

Manchester (GM) and offer non-binding, strategic advice to TfGM. The forum will help to shape the future development of the Bee Network (and any associated projects) by ensuring that a business voice is at the heart of future decision making at TfGM. The BTF aims to be operational in the coming months.

(AQAP 1.7) Taxi and private hire quality controls to prioritise Low Emission Vehicles

This AQAP action aligns with goals for GM local licensing authorities to progressively harmonise Hackney Carriage and Private Hire Vehicle (PHV) standards to encourage low and zero emission vehicles. Full public consultation on Minimum Licensing Standards was undertaken in parallel with the GM CAP at the end of 2020 across Greater Manchester. Proposals informed by the outputs of the public consultation were endorsed by GMCA, including age and emission standards, but implementation of standards by GM Districts has been affected by the pause in the GM Clean Air Plan. Once a way forward is agreed by Government / GM, progress on licensing standards for vehicles will be pursued, potentially accompanied by a Clean Taxi fund. Despite the pause, both the number and proportion of hackneys and PH vehicles licensed by GM local authorities that are compliant with CAZ standards continues to increase across GM.

(AQAP 1.8) Green infrastructure

Collaborative project between Groundwork Trust, Lancaster University, Manchester City Council and TfGM, researching the use of vegetation in green barriers to trap and filter airborne pollution particles before they reach school playgrounds and classrooms concluded in 2022. Results from the study are being disseminated across Local Authorities.

Protecting Playground 'Tredge'. Image: Groundwork

Freight and Heavy Goods Vehicles

(AQAP 2.1) Delivery & Service Plans

TfGM does not currently have resource allocated to deliver and advise on Delivery & Service Plans (DSPs). However, impacts from previously implemented DSPs continue to be felt in some Districts. Please review previous years' ASRs for more information.

(AQAP 2.2) Urban Distribution Centres

The Logistics & Environment team at TfGM will review this action as part of the refresh of freight strategies that is currently in progress. See AQAP 2.3 (Urban Consolidation) for information relating to work with businesses exploring e-cargo bikes.

(AQAP 2.3) Urban Consolidation

Amazon have chosen to trial e-cargo bikes in Greater Manchester, partly due to the high levels of appropriate infrastructure in the area. We will continue to work with all couriers and help to facilitate other cycle logistics activity.

(AQAP 2.4) Access for freight to key economic centres and sub-regional freight facilities

The ongoing consideration of Greater Manchester's Freight Strategies will provide guidance on access for freight to key economic centres at a strategic, multi-modal level. Details of this are currently being discussed between TfGM and local authorities.

(AQAP 2.5) Freight information channels

The Travel Demand team is now well established at TfGM. Since the lifting of COVID-19 restrictions, this team has continued to work on implementing the best methods for sharing information to a freight specific audience. This has included sharing updates on the Greater Manchester Clean Air Plan with the Freight Forum. During 2022, TfGM concluded its three-year investment into CLOCS (Construction Logistics and Community Safety), but remains it's place on the board.

(AQAP 2.7) Engine idling

Idling across all vehicle types has been raised by a number of local residents. A Task & Finish Group operates in GM looking at minimising emissions from idling. This group has undertaken a review of idling complaints across Greater Manchester, and advice has been provided to local authorities on their statutory powers to enforce against idling vehicles. This was in response to enquiries about specific scenarios where there had been complaints or ongoing issues with idling.

(AQAP 2.8) Alternative fuels

The Trafford Green Hydrogen project has now established the Great Manchester Region as one of the UK's leading hubs in establishing a green hydrogen infrastructure comprising production, storage and delivery networks. Over the course of the last 12 month period, the project has:

- Secured formal planning permission and is now recognised as the UK's largest consented Green Hydrogen Scheme
- Secured the required grid connections, land and created the development platform for the site
- Agreed industrial off takers
- Submitted an application for the BEIS Hydrogen Business Model
- Supported the creation of a wider Greater Manchester hydrogen cluster that will create a network of hydrogen stakeholders in the region to maximise benefits for hydrogen producers, hydrogen offtakers, local authorities and academic institutions, skilled workers and individuals in the hydrogen business economy and the general public. TfGM has led local policy and is in the process of delivering programmes that will provide the infrastructure for alternative fuels.

A refresh of the GM Freight Strategy is underway in order to understand the potential for modal shift of freight and changes in operations that will result in more sustainable movement of freight. The refresh will also scope out a follow on "GM roadmap to low emission freight" that will consider the technological, operational, infrastructure and policy changes (including alternative fuels) that will be required to meet GM carbon targets.

Bus

(AQAP 3.1) Bus priority measures

Routes identified within the Delivery Plan are currently being developed through to delivery through the City Region Sustainable Transport Settlement (CRSTS) bus programme. This includes bus and active travel improvements to the following corridors through the current funding allocation up to 2027:

- Rochdale – Oldham – Ashton
- Salford Crescent – MediaCityUK
- Bury – Rochdale
- Ashton – Stockport

An allocation has also been made for improvements on bus corridors that connect to the City Centre from across GM, and these are currently being developed with relevant local authorities. As well as bus priority measures, this will include walking and cycling improvements.

Improvements aim to increase bus patronage and reduce private car usage.

(AQAP 3.2) Bus improvements

TfGM is engaging with stakeholders to establish options and solutions available to successfully deploy and optimise zero emission buses and associated infrastructure.

Greater Manchester's 2021 application to Department for Transport's Zero-Emission Buses Regional Area (ZEBRA) scheme was successful, securing £35.8 million to introduce 170 green buses to the region by 2024, equating to 10% of the whole bus fleet in GM.

In April 2022, Greater Manchester was awarded its City Region Sustainable Transport Settlement (CRSTS) and an allocation of £115m from that award has been made towards Zero Emission Buses with the aim that a third of the bus fleet in Greater Manchester will be zero emission by 2027. These funds will be used to fund the incremental costs of updating buses to zero emission over and above the cost of new diesels. 100 CRSTS-funded Zero Emission Buses have now been ordered, and TfGM has established governance /planning processes to ensure that depot power upgrades and depot charging infrastructure are in place so that the electric buses are deployed onto the Bee Network.

On 29th July 2022, GMCA agreed that 50 Zero Emission Buses would be purchased to be deployed across the first franchised area (Wigan and Bolton) from Tranche 1 of Bus Franchising. Tranche 1 Franchise contract awards were awarded on Friday 23 December 2022.

To support the roll out of this new fleet of world-class, environmentally friendly buses, Greater Manchester has been awarded £7.5m from the Department of Levelling-Up Housing and Communities to buy land for a leading, state-of-the-art electronic bus depot.

(AQAP 3.3) Hybrid bus improvements

In 2022, TfGM successfully completed the retro fitment of the owned Optare hybrid bus fleet with SCRT exhaust after-treatment technology to help improve tailpipe emissions from Euro 5 vehicles.

(AQAP 3.4) Trial of Low Emission Vehicles

Bus Franchising and CRSTS funding are prioritising electrification of the GM bus fleet, meaning no other trials of Low Emission Vehicles were conducted in 2022. Zero Emission bus data will be analysed in order to identify any opportunities for optimisation.

Cycling

(AQAP 4.1) Cycle programmes

Greater Manchester's mission to deliver the first fully connected cycle network in the UK, as part of the Bee Network, gathered pace in 2022, and continued to be supported by TfGM-led sustainable travel promotion schemes. Over £100m of schemes funded through the Mayor's Cycling and Walking Challenge Fund (MCF) now have Full Business Case Approval. Major corridor schemes such as Trafford Road in Salford and Phase 2 of Chorlton Road in Manchester were completed in 2022, including eight new 'Cyclops' junctions – the new junction design pioneered by Greater Manchester which enables full Dutch-style protection of all movements for those riding bikes for the first time in the UK. The total number of schemes at full delivery phase has increased to 47, with 28 complete and a further 15 on-site.

(AQAP 4.2) Public cycle hire

Public cycle hire TfGM has worked with three local authorities to launch a public cycle hire scheme which provides self-service, 24/7 access to bikes and e-bikes for more than 100,000 households, workers and visitors across the regional centre. The scheme aims to contribute towards mode shift away from private motor vehicles. Beryl were appointed as the service provider in summer 2021 and the initial phase of the scheme was launched in November 2021. The scheme has been rolled out across the regional centre in 2022 and this will conclude in 2023. The scheme has a fleet of 1,500 bikes, including 300 e-bikes. The scheme has funding to run for an initial period of five years until November 2026. The scheme will be measured against three objectives: providing access to bikes, increasing cycle use in Greater Manchester, and contributing to modal shift towards sustainable travel.

As of March 2023, the public cycle hire scheme had 45,571 active users.

(AQAP 4.3) Cycle logistics

Amazon have chosen to trial e-cargo bikes in Greater Manchester, partly due to the high levels of appropriate infrastructure in the area. We will continue to work with Amazon and other couriers to explore other cycle logistics activity.

(AQAP 4.4) Cycle to 2040

Greater Manchester has set out a refreshed Active Travel mission under the guidance of Dame Sarah Storey, our new Active Travel Commissioner. This is supported through two main areas of work related to behaviour change:

- Activation: Communicating and marketing the Bee Network to encourage and enable behaviour change – incorporating specific activation work supporting capital schemes.
- Access: Providing access to services and interventions to reduce barriers and enable change, including a broad range of projects such as cycle training and Bike Libraries, as well as the Cycle and Stride project which is helping local communities become more active through cycling and walking.

(AQAP 5.1) Car Clubs

TfGM was involved in the Interreg North-West Europe funded eHUBS project. The pilot aimed to accelerate the transition to shared and electric mobility services and, therefore, reduce carbon emissions. The project launched to the public in October 2021 with a phased roll-out of vehicles and completed in December 2022. This led to the installation of 10 Hybrid/EVs (as part of a car club) for rental across Chorlton, Whalley Range, East Didsbury, Bury and Prestwich. Each of these locations have a duel headed fast charger for exclusive Car Club use. TfGM are continuing to develop the case for a car club offering for the whole of Greater Manchester and continually engaging with districts to enable this in the near future.

TfGM's Business Engagement team has been reviewing GM Car Share – TfGM's journey matching solution that began in 2014. The Covid 19 pandemic disrupted car sharing, and since then, the scheme has been paused. TfGM's focus has shifted on moving people from car onto public transport, and the GM Car Share review has shone light on simpler alternatives that are available, how congestion is being addressed via alternative options, and that a cost-constrained environment may limit resource available to implement a worthwhile programme.

(AQAP 5.2) Dynamic road network efficiency and travel information system

During 2022 adaptive signal control has been rolled out at 32 junctions (29 SCOOT and 3 MOVA). Adaptive signal control dynamically changes signal timings dependent on demand. Smoothing congestion and making the most of the available highway capacity. The SCOOT system is also being used to provide priority to late running buses at an additional 60

locations on a number of corridors. Improving the performance and benefits of public transport. Trials are also underway to introduce active travel demand into the SCOOT model making the system response to the movement of people whatever mode they choose to travel.

Urban Traffic Control (UTC) and TfGM's control centre have also developed the use of signal timing strategies. These interventions are deployed during known scenarios which see periodic, recurrent congestion and/or substantial changes in demand and travel behaviour such as for a closure on the Strategic Road Network (SRN). An evaluation of the benefits of these strategies identified a journey time saving each time the strategy was activated.

TfGM has also been working closely with partners to improve customer information. We have been sharing information with navigation service providers such as TomTom and our participation in the 'Waze for Cities' scheme enables us to log incidents and events and send push notifications for pre-planned events for regular network users. Information logged in Waze is also picked up by other navigation and mapping service providers.

Cars

(AQAP 6.1) EV Charging network

There are now around 1200 EV connectors in Greater Manchester.

TfGM commissioned a study exploring the future rollout of Electric Vehicle Charging Infrastructure (EVCI). This was a high-level review to establish how the public sector can best influence the rollout of publicly accessible EVCI and how can we maximise our assets to encourage and accelerate the transition to EVs, without creating ongoing revenue issues. This study was reported to the GMCA in March 2023, and outlined that Local Authorities need to increase the level of partnership with ChargePoint operators in order to meet the scale of rollout that will be required. The study concluded that available public funding should be used to help deliver charging in uncommercial or underserved areas.

GM are now taking steps to allocate CRSTS and LEVI (Local Electric Vehicle Infrastructure) funds to meet these objectives. £8.5m is allocated within CRSTS for EVCI to fund infrastructure in underserved or otherwise uncommercial areas, in partnership with charge point operators. Funding has also been made available through the Local Electric Vehicle Infrastructure (LEVI) capability fund to increase the resource/officer time spent on EVCI projects. Additional funding has been requested to enable Local Authorities to accelerate roll-out. GM authorities are also in discussions with OZEV regarding the capital element of LEVI, where up to £16.2m has been available to Greater Manchester.

Further updates are given by district in Section 2.2.2 below.

(AQAP 6.2) Car use allowances

Updates to this action are given by district below.

(AQAP 6.3) Local authority parking charges

Updates to this action are given by district below.

(AQAP 6.4) School travel

In 2022, TfGM continued to support schools and colleges by providing funding for active travel grants to increase and improve cycle parking provisions for staff, pupils and visitors.

Delivery of these grants started in 2021. Funded through the Active Travel Fund and Capability Funds, primary schools, secondary schools, and colleges located within 5km of district and regional centres were eligible to apply.

Over £360,000 has now been spent on active travel grants across Greater Manchester schools delivering over 1000 new and improved cycle parking spaces.

The table below outlines Active Travel Grant funding awards.

Table 2A: Schools and colleges in receipt of Active Travel Grants

School	District	Grant amount paid (£)	Purpose
Abraham Moss Community School	Manchester	£9,984.00	Cycle parking
All Saints CE Primary	Bolton	£7,222.00	Cycle parking
Alma Park Primary School	Manchester	£8,690.00	Cycle parking
Poplar Street Primary School	Tameside	£9,620.00	Cycle parking
Atherton High School	Wigan	£10,000.00	Cycle parking
Brookburn Primary School	Manchester	£3,696.00	Cycle parking
Cathedral School of St Peter and St John	Salford	£4,115.20	Cycle parking
Chantlers Primary	Bury	£7,840.00	Cycle parking
Dean Trust Rose Bridge	Wigan	£7,889.40	Cycle parking
Dean Trust Wigan	Wigan	£9,500.00	Cycle parking
Delamere School	Manchester	£4,960.00	Cycle parking
Friars Primary School	Salford	£1,417.16	Cycle parking
Gatley Primary School	Stockport	£1,340.00	Cycle parking
Greswell Primary School	Tameside	£7,990.00	Cycle parking
Guardian Angels' RC Primary School	Bury	£10,000.00	Cycle parking
Hardy Mill Primary School	Bolton	£5,311.00	Cycle parking
Heyes Lane Primary	Trafford	£10,000.00	Cycle parking
Kings Road Primary School	Manchester	£6,300.00	Cycle parking

School	District	Grant amount paid (£)	Purpose
Laurus Cheadle Hulme High School	Stockport	£10,000.00	Cycle parking
Laurus Didsbury High	Manchester	£2,682.00	Cycle parking
Laurus Hazel Grove High School	Stockport	£5,658.00	Cycle parking
Laurus Ryecroft	Tameside	£5,352.86	Cycle parking
Limehurst Primary School	Oldham	£6,531.12	Cycle parking
Lowton CE High School	Wigan	£10,000.00	Cycle parking
Manchester College	Manchester	£8,170.00	Cycle parking
Masefield Primary	Bolton	£6,096.00	Cycle parking
Moorgate Primary	Bolton	£694.00	Cycle parking
Oswald Road Primary School	Manchester	£6,945.00	Cycle parking
Seymour Park Community Primary School	Trafford	£10,000.00	Cycle parking
Sharples School	Bolton	£10,000.00	Cycle parking
SS Aidan & Oswald RC Primary School	Oldham	£6,200.00	Cycle parking
SS Simon & Jude	Bolton	£8,016.56	Cycle parking
St Aidan’s Catholic Primary School	Wigan	£2,630.00	Cycle parking
St Anne’s RC Voluntary Academy	Stockport	£9,162.00	Cycle parking
St Christopher's RC Primary and Nursery School	Tameside	£8,220.00	Cycle parking
St George's CE Primary School	Salford	£4,552.00	Cycle parking
St Gilbert's RC Primary School	Salford	£1,270.00	Cycle parking
St Gregory’s RC Primary School	Bolton	£3,871.50	Cycle parking
St James Catholic High School	Stockport	£10,000.00	Cycle parking
St Jude’s Catholic Primary School	Wigan	£1,720.00	Cycle parking
St Kentigern’s RC Primary School	Manchester	£5,980.73	Cycle parking
St Mary's CE Primary School	Manchester	£5,721.00	Cycle parking
St Paul's CE Primary School	Salford	£4,035.20	Cycle parking
St Peter's Catholic Primary	Manchester	£5,555.00	Cycle parking
St Thomas CE Primary School	Oldham	£9,495.00	Cycle parking
St Thomas More RC College	Manchester	£10,000.00	Cycle parking
Standish Community High School	Wigan	£10,000.00	Cycle parking
Stockport School	Stockport	£10,000.00	Cycle parking
Stretford Grammar School	Manchester	£4,500.00	Cycle parking
The Westleigh School	Wigan	£10,000.00	Cycle parking
Thornleigh Salesian College	Bolton	£4,000.00	Cycle parking
Wellacre Academy	Manchester	£5,450.00	Cycle parking
Clarendon Road Primary School	Salford	£3,600.00	Staff cycle parking
Wright Robinson School	Manchester	£10,000.00	Staff cycle parking

School	District	Grant amount paid (£)	Purpose
TOTAL:		**£361,982.73**	

For more information, see updates by district in Section 2.2.2 below.

School streets

A School Street aims to address congestion and road safety issues at the school gate by restricting motorised traffic at drop-off and pick-up times. The restriction applies both to school traffic and through traffic, on weekdays during school term time.

TfGM has earmarked £500,000 from its £15.9 million grant from national government's Active Travel Fund to deliver 50 School Streets across Greater Manchester (GM). £439,230.87 has been allocated to deliver 41 schemes across 43 schools in 10 GM districts. £25,000 has been allocated to deliver Air Quality monitoring at two schemes (1 in Trafford, 1 in Manchester). The remaining funds will be utilised for additional monitoring and evaluation of the programme.

The fund is managed by TfGM; however schemes are delivered locally by the Local Authorities, who have each bid for funding School Street schemes in their borough.

In 2022 13 schemes, covering 14 schools, were delivered:

- St Paul's C of E Primary School, Withington, St Pauls Road, Withington, Manchester, M20 4PG
- St Mary's C of E Primary School, Broomfield Drive, South Reddish, Stockport, SK5 7DR
- St Joseph's Catholic Primary School, Etchells Street, St Petersgate, Stockport, SK1 1EF
- Adswood Primary School, Garners Lane, Adswood, Stockport, SK3 8PQ
- Bradshaw Hall Primary School, Vernon Close, Cheadle Hulme, Cheadle, Stockport, SK8 6AN
- Cheadle Primary School, Ashfield Road, Cheadle, SK8 1BB
- Our Lady's Catholic Primary School, Old Chapel Street, Edgeley, Stockport, SK3 9HX
- St Matthew's C of E Primary School, Bowdon Street, Edgeley, Stockport, SK3 9EA
- Leigh Central Primary School and Sacred Heart Catholic School; Leigh Central Primary School, Windermere Road Leigh, WN7 1UY & Sacred Heart Catholic Primary School, Windermere Road, Leigh WN7 1UX

*Of the 7 Stockport schemes, 3 have continued after the trial period ended

For more information, see updates by district in Section 2.2.2 below.

Youth Travel Ambassador pilot

Through the Capability Fund, eight secondary schools across GM are participating in an exciting new pilot to empower students with the skills and confidence to address transport issues affecting their school community.

The Youth Travel Ambassador (YTA) programme is using a student-led approach to identify and support 130 student travel ambassadors to devise and implement their own campaigns to encourage more students to cycle, walk or scoot to school.

Table 2B: Youth Travel Ambassador programme

Schools participating (2022/23)	District
Altrincham Grammar School for Girls	Trafford
Cheadle Hulme High School	Stockport
Levenshulme High School	Manchester
Manchester Communication Academy	Manchester
Piper Hill High School	Manchester
Saddleworth School	Oldham
Stretford High School	Trafford
Stockport Academy	Stockport
Denton Community College	Tameside

Schools participating (2022/23)	District
Didsbury High School	Manchester
Hawkley Hall High School	Wigan
Wellacre Academy	Trafford

Modeshift STARS

Modeshift STARS is an online travel planning platform which recognises excellence in encouraging active and sustainable travel through accreditation. It provides schools with the tools and resources to implement their own travel plan and active travel initiatives, and allows districts to monitor and promote activity and to receive accreditation based on modal shift.

After an initial pilot in 2019, TfGM has secured funding to make the platform available to all 10 Greater Manchester local authorities. The platform is also being utilised for monitoring and evaluation purposes as part of the Youth Travel Ambassador pilot and School Streets programme.

Cycle Confidence – Own the Ride

Funded through the Capability Fund, the aim of this project is to provide cycle training to secondary schools to support and encourage more students to cycle to school more often.

This consists of a one-and-a-half-day course available for those students who can already cycle. The course will enhance the student's skills and will help them to plan routes to school, as well as gaining an understanding of the Bee Network.

Over the course of 2022, TfGM delivered 17 courses at 8 Secondary Schools, which were attended by 160 pupils.

(AQAP 7.1) Website and online resources

In 2021 cleanairgm.com saw major updates and a huge uplift in traffic to the site, which was largely due to campaign activity to raise awareness of the original Greater Manchester Clean Air Plan proposals.

During the first quarter of 2022, traffic to the website remained high due to public interest in the plans.

In January 2022, the Greater Manchester Mayor and 10 local authority leaders submitted evidence to government that the original Clean Air Plan was unworkable. Subsequently, in

February 2022, government agreed to lift the legal direction requiring the 10 GM local authorities to implement a category C Clean Air Zone to deliver compliance with nitrogen dioxide legal limits on the local road network in the shortest possible time and by 2024 at the latest.

A new legal direction was issued (to meet legal limits for nitrogen dioxide on local roads "in the shortest possible time" and by 2026 at the latest) at this time and a significant number of updates were made to cleanairgm.com to reflect that the Clean Air Plan was under review with government. This included removing vehicle-specific and Clean Air Zone map pages and switching off the vehicle checker and 'Discounts and Exemptions' page.

At this point the Clean Air Plan web page became the sole home of all current, relevant information. The page was updated again in the summer, following the submission of Greater Manchester's case for an investment-led, non-charging Clean Air Plan to government in July 2022.

In 2022, cleanairgm.com continued to see an uplift in annual traffic to the site. The first quarter was the busiest period for visits, reflecting the project activity at this time.

In the last year, the website was visited by **1,305,102** people (unique pageviews), up from 896,576 in 2021. There were also **1,564,097** pageviews, which was an increase compared to 1,099,377 in the previous year.

The most visited pages in 2022 reflected the significant updates made to cleanairgm.com, with the homepage being the most visited, with 295,076 unique pageviews. The second most visited page was the Clean Air Plan page with 174,755 visits. The Clean Air Zone Map page (which was removed in February 2022) was the third most visited with 155,446 of overall pageviews, reflecting high interest in the detail of the original Clean Air Zone measures at the time. The vehicle pages for the original Clean Air Plan were also visited frequently before being removed in February 2022.

The 'bounce rate' for the Clean Air website over 2022 was at 55.64%, a decrease on the 56.59% figure in 2021, which shows fewer people were leaving the website without engaging with its content. Most websites will see bounce rates fall somewhere between 26% and 70%.

Other activity on cleanairgm.com in 2022 included updating the Data Hub so that it is easier for people to view historical air pollution data for nitrogen dioxide across Greater Manchester. This includes a map of diffusion tubes for the Clean Air Plan and Local Air Quality Management data.

(AQAP 7.2) Online Route Finding

The TfGM.com journey planner currently facilitates 120,000 journey plans per month. This is expected to rise in September when Tranche 1 of Bus Franchising begins alongside the implementation of the Bee Network App which will also have a new journey planner – meaning more customers can plan public and active travel journeys. The journey planning supplier will enable customers to plan journeys based on time, cost, calories burnt, environmental impact and more features – a key element being cycling and walking routes.

(AQAP 7.3) Pollution Alert

People can sign up for pollution alerts on the **Forecasts and Alerts page** on the CleanAirGM website. There were 635 users across GM as of March 2023 with registered subscribers in all GM districts, up from 390 the year before. The number of days that received at least one MODERATE (or higher) forecast in the year 2022 was 183, up from 100 in 2021.

Table 2C: Number of pollution alerts and subscribers by district

Authority	Days that have received at least one MODERATE (or higher) forecast in 2022	Number of subscribers (March 2023)
Bolton	18	65
Bury	19	19
Manchester	17	292
Oldham	22	11
Rochdale	21	40
Salford	16	50
Stockport	18	47
Tameside	19	18
Trafford	16	34
Wigan	17	59
Total	**183**	**635**

(AQAP 7.4) Health impacts of air pollution in Greater Manchester

The health impacts of air quality are explored and explained in detail within the Chief Medical Officer's Annual report 2022 (the full report is available at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1124738/chief-medical-officers-annual-report-air-pollution-dec-2022.pdf, an executive summary is available at

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1121599/executive-summary-and-recommendations-air-pollution.pdf).

The report explains how air pollution has negative effects on health throughout the course of life, from pre-birth to old age, and how the effects of air pollution can be seen across the population. The report highlights that outdoor air quality in this country has improved significantly since the 1980s, and lays out a series of recommendations to help us collectively go further to reduce air pollution. Improvements in air quality have already been associated with improved health outcomes and the report explains how further reductions in air pollution will lead to significant reductions in diseases such as coronary heart disease, stroke and lung cancer.

A 2023 study by Asthma + Lung UK found that Manchester and Salford have some of the highest emergency admission and death rates for lung conditions in the UK. The study points to the health inequalities across the UK, with multiple locations suffering from higher risk of emergency admission located in the Northwest of England.

(AQAP 7.5) Contingency report plan

A draft project was developed in consultation with primary care practices to create Clean Air Practices that would include providing advice to targeted patients around air quality alerts. This was delayed due to the COVID-19 response and resourcing.

(AQAP 7.6) TfGM air quality team

Additional member added to air quality team in 2017.

(AQAP 7.7) Air quality monitoring database

TfGM are collating all AQ data and maintaining the database. This data is now being published on the **cleanairgm.com** website.

(AQAP 7.8) Traffic flow data

Conducted as part of the Clean Air Plan work.

(AQAP 7.9) Awareness raising

Over winter 2022/23, Greater Manchester's ten local authorities helped deliver a TfGM-coordinated behaviour change campaign about the risks of air pollution (PM_{10} and $PM_{2.5}$) from domestic solid fuel burning. Running from 7 December 2022 to end-February 2023, the campaign, which targeted areas with known users of domestic burning equipment, successfully raised awareness of the health impacts of domestic burning and encouraged less polluting burning behaviours.

A series of digital communication toolkits were shared with partners across Greater Manchester, supported by digital marketing content. Alongside sharing assets to create awareness of campaign messaging, the primary aim of TfGM's domestic burning campaign was to drive people to the Defra Burn Better landing page, where additional information is provided on safer use of solid fuels.

The campaign was successful in generating 12 million opportunities for people to see or hear campaign messaging, driving 10,000+ visits to the Defra 'Burn Better' webpage through communications and marketing activity. This included:

- Over 7 million opportunities to see/hear the GM #BurnBetter story in traditional media
- 4.8 million impressions across social and paid digital channels, including 1.7m impressions for digital display advertising
- 23,683 plays of influencer video content on Instagram
- 15,500+ health advocate campaign video views
- 4,800 suppliers reached via the HETAS newsletter

The campaign was the first of two being funded as part of a wider behaviour change and research project that has secured £570,000 Defra funding. The findings will inform a further campaign in winter 2023/24, which will be built around insights from new research and data being conducted in 2023. In 2023 new $PM_{2.5}$ sensors are to be installed across Greater Manchester to compare areas of know solid fuel stove installations and in background locations where it is believed there are no nearby installations.

TfGM and other local authorities also promoted national Clean Air Day 2022, and the benefits of active travel for health and improving air quality, on social media. Manchester City Council held an event in the regional centre's pedestrianised Stevenson Square. Partners TfGM, Beryl, and Mosodi attended to promote the Greater Manchester cycle hire scheme and other active travel initiatives and projects.

2.1.2 Progress on actions in districts

2.1.2.1 Bolton Metropolitan Borough Council

1 Development Management and Planning Regulation

(AQAP1.1) Construction Management Guidance;

Where planning applications are received for developments which involve a substantial amount of building work conditions are imposed requiring the submission and implementation of a construction management plan. The construction management plans require measures to reduce emissions from the building works, including (but not limited to) measures such a wheel cleaning / wheel washes, damping down of haul roads and stockpiles and inspections off-site to ensure that there are no visible emissions of site.

(AQAP1.2) Development Planning Guidance;

Air quality assessments are required for significant developments, such as large residential developments, industrial estates, combustion processes and large retail premises. The air quality assessments are considered to determine whether the proposed development would have a significant impact on air quality in the area.

(AQAP1.6) Encouraging Travel Planning;

Conditions are imposed on major planning applications requiring the implementation of travel plans. The types of development that would require travel plans include schools, industrial estates and some residential developments.

(AQAP1.8) Green Infrastructure;

Bolton Council works with City of Trees (www.cityoftrees.org.uk) in relation to identifying suitable locations and planting trees in the borough. Over 13,550 trees have been planted through this partnership. A tree and woodland strategy ‘All Our Trees’ has been developed, which identifies the potential air quality benefits of green infrastructure.

The Council is also collaborating with Manchester, Bolton and Bury Canal Society and the Canal Trust to plant trees along the canal and the River Irwell.

2 Freight and Heavy Goods Vehicles

(AQAP2.4) Access for Freight to Key Economic Centres and Sub-regional Freight Facilities;

Bolton is home to Logistics North, which is one of the largest logistics/manufacturing centres in the region, with around 4 million sq.ft. of employment space. Air quality/transport assessments were carried out prior to development and there are conditions imposed for mitigation measures, such as cycling facilities and EV charging points.

(AQAP2.8) Alternative Fuels;

The Council has taken delivery of new Euro VI compliant refuse vehicles. These vehicles have much lower emissions than the vehicles they have replaced. Opportunities to reduce emissions further will be considered during 2023.

3 Buses

(AQAP3.4) Trial of Low-Emission Vehicles

Buses in Greater Manchester will be returning to local control over the coming months as part of the Bee Network. Bolton forms part of Phase 1 of this project, which means that buses in Bolton come under local control in September 2023. There will be 50 new electric buses introduced on routes in Wigan and Bolton. The Bee Network will include on-board travel information, accessible buses and cheaper bus tickets. The buses will operate from the bus/rail interchange, which was opened in 2017.

4 Cycling

(AQAP4.4) Cycle to 2040;

Bolton Council have a number of schemes that are being implemented or being consulted on. These include:

- Bolton Town Centre / Trinity Street. Works include the first CYCLOPS junction in Bolton and fully segregated links for cyclists and pedestrians. A new train station forecourt has been constructed which will improve access for train passengers. (Completed)
- Bolton Interchange Cycle Hub. This cycle hub provides a safe and secure place to store bike, there are spaces for 48 cycles. It is located at the Bus / Rail Interchange in the town centre, enabling cyclists to access public transport for further onward travel. (Completed)

- Manchester Road (Bolton Town Centre to Farnworth). This is a light segregated active travel scheme which will make cycling safer and more attractive. It will improve links between Farnworth and Bolton Town Centre. This proposed scheme was identified as a priority route by residents through consultation. The University of Bolton has invested in 1,000 bicycles for students and they have specifically highlighted this as a key route for students travelling between the Bolton Town Centre Deane Road campus and the Farnworth campus. Initially there will be light separation using wand orcas, while offering the opportunity to modify the scheme in the short term, could be replaced with a fully segregated scheme once the route is established. The work has started and is expected to be completed by Summer 2023.

Work is also progressing on the following schemes:

- Bolton Town Centre East. The scheme will improve access to the town centre particularly addressing barriers that the A666 (St. Peters Way) may pose. The scheme will include new cycle tracks, cyclops junctions, toucan crossings and other junction improvements to improve safety and make the area more attractive for cyclists and pedestrians. Proposals include:
    - New segregated cycle lanes on key routes including A575 Bradshawgate, Great Moor Street and B6205 St George's Road/B6206 St George's Street:
    - Better cycling and pedestrian facilities at a number of key junctions, including:
    - B6205 St George's Road/Knowsley Street;
    - B6205 St George's Road/B6206 St George's Street/Bridge Street;
    - B6205 Bridge Street/Bow Street;
    - Deansgate/Churchgate/A575 Bradshawgate/Bank Street;
    - A575 Bradshawgate/Great Moor Street;
    - Great Moor Street/Johnson Street;
    - Great Moor Street/Newport Street; and
    - A579 Bradford Street/Dorset Street/Bromwich Street.
    - New toucan crossings on Chorley Street, Deansgate, A673 Turton Street and A575 Bradshawgate, to be used by both pedestrians and cyclists;
    - Making it easier and safer for people travelling on foot and by bike to/from the town centre on designated quiet streets including Bromwich Street and Dorset Street, using symbols to highlight the presence of cyclists and enhancing crossings at junctions;

  - Upgrades to two key subway links, addressing severance of A666 St Peter's Way;
  - Public realm improvements; and
  - Additional cycle parking spaces

  The scheme is in development and is expected to be completed by Spring 2024.

- Bolton Town Centre to Doffcocker. This is a developing scheme, involving new cycle routes and junction improvements, including pedestrian crossings. The scheme is expected to be completed by Summer 2024.
- Astley Bridge and Crompton Active Neighbourhoods Scheme. This scheme would improve walking and cycling access to schools, shopping streets opening up access across neighbourhoods. The proposed scheme, which is in development, will improve walking and cycling access to 4 secondary schools, 11 primary schools, 2 major local shopping streets, 2 supermarkets and improve access across the area. The scheme is expected to be completed by Summer 2024.
- Westhoughton Active neighbourhood scheme will improve safe access to Westhoughton Town Centre and aims to increase cycling in the area. The scheme is in development and is expected to be completed by Autumn 2024.

Bolton Council also offers cycle training, in the form of the Bikeability Scheme, to all schools in the area. This encourages children to learn how to ride confidently and safely.

6 Cars

(AQAP6.4) School Travel;

Electric vehicle charging provision is required for most new developments, which will encourage the uptake of electric vehicles and reduce emissions from cars. A new rapid charging point was installed in Soho Street in the town centre, which was comissioned in 2021 Further EV charging points in the borough are in development, including dedicated taxi / PHV rapid charging points at Eagle Street, Egerton Street and Back Willows Lane.

Bolton has discussed potential partnership arrangements with numerous providers and has engaged with the procurement team to consider the appropriate path moving forward. A working group in process of establishment enable the appointment of a partner in mid-2023.

Bolton Council has developed a hybrid working policy, which enables people to work from home where service needs allow, reducing emissions from travel to work.

7 Information and Resources

(AQAP7.9) Awareness Raising;

Bolton was part of the GM-wide bid to undertake research and raise awareness in relation to domestic solid fuel burning. An initial awareness raising campaign took place in autumn 2023. Further awareness raising in relation to domestic solid fuel burning will take place later in 2023. Air pollution monitoring data from sites in Bolton is published on the CleanairGM website.

The Council has also adopted a Climate Change Strategy, which aims to make Council Operations carbon neutral by 2030 Sustainability – Bolton Council. Many of the actions within the Climate Change Strategy will also have a positive impact on reducing other emissions.

2.1.2.2 Bury Council

1 Development Management and Planning Regulation

(AQAP1.1 & 1.2) Construction Management Guidance & Development Planning Guidance;

Air Quality Assessment Reports are requested for major developments where the impact of local air quality maybe significant.

EV chargepoints for all residential and commercial (with car parking spaces) are required through the new building regulations (The Building Regulations 2010, Approved Document S, Infrastructure for the charging of electric vehicles).

A GM Air Quality Task and Finish Group are looking into standardising Planning Conditions across GM.

The Planning Policy team are looking into developing a Bury Policy on Air Quality and Pollution Control with the aim of preventing both new and existing development from contributing to, or being adversely affected by, unacceptable levels of pollution and poor air quality. Under this policy, applicants would have to submit a Pollution Assessment.

The Draft GM Places for Everyone plan, and new Town Centre Plans include air quality requirements.

(AQAP1.4) Clean Air Zone feasibility study;

Bury Council along with the other GM councils were proposing a Class C Charging Clean Air Zone to commence on 30 May 2022. However, following the pandemic, the

Government agreed that this Clean Air Zone should not be introduced at that time. TfGM and the GM local authorities are now in discussions with Government in relation to a GM proposal for a new investment led Clean Air Plan which will not include a charging Clean Air Zone.

(AQAP1.5) 20mph Zones;

Five 20mph Zone schemes have been introduced in 2022 in the following areas:

- Trees Estate - Whitefield
- Barlow Street area – Radcliffe
- Darbyshire Street area – Radcliffe
- Greenbank Road area – Radcliffe
- Albert Street area – Bury East

(AQAP1.6) Encouraging Travel Planning;

Travel Plans are required and submitted with certain planning applications.

A new full time Active Travel Officer has been employed to encourage behaviour change and the use of new infrastructure (funded by TfGM).

We are currently working with local communities, schools and colleges on Travel Plans and an officer in Planning works with local businesses to help develop their own Travel Plans.

(AQAP1.8) Green Infrastructure;

The Places for Everyone plan is currently under examination. Our new town centre redevelopments will include green space provision (Bury, Prestwich, Radcliffe and Ramsbottom).

City of Trees are to be located at Barnfield Park, Prestwich and a new tree nursery created. The total number of trees planted under the City of Trees scheme is 25,837.

4 Cycling

(AQAP4.1) Cycle Programmes;

A programme of cycle infrastructure improvements is being implemented and so far the Market St/Angouleme Way cyclops junction (by Bury College) has been completed.

The go ahead for an Active Neighbourhood in the Fishpool/Pimhole area has been received.

Bike Libraries have opened at Clarence Park, Radcliffe and Openshaw Park, Bury. Bury library has had the bike hangers installed ready for commencement. There are plans in place into install bike libraries at Ramsbottom and Prestwich.

Openshaw Park Bike Library

The School Award Scheme called Mode Shift Stars has been implemented. This award will be granted to schools where pupils change travel mode to active travel/public transport.

Bike Ability training is being carried out in Schools to build cycle confidence. This is delivered by the Nationwide Cycling Academy (NCA) and offered to all Primary Schools and High Schools in the Borough. To date there have been 1406 places allocated to deliver Level 1 and 2 training to Year 5 or Year 6 pupils and 130 places for Plus Balance training. To date there have been 807 children taken part in the Level 1 and 2 training, and 117 children complete the Plus Balance training with the remaining places being used in March 2023.

TfGM Learn to Ride and Road Rider Ready training course is available for free and is delivered fortnightly in Clarence Park (TfGM's North Manchester hub for training).

The Wheels for All programme is continuing at Clarence Park.

(AQAP4.2) Public Cycle hire;

Radcliffe, Clarence Park, and Openshaw Park public bike hire/libraries are operational and being used. The bike library at Bury Library to open soon and there are plans to have a local bike library in each ward.

5 Travel Choices

(AQAP5.1) Car Clubs;

An Electric Vehicle Car Club pilot scheme is in operation at Bury Market Street Car Park and Fairfax Street Car Park in Prestwich offering 2 electric car club cars at each location. .

EV Car Club at Market Car Park, Bury

6 Cars

(AQAP6.1) EV Charging Network;

3 Rapid charge hubs to be provided for Taxis in Spring 2023.

A Concessionary Contract for an EVCI provider to install chargepoints on council car parks to be tendered for in early 2023

(AQAP6.2) Car Use Allowances;

The Council car user allowance scheme is being reviewed in early 2023

Council employees have access to the car clubs provided in the ECar Club Pilot Scheme

(AQAP6.4) School Travel;

We now have two School Street schemes in the Borough, at Guardian Angels RC Primary and Chesham Primary. Both schemes are going well with some positive feedback from parents. St Thomas's CE Primary and Chantlers Primary schemes should start before the end of the school year 2022/23.

School Street at Guardian Angel RC Primary (Greener Greater Manchester Website)

[Bury opens first 'School Street' to encourage children to walk or cycle - Greener Greater Manchester]

Bikeability training is being carried out as detailed in AQAP4.1

7 Information and Resources

(AQAP7.9) Awareness Raising;

A GM wide campaign regarding domestic burning (inside and outside) was carried out during Winters 2021/22. The campaign included leaflets, updates to the Clean Air GM website (https://cleanairgm.com/air-pollution-from-domestic-burning/) and radio adverts. A follow up campaign was developed for Winter 2022/23 which included videos regarding the impact of wood burning at home featuring Elanor Roaf, the Clean Air Lead for the GM Directors of Public Health (https://vimeo.com/780801623/ed75168c12 and https://vimeo.com/780809371/b6109d9151

The GM bid to Defra for an AQ Grant Scheme to raise awareness of $PM_{2.5}$ has been granted and is underway. The project will also include air monitoring to help understand source apportionment and areas where the problem is greatest.

2.1.2.3 Manchester City Council

1 Development Management and Planning Regulation

(AQAP1.1) Construction Management Guidance;

Published AQ & Planning Guidance for developers including best practice air pollution control measures for demolition and construction site works.

Produced recommended minimum emissions standards for Non-Road Mobile Machinery for city centre major developments.

(AQAP1.2) Development Planning Guidance;

- Published AQ & Planning Guidance for developers.
- Continued with planning development requirements, including:
    - Air quality impact and exposure assessments
    - Mitigation such as electric vehicle charge points
    - Boiler emissions standards
    - Travel plans

(AQAP1.5) 20mph Zones;

The Manchester Active Travel Strategy and Investment Plan (MATSIP) was adopted by the Council in February 2023 and includes active neighbourhoods/safer streets, school streets and reducing speed limits on residential streets across the city to 20mph. Funding, however, is still required for implementation.

School Streets activities continued throughout year – see School Travel below.

(AQAP1.6) Encouraging Travel Planning;

Planning continued working with developers to secure sustainable transport strategies for new developments.

(AQAP1.7) Taxi and Private Hire Quality Controls to Prioritise Low-Emission Vehicles

MCC worked with TfGM to develop EV charge points in specific key locations (Chinatown, Rusholme, Sharston).

(AQAP1.8) Green Infrastructure;

MCC/TfGM-funded ‘Protecting Playgrounds’ green screen project with University of Lancaster concluded with report published in Scientific Reports. The study identified

certain species of vegetation as efficient at particulate matter pollution prevention when maintained.

Tree Action MCR (2021/22):

- Detailed GI asset appraisal undertaken
- 2687 mature trees planted
- 6271 hedge trees planted
- 8 new community orchards

Planning commenced development of method of data capture for new applications delivering AQ and carbon reduction benefits, tree planting etc.

2 Freight and Heavy Goods Vehicles

(AQAP2.1) Delivery and Servicing Plan Toolkit;

Delivery and Servicing Plan work and implementation continued: deliveries during off-peak times, load consolidation, and personal deliveries not allowed.

50% of MCC's waste and recycling contractor fleet (Biffa, 27 vehicles) were fully operational during 2022 with monitoring of the impact on emissions.

ECargo bikes deployed into the Council's operational fleet and vehicle replacement miles tracked.

Redesign of MCC staff bicycle user system to improve registration and claims process.

Continued replacement of standard petrol/diesel vehicles in MCC's fleet; currently 37 electric / 2 hybrid.

Developed new stock ordering system for MCC operational staff (electricians, plumbers and joiners) to improve efficiencies and reduce vehicle movements.

MCC's housing maintenance contractor ENGIE worked with the Council to increase their own EV fleet and install EV charge points at operatives' homes.

(AQAP2.7) Engine Idling;

MCC engaged with bus drivers on Clean Air Day 2022 to raise awareness of the AQ impacts and legal issues regarding unnecessary engine idling.

MCC contributed to a GM Anti-Idling Task & Finish Group, which produced a report for the GM districts titled 'Tackling Anti-Idling Options'.

(AQAP2.8) Alternative Fuels;

Updated Energy Saving Trust Fleet Review report received; recommendations implemented in terms of upgrading fleet with EVs wherever feasible.

3 Buses

(AQAP3.1) Bus Priority Programmes / (AQAP3.2) Bus Improvements / (AQAP3.3) Hybrid Bus Improvements;

As part of the GM Transport Strategy 2040, Right Mix approach and City Centre Transport Strategy, development of investment in bus priority infrastructure and other plans to improve bus transport, to increase bus transport mode share. This includes over £60m of bus related infrastructure in Manchester as part of the GM City Region Sustainable Transport Settlement.

4 Cycling

(AQAP4.1) Cycle Programmes

Ongoing implementation of Right Mix aim for 50% of all journeys in Greater Manchester to be made by walking, cycling and public transport by 2040.

Ongoing delivery of the City Centre Transport Strategy including key aim for 90% of peak morning trips into and within the city centre to be by public or active transport by 2040.

Development and delivery of over £100m of active and sustainable travel infrastructure investment projects including air quality monitoring across Manchester. Beswick, bus stop improvements and early phases of Chorlton cycleway and Northern Quarter are complete with latter phases in construction. Key schemes such as Transforming Deansgate, Levenshulme and Burnage Active Neighbourhood, Victoria North Eastern Gateway, Parsonage Road Safer Streets and Fallowfield Loop and various city centre interventions in progress.

Ongoing development of a pipeline of active travel (walking and cycling) infrastructure investment and other supporting measures. Manchester Active Travel Strategy adopted February 2023 with supporting Investment Plan nearing completion.

(AQAP 4.2) Public Cycle Hire

Deployed phases 1.2 to 1.4 of Bee Network Cycle Hire, 158 locations throughout city centre and in surrounding areas including Beswick to the east and as far as Fallowfield and Chorlton in the south, working with TfGM and Beryl to facilitate final phases of delivery

of full scheme by May 2023. Work ongoing with TfGM and Beryl on feasibility of scheme expansion to other parts of Manchester.

Further information on the cycle hire scheme is available in Section 2.2.1 above and at the Bee Active website.

5 Travel Choices

(AQAP5.1) Car Clubs;

MCC partnered with Enterprise Car Club to provide staff with a flexible way to hire a low-emission car for in-work travel.

Continued to promote sustainable travel and air quality over staff communications, via community engagement and university projects, and to the public via Council web pages.

6 Cars

(AQAP6.1) EV Charging Network;

Produced MCC EV Infrastructure Charging Strategy and commenced soft marketing for procurement stage.

Worked with TfGM to select local taxi EV charge point locations.

(AQAP6.2) Car Use Allowances;

Continued to review, develop and promote sustainable and active travel options for staff, including cycle mileage and EV purchase via salary sacrifice scheme.

Successful promotion of Cycle September (Love to Ride) scheme and Winter Wheelers.

(AQAP6.4) School Travel;

Work continued to encourage and support School Street events to raise awareness and continue to promote active travel and benefits to air quality:

- To mark World Car Free Day in September 2022, MCC officers travelled to 40 education settings across Manchester (via sustainable travel methods) to deliver Education's new climate change action plan for 2022-24. The plan was made publicly available and contained various key performance indicators, including the establishment of the Green Bee Relay. This challenged schools to get their pupils to actively travel 3500 miles as a collective before Clean Air Day 2023.
- A School Streets pilot started with seven schools across Manchester in September. The School Streets have been put in place via an Experimental Traffic Regulation Order that restricts motorised traffic at the beginning and end of each school day in

a zone outside each school designed to create a pleasant child friendly environment whilst maintaining access for residents, local businesses and blue badge holders. The closures have been monitored by school staff, volunteers and parents. Since the pilot began, monitoring has been in place to understand the impact of each School Street on traffic, safety and air quality for the school and surrounding neighbourhood. TfGM and the University of Manchester conducted air quality monitoring at schools within the Air Quality Management Area during street closures (results awaited).

- Continued to raise awareness of idling vehicles around schools -
  MCC Highways provided signs to 29 schools across the district to support School Streets as part of Road Safety Week, and as part of scheme activation activities for the Manchester to Chorlton Cycleway. 'Days of action' events took place where our neighbourhoods teams worked with GMP and other partners to address a variety of road safety issues including idling vehicles and air pollution. For further details visit MCC's Safer Streets for All website.
- 57 road closure and associated events during 2022, including School Streets, Manchester Active Streets, Play Streets and School Parking Enforcement Days.

7 Information and Resources

(AQAP7.3) Pollution Alert;

Commenced pilot trial of 'Clean Air Practices' with several GP surgeries in Manchester, to promote air pollution awareness and sign up to the CAGM pollution alert service with patients, including those with respiratory conditions. If successful, this will form the basis of

a GM template. To date, a significant increase in sign up to the service has been seen for the wards involved, suggesting that patients have actively registered for the alerts as a result of the promotion of the service. This is a positive outcome and work remains ongoing to introduce additional GPs as part of the pilot and establish an evaluation process such as a patient survey. The aim is to roll out across Manchester and GM so that as many people with respiratory conditions are aware of the service as possible.

(AQAP7.9) Awareness Raising;

Clean Air Day and World Car Free Day: promotion of sustainable forms of transport and active travel.

School and Community actions as per 6.4 above.

2.1.2.4 Oldham Metropolitan Borough Council

1 Development Management and Planning Regulation

(AQAP1.1 & AQAP1.2) Construction Management Guidance & Development Planning Guidance

In 2022 Environmental Health at Oldham Council were consulted on exactly 400 planning applications. All were assessed against the latest Institute of Air Quality Management (IAQM) planning guidance and, where appropriate, relevant conditions relating to Air Quality were recommended to Planning. Numerous of these applications were submitted with Air Quality Assessments which were also reviewed and commented on using IAQM guidance. In addition, the impact and control of particulates and dust from the construction and demolition of numerous developments was controlled by assessing or requesting Construction Environmental Management Plans (CEMPs) using IAQM construction management guidance. Environmental Health continues to offer support and advice to developers at the preapplication stage of the planning process helping to ensure the correct reports, including air quality and CEMPs are submitted as part of the application.

(AQAP1.6) Encouraging Travel Planning

We continued to engage with the TfGM Business Engagement and Active Travel Teams to promote the active travel, travel choice programmes and journey planning across Oldham.

In 2022 the council secured funding of almost £85,000 from Transport for Greater Manchester and the Department for Transport to pay for the introduction of School Streets. School Streets aim to reduce air pollution, congestion, problem parking and to enable pupils to walk, cycle or scoot to school instead of jumping in the car. School Streets works

by ensuring certain roads around the schools are closed to all traffic during term time hours when pupils are arriving and leaving.

During 2022 we've worked closely with the following schools to decide on how the schemes will work and we have their full support:

- St Edward's and Hey with Zion in Lees (combined scheme as the schools are next door to each other).
- St Anne's, Royton.
- Northmoor Academy, Coldhurst.
- Christ Church, Chadderton.
- Corpus Christi, Chadderton (the measures will also assist with Stanley Road Primary).
- St Luke's, Chadderton.

An Experimental Traffic Regulation Order is in place for the new measures and there will be opportunities over the coming months for local residents, businesses, parents and the schools to give their feedback on the schemes and how they are working

(AQAP1.7) Taxi and Private Hire Quality Controls to Prioritise Low-Emission Vehicles

Work has continued encouraging the borough's Taxi and Private hire vehicle owners to replace their vehicles to cleaner ones that meet any future Clean Air Zone emission targets. We now have very few private hire or hackney carriages that don't meet the Clean Air Zone C target.

(AQAP1.8) Green Infrastructure

In 2022 we planted over 3 hectares of new woodland made up of some 400 trees. Many of the tree locations are chosen to maximise their ecological benefit including trying to help reduce the impact from air pollution, improve flood alleviation and carbon capture. Where possible, we try and plant trees between residents and busy highways such as 30 trees being planted close to Broadway, 20 close to Elk Mill retail park and 10 close to the Manchester Street roundabout. We always encourage our highways engineers to try and incorporate green infrastructure in all their new projects. In Oldham Town centre itself we have planted several semi mature trees and there are plans to build a new green urban park there as well. Working with City of Trees we have worked on plans to plant more trees in the Fitton Hill area of the borough including highway verges, public open spaces and on school grounds. We have given a commitment to increase the tree coverage in the

borough from 11.9% to 15% within a generation, this will involve planting an additional 20,00 trees over 100 Hectares on both council and private land. Work to build a new environmentally friendly depot in Alexandra Park is progressing well, with the steel frame now built and the roof going on. The new depot will boost Oldham Council's commitment to being the greenest borough in Greater Manchester. It will include an air source heat pump to provide sustainable heat and hot water as well as solar panels for clean energy removing the using of gas boilers in the existing depot leading to improvements in Local Air Quality.

2 Freight and Heavy Goods Vehicles

(AQAP2.1) Delivery and Servicing Plan Toolkit

It was proposed to implement the Delivery Service Plan toolkit at the council's main Civic Centre office in 2022, however when the council announced plans that the office will be closing and council services will be shortly moving to a new town centre location, The Spindles, it was decided to postpone the implementation and to bring the toolkit into operation once services have relocated into the new building.

(AQAP 2.8) Alternative Fuels

We continue to trial solar panels on our own fleet, such as bin wagons and the early feedback is that they are making fuel savings and therefore improving air quality. Our bin wagon tail lifts are now electric rather that hydraulic, again with associated fuel savings and improvements in emissions and local air quality.

The council is now waiting to take delivery of a number of replacement vehicles, which will mean that the vast majority of the whole Oldham Council Fleet (except for one or two very specialist vehicles) will be Clean Air Category C compliant. We have also recently started to trial a full electric bin waggon.

3 Buses

(AQAP3.1) Bus Priority Programmes

The council has secured funding of £632,050 towards developing a Quality Bus Transit (QBT) corridor - which will make travel quicker and easier for passengers The corridor will be an improved link between the borough, Rochdale and Ashton, delivering real benefits for residents by making sure they are better connected so they can access jobs, education, and training more easily. The QBT is being developed by the council and Transport for Greater Manchester (TfGM) using money from the government's City Region

Sustainable Transport Settlement (CRSTS). It is the next step towards major investment across the whole corridor which will see bus stop, junction, public realm and access improvements along the route.

The QBT is just one of a number schemes the council is looking to carry out across the borough to improve public transport and give residents better, greener travel options. These include:

Oldham Mumps Corridor Improvements – this scheme focuses on delivering better, quicker and safer access for bus users and people walking and cycling along the corridor. These plans will support nearby developments, such as the regeneration of Southlink where up to 150 houses will be built.

Delivering more electric vehicle charging points across the borough with a focus on employment locations making it easier for people to go green.

Developing a new Metrolink stop between Derker and Shaw and Crompton at Cop Road, which could be used by those living and working at any new housing or business developments

4 Cycling

(AQAP4.1) Cycle Programmes

Oldham Council secured funding worth £652,180 to build four cycle and pedestrian crossings in the Borough, aimed at improving safety and making journeys for pedestrians and cyclists easier. The funding came from the Greater Manchester Mayor's Cycling and Walking Challenge fund. The sites for the new crossings are:

- Salmon Fields, Royton
- Wellyhole Street, Lees
- Well-i-Hole Road, Greenfield
- Well-i-Hole Road/Manchester Road, Greenfield (fully signalising the junction with the provision of pedestrian and cyclist crossing facilities)

The sites were chosen because crossings at these points will improve walking and cycling infrastructure and connectivity. All the crossings will have pedestrian and cycle facilities. Work has begun on the crossing and it is hoped they will all be finished shortly.

A £16m project to transform streets and public areas across Oldham Town Centre has started in 2022. Accessible Oldham will make it easier, safer and more enjoyable to travel around Oldham – especially for cyclists and pedestrians.

The first phase of works is now underway on Henshaw Street and Albion Street where we're planting trees, putting in new seating, street art and bike parking to make the town centre more attractive and vibrant. We're also improving the route between the town centre and bus station. The Accessible Oldham programme will take around four years to complete. The first phase on Henshaw Street/Albion Street is scheduled to be finished in 2023.

Accessible Oldham will also bring Oldham's first CYCLOPS junction to the borough, at Egerton Street/St Mary's Way - a key route into the town centre. The unique junction design separates people travelling on foot and by bike from motor traffic, reducing the possibility of collisions or conflict. The junction will be part of the Greater Manchester Bee Network – which aims to create the UK's largest cycling and walking network and make walking and cycling the natural choices for shorter journeys.

Other projects taking place as part of Accessible Oldham are:

- Fountain Street: improvements to footpaths and roads. Re-locating the taxi rank to the nearby car park which will also be upgraded, and new disabled parking bays installed.
- West Street/Cheapside: Developing a cycle route and improved pedestrian link to and from Oldham Leisure Centre on Rochdale Road and Oldham King Street Metrolink stop. Re-routing buses away from West Street to create a traffic-free zone.
- Market Place and Curzon Street: improvements to support the creation of cycle routes in and around the town centre.
- Lord Street/High Street: Pedestrianisation of the lower end of Lord Street and High Street and public open space improvements.
- A new access into the Southlink development site at the Oldham Way/Prince Street junction.
- Improved access around Tommyfield Market Hall into the High Street including replacing bollards with a new entry/exit system for vehicles.

Oldham Council has submitted a planning application to build an eye-catching £5m bridge that would make travelling between Ashton and the borough easier for cyclists and pedestrians. The proposed 140m long structure would run across the Medlock Valley in Park Bridge – along the old viaduct route on the Oldham/Ashton boundary. The council would look to secure funding for the bridge's construction from the Greater Manchester Mayor's Challenge Fund for Active Travel.

If everything goes to plan the bridge – more than 30m above the ground at its highest point – could open within the next couple of years. It has been designed to take into account all users and offer levels of safety, comfort and picturesque views of the valley. The structure would provide a spectacular new southern access point to the Northern Roots site – the UKs' largest urban farm and country park - and better connect Oldham with the rest of Greater Manchester.

The proposed bridge's design was chosen following a consultation carried out last year. It is a steel girder structure that would weather in time for an industrial look that fits with the area's heritage. The completed project would also include landscaping work in keeping with the area. It is estimated the scheme would also cut the number of daily car journeys on nearby roads. Currently there are some 22,500 daily car trips on the A627 and 16,900 on the B6194.

Plans for a new, state of the art Bike Hub facility at Northern Roots were unanimously approved by Oldham Council in August 2022. The Bike Hub will be integral to Northern Roots' overall vison and mission, as we harness green space for the benefit of people, planet and place by transforming the 160-acre Northern Roots site into a destination for learning, leisure and tourism. The Hub will provide a training ground for cyclists to develop and improve their riding, and a starting point from which to enjoy the mountain bike trails which will in future extend across the 160-acre Northern Roots site and beyond. Northern Roots is now looking to engage a dynamic and experienced operator to run the Bike Hub facility from summer 2023

The council encourages staff to cycle to work by offering lockers for cycling equipment, undercover bike stands to secure cycles and shower facilities for cyclists in a number of council premises.

6 Cars

(AQAP6.1) EV Charging Network

A number of new electric vehicle charge points were installed across Oldham in 2022. Crossley Community Centre has recently had installed two electric vehicle charging points in the car park at the centre. The 22KW charger has two charging ports, making it one of the fastest and cheapest available in the borough, competitively priced at 27p per kWh.

(AQAP6.2) Car Use Allowances

In 2022 the council has agreed to implement a car leasing scheme for staff. We are the procurement process for this scheme which will hopefully enable staff to replace their

existing older polluting vehicles for cleaner more modern types, including full electric. It is hoped to have this in place for late summer 2023.

The council continues to operate its staff car user allowance whose aim is to encourage staff to use cars that minimise harmful exhaust emissions, run on 'greener' fuels, and minimise consumption of fuel where possible. The council also aims to discourage non-essential use of cars by staff in the conduct of their work to help reduce congestion, improve air quality and improve road safety. This is supported through various council initiatives such as the Travel at Work Protocol, Climate Change Strategy, Greater Manchester Air Quality Action Plan and the Greater Manchester Local Transport Plan. We continue to offer a generous 32p a mile mileage rate for pedal cycle use to encourage staff to cycle rather than use cars, where possible, for work journeys.

To encourage staff to travel to work by public transport rather than car the council offers a loan scheme to help staff pay for annual public transport season tickets

(AQAP6.3) Local Authority Parking Charges

To encourage to car sharing when community to work the council offers a number of dedicated car park spaces for staff who choose to car share.

(AQAP6.4) School Travel

In 2022 The Radclyffe School in Oldham worked with Modeshift Stars, TFGM and Oldham Council to help encourage sustainable travel to the school to improve air quality and reduce congestion around the school. They have received grant funding to help introduce a travel plan for the school.

7 Information and Resources

(AQAP7.1) Website and Online Resources

In 2022 the council placed all its smoke control areas online for the public to easily identify if their property is in a smoke control area. We also ran extensive social media campaigns to promote the burn better initiative to encourage and educate residents on how to reduce their impact on local Air Quality when burning solid fuels. This campaign also highlighted the health impacts both externally and inside the home from the burning of solid fuels. For clean air day 2022 we used social media to raise awareness about the health problems cause by poor local air quality and to promote what changes individuals could make to be part of the solution in resolving these problems.

2.1.2.5 Rochdale Metropolitan Borough Council

1 Development Management and Planning Regulation

(AQAP1.8) Green Infrastructure;

The Council is working alongside the combined authority to support the development of the Clean Air Plan with information being passed to elected members for their constituents and advice on the support and funding, once approved, will be provided to impacted groups. All updates and related information is referred to on the council website.

The Rochdale Borough Transport Strategy is a framework to guide the development of transport improvements across the borough for the period up to 2026. It identifies priority schemes and projects that are deliverable, but their timing is dependent on the availability of resources. It's a fluid document that is used to lobby for transport improvements and support bids for transport funding and the action plan can be adjusted in line with resource availability. It brings forward an updated action plan and updated transport policies strengthening the emphasis on delivering economic growth.

The Transport Strategy aims to deliver a transport vision that: "By 2026, Rochdale Borough will have a safe, affordable, sustainable, reliable, accessible and integrated transport network that offers travel choice for all, serves its communities, tackles air quality and climate change, enhances social inclusion, public health and supports the regeneration and economic growth of the local area."

All planning applications located within or likely to have impact upon air quality management areas are required to scope and determine the impact of both the construction phase and operation phase of each development having regard to cumulative development in the area. In line with updated planning policy the Council requires all new builds both residential and non-residential and those undergoing major refurbishment to install electric vehicle charge points.

Work has recently begun on Phase 1 of the Living streets project starting in Castleton which links in with the Bee Network development. Car parks are being created close to the centre of Castleton Centre to encourage shoppers into the area with the provision of EV charge points, the removal of on street parking provides space to implement cycle ways and green infrastructure along the arterial routes into and out of Castleton centre providing areas for pedestrianisation and a community centre with green space.

Phase 2 of the project will run from A58 Manchester Road to the town centre to improve both the green infrastructure and create a dedicated cycleway to encourage and promote active travel.

An active neighbourhood has been created in Milkstone and Deeplish ward to reduce traffic and create a safer community and improve air quality in the area. Speeds are reduced to 20mph and one way systems introduced with traffic islands for bollards. Further work will be undertaken in later phases following consultation but will include improving green spaces and creating infrastructure to help with active travel schemes.

The Council is also committed to achieve the Greater Manchester vision for taxi minimum standards and is working with operators to improve the fleet.

2 Freight and Heavy Goods Vehicles

(AQAP2.8) Alternative Fuels;

The south Heywood Masterplan development delivered the opening of a new 2.2km link road connecting M62 to industrial parks allowing HGV's to bypass Heywood Town Centre reducing journeys by 17km and removing HGV's from local roads. The development has also allowed the development of 1.45million sq ft of commercial space and up to 1,000 new homes, with the potential to create more than 2,850 new jobs. Around 3km of new walking and cycling routes will also be delivered as part of the scheme, and the new road will enable the provision of bus services to serve the new development and the existing business parks.

The Council is also utilising the findings of the initial Delivery and Servicing Plan toolkit undertaken to reduce and where possible limit the numbers of deliveries to public buildings with deliveries being sent to depots and transferred to the relevant destination using the council's fleet of electric vehicles.

3 Buses

(AQAP3.4) Trial of Low-Emission Vehicles

An order has been placed for 50 Electric buses which, as part of the Bee Network improvements, will operate within Rochdale on local routes this is the first step towards electrifying the fleet, there are already a number of hybrid electric buses operating within the borough.

Following support for GM's Bus Reform and potential franchising which the Council has supported there are opportunities to address the increasing fragmentation of bus services in the Borough allowing the network to be reviewed and improved. The co-ordination and

integration of services and new ticketing and fare regimes has resulted in passengers paying less for many journeys and encouraging greater public transport use.

The scheme to upgrade over 50 bus stops to alter the kerb height to make it easier for elderly, disabled and residents with limited mobility to access public transport has now been successfully completed.

5 Travel Choices

(AQAP5.1) Car Clubs;

The council is continuing to review its options around the potential for a car club and is reviewing potential locations to operate the scheme.

6 Cars

(AQAP6.1) EV Charging Network;

The borough of Rochdale currently have 50 number of chargers available to the public, 24 government or council funded, 26 privately funded. There has also been the addition of a rapid charger for taxis installed to encourage the take up of electric vehicles within the taxi trade.

The council also runs a number of car parks which offer permit parking for users; the charges for the permits are based on emissions with vehicles whose CO2 emissions do not exceed 185 are charged at the lower level (class 1) all others at the higher level (class 2).

The council also continues to reduce the numbers of staff working with car allowances.

7 Information and Resources

(AQAP7.9) Awareness Raising;

The Council continues to raise awareness of the benefits of both the clean air zone and other initiatives that will help improve air quality in the borough. A priority for the council has been the continuation of the Eco-business scheme that was launched in 2020 but put on hold until 2022 due to the pandemic. This scheme aims to promote shopping local and therefore reducing car journeys within the borough. The scheme was a finalist in the Energy Awards and continues to promote awareness to local business of ways to reduce emissions and in return those businesses are promoted by the council, currently 153 companies are pledged to the scheme with plans to develop the scheme to include private households. This will allow us to promote the message of ways to improve the air quality in residential areas, having special regard to domestic burning.

The council provides information on its website relating to ways residents can reduce their emissions and promotes the #burnbetter campaign. Leaflets are also sent out to residents advising both of the campaign and the potential health impacts of burning following any contact with the Environmental Health service.

The Rochdale Active Travel Forum has been set up allowing members of different council departments alongside partners, elected members and members of the public to discuss and explore opportunities to improve active travel opportunities and funding availability. This has been an excellent forum to share knowledge and establish joint working opportunities whilst continuing to identify areas for improvement.

2.1.2.6 Salford City Council

(AQAP1.1 & 1.2) Development management and planning regulation

Salford Local Plan policy PH1: Pollution control sets out the local approach to the relationship between planning and air quality, and requires new developments to minimise and mitigate pollution during both the construction and operational phases of development.

Salford City Council environmental consultant team recommend that baseline good design standards from the IAQM / EPUK guidance should be adopted for major developments.

Conditions are applied to new developments where appropriate regarding travel planning, electric vehicle charging and dust control to planning applications. IAQM guidance is being incorporated into planning decisions.

For major developments, particularly those in areas where there is the cumulative impact from several developments or where a significant air quality impact is likely, a damage cost calculation may be required to determine a proportionate financial contribution towards, or provision of, additional mitigation.

An online planning application Validation Checklist has been developed to replicate criteria used in the IAQM guidance as to when an air quality assessment may be necessary.

(AQAP1.6) Encouraging Travel Planning:

Travel plans for certain developments are required to be submitted as part of the application process. An online planning application Validation Checklist has been developed to bring it up to date and in line with changes to national and local planning policies, to show commitment to providing sustainable travel options with a view to reducing unsustainable modes of transport.

(AQAP1.8) Green Infrastructure;

Salford was part of the GMCA led 'IGNITION' project, that ran until October 2021 and aimed to develop innovative financing solutions for investment in Greater Manchester's natural environment and help GM adapt to the forecast impacts of climate change.

There are many initiatives across the city promoting and encouraging tree planting. Activity also includes: monitoring planting and numbers of trees, developing strategy to support planting, and management and maintenance and look at land allocation across the City. Project pipeline development is to be informed by activities currently undertaken by the Council and partner organisations.

2 Freight and Heavy Goods Vehicles

(AQAP2.1) Delivery and Servicing Plan Toolkit:

A delivery/ service vehicle data collection exercise was carried out during May/ June 2018 for the Civic Centre campus (post room, catering deliveries and waste collections), Turnpike depot and Swinton Hall Road depot. Following the data collection exercise, an analysis & recommendations report was produced by TFGM in September 2018. Actions taken as recommended by the report include:

Swinton Hall Rd depot: adjusted standard delivery times to avoid peak time deliveries;

Turnpike depot: assessed whether any non-urgent, peak time deliveries could be re-scheduled so that they occur outside of peak times;

Civic Centre waste collections: Mostly occur in peak hours but are part of a larger collection round. Therefore, moving individual collections (from the Civic) would just move to a nearby location and so unlikely environmental benefit;

Civic Centre post room: Identified that there are many peak time deliveries and multiple courier drops during the day – may be potential to consolidate deliveries/ collections and courier activities.

The Procurement team are undertaking an ongoing review of contracts and council processes to allow better management of orders and delivery.

Following the COVID-19 pandemic, many City Council staff have been working remotely from home and communicating using online facilities, with an associated reduction in deliveries to Council premises. As staff return to a hybrid working approach, deliveries will continue to be monitored.

(AQAP2.8) Alternative Fuels:

The City Council purchased 12 new electric Renault Kangoo vans in October 2020, which are being used in environmental services at Turnpike Depot for activities such as collecting flytipping and officer site visits. They replaced diesel vans. It's estimated the new vans will cut exhaust emissions - a diesel van would emit between 147 to 156 grams of carbon dioxide and up to 1.5 grams of nitrogen oxides (NO_X) per kilometre.

To support the electric vans, associated charging facilities were also installed at Turnpike Depot. 12 x 7KW charging points were installed, utilising funding from the OLEV workplace grant and match funding from Salford City Council.

The potential use of EV refuse vehicles has been reviewed over the last couple of years. However, current barriers for uptake include: Charging capacity of Turnpike Depot (an investment in a new sub-station would be required, which is under discussion); Concern over vehicle reliability/ suitability and vehicle capital cost. The City Council is due delivery of 11 x Euro 6 refuse vehicles from May 2023. These will all be fitted with electric bin lifts that will reduce fuel usage by approx 1,4000 ltrs per vehicle per year.

An E-scooter trial started at the University of Salford Peel Park and Fredrick Road campuses in October 2020. Subsequent extensions were:

A route to Media City UK in November 2020.

A further phase covering Ordsall and the City Centre in April 2021.

A further expansion to connect Salford Royal Hospital in winter 2021.

The DfT trial period has been extended to May 2024 and we are awaiting further guidance from the DfT on any extensions or legislative changes.

Initially 200 E-scooters were deployed, and this has now grown to 300 with the expansion to Salford Royal Hospital and Pendleton. Scooters are monitored for usage and trip destinations.

A lot of interest has been shown in E-scooters and it is hoped that this will shift more short journeys from car use to E-scooters. While the trial is ongoing work will continue with DfT to look at whether E-scooters can be legalised to provide an alternative to car use and a greener mode of travel for short journeys. Further information is available from the City Council website E-Scooter trial page.

4 Cycling

(AQAP4.1) Cycle Programmes:

The City Council is continuing to expand its network of on and off road routes with a number of new cycle routes recently completed in and around Salford.

Liverpool Street - Work has been completed to create segregated cycle lanes on both sides of the street, including bus stop bypasses and new pedestrian crosses.

Trafford Road – The creation of segregated cycle lanes for the length of the road. The scheme is due to be completed by April 2023 and will provide a traffic free cycle route along Trafford Road.

Swinton Greenway – A 2.5km off road route between Manchester Road and Monton Road. The work on this has been completed with small sections to be finalised. This opened in June 2022 and has proved popular with pedestrians, dog walkers and cyclists.

RHS Bridgewater Way – Linking the RHS Bridgwater Gardens with Boothstown marina, Worsley village and Walkden Train station. The bulk of the work has been completed with the section along the canal now being open. The route linking RHS to Walkden train station should be completed later in May 2023.

Funding has been secured to deliver the following routes in 2023/24

Irwell St – Improved public realm, crossing facilities and short n/bound cycle lane between Stanley St and Trinity Way to improve access to the new Eden office development.

Oldfield Road – Provision of segregated cycle routes connecting Chapel Street to Regent Road via Oldfield Rd.

More routes are being planned and developed and are outlined on the City Council website Cycling and Walking pages.

(AQAP4.2) Public Cycle hire

Salford City Council have worked with Beryl, TfGM, Manchester City Council & Trafford Council to provide a public cycle hire scheme. This was launched in selected locations within Salford in November 2021. The scheme has rolled out to further parts of Salford and covers parts of Manchester and Trafford.

The cycle hire scheme provides a low cost form of transport for users travelling within Salford, Manchester and Trafford.

Further information on the cycle hire scheme is available in Section 2.2.1 above, as well as from the City Council website Public cycle hire page.

(AQAP4.3) Cycle Logistics:

A 'bike library' providing e cargo bike hire for businesses to make sustainable deliveries is operational and managed by Manchester Bikes of Chapel St on behalf of the City Council. A number of small business and large organisations have also received e cargo bikes as direct loans to utilise for their business travel. Further information is available from the City Council website.

5 Travel Choices

(AQAP5.1) Car Clubs

Due to the COVID-19 pandemic the Salford car club fleet of 23 Co-Wheels vehicles based at the civic centre, Swinton has been reduced to 14 vehicles (10 petrol and 4 EV's). During working hours, vehicles are reserved for City Council staff travel.

The public Pay as You Go sites across the city are managed by Co-Wheels as commercial sites.

A working group of City Council officers is currently reviewing the car club to understand how this is best placed to provide travel options for staff as part of future working arrangements.

Data for the Salford City Council car club has been collected and shared with TfGM. Data includes mileage, time of trip data, fleet make up data etc.

6 Cars

(AQAP6.1) EV Charging Network:

Conditions are applied to all planning applications where an air quality assessment is necessary, requiring type 2 charging facilities on all properties with dedicated off road parking, and a proportion of spaces (to be agreed) for apartments / high rise. Planning conditions are applied requiring FAST or RAPID charging for retail floorspace in accordance with Salford Local Plan Policy A10. This policy is more stringent than electric vehicle charging provision standards suggested by IAQM/EPUK guidance.

EV charging infrastructure requirements for new buildings and buildings undergoing major renovations are now specified in Building Regulations (Approved Document S), which took effect in June 2022. Local plan EV charging point standards will be superseded by any higher standards introduced through the Building Regulations.

As part of the GM Clean Air Plan proposals 28-30 taxi only rapid charge points are to be installed across Greater Manchester tailored to locations to support zero emissions capable taxis to operate across GM.

TfGM held a consultation process with Taxi and Private Hire Drivers to identify locations for EV chargers in Salford to support the trades in late 2020. Taxi chargers are currently being installed at Church St car park Swinton as part of this project, with sites at Hankinson Way, Pendleton and John William St, Eccles car parks to follow.

Locations of publicly accessible charging points are available via the Zap Map website.

(AQAP6.2) Car Use Allowances:

The City Council have taken forward a number of approaches to reduce the overall need for business travel based on a 'digital first' approach, but, where travel is necessary it is undertaken in the most sustainable way. A travel hierarchy has been introduced, where private car use is the least favoured option. A review of sustainable travel arrangements will be undertaken following a data led approach that will include co-designing how individuals, teams and services use the car club, active travel and other sustainable travel arrangements based upon personal responsibility to consider the most efficient and effective way to complete our work to achieve the best outcomes in terms of environment, costs and time.

(AQAP6.3) Local Authority Parking Charges:

A digital car parking permit scheme is currently in place at principal City Council office/ depot locations. Specific parking spaces are allocated for pool vehicles, electric vehicles, and car share vehicles at Salford Civic Centre to encourage their use. Car parks are regularly patrolled by Parking Wardens - a Penalty Charge Notice (PCN) may be issued for vehicles that have not been issued with a permit.

(AQAP6.4) School Travel:

Salford City Council have secured membership to Modeshift, which is a national organisation and software that allows users to engage with schools on a larger scale and schools can receive awards and accreditation for their Travel Plan work. Currently 7 schools in Salford have been signed up. Work is on-going to engage with these schools and contact other schools to get more signed up.

Salford City Council work with Living Streets and other organisations to promote active travel and reduce journeys by car to schools. 23 Salford schools are currently signed up to Living Streets' WOW Walk Once a Week.

Salford City Council are exploring options for a school street to help reduce journeys made by cars by parents of children attending schools.

Engagement with schools to educate pupils on air quality issues and positive actions that can be taken to reduce air pollution carried out as part of Clean Air Day activities.

The Clean Air Greater Manchester website includes a schools toolkit to raise awareness of air pollution practical ways to involve teachers, parents and pupils to improve air quality.

7 Information and resources

(AQAP7.9) Awareness Raising:

The City Council website air quality and smoke control pages are reviewed and updated regularly. These aim to raise awareness and provide guidance regarding the role stakeholders can play in improving air quality.

Social media campaigns related to the GM Clean Air Plan were ongoing during 2022.

A social media campaign focusing on raising awareness of air quality issues and active travel measures to reduce air pollution took place to coincide with National Clean Air Day in June 2022.

Social media campaigns on raising awareness of smoke control area rules, using wood burning stoves correctly and awareness of garden bonfire issues were carried out in Oct 2020, Mar 2021, Nov 2021, Mar 2022 & winter 2022.

The Greater Manchester Green Summit event was held in Salford in October 2022 - air quality themes were included.

The City Council investigated 83 complaints related to smoke nuisance in 2022 and therefore this will have a beneficial effect on raising awareness of air pollution issues. The majority (59%) of these complaints were related to domestic burning (e.g. garden bonfires). Other sources of complaints related to commercial smoke nuisance (27%), domestic chimney smoke (12%) and industrial chimney smoke (2%).

2.1.2.7 Stockport Metropolitan Borough Council

1 Development Management and Planning Regulation

(AQAP1.6) Encouraging Travel Planning

Over the last year Stockport has continued to work with TfGM and businesses / developers to continue to trial the Travel Plan Toolkit.

Stockport is in the process of reviewing its Local Plan and as part of this has been identifying the best way to integrate new transport developments such as Electric Vehicle Charging and Car Share in to the Councils planning policies and guidance. This is separate to the Places for Everyone work that is being taken forward by the rest of Greater Manchester.

The Local Plan is being supported by an updated Local Transport Plan which will identify the key transport priorities in the borough to support Our Local Borough Plan and the Local Plan.

The guidance note on the delivery of EV charging in new developments has been utilised to support the promotion of adequate charging, and the Zero-Emission Vehicle Charging Infrastructure (ZEVCI) Interim Policy Statement adopted by the council to clarify the aims of the borough in regards to the delivery of supporting infrastructure for the changing car market has begun to be implemented.

This supports the TfGM Be.EV work and separate Council work to further improve charging in Stockport. Stockport is in the process of delivering an agreement with a provider to increase the number of EV chargers in the borough. The council also continues to work with developers to deliver EV charging related to those sites without onsite provision.

2 Freight and Heavy Goods Vehicles

(AQAP2.7) Engine Idling;

Work is continuing to encourage vehicles to not be left idling when parked. The focus for this has been around our education locations with our “turn it off” campaign which has banners for schools to put up to encourage engines to be switched off. There has also been Social Media promotion of the message using Council Social Media accounts and the information was released in a press releases to local media.

(AQAP2.8) Alternative Fuels;

Stockport also continues to support the work being undertaken by Transport for Greater Manchester to address the need to reduce the pollution caused by freight/ HGV such as the development of an electric vehicle charging strategy which was adopted during FY 2021-22 by Stockport and other GM boroughs. Stockport has also continued to work with the other GM boroughs on the Clean Air Plan which has included work to get the most polluting HGVs from Small businesses to apply for funding to upgrade to a less polluting vehicle.

3 Buses

(AQAP3.4) Trial of Low-Emission Vehicles

Stockport continues to support the work of TfGM to access funding and retrofit or replace buses in the fleet used in the borough to reduce the impact on air quality in Stockport. The Successful Zebra Bid will have a major impact on this in the coming financial year.

Greater Manchester has secured the funding after a joint bid to the Department for Transport (DfT) submitted by Greater Manchester Combined Authority (GMCA), Transport for Greater Manchester (TfGM), Stockport Council and Stagecoach Group PLC.

The funding will still allow for the introduction of 170 zero emission buses running from Stockport by 2024. This equates to 10 per cent of the whole bus fleet in Greater Manchester.

4 Cycling

(AQAP4.1) Cycle Programmes;

Stockport is also continuing to deliver the improvements for walking and Cycling funded by the Mayoral Challenge Fund including:

1. Bramhall Park to A6 cycle route – now complete
2. Heatons Cycle Link – The first phase of the Heatons Cycle Link has been constructed. This includes a 1km long widened resurfaced lit path within Meadow Gardens and along Nelstrop Road North providing direct connectivity into the Fallowfield Loop (NCN60). Other elements have been included int the ATF4 bid or identified for funding from section 106 funding.
3. Hazel Grove Torkington Park; The first phase of the Hazel Grove Links (resurfaced, widened lit path through Torkington Park) has been constructed.

4. Offerton to Stockport. The Offerton to Stockport route is complete it comprises four new toucan crossings and path improvements through St Thomas's Recreation Ground.
5. The Heatons Active Neighbourhood trial was completed and the consultation undertaken and a permanent scheme is being developed.

The Council has also taken steps to refresh its active travel provision with new shower facilities as part of the overall refurbishment of a building in the civic complex.

5 Travel Choices

(AQAP5.1) Car Clubs

All casual car users have continued to be offered access to the Car Club for work trips. The Stockport's Staff Travel Plan and Guidance on Car Club usage are based on a hierarchy of travel types in which Single Occupancy Vehicle use is the last option and the encouragement of this is returning following the pandemic. The public use of the car club cars continues to be promoted and Stockport has expanded its availability we are now expanding the project to a delivery of more car clubs in the borough.

6 Cars

(AQAP6.1) EV Charging Network

Stockport continues to support the work being undertaken by Transport for Greater Manchester to address the need to reduce the pollution caused by vehicles. Beyond the Be.EV network support already identified this includes working with a private supplier to address the need to expand the public charging network and working with developers who cannot provided onsite facilities to do so via s.106 agreements.

(AQAP6.2) Car Use Allowances

The council offers salary sacrifice options for bike purchases, bus and rail season tickets. There is also a selection of pool bicycles that can be borrowed for staff use along with the necessary safety equipment. These now include electric bikes for less able users and longer trips. This is supported by the provision of bike parking, shower and changing facilities.

(AQAP6.3) Local Authority Parking Charges

Following the pandemic and the change in working location with a greater move to working from home staff parking in the Car Parks in the Town Centre are all charged for via a mobile payment app provided by Ringo. The Council continues to offers permits for Low

and No Emission vehicles to park more cheaply across the borough to encourage uptake of these technology's. A loading facility for staff who are only at the office to access equipment has also been provided.

(AQAP6.4) School Travel

Stockport has continued to work with colleagues in education to develop travel plans with regards to schools and other education facilities when they are submitting planning applications. Bikeability training continues. The Council is also in the process of delivering another school street and 3 of the original 7 trialled in 2022 continue to operate.

7 Information and Resources

(AQAP7.9) Awareness Raising

Stockport has continued to promote the use of sustainable modes of travel during the last year and encouraged walking and cycling via social media. This has included activation work for the completed MFC schemes such as the provision of Bike Dr events and cycle training in locations where new routes have been completed. Stockport also held its second Summer Weekend long Cycling and Walking event called StockSport which will be repeated in 2023.

2.1.2.8 Tameside Metropolitan Borough Council

1 Development Management and Planning Regulation

(AQAP1.1) Construction Management Guidance;

Tameside Council continues to require air quality assessments for larger planning applications. Even where the air quality impact is assessed as negligible mitigation is requested, including measures such as electric vehicle charging provision where parking is provided and Construction Environmental Management Plans to control dust and emissions during the construction phase of the development.

During 2022 four air quality assessments were received, all of which concluded there would be a negligible effect on air quality as a result of the development.

5 Travel Choices

As part of the Active Neighbourhoods initiative, Tameside Council introduced a resident led “Quiet Streets” scheme giving pedestrian and cycle only access to designated routes. Work on the design and implementation of eight walking and cycling routes across the borough (listed below) has progressed.

- Clarendon Road, Audenshaw
- Rayner Lane, Droylsden and Audenshaw
- Ross Lave Lane, Denton and Reddish Vale
- A57 Crown Point Junction, Denton
- Albion Way, Ashton
- Stamford Drive, Ashton
- Manchester Road Link Bridge, Audenshaw
- A57 Denton to Hyde

It is envisaged that the schemes at Rayner Lane, Stamford Drive and potentially Clarendon Road will secure construction funding later in the year. £1.95m of funding has been identified to deliver phase 1 of the Crown Point scheme and development work is ongoing.

The objectives of the Active Travel Funding phase 2 (ATF2) programme are to help create an environment that is safe and attractive for both walking and cycling to replace journeys previously made by car and public transport. Longer term the plans will also help to deliver significant health, environment and congestion benefits by contributing to the development and roll out of the Greater Manchester Bee Network.

Four prioritised ATF2 schemes have been progressed through the design and development process in consultation with TfGM and currently going through the Council's governance process for approval. The schemes are located at:

Oldham Road and Newman Street, Ashton-under-Lyne

These two schemes will introduce improved and segregated facilities for cyclists on Oldham Road – between Dean Street and Burlington Street and improved and segregated facilities for pedestrians and cyclists on Newman Street – between Oldham Road and Cavendish Street.

Stockport Road, Ashton-under-Lyne

This scheme will introduce segregated facilities for cyclists on Stockport Road, Ashton, between Hamilton Street and Guide Lane. The scheme includes treatments at bus stops, to allow cyclists to pass behind a bus platform, the replacement of existing, two-stage, pedestrian crossings, to enable people to cross in a single stage and treatments at some side roads to improve cycle and pedestrian priority.

Guide Lane, Audenshaw

This scheme will introduce segregated facilities for cyclists on Guide Lane, Audenshaw, between Scott Gate and the junction with Stamford Road / Shepley Road. The scheme includes treatments at bus stops, to allow cyclists to pass behind a bus platform and treatments at some side roads to improve cycle and pedestrian priority. The scheme also proposes to change the priorities at the junction of Enville Street and Poplar Street, and to modify the approach to the junction with the B6169 Shepley Road to make this safer for all traffic.

In addition colleagues across the Council are delivering a range of walking and cycling initiatives to provide residents with the skills and confidence to switch to active travel. This includes community safety, population health and youth services.

7 Information and Resources

(AQAP7.1) Website and Online Resources

Tameside Council has promoted walking and cycling routes and green space use across the borough including links to the gmwalking.com website. The website also hosts information around LAQM, Smoke Control Areas and burning of waste.

(AQAP7.9) Awareness Raising;

A number of awareness raising campaigns have been run on the Council's social media accounts around the environmental impact of bonfires and burning waste and the use of wood burning stoves, including information in relation to the introduction of fixed penalty notices for chimneys releasing excessive smoke.

2.1.2.9 Trafford Metropolitan Borough Council

1 Development Management and Planning Regulation

In 2022 the Council's Pollution team reviewed 733 planning applications for new developments within Trafford with over 125 of these application being reviewed in relation to potential air quality impacts from new construction and also demolition. Applications received include developments for small, medium and large residential, commercial and industrial installations. Planning applications are reviewed to assess potential impacts of new developments on local air quality including the Trafford Air Quality Management area but also locations that are included within the Greater Manchester Clean Air Plan (projected exceedances of national objective levels for nitrogen dioxide). Planning applications are also reviewed for impacts of bringing sensitive receptors to locations where levels of nitrogen dioxide exceed or are close to exceeding national objective levels.

(AQAP1:1 Construction Management Guidance)

Planning applications are reviewed and checked utilising guidance contained within the Institute of Air Quality Management guidance note: Planning for Air Quality The Council's Air Quality Management Area is provided on the Council's GIS system and the GM Clean Air Plan exceedance locations are available here.

Construction and demolition works can cause short and long term impact on particulate levels in areas close to development. The Pollution team impose suitable planning conditions in relation to construction management plans which are utilised to control impacts from construction and demolition on local air quality

(AQAP 1:2 Development Planning Guidance)

Details of air quality requirement as part of planning applications to the Council is provided within the Trafford Planning Validation Checklist.

2 Freight and Heavy Goods Vehicles

(AQAP2.8) Alternative Fuels

In 2022 the Council introduced 16 new electric vehicles to its fleet, saving nearly 21 tonnes of carbon per year. Between February and March, a fleet of 14 new electric Renault Zoes replaced 14 diesel Euro 6 vans used to carry out daily, essential services throughout Trafford.

(AQAP2.7) Engine Idling

In 2022 the Council's Environmental Protection Team have responded to complaints from residents and businesses in relation to engine idling associated with freight and heavy good vehicles. Officers have investigated complaints and contacted business's located within the borough where vehicles regularly leave engines idling and also where drivers associated with the business have been identified as leaving engines idling unnecessarily for extended periods of time.

4 Cycling

(AQAP4.1) Cycle Programmes

Work program confirmed for the upgrade of walking and cycling facilities along the A5014 Chester Road as part of A56 consultation process.

New modal filters on Park Road North/Park Road South, Urmston, which includes pocket park.

Three modal filters installed within the Longford Park area, Stretford.

Crossing improvements at five locations -Delahays Road/Grove Lane, Hale; Glebelands Road in vicinity of Lawson Grove, Sale; Aimson Road junction with Longfield Avenue & Briarfield Road, Timperley; Groby Road, Altrincham/Bowdon; Woodville Road Area, Altrincham/Bowdon

Consultation undertaken with residents over plans to upgrade facilities along Wharfside Way to improve the safety of pedestrians and cyclists.

(AQAP4.2) Public Cycle hire

Cycle hire has been installed at 25 locations within Trafford incorporating the following locations: Ayres Road, Brook's Road, Stretford Road, Northumberland Road, Lucy Street, Victoria Place, Wharfside Metrolink, Trafford College, The Quadrant, Kings Road, Warwick Road South, East Union Street, Trafford Bar Metrolink, Sharon Gospel Church, Imperial War Museum Metrolink, Seymour Grove, Addison Crescent, Stamford Street, Stanley Road, Chester Road, Third Avenue.

Further information on the cycle hire scheme is available in Section 2.2.1 above.

5 Travel Choices

Consultation and enabling work is ongoing for the introduction of 'School Streets' within Trafford to reduce the impact of traffic at school gates to create safer environment to encourage walking and cycling. The first primary schools taking part are Flixton Primary School, Urmston Primary School and English Martyrs RC Primary School. This scheme will introduce temporary restriction on motor traffic at school drop-off and pick-up times. The temporary road closures will allow parents and children to have the freedom to walk or cycle safely in the streets at the beginning and the end of the school day, in a traffic-free environment.

6 Cars

On-going work to install taxi EV charge points at Trafford Wharf Road, Stretford, The Quadrant, Urmston and Ashfield Road or Broad Road, Sale. This is part of the GM wide project being funded by TfGM.

EV charging infrastructure has been completed within the following Council owned car parks: Thorley Lane car park (Timperley), Flixton Road car park (Flixton), Brown Street car park (Hale), Longford Park car park (Stretford), Greenbank Road car park (Ashton on Mersey).

(AQAP 6.1) EV Charging Network

Planning conditions for installation of EV charging points within new residential and commercial installations are included routinely. The criteria required for EV charging is typically as follows:

Prior to the first occupation of the site, a scheme for the provision of low emission vehicle charging points for that phase shall be submitted to and approved in writing by the Local Planning Authority. Development shall be carried out in accordance with the approved scheme.

7 Information and Resources

Detailed online resource for cycling within Trafford via the Council's website.

Engine idling information available via the Council's website.

Access to air quality monitoring data is available via the Council's website.

Trafford provide information and advice regarding solid fuel burning via the Council's website.

The Council's social media channels have been used as part of a wider GM campaign to promote responsible use of solid fuel burners within Trafford.

2.1.2.10 Wigan Metropolitan Borough Council

1 Development Management and Planning Regulation

(AQAP1.7) Taxi and Private Hire Quality Controls to Prioritise Low-Emission Vehicles

Wigan Council are working towards a fully emission compliant private hire and hackney carriage fleet in line with the Minimum Licensing Standards. The aim is that by 1 April 2026 all vehicles will comply with our age and emissions policy.

3 Buses

(AQAP3.1) Bus Priority Programmes;

Wigan are working with TfGM on a programme of works for Bus Priority and Bus Pinch Points along the Wigan to Leigh and Wigan to Bolton corridor. Early scoping stages of work including programming and interventions still to be determined.

4 Cycling

(AQAP4.1) Cycle Programmes;

The Wigan Borough has a robust cycle programme that supports both leisure cycling and active travel.

The Active Outdoors cycle programme offers a wide range of opportunities targeting both experienced and new cyclists. The programme boosts 9 Cycle Pods located at various venues across the borough, where bikes and helmets can be borrowed to access group led rides, 1 2 1/small group learn to ride sessions and other themed activities such as pedal parties or fix and ride sessions.

For further information on our Active Outdoors cycle programme visit www.wigan.gov.uk/activecycle

In 2022 the Active Outdoors team delivered 373 bike rides, attracting 2721 attendances on rides.

The Activation team in partnership with Gearing Up Cycle Workshop provide a wide range of opportunities to support cycling as a means of active travel. With investment in new infrastructure, it is important to be able to support individuals and groups to cycle as part of a commute or for utility. The activation team work within schools, workplaces and community group to support individuals through the following initiatives:

- Dr Bike. Free bike checks and basic repairs. 1,181 bikes checked and repaired in 2022 to the value of £41,335.
- Cycle maintenance training.
- Cycle skills sessions.
- Donation of bikes and helmets to schools and across the community.
- Bike library where individuals can loan a bike and accessories.
- Supporting Bikeability and Bikeablity Balance in Primary Schools.
- Consultation and Guided Rides.

Our two Cycle Three Sisters events are our flagship events in Wigan providing a wide range of opportunities for people to cycle within a safe environment. Outputs from 2022 include:

- 2,100+ attendance.
- 1,300+ accessing the main race circuit by bike
- 200+ children aged under 5 accessing our balance bike circuit.
- Wheels for all sessions for those with disabilities.

- Learn to ride sessions for young people new to cycling.
- 20 partner organisations promoting and delivering a wide range of activities.
- 75 staff and volunteers helping to deliver both events.
- 150+ bikes accessing our Dr Bike service.

Wigan are regarded as GM leaders in the development and delivery of cycle programmes. With our team of Activators and volunteer leaders, we are extremely proud of our cycle offer, although we are always looking to develop new programmes to support our borough's residents.

6 Cars

(AQAP6.1) EV Charging Network;

Wigan have a current EVCI (Electric Vehicle Charging Infrastructure) working group that meet monthly. The group are currently working towards increased offering of EVCI across the borough.

(AQAP6.2) Car Use Allowances;

Wigan have recently set up a Sustainable Staff Travel Working Group that will aim to decrease business miles claimed by Wigan Council Staff, in favour for more sustainable methods of commuting to and from work places.

7 Information and Resources

(AQAP7.1) Website and Online Resources

Wigan have an up-to-date website for residents of the borough to access. There is currently an interactive website being developed to help highlight the issues of air pollution, linked to the DEFRA educational campaign (highlighted in AQAP7.9).

(AQAP7.9) Awareness Raising;

Wigan have set up a comms working group dedicated to promoting environmental messaging with wellbeing elements across all social media platforms. This will address air quality, climate change and physical/mental wellbeing.

Wigan are committed to delivering an educational campaign, targeted mainly at secondary school children onwards (primary schools also have a platform). This is a DEFRA funded project, projected to be ongoing for 2 years. This project will educate residents on the issues of poor air quality, and will also highlight behavioural changes needed to improve local air quality.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	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
1	(AQAP1.1) Construction Management Guidance;	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2017	2017	10 LA's	LA - BAU Activity	NO	*Funded*	*< £10k*	*Completed*	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	A GM Task & Finish Group is improving standardisation of conditions across GM. Construction management guidance is now referred to by many of the local authority environmental management teams. Further details are described by district in the accompanying ASR report.	N/A
2	(AQAP1.2) Development Planning Guidance;	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2017	2017	10 LA's	LA - BAU Activity	NO	*Funded*	*< £10k*	*Completed*	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	This guidance is now referred to by many of the local authority environmental management teams. Further details around Planning Guidance are described by district in the accompanying ASR report.	N/A
3	(AQAP1.3) Cumulative Development Database;	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2017	17-May	TfGM	TfGM - BAU Activity	NO	*Funded*	*< £10k*	*Completed*	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	Update to the database has been paused. Utility of the database was found to have limited value to Local Authorities.	Limited Use.
4	(AQAP1.4) Clean Air Zone feasibility study;	Traffic Management	UTC, Congestion management, traffic reduction	2017	2021 - 2023	TfGM, 10 LAs	JAQU	NO	Partially Funded	> £10 million	Planning	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	As stated in 2021 ASR this action is now covered by the Clean Air Plan work being conducted by TfGM in partnership with the 10 Local Authorities. A detailed update of progress on this is available at www.cleanairgm.com	N/A

Measure No.	Measure	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
5	(AQAP1.5) 20mph Zones;	Traffic Management	Reduction of speed limits, 20mph zones	2018	2022	TfGM, 10 LAs	LA - Various funding sources	NO	Not Funded	< £10k	Implementation	N/A	Increase Efficiency	More 20mph zone schemes are being explored/introduced across GM, linked to pedestrian safety, including: Five 20mph zone schemes introduced across Bury MBC. Manchester CC adopted Active Travel Strategy & Investment Plan (MATSIP) including reducing speed limits on certain residential streets to 20mph across city, subject to funding. Rochdale have introduced 20mph active neighbourhoods in Milkstone & Deeplish.	N/A
6	(AQAP1.6) Encouraging Travel Planning;	Promoting Travel Alternatives	Personalised Travel Planning	2017	Ongoing	TfGM	TfGM - BAU Activity	NO	Funded	£50k - £100k	Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	In 2022, TfGM's Business Engagement team regularly meets 10 LAs, & uses tactical partnership to shape campaigns. Business Travel Portal launched in 2021, offering guidance for employers & employees. Business Travel Network newsletter circulated to 430 members. LAs using Modeshift Stars online travel planning platform for School Streets pilot schools. Many Planning Applications require Travel Plans.	N/A
7	(AQAP1.7) Taxi and Private Hire Quality Controls to Prioritise Low-Emission Vehicles	Promoting Low Emission Transport	Taxi Licensing conditions	?	2021	LA's	LA - BAU Activity	NO	Funded	£50k - £100k	Implementation	N/A	Reduce Traffic; Increase Efficiency	Full public consultation on Minimum Licensing Standards was undertaken in parallel with GM CAP at the end of 2020 across Greater Manchester. Implementation of standards by GM Districts have been paused with the GM CAP.	N/A

Measure No.	Measure	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
8	(AQAP1.8) Green Infrastructure;	Transport Planning and Infrastructure	Other	2019	2022	TfGM	TfGM - BAU Activity	NO	Funded	£10k - 50k	Implementation	N/A	Increase Efficiency	Collaborative Green Barrier project between Groundwork Trust, Lancaster University, Manchester City Council and TfGM concluded, and results are being disseminated across LAs	N/A
9	(AQAP2.1) Delivery and Servicing Plan Toolkit;	Freight and Delivery Management	Delivery and Service plans	2017	Ongoing	TfGM	TfGM - BAU Activity	NO	Funded	£10k - 50k	Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	DSP resource at TfGM was lost in 2021, however, impacts from previously implemented DSPs continue to be realised in some Districts.	LA resources for data-collection
10	(AQAP2.2) Urban Distribution Centres;	Freight and Delivery Management	Freight Consolidation Centre	2020	TBC	TfGM	TfGM - BAU Activity	NO	Partially Funded	£10k - 50k	Planning	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	The Logistics & Environment team at TfGM will review this action as part of freight strategy refresh that is currently in process.	Market-dependant factors
11	(AQAP2.3) Urban Consolidation;	Freight and Delivery Management	Other	2019	TBC	TfGM	TfGM - BAU Activity	NO	Funded	£10k - 50k	Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	Amazon have chosen to trial e-cargo bikes in Greater Manchester, partly due to the high levels of appropriate infrastructure in the area. TfGM will continue to work with Amazon and other couriers to explore other cycle logistics activity.	COVID.
12	(AQAP2.4) Access for Freight to Key Economic Centres and Sub-regional Freight Facilities;	Promoting Travel Alternatives	Promote use of rail and inland waterways	2018	TBC	TfGM	TfGM - BAU Activity	NO	Not Funded		Planning	N/A	Reduce Traffic; Increase Efficiency	Refreshing the Greater Manchester Freight Strategy will provide guidance of this at a strategic, multi-modal level (relating to both potential and progress). Currently discussing details with districts.	Market-dependant factors
13	(AQAP2.5) Freight Information Channels;	Freight and Delivery Management	Other	2017	on-going	TfGM	TfGM - BAU Activity	NO	Funded	£10k - 50k	Implementation	TBC	Reduce Traffic; Increase Efficiency	Travel Demand Team now well established at TfGM. Post-COVID lockdown, will continue to work on best methods for sharing information to a freight specific audience. Continue to invest in CLOCS and benefits to safety and environment	N/A
14	(AQAP2.6) Diesel Transport Refrigeration Units (TRUs);	Freight and Delivery Management	Other	N/A	TBC	TfGM	TfGM - BAU Activity	NO	Not Funded		Aborted	N/A	Increase Efficiency; Improve Fleet	There has yet to be any progress on this measure and its value to GM priorities has been called into question. As a result this action has been suspended.	This topic is not at the forefront of current freight debates.

Measure No.	Measure	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
15	(AQAP2.7) Engine Idling;	Promoting Low Emission Transport	Other	2017	on-going	TfGM & LA's	TfGM & LA's - BAU Activity	NO	Not funded	<£10k	Planning	N/A	Increase Efficiency	A review of idling complaints across Greater Manchester, and advice has been provided to Local Authorities on their statutory powers to enforce against idling vehicles. This was in response to enquiries about specific scenarios where there had been complaints or ongoing issues with idling.	Limited effective measures available for enforcement.
16	(AQAP2.8) Alternative Fuels;	Promoting Low Emission Transport	Other	2017	on-going	TfGM	TfGM - BAU Activity, OLEV, Early Measures	NO	Partially Funded	£1 million - £10 million	Planning	N/A	Increase Efficiency; Improve Fleet	Trafford Green Hydrogen Project now established GM region as a leading UK hub in Green infrastructure. GM Freight Strategy Refresh still underway - this will scope out a roadmap to low emission freight.	Conflicting agendas on alternative fuels within public and private sector.
17	(AQAP3.1) Bus Priority Programmes;	Transport Planning and Infrastructure	Bus route improvements	2017	on-going	TfGM	TfGM - CRSTS	NO	Funded	£500k - £1 million	Implementation	TBC	Reduce Traffic; Increase Efficiency	CRSTS Funding allocation up to 2027 includes bus and active travel improvements to four regional corridors. An allocation has also been made for bus corridor improvements to routes connecting to the City Centre from across GM.	N/A
18	(AQAP3.2) Bus Improvements;	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2017	on-going	TfGM	Mixed	NO	Not Funded	< £10k	Implementation	TBC	Improve Fleet	TfGM is engaging with stakeholders to establish options and solutions available to successfully deploy and optimise zero emission buses and associated infrastructure. ZEBRA and CRSTS funding obtained, contributing to Zero Emission bus fleet. GM awarded £7.5m to buy land for an electric bus depot.	N/A
19	(AQAP3.3) Hybrid Bus Improvements;	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2017	on-going	TfGM	TfGM - BAU Activity	NO	Funded	£500k - £1 million	Implementation	N/A	Increase Efficiency	In 2022, TfGM successfully completed the retro fitment of the owned Optare hybrid bus fleet with SCRT exhaust after-treatment technology to improve tailpipe emissions from Euro 5 to Euro 6 emission standard.	N/A

Measure No.	Measure	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
20	(AQAP3.4) Trial of Low-Emission Vehicles	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2017	On-going	TfGM	TfGM - BAU Activity	NO	Funded	> £1 million	Implementation	N/A	Improve Fleet	No trials ongoing - ZE Bus data will be reviewed for service optimisation.	N/A
21	(AQAP4.1) Cycle Programmes;	Promoting Travel Alternatives	Promotion of cycling	2017	On-going	TfGM	Mixed	NO	Partially Funded	> £10 million	Implementation	N/A	Reduce Traffic	The development of the GM fully-connected cycle network gathered pace in 2022, supported by TfGM-led sustainable travel promotion schemes. Over £100m schemes funded through MCF now have Full Business Case Approval.	N/A
22	(AQAP4.2)Public Cycle hire;	Transport Planning and Infrastructure	Public cycle hire scheme	2017	On-going	TfGM	Mayor's Challenge Fund	NO	Funded	> £10 million	Planning	N/A	Reduce Traffic	The public cycle hire scheme continued to roll out in 2022, and includes over 1,500 bikes (including 300 e-bikes). As of March 2023, the scheme had 45,571 active users. The scheme currently has funding to run for an initial period of five years until Nov 2026.	N/A
23	(AQAP4.3) Cycle Logistics;	Promoting Travel Alternatives	Promotion of cycling	2017	on-going	TfGM	TfGM - BAU Activity, INTERREG	NO	Funded	£500k - £1 million	Planning	TBC	Reduce Traffic	Amazon have chosen to trial e-cargo bikes in Greater Manchester, partly due to the high levels of appropriate infrastructure in the area. We will continue to work with Amazon and other couriers to explore other cycle logistics activity.	N/A
24	(AQAP4.4) Cycle to 2040;	Promoting Travel Alternatives	Promotion of cycling and walking	2017	on-going	TfGM	TfGM - BAU Activity and range of DfT funding	NO	Partially Funded	> £10 million	Implementation	TBC	Reduce Traffic	GM has set out a refreshed Active Travel mission, supported through Activation and Access areas of work, under the guidance of Dame Sarah Storey, our new Active Travel Commissioner.	N/A

Measure No.	Measure	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
25	(AQAP5.1) Car Clubs;	Alternatives to private vehicle use	Car Clubs	2017	on-going	TfGM & LA's	TfGM & LA - BAU Activity, INTERREG	NO	Partially Funded	£500k - £1 million	Implementation	TBC	Reduce Traffic; Improve Fleet	GM Car Share scheme has been paused and is under review. TfGM's involvement in eHUBS project piloted 10 Hybrid/EVs as part of a car club for rental across parts of Manchester and Bury. Co-Wheels car club fleet in Salford has been reduced to 14 vehicles in 2022.	COVID has had an impact on car-sharing arrangements.
26	(AQAP5.2)Dynamic Road Network Efficiency and Travel Information System;	Public Information	Via other mechanisms	2017	on-going	TfGM	TfGM - BAU Activity	NO	Funded	£1 million - £10 million	Implementation	N/A	Increase Efficiency	Adaptive signal control rolled out at 32 junctions: SCOOT, which is used to provide priority to late-running buses, and MOVA. TfGM & UTC developing signal timing strategies. TfGM also improving customer information, sharing information with navigation service providers.	Activity absorbed into BAU. There will be capital budgets to pay for some things, such as Growth Deal, and DfT TDM grant.
27	(AQAP6.1) Plugged-in Places EV Charging Network;	Promoting Low Emission Transport	Other	2018	on-going	TfGM	TfGM - BAU Activity, Early Measures Funding, OLEV Funding	NO	Partially Funded	£1 million - £10 million	Implementation	N/A	Improve Fleet	There are now around 1200 EV connectors in Greater Manchester. TfGM commissioned a study exploring the future rollout of Electric Vehicle Charging Infrastructure (EVCI). This was a high-level review to establish how the public sector can best influence the rollout of publicly accessible EVCI and how can we maximise our assets to encourage and accelerate the transition to EVs, without creating ongoing revenue issues. This study was reported to the GMCA in March 2023, and outlined that Local Authorities need to increase the level of partnership with ChargePoint operators in order to meet the scale of rollout that will be required. The study concluded that available public funding should be used to help deliver charging in uncommercial or underserved areas.	N/A

Measure No.	Measure	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
28	(AQAP6.2) Car Use Allowances;	Alternatives to private vehicle use	Other	2017	Progress is described by district in the accompanying ASR report.	LA's	District Budgets TBC	NO	Partially Funded		Planning	N/A	Reduce Traffic	Progress is described by district in the accompanying ASR Report	N/A
29	(AQAP6.3) Local Authority Parking Charges;	Traffic Management	Workplace Parking Levy, Parking Enforcement on highway	2017	Progress is described by district in the accompanying ASR report.	LA's	LA's	NO	Partially Funded		Planning	N/A	Reduce Traffic	Progress is described by district in the accompanying ASR Report	N/A
30	(AQAP6.4) School Travel;	Promoting Travel Alternatives	School Travel Plans	2017	on-going	TfGM & LA's	TfGM & LA - BAU Activity	NO	Partially Funded	£10k - 50k	Implementation	N/A	Reduce Traffic; Increase Efficiency	Schools and colleges were continuing to be provided with Active Travel Grants in 2022. Over £360,000 has now been spent on Active Travel Grants for schools across Greater Manchester. 50 School Streets are being delivered at schools across Greater Manchester; so far, 13 schemes have been delivered.	N/A
31	(AQAP7.1) Website and Online Resources	Public Information	Via the Internet	2017	2019	TfGM	TfGM - BAU Activity	NO	Funded		Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	The Clean Air GM website has continued to see an uplift in annual traffic, with 1,305,102 unique pageviews in 2022. The majority of users are reading material about the GM CAP.	N/A
32	(AQAP7.2) Online Route Finding;	Promoting Travel Alternatives	Personalised Travel Planning	N/A	on-going	TfGM	TfGM- BAU Activity	NO	Funded		Implementation	N/A	Reduce Traffic; Increase Efficiency	TfGM's Journey Planner (tfgm.com) facilitates around 120,000 journey plans per month.	Actions undertaken in relation to customer digital and travel information roadmaps.
33	(AQAP7.3) Pollution Alert;	Public Information	Via other mechanisms	2018	On-going	TfGM	TfGM- BAU Activity	NO	Funded	£10k - 50k	Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	The GM Pollution alert service has been set up and can be signed up for https://cleanairgm.com/air-quality-data/forecast-and-alerts. There were 635 users as of March 2023. There was an average of 18 days receiving at least one MODERATE (or higher) forecast in 2022.	N/A
34	(AQAP7.4)Health Effects of Air Pollution in Greater Manchester;	Public Information	Via the Internet	2017	on-going	TfGM	PHE BAU	NO	Funded		Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	The health impacts of air quality are explored and explained in detail withing the Chief Medical Officer's Annual report 2022	N/A

Measure No.	Measure	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
35	(AQAP7.5) Contingency Report Plan	Public Information	Other	N/A	on-going	TfGM	PHE BAU	NO	Partially Funded		Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	A draft project was developed in consultation with primary care practices to create Clean Air Practices that would include providing advice to targeted patients around air quality alerts. This was delayed due to the COVID-19 response and resourcing.	N/A
36	(AQAP7.6) TfGM Air Quality Team;	Other	Other	2017	Ongoing	TfGM	TfGM- BAU Activity	NO	Funded	£10k - 50k	Completed	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	Additional member to TfGM's Air Quality team added in 2017 & 2021.	N/A
37	(AQAP7.7) Air Quality Monitoring Database;	Other	Other	2017	on-going	TfGM & LA's	TfGM & LA's - BAU Activity	NO	Funded	< £10k	Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	TfGM are collating all AQ data and maintaining the database. This data is now being published on the cleanairgm.com website.	N/A
38	(AQAP7.8) Traffic Flow Data;	Other	Other	2017	on-going	TfGM	TfGM- BAU Activity	NO	Funded		Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	Conducted as part of the National Clean Air Plan work.	N/A
39	(AQAP7.9) Awareness Raising;	Public Information	Via other mechanisms	2017	on-going	TfGM & LA's	TfGM & LA's - BAU Activity	YES	Funded	£10k - 50k	Implementation	N/A	Reduce Traffic; Increase Efficiency; Improve Fleet	A domestic solid fuel burning behaviour change campaign ran from 7 December to February 2023, targeting areas with known users of domestic burning equipment. TfGM and 10 LAs promoted National Clean Air Day 2022.	N/A

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Greater Manchester is taking the following measures to address $PM_{2.5}$:

In 2022, Greater Manchester received Air Quality Grant funding from Defra to deliver a project aimed at increasing awareness of $PM_{2.5}$ emissions from domestic solid fuel burning, on top of targeted behaviour change activity. The project brings together the 10 Local Authorities of Greater Manchester, TfGM & the GMCA, and consists of a two-phase approach:

1. Evidence Base - To build an evidence base determining the proportion of $PM_{2.5}$ across Greater Manchester attributable to domestic burning and other emission sources, supported by a detailed monitoring programme using the deployment of indicative monitors across the region, plus additional research into the use of demographics, attitudes and behaviours of current contributors to these emissions.

2. Marketing and Communications Campaign - To launch winter targeted campaigns, drawing on the above evidence base for improved targeting.

Progress on the project was made in 2022 and early 2023. A procurement exercise was prepared to purchase 40 indicative monitors, which will be installed in Summer 2023 at sites where there are a large number of registered solid fuel burning appliances installed at homes, as well as in reference sites for comparison. A programme of research has been designed to understand the existing evidence around solid fuel burning in Greater Manchester.

A three-month campaign was launched between December 2022 and 2023 to raise awareness of the health impacts of domestic wood burning, and to promote behaviour change. A series of digital communication toolkits was shared by partners across Greater Manchester, with content including video, non-branded static images, and newsletter copy.

This was supported by non-branded digital display advertising carrying campaign messaging.

The primary call to action of this first campaign was for people to visit Defra's 'Burn Better' campaign landing page - Burn better: Making changes for cleaner air - Defra, UK - for more information.

Activity was targeted to relevant audiences within Greater Manchester areas where there is a high amount of domestic solid fuel burning activity, as well as areas experiencing the health / mortality burden associated with particulates most acutely.

TfGM's domestic burning campaign was successful in generating 12 million opportunities for people to see or hear campaign messaging, driving 10,000+ visits to the Defra site through communications and marketing activity. This included:

- Over 7 million opportunities to see/hear the GM #BurnBetter story in traditional media
- 4.8 million impressions across social and paid digital channels, including 1.7m impressions for digital display advertising
- 23,683 plays of influencer video content on Instagram
- 15,500+ health advocate campaign video views
- 4,800 suppliers reached via the HETAS[19] newsletter

[19] HETAS | Working together for a cleaner safer environment

CAP NO_2 Monitoring Results 2022

Legislative Context

Legislation	Description
The European Union Directive 2008/50/EC Ambient Air Quality and Cleaner Air for Europe.	This European Directive forms the basis for UK air quality legislation. Although published in 2007, the Air Quality Strategy is consistent with The Air Quality Standards Regulations (England) 2010 (2010 Regulations). The European Directive is transposed into UK law through the 2010 Regulations which remain binding post the withdrawal of the UK from the EU. The UK government is responsible for ensuring that it complies with the provisions of the transposed EU Directives. The UK currently is in breach of the limit values for nitrogen dioxide (NO_2) and PM_{10} (particulate matter with an aerodynamic diameter of less than 10 microns).
Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019	The EU limit values were transposed into UK law by the Air Quality Standards Regulations 2010 and then slightly modified so the wording accounts for EU exit by the Air Quality (Amendment of Domestic Regulations) (EU Exit) Regulations 2019 so still stand as legal limits. On the UK Government's behalf, the Department for Transport and Defra have Public Service Agreements relating to the limit values.
The Air Quality (England) (Amendment) 2000/2002 Regulations.	Legislates for the UK air quality objectives (AQOs) for pollutants set out in the 2000 Air Quality Strategy, which was revised in 2007 (Defra, 2007). AQOs exist for a variety of pollutants including NO_2, NO_x, PM_{10} and $PM_{2.5}$. These are established for both the protection of human health and the protection of vegetation and ecosystems.
Environment Act 1995, Part IV	Introduced a system of local air quality management (LAQM) in the UK, which requires local authorities to review and assess air quality within their boundaries regularly and systematically against AQOs. Local authorities must appraise development and transport plans

Legislation	Description
	against these objectives and make plans to meet the AQOs where they are exceeded.
The Air Quality Standards Regulations 2010	These regulations set out the assessment criteria of ambient air quality and contain a duty of the Secretary of State to meet limit values. The secretary of state has powers to give directions to local authorities under the Environment Act 1995.

2.3.1 Differences between monitoring undertaken for the Clean Air Plan and LAQM

In addition to monitoring undertaken to determine compliance with the nitrogen dioxide (NO_2) legal limit values in accordance with the Clean Air Plan (CAP) and government direction under section 85 of the Environment Act 1995, the 10 districts also monitor NO_2 in accordance with the requirements of Part IV of the Environment Act 1995 and associated statutory guidance, also called Local Air Quality Management or 'LAQM'.

The two monitoring regimes have different siting criteria to assess exposure which often leads to different types of monitoring locations. The CAP monitoring assesses exposure as defined by the Air Quality Standards Regulations (England) 2010 legal limit values, with roadside being typically worst-case and hence the focus for monitoring. The LAQM monitoring is concerned with exposure at locations of relevant public exposure[20] where the Air Quality Objectives apply, which can include roadside but only in exceptional circumstances. LAQM monitoring also includes measurements at background[21] and industrial locations and isn't limited to road traffic sources.

Additionally, the two regimes have different values by which they determine an exceedance. LAQM determines that the legal limit of 40µg/m^3 has been exceeded by any result over 39.9µg/m^3 [22], whereas for the CAP, JAQU (Government's Joint Air Quality Unit,) determine

[20] All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc. Kerbside locations are on the whole excluded, unless members of the public are likely to be exposed for longer than the time used to determine the legal limit for the pollutant concerned. Box 1.1 for TG16 give more detail LAQM-TG16-April-21-v1.pdf (defra.gov.uk)

[21] Background sites are used to provide useful information such as long-term trends, general population exposure and an indication of reduction in pollution away from roadside sources, as opposed to measuring exceedances.

[22] An exceedance defines a period of time during which the concentration of a pollutant is greater than, or equal to, the appropriate air quality criteria. For Air Quality Standards, an exceedance is a concentration

anything over 40.4µg/m^3 to be an exceedance[23]. These differences in definition should be taken into consideration when comparing the results from individual monitoring locations.

There are two legal limits in relation to NO_2 which apply to both regimes:

- A short-term hourly limit of 200µg/m^3 (not to be exceeded more than 18 times a calendar year).
- The long-term annual average limit of 40µg/m^3.

To determine compliance with the NO_2 1-hour mean Air Quality Limit Values, research undertaken on behalf of Defra and outlined in Technical Guidance Note LAQM.TG (16) (Defra, 2021) identified that road traffic emission related exceedances are unlikely to occur where the annual mean concentration is below 60 µg/m^3.

For the Clean Air Plan (CAP), the government has directed GM (and other areas) under UK law to address NO_2 exceedances at the roadside in the shortest possible time. In GM this direction specifically focuses on the more stringent long-term annual average legal limit (40µg/m^3).[24]

2.3.2 Clean Air Plan monitoring 2022

Monitoring for NO_2 for GM Clean Air Plan purposes uses diffusion tubes at sites where "target determination"[25] modelling predicted illegally high levels of NO_2 for 2022. Three new continuous automatic air quality monitoring stations were installed in 2022 at the last key points of exceedance in Greater Manchester.

The GM CAP monitoring campaign was expanded further in 2022 to cover all modelled road links in exceedance, aiming to site three monitoring sites along each road link.

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greater than the Standard value. For Air Pollution Bandings, an exceedance is a concentration greater than, or equal to, the upper band threshold. https://uk-air.defra.gov.uk/air-pollution/glossary#E

[23] The IPR guidance underpinning the Air Quality Standards Regulations 2010 stipulates that compliance should be assessed using data of 'the same numeric accuracy' as the limit value, therefore a value of 40.4ug/m3 is rounded down to 40ug/m3 and is not exceeding. https://ec.europa.eu/environment/air/quality/legislation/pdf/IPR_guidance1.pdf

[24] The short-term hourly limit was only exceeded in Greater Manchester in 2016 at one site, on Oxford Road.

[25] The government's Joint Air Quality Unit undertook a process called 'target determination', which involves comparing the outputs of the local and national modelling, verifying the local modelling methodology and then agreeing the forecast concentration assessment to be compared to the limit value for each exceedance. The outcome of this is an agreement of the NO_2 problem Greater Manchester must resolve ("target determination") and the basis for the Greater Manchester Clean Air Plan.

In relation to GM CAP, in 2022 a 12-month diffusion tube survey was carried out at 499 monitoring locations in Greater Manchester. The additional sites were installed at all roads predicted to exceed the limit values by the CAP target determination process, including at some locations adjacent to sections of the road network operated by National Highways. Results that can be compared with the annual average standard are available at 432 locations, following a review of data capture and siting criteria.

GM CAP air quality monitoring data showed 95 locations where exceedances of the nitrogen dioxide annual mean limit value in Greater Manchester were indicated, with a further 108 locations considered to be at risk of exceeding the limit. Of these the majority of new exceedances (45) were recorded at newly installed sites identified as at risk of poor air quality by the CAP modelling, and 5 sites that were not in exceedance in 2021 have increased to above the limit value in 2022.

The GM CAP monitoring data indicates that air pollution has increased compared with 2021, but is below levels recorded pre-pandemic in 2019. Analysis of the factors influencing pollution emissions and air quality indicate that the concentrations have been affected by:

- An increase in car traffic compared with 2021, and associated congestion although traffic is still below 2019
- Weather conditions have been less favourable in 2022 compared with 2021, reducing dispersion of pollutants
- Bus fleet emissions of retrofitted vehicles may not be performing as well as expected

Restrictions during 2020 and 2021 due to the Covid-19 pandemic led to reduced vehicle traffic and associated emissions, and lower concentrations of air pollution.

2.3.3 Summary of Cap Monitoring results 2018 – 2022

Table 2.3 Number of GM CAP Monitoring Sites

Local Authority	Number of Monitoring Sites				
	2018	2019	2020	2021	2022
Bolton	5	14	14	14	32
Bury	5	16	16	16	36
Manchester	20	91	91	91	160
Oldham	0	9	9	9	19
Rochdale	0	12	12	12	15
Salford	5	27	27	27	60
Stockport	10	19	19	19	47
Tameside	5	14	14	14	32
Trafford	5	14	14	14	18
Wigan	0	6	6	6	13
Total	**55**	**222**	**222**	**222**	**432**

Table 2.4 Number of GM CAP Exceedances

Local Authority	Number of Exceedances (>40.4µg/m3)				
	2018	2019	2020	2021	2022
Bolton	1	4	1	2	4
Bury	2	10	0	2	6
Manchester	14	65	8	25	49
Oldham	0	5	0	1	5
Rochdale	0	4	1	1	1
Salford	1	16	0	7	13
Stockport	6	15	2	3	8
Tameside	4	6	4	4	8
Trafford	1	3	0	0	0
Wigan	0	1	0	0	1
Total	29	129	16	45	95

Table 2.5 Number of CAP sites at Risk of Exceedance

Local Authority	Number of sites at Risk of Exceedances (>35 < 40.4 µg/m3)				
	2018	2019	2020	2021	2022
Bolton	3	2	3	3	4
Bury	3	2	3	4	10
Manchester	1	6	22	18	49
Oldham	0	1	4	4	5
Rochdale	0	3	0	2	4
Salford	0	0	6	7	15
Stockport	2	2	4	5	10
Tameside	1	3	1	1	8
Trafford	3	7	1	1	1
Wigan	0	1	0	0	2
Total	13	27	44	45	108

Table 2.6 Max CAP NO_2 Concentrations

Local Authority	Max NO2 Concentration(µg/m3)				
	2018	2019	2020	2021	2022
Bolton	54	64	46	48	44
Bury	48	62	38	44	45
Manchester	71	76	50	56	65
Oldham	0	54	39	45	45
Rochdale	0	61	49	45	41
Salford	47	67	40	45	45
Stockport	62	75	46	52	51
Tameside	56	56	43	48	48
Trafford	47	47	35	37	35
Wigan	0	45	31	33	45

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

This section sets out the monitoring undertaken within 2022 by Greater Manchester and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Greater Manchester undertook automatic (continuous) monitoring at 22 sites[26] during 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. The Clean Air GM Data Hub page presents automatic monitoring results for Greater Manchester, with automatic monitoring results also available through the UK-Air website.

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

Greater Manchester undertook non-automatic (i.e. passive) monitoring of NO_2 at 434 LAQM sites during 2022. 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 the Clean Air GM Data Hub. Further details on Quality Assurance/Quality Control (QA/QC) for

[26] Bury Bridge and Manchester Bridge Street were installed in 2022. Manchester Bridge Street was installed later in the year and is discounted here due to resultant <25% data capture.

the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

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.

3.1.3 Nitrogen Dioxide (NO_2)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. 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 2022 dataset of monthly mean values is provided in Appendix B. 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 NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

3.1.3.1 Bolton Metropolitan Borough Council

Automatic

Nitrogen dioxide levels are monitored at the automatic station on the A579, Derby Street near the University of Bolton, the site was commissioned in October 2020. The site is located with the Air Quality Management Area and is in a roadside location. The NOx analyser is a NOx model T200 chemiluminescence analyser supplied by Envirotechnology.

In 2022 the annual mean concentration measured at the site was 23 µg/m^3, which is the same concentration as 2021, there were no hourly mean concentrations above 200 µg/m^3. The data capture at the site was 99.36%. There were no exceedances of the nitrogen

dioxide air quality objectives at the site in 2021. It is not possible to identify any long term trends as the site has only been operating since October 2020.

Diffusion Tubes

In 2022 Bolton Council collected data from 52 diffusion tubes (47 sites as there are some duplicate / triplicate tubes), this is a decrease in 1 tube / 1 site compared with last year. The number of sites has reduced as one of the tubes was located adjacent to the real time monitoring station and there it was therefore duplicating the results from the tubes co-located with that site. A total of 38 of the sites (41 tubes) are located within the AQMA, with 9 sites (11 tubes) located outside it. Data is also available from 14 sites which have been set up to monitor the GM Clean Air Plan which is under development to reduce roadside nitrogen dioxide levels to within legal levels. This is the second year that data from these sites have been included in the Annual Status Report. The results from the Clean Air Plan monitoring are discussed in more detail in Section 2.1.5.

During 2020 pollution levels decreased significantly at all sites, which is associated with reduced traffic flows as a result of restrictions imposed during the Covid-19 pandemic. There were still some restrictions in 2021, which are also likely to have had an impact on reducing pollution levels compared with pre-pandemic levels.

During 2022 there were no exceedances of the NO_2 annual mean objective at the sites managed by Bolton Council.

There were a total of 6 sites with concentrations greater than 35 µg/m^3 in 2022 operated by Bolton Council. All the sites were kerbside/roadside locations. These were:

BO03- Quintins, Derby Street (36.6 µg/m^3), this is a kerbside site located on a busy A-Road not far from the town centre;

BO69 – A6, Salford Road near the Red Lion Public House (39.2 µg/m^3), this is a roadside location near a busy crossroads, it is also located close to the M61 and may also be influenced by motorway emissions.

BO71 – Junction 4, M61 traffic lights, northbound exit (39.7 µg/m^3), this is on the roundabout from the exit sliproad from the M61 motorway, although there is a footpath, the nearest sensitive receptor where there would be long-term exposure is around 300 metres away.

BO72 – Watergate Drive (37.0 µg/m^3) there was relatively low data capture from this site (48.1%), the concentration for this site in 2021 was 25.8 µg/m^3 and has been consistently

below 31 µg/m3 since 2018. Checks will be made during 2023 to see whether any significant changes in emissions in the area can be identified.

BO73 – Turton Street, Bolton near the junction with St. Peters Way (37.4 µg/m^3), this is located near to a busy crossroads and the A666, which is one of the main roads into /out of Bolton; and

BOA104 – All Saints, outside 1 Devon Street (35.6 µg/m^3) during the year there was a wide variation in monthly measurements at this site – from 13.6 µg/m^3 in June to 82.9 µg/m^3 in December, a pattern not experienced at other sites. It is unclear why this should be the case. The site is located near to the A666, St. Peters Way.

During 2020 and 2021 there were restrictions on activity as a result of the Covid pandemic. There were no such restrictions in 2022, between 2021 and 2022 there was an increase in concentrations at 31 sites, a decrease in concentrations at 15 sites and no change at 1 site. Overall, between 2021 and 2022, there was an average increase in concentrations of 4.7% taking into account all sites operating during this period, it is likely that the Covid restrictions may have an impact on reducing emissions in 2021. Longer term trends in pollution concentrations are more positive, between 2018 and 2022 there was an average decrease in pollution concentrations across all sites operating during that period of 15.8%.

3.1.3.2 Bury Council

Automatic

In 2022, a new automatic monitoring station was installed at Bury Bridge on the A58 in central Bury. Bury Bridge was predicted by Greater Manchester Clean Air Plan air quality modelling to be one of the last points in Greater Manchester to meet the nitrogen dioxide annual mean target. As a result, TfGM used Clean Air Plan funding to provide Bury Council with a new monitoring site at this location to monitor nitrogen dioxide concentrations. This new site commenced operation in August 2022 and joined Bury's existing network of automatic sites at Whitefield (A56, Bury New Road), Radcliffe (A665 Water Street) and Prestwich (A56 Bury New Road). All Bury's automatic sites are sited at the side of very busy roads to monitor compliance with Local Air Quality Management objectives and also with the Government directive to meet NO_2 limit values in the shortest time possible.

New air monitoring unit at Bury Bridge, Bury

All the nitrogen dioxide concentrations measured at the automatic sites are well below the nitrogen dioxide annual mean objective. Values have decreased slightly at Prestwich and Radcliffe but increased slightly at Whitefield. The increase at Whitefield is likely to be explained by the increase in traffic following the lockdowns of the pandemic. The decreases are a little harder to explain but it is hard to draw any firm conclusions in relation to trends over the last few years as traffic was heavily impacted by the impacts of COVID.

The concentration measured at the new Bury Bridge site was 22 µg/m^3, which is a lot less than the nitrogen dioxide objective and limit value. This value seems lower than expected and much lower than diffusion tube measurements in that locality. This annual mean measurement will have been impacted by the fact that monitoring only took place for 5 months and as a result the data has been adjusted to try to reflect what a full year might look like. This inevitably is an estimate at best, and it is therefore difficult to draw any firm conclusions without having a full year's data.

Diffusion Tubes

Bury Council has a network of 20 diffusion tube sites which are located to monitor exposure close to our busier roads in relation to Local Air Quality Management responsibilities and to monitor progress towards the Government directive to meet NO_2 targets in the shortest time possible. Of our 20 sites, 17 are in the AQMA. Only one tube exceeded the annual mean objective: this was BU 15 at the junction of Bury New Road and Bury Old Road in Whitefield (40.5µg/m^3). The measurement for BU16 at Bury New Road was very close to the objective at 39µg/m^3. Both of these tubes are sited on very busy "A" roads leading to Manchester and are also very close to Junction 17 of the M60. These roads take traffic heading to and from Manchester City Centre and also those joining or coming from the motorway network.

Congestion is often an issue, and all these factors have clearly contributed to the higher levels of nitrogen dioxide.

Concentrations have increased slightly at nearly all diffusion tube sites. This is probably a result of traffic flows increasing following the lockdowns of 2019- 2021.

3.1.3.3 Manchester City Council

Automatic

During 2022 data was gathered from three automatic monitoring stations within Manchester's district:

- Piccadilly Gardens (Urban Centre)
- Oxford Road (Kerbside)
- Manchester Sharston (Suburban Industrial)

Long-term concentrations of NO_2 have fallen significantly at all Manchester automatic monitoring sites and, during 2022, the Piccadilly Gardens and Sharston sites met the annual average air quality objective of 40 µg/m³ (micrograms of NO_2 per cubic metre of air) for this pollutant at 29 µg/m^3 and 15 µg/m^3 respectively. At 43 µg/m^3, the Oxford Road site exceeded the limit. All automatic sites saw a slight decrease from 2021 levels and there were no exceedances of the hourly average air quality objective for NO_2.

Despite the clear long-term improvements in air quality across the city, parts of Manchester close to main arterial routes remain above the annual limit for NO_2.

No significant technical issues were experienced at any of Manchester's automatic monitoring sites during 2022 with respect to NO_2 and all three sites had high rates of data capture.

A new automatic monitoring station for NO_2 was added in September 2022 at Bridge Street in the city centre. There are insufficient data to produce an annual average for 2022, but results will be included in next year's report.

Diffusion Tubes

Monitoring was carried out at 40 NO_2 diffusion tube sites in Manchester during 2022, including three sites co-located with reference analysers at the automatic monitoring stations for diffusion tube bias adjustment purposes. Of the 40 sites, 29 are located within the AQMA and 11 outside of it. During 2022 there were exceedances of the annual average limit for NO_2 at the following 4 sites, which are all within the AQMA:

- Oxford Street (site ref: MA29ANO): 49.8 µg/m^3

- Oxford Road triplicate site (MA82NO, MA83NO, MA84NO): average 42.6 µg/m^3
- Ardwick Green (MA96BNO): 43.5 µg/m^3
- Queens Road (MA103BNO): 40.1 µg/m^3

The highest NO_2 concentration in Manchester was at the Oxford Street site.

In terms of trends, NO_2 concentrations increased at 60% of Manchester's diffusion tube sites (24no.), decreased at 35% of sites (14no.) and remained the same at 5% (2no.) of sites. Of the 24 sites with increased concentrations, the majority of these are within the AQMA (19no.) and are roadside or kerbside sites (18no.). The non roadside/kerbside sites outside of the AQMA that experienced increases (3no.) do not appear to have been impacted by any sources of pollution other than road traffic. The concentrations measured at these sites during 2022 range from 15.2 to 23.9 µg/m^3 and therefore remain within legal limits.

3.1.3.4 Oldham Metropolitan Borough Council

Automatic

The automatic Nitrogen Dioxide monitor for Oldham is situated roadside on Crompton way in Shaw. In 2022 it measured Nitrogen Dioxide levels for over 99% of the year. The annual average measured was 24 µg/m^3, i.e., well below the objective of 40 µg/m^3 and just slightly less than 2021's figure of 25 µg/m^3. There were no recorded incidents of the hourly average exceeding the 200 µg/m^3 objective.

Diffusion Tubes

In 2022 there were three sites that exceeded the annual air quality objective of 40µg/m^3 when distance corrected for the nearest exposure (where necessary). These were:

- Tube OL16 – An annual mean concentration of 40.4 µg/m^3 was measured at Diffusion Tube 16, on Shaw Road in Derker, up from 39.9 µg/m^3 in 2021.
- Tube OL25 - Outside 21 Shaw Road in Royton recorded a distance corrected result of 42.3 µg/m^3. This tube is sited in an Air Quality Management Area. The road the tube is situated next to is often used by Heavy Goods vehicles as they visit the industrial areas off Salmon Fields and Higginshaw Lane in Royton. There is also often standing traffic at lights in the area. The result is slightly down on last year's reading of 46.4 µg/m^3.
- Tube OL28 - outside 12 Oldham Road, Royton recorded an annual average of 47 µg/m^3. The tube is sited in an Air Quality Management Area. This road is the main

road that links Rochdale to Oldham. It is extremely busy and there is often standing traffic due to the lights at the junction with Middleton Road. This year's level is slightly up on last years result of 43.3 µg/m^3.

3.1.3.5 Rochdale Metropolitan Borough Council

Automatic

Rochdale BC has one automatic monitoring station that was installed in August 2021; 2022 was the first year where a full year of data was available so we are unable to draw any trends from the data. The results appear to show higher readings at peak times from increased traffic in the vicinity of the monitoring station.

Diffusion Tubes

Rochdale BC has 31 tubes located at 28 locations across the borough with a triplicate set located at the continuous monitoring station. These are all existing tubes with no additional tubes deployed during the year. The results at the 28 diffusion tubes sites across Rochdale, following bias adjustment, show that the 16 of the results have increased from last year, 9 decreased and 1 remaining the same. The two remaining sites did not have sufficient data capture for the full year. All results are below the comparable data from 2019 and none of the results exceeded 40µg/m³. Only two sites exceeded 35µg/m³ the highest result being 36.4 at a roadside location on A58, the main arterial route in and out of Rochdale. The lowest result was 12.9µg/m³ recorded at a rural location in Littleborough.

Of the 16 tubes that showed increased readings over 2022 all were below 2019 figures showing that the trend is still downwards following increased levels of traffic due to people returning to work following Covid. The greatest increase was 6.9 at an urban background location on a main route in and out of the borough close to a new development consisting of a new road network and major developments that caused congestion in this area to increase. The next highest increase was 4.8µg/m³ also at an urban background location in an area that had been subject to significant roadworks disruption throughout the year due to the installation of electric mains work and other works that meant temporary traffic lights remained in place for a significant portion of the year.

The highest significant increases were at tube locations 6 and 9 increasing 2.4 and 1.5µg/m³ respectively bringing the result at location 6 to 34.7, from 32.3, which is still below the 2019 level of 42.5µg/m³. Tube 9 increased to 36.4µg/m³ from 34.9 making this the highest result in the borough but this is still below 2019 result of 39.6µg/m³.

Overall it is concerning that a significant number of sites have increased levels of NO pollution, all remain well below both 2019 results and the limit of 40µg/m³ .

3.1.3.6 Salford City Council

Automatic

In 2022 there were 3 automatic air quality monitoring sites in Salford that measured NO_2 concentrations:

- Eccles – an urban background site located close to Eccles town centre, operational since 1997
- M60 – a roadside monitoring site located close to the M60 in Worsley, operational since 1999
- Glazebury – a rural background site, operational since 2004

At the Eccles monitoring site, the 2022 annual mean NO_2 concentration had decreased by 4% compared to 2021 (2022 = 22 µg/m^3, 2021 = 23 µg/m^3).

At the M60 monitoring site, the 2022 annual mean NO_2 concentration was the same as in 2021 (2022 = 34 µg/m^3, 2021 = 34 µg/m^3).

At the Glazebury monitoring site, the 2022 annual mean NO_2 concentration had decreased by 8% compared to 2021 (2022 = 11 µg/m^3, 2021 = 12 µg/m^3).

The Glazebury site showed the biggest percentage decrease in terms of NO_2 annual mean concentration in 2022 compared to 2021.

The last 5 years of monitoring data has shown an overall downward trend in annual mean NO_2 concentrations at all Salford automatic monitoring sites. This downward trend has been particularly noticeable at the M60 site (2018 annual mean NO_2 concentration = 41 µg/m^3).

There were no exceedances of the annual mean or hourly national air quality objectives for NO_2 at any of the Salford automatic monitoring sites during 2022.

All three automatic monitoring sites had high rates of NO_2 data capture during 2022 and there were no significant technical issues.

Diffusion Tubes

In 2022, there were 49 NO_2 diffusion tube air quality monitoring sites operated by Salford City Council, including those sites that were co-located with automatic monitoring sites for bias adjustment purposes. During 2022 the following changes were made to the Salford City Council NO_2 diffusion tube monitoring network, to ensure it remained fit for purpose:

- 1 x diffusion tube was discontinued from the network after 2022 (SA71 Trafford Road) – due to the removal of the lighting column it was affixed to and no other suitable alternative street furniture being available in vicinity of the location. Therefore no alternative site was available to provide continuity of results.
- 2 x diffusion tubes were added into the network from January 2022 (SA88 Russell Street and SA89 Velveteen Crescent) – to represent NO_2 concentrations in areas of relevant exposure, where annual NO_2 air quality objectives were considered to be at risk of being exceeded or in response to local resident concerns about air quality in their area.

Overall, this resulted in a slight increase in the number of diffusion tubes sites compared to 2021 (47 sites were operational in 2021).

During 2022, 34 diffusion tube sites were within the AQMA, and 15 sites were outside the AQMA.

46 diffusion tube monitoring sites that were not co-located with an automatic monitoring site had annual mean results available for 2022. Twenty four of these sites had increased annual mean concentrations in 2022 compared to 2021. Twenty of these sites had slightly decreased annual mean concentrations in 2022 compared to 2021. The remaining 2 sites were set up in 2022 and had no 2021 result available for a comparison.

Increases in annual mean concentrations between 2021 to 2022 ranged between 0.1% and 18%. However, the 18% increase was associated with annualised result for the SA71 Trafford Road site, which had only a 25% annual data capture, and therefore could be considered indicative.

In 2022, 3 x Salford City Council diffusion tube sites measured annual mean NO_2 concentrations that exceeded the air quality objective of 40 µg/m^3:

1. SA78 Broughton Road (41 µg/m^3). This is a roadside site located within the AQMA. The 2021 annual mean NO_2 concentration for this monitoring site was 40 µg/m^3, and so there was a marginal increase in 2022. Covid-19 travel restrictions were in place during 2021 and therefore this may have resulted in reduced road transport NO_X emissions and resulting NO_2 concentrations at this location. The 2022 annual mean result is lower than in 2019 for this site (47 µg/m^3), demonstrating a longer-term downward trend in concentrations.
2. SA81 Regent Road 2 (44 µg/m^3). This is a roadside site located within the AQMA. The 2021 annual mean NO_2 concentration for this monitoring site was

42 µg/m^3, and so there was a marginal increase in 2022. Covid-19 travel restrictions were in place during 2021 and therefore this may have resulted in reduced road transport NO_X emissions and resulting NO_2 concentrations at this location. The 2022 annual mean result is lower than in 2019 for this site (46 µg/m^3), demonstrating a slight overall downward trend in concentrations.

3. SA86 Bury Old Road (45 µg/m^3). This is a kerbside site located adjacent to the AQMA. The 2021 annual mean NO_2 concentration for this monitoring site was 44 µg/m^3, and so there was a marginal increase in 2022. Covid-19 travel restrictions were in place during 2021 and therefore this may have resulted in reduced road transport NO_X emissions and resulting NO_2 concentrations at this location. The monitoring site was set up in 2021 and therefore there are no previous annual mean concentrations available for comparison.

There were not any unusually high monthly NO_2 results from the analysing laboratory associated with these 3 diffusion tubes.

The lowest diffusion tube annual mean NO_2 concentration measured in Salford during 2022 was 15 µg/m^3 at the SA02 Irlam (Princes Park) site – an urban background location. This monitoring site was also the lowest annual mean NO_2 concentration measured in Salford during 2021.

Where longer term trends are available for roadside monitoring sites within the AQMA, there is an overall general downward trend in concentrations over time. This trend is also apparent for urban background monitoring sites.

3.1.3.7 Stockport Metropolitan Borough Council

Automatic

There are two automatic monitoring stations in the borough of Stockport: Stockport Hazel Grove, which had 99.69% data capture in 2022, and Stockport Cheadle A34, which has 97.74% data capture in 2022.

The 2022 Annual Mean measured at Stockport Hazel Grove, a Roadside site, was 18 µg/m^3 – down from 19 µg/m^3 in 2021. The annual mean concentration recorded at this site has come down from 25 µg/m^3 in 2018.

The 2022 Annual Mean measured at Stockport Cheadle A34, another Roadside site, was 29 µg/m^3 – making a small increase from 28 µg/m^3 on the previous year. This still remains well below the annual mean concentrations in the mid to high 30s prior to the pandemic.

Neither site exceeds the annual mean objective for NO_2.

There were zero exceedances of the NO_2 1-hour mean objective at either site.

Diffusion Tubes

In 2022, Stockport Metropolitan Borough Council operated 36 diffusion tubes around the Local Authority. No new Diffusion Tubes were installed. Data Capture for all diffusion tubes was high at 75% or higher resulting in no requirement for annualisation at any sites.

The annual mean concentrations recorded at Stockport diffusion tubes ranged from a low of 6 µg/m^3 to a high of 36 µg/m^3. Therefore, there were zero exceedances of the annual mean objective for NO_2 measured in Stockport Council. 12 diffusion tubes recorded higher concentrations than the previous year, with increases ranging from 0.1 µg/m3 to 3.3 µg/m3 (Stockport 25 in Central Marple).

The highest concentration recorded in Stockport Council was 36 µg/m3, measured at a roadside site nearing the M60 Junction 1 Pyramid Roundabout, just north of Stockport town centre (Stockport 34). This site has seen a small increase of 0.2 µg/m^3 on the previous year, but has not exceeded since its installation year of 2019, when the annual mean concentration reached 41.3 µg/m^3.

The second highest concentration recorded was 35.8 µg/m^3 recorded near Stockport town centre next to the post office, on the A6 (Stockport 36). This diffusion tube was installed last year and as a result meaningful conclusions cannot be drawn around increases or decreases in annual mean concentrations.

3.1.3.8 Tameside Metropolitan Borough Council

Automatic

Automatic monitoring for NO_2 was undertaken at two roadside sites during 2022, on the A57 Mottram Moor, Hollingworth and on the A635, Manchester Road, Ashton-under-Lyne.

Concentrations at the Mottram Moor site have been falling steadily over the past five years, although the annual average concentration rose from 30µg/m^3 in 2020 to 36µg/m^3 in 2021, as traffic volumes increased following the pandemic but fell again to 34µg/m^3 in 2022

The site on the A635 Manchester Road site also fell by 2 µg/m^3 from 34µg/m^3 2021 (the first full year's data collected at the site) to 32µg/m^3 in 2022.

Diffusion Tubes

The number of diffusion tube monitoring sites within the borough during 2022 was 53. Of these 53 sites, 31 are inside the AQMA boundary and 22 are outside. All but three of the 53

sites monitored had an annual average below the annual mean objective of 40µg/m^3 for 2022. The exceptions were TA55 with an annual average of 42.5µg/m^3, TA 54 with an annual average of 41.5 µg/m^3 and TA11 with an annual average of 43.9µg/m^3.

Concentrations at the three sites were considerably higher prior to the pandemic, although concentrations appear to be rising again post lockdown.

Concentrations of NO_2 inside the current AQMA have, in general, been showing downward trends over the past five years, with only the three sites mentioned above now having an annual average greater than 40µg/m^3, compared to 13 sites in 2018.

Outside the current AQMA none of the sites had an annual average of greater than 40µg/m^3 and all sites are showing a general downward trend over the past five years.

3.1.3.9 Trafford Metropolitan Borough Council

Automatic

Trafford Council operate 3 continuous automatic monitoring stations within the district. The monitoring stations are operated to national AURN standards and are located at:

- Stretford A56, adjacent to Stretford House, M32 9AZ
- Wellacre Academy, Irlam Rd, Urmston, Manchester M41 6AP
- Moss Park Junior School, 71 Moss Park Rd, Stretford, Manchester M32 9HR

Levels of nitrogen dioxide as measured at the Council's A56 air quality monitoring station in 2022 show a slight increase of 1µg/m^3 in roadside levels of Nitrogen Dioxide when compared against 2021. The steady increase in vehicle usage following the lifting of Covid restrictions is likely to have caused this increase. However, the annual average level of nitrogen dioxide as measured at the A56 continuous monitor was 24µg/m^3 in 2022 and this level is significantly below the national annual objective level of 40µg/m^3. Using guidance published by the Institute of Air Quality Management the increase of 1µg/m^3 between 2021 and 2022 would be regarded as a negligible increase.

The air quality data from the A56 station confirms that the hourly annual objective for levels of nitrogen dioxide was not exceeded in 2022.

Background levels as measured at the Wellacre and Mosspark Stations remained significantly below the annual objective level.

In 2022 there was a failure of the air conditioning system at the A56 monitoring station during the high temperatures in the UK in August and September. The nitrogen dioxide monitor was required to be switch off to prevent damage.

All the monitoring stations were subject to regular servicing, calibration and the data collected is subject to quality control and assurance.

Diffusion Tubes

In 2022, Trafford Council had a diffusion tube network comprising of 25 diffusion tubes, located at 18 locations. At the site of the Council's automatic monitoring stations, 3 diffusion tubes are located to assist with bias adjustment calculations. 13 diffusion tubes at 10 locations are positioned with the Councils Air Quality Management Area. 12 diffusion tubes at 8 locations are positioned outside of the Council's Air Quality Management Area.

In 2022 no diffusion tube locations recorded any exceedance of national annual objective levels for Nitrogen Dioxide. The highest concentration recorded was an annual mean concentration of 31.7µg/m^3 at a monitoring location De Quincey Rd (TR22).

3.1.3.10 Wigan Metropolitan Borough Council

Automatic

Wigan has two automatic monitoring stations. The automatic monitoring site at Wigan Centre is an urban background site located at the Deanery High School on Frog Lane close to Wigan town centre.

Wigan Centre monitors NO_2, PM_{10}, $PM_{2.5}$ and O_3.

The annual mean concentration for NO_2 recorded at Wigan Centre in 2022 was 17µg/m^3 , which was the same as in 2021. This remains well within the legal limits.

Wigan Leigh Three monitoring station is a roadside site located on Market Street in Leigh, close to the town centre, which monitors NO_2, PM_{10} and $PM_{2.5}$.

The annual mean concentration for NO_2 recorded at Wigan Leigh in 2022 was 22µg/m^3 , a decrease of 3µg/m^3 compared with 2021. This shows an improvement and remains well within the legal limits.

Neither station recorded an exceedance of the short-term limit.

Diffusion Tubes

In 2022 Wigan Council deployed a total of 126 nitrogen dioxide diffusion tubes at 122 locations.

In 2022, as in 2020 and 2021, the same NO_2 diffusion tube measured an exceedance, returning an annual mean result that was above the 40µg/m^3 legal limit value.

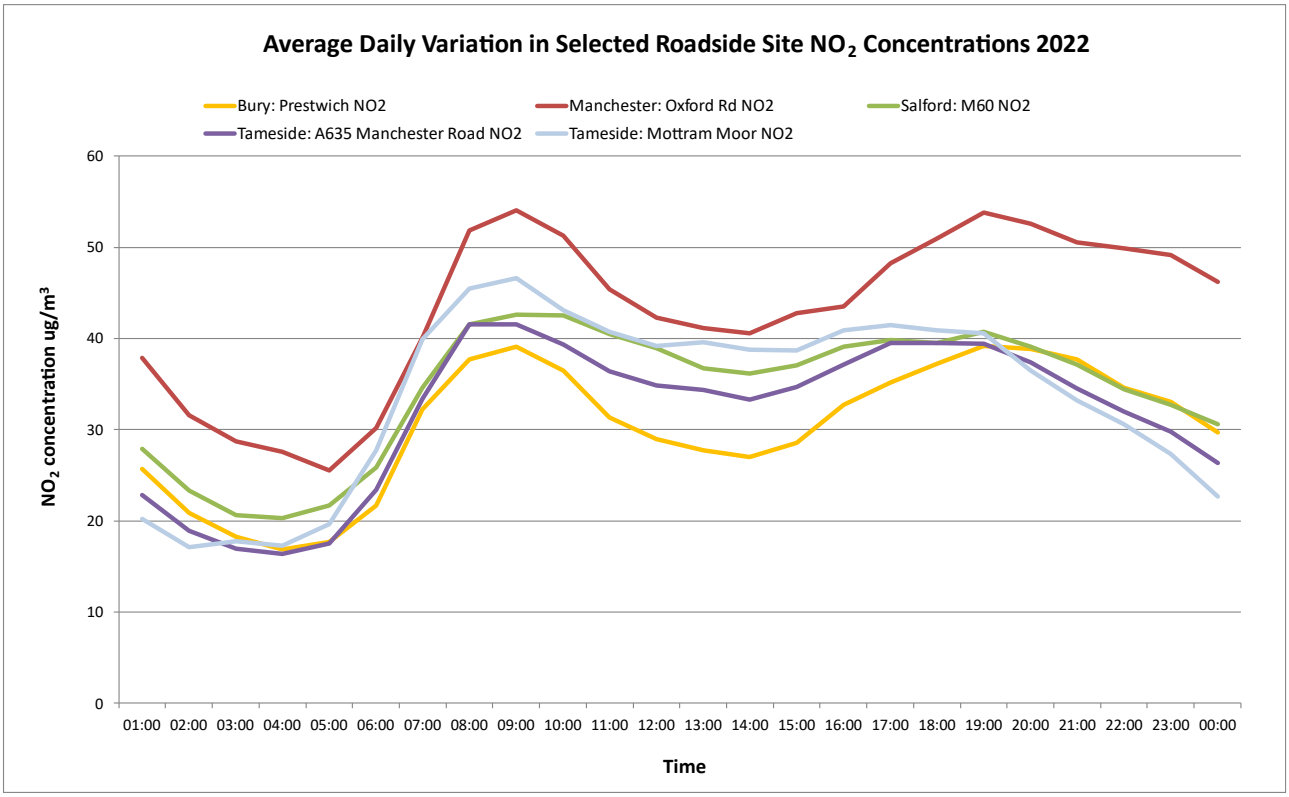
This was tube 180 at Winwick Lane which recorded an annual mean of 45.3 µg/m3 in 2022 compared with 44.6 µg/m^3 in 2021 and 41.9µg/m^3 in 2020. This shows a slight increase in recorded pollution levels at this location.

Tube 180 is located on a road where traffic originates beyond the Wigan Borough boundary (it is used as a shortcut for traffic exiting the M6 motorway at Junction 22 to reach the A580 East Lancashire Road at Lowton) and we have been working with the neighbouring local authority to try and reduce pollution levels here.

The only exceedance measured in 2021 was outside the 2016 AQMA: tube 180 mentioned above.

3.1.3.11 Diurnal analysis of NO_2 concentrations in Greater Manchester

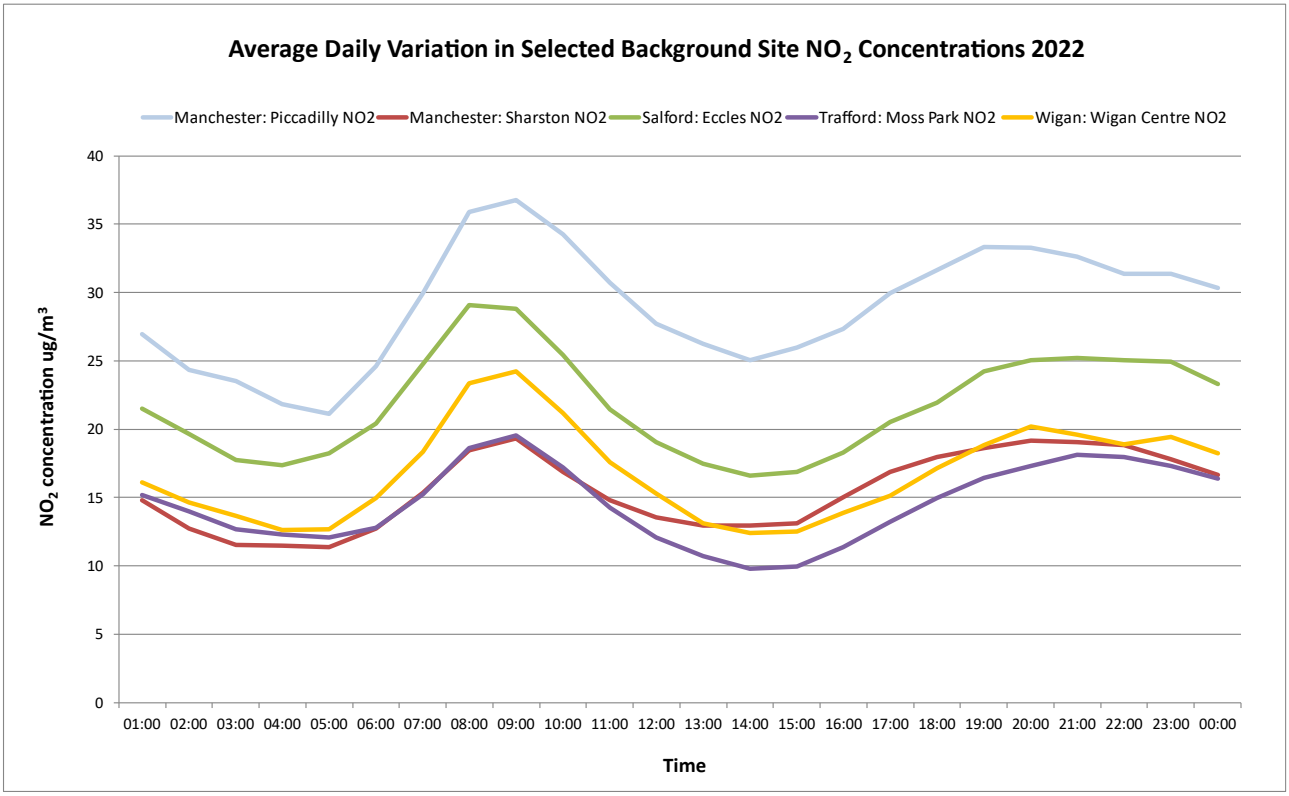
Figure 3A: Daily variation in roadside NO_2 concentrations 2022



The chart above displays the average daily variation in selected roadside site NO_2 concentrations for 2022. Most monitoring sites show a similar trend - a peak in NO_2 concentrations occurs in the AM between 08:00 and 09:00. Another evening peak occurs from approximately 17:00 to 19:00. These peaks correspond to commuting traffic peak times. These trends are similar to 2021, however peaks generally occur at slightly lower concentration levels, e.g. diurnal analysis of 2021 automatic monitoring site data showed that the Tameside Mottram Moor site experienced a morning and evening NO_2

concentration peak of ~50 µg/m^3 and ~48 µg/m3 respectively. In 2022, these peaks had reduced to ~47 µg/m3 and ~42 µg/m^3 respectively.

Figure 3B: Daily variation in background NO_2 concentrations 2022



The chart above displays the average daily variation in selected background site NO_2 concentrations for 2022. Most monitoring sites show a similar trend - a peak in NO_2 concentrations occurs in the AM at approximately 08:00 to 09:00. Another evening peak occurs from approximately 17:00 to 20:00. These peaks correspond to commuting traffic peak times. These trends are generally similar to 2021.

3.1.4 Particulate Matter (PM_{10})

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

3.1.4.1 Bolton Metropolitan Borough Council

Monitoring of PM_{10} is undertaken at the site on the A579, Derby Street near the University of Bolton, which was commissioned in October 2020. The site is in a roadside location. PM_{10} concentrations are measured using a BAM with a correction applied to the results to make it gravimetric equivalent.

The annual mean concentration measured at the site was 19 µg/m^3, which is higher than the 17 µg/m^3 recorded in 2019. There were seven days when the daily mean was above 50 µg/m^3 (the highest daily mean was 73 µg/m^3). The data capture at the site was 95.15%. There were no exceedances of the PM_{10} air quality objectives at the site in 2022. The site was commissioned in October 2020 so it is not possible to identify any long term trends.

3.1.4.2 Bury Council

Bury Council operate 3 automatic monitoring units monitoring PM_{10} at Whitefield (A56 Bury New Road), Radcliffe (A665 Water Street) and Prestwich (A56 Bury New Road). In 2021, all units measured concentrations of PM_{10} that were well below the annual mean objective and there were no exceedances of the 24 hour mean objective.

It is interesting to note that the annual mean concentrations measured are the same as those monitored in 2018. We have therefore seen neither a worsening nor improvement in levels of PM_{10} over the last 4 years. This is disappointing but it is hoped that the Government's proposed introduction of new targets for $PM_{2.5}$ will lead to incentivised actions to reduce local levels of particulates.

3.1.4.3 Manchester City Council

During 2022 PM_{10} was measured at three sites in Manchester: Oxford Road, Piccadilly Gardens and Sharston. Annual average concentrations of PM_{10} were maintained at the Oxford Road site from 2021 levels, at 18 µg/m³, however this is a significant decrease from 2019 levels (26 µg/m³). At Piccadilly the annual average increased from 15 µg/m³ in

2021 to 17 µg/m³ in 2022, but again this is a decrease from 2019 levels (20 µg/m³), and Sharston also experienced a slight increase from 12 µg/m³ to 13 µg/m³ (decrease from 14.2 µg/m³ in 2019). No site has exceeded the legal limit for this pollutant since the baseline year and there have been no exceedances of the 24-hour average legal limit.

3.1.4.4 Oldham Metropolitan Borough Council

The automatic PM_{10} monitor for Oldham is in the same location as the Nitrogen Dioxide monitor. In 2021 it monitored PM_{10} for almost 98% of the time. The annual mean recorded was 18 µg/m^3, i.e., well below the annual objective of 40 µg/m^3 and slightly higher than the level in 2021 of 17 µg/m^3. There was one day when 24-hour mean exceeded 50 µg/m^3 but this did not exceed the objective of this level not being exceeded for more than 35 times a year. The highest 24 hour mean that was recorded was 63.6 µg/m^3 on the 25th March 2022, this may be due to moorland fires that where occurring at the time on Saddleworth Moor.

3.1.4.5 Rochdale Metropolitan Borough Council

Rochdale MBC results also show that levels of particulate matter across the year remain roughly stable, decreasing throughout the year but with no monthly spikes in PM levels, with the exception of the week around bonfire night when there is a slight increase. This is shown with levels of both PM_{10} and $PM_{2.5}$.

The mean monthly levels of PM_{10} and $PM_{2.5}$ appear to show a decrease in levels from July onwards but without any comparable data we are unable to see if this is an annual or long term trend.

3.1.4.6 Salford City Council

In 2022 there were 3 automatic air quality monitoring sites in Salford that measured PM_{10} concentrations:

- Eccles – an urban background site located close to Eccles town centre, operational since 1997
- M60 – a roadside monitoring site located close to the M60 in Worsley, operational since 1999
- Glazebury – a rural background site, operational since May 2022

At the Eccles monitoring site, the 2022 annual mean PM_{10} concentration increased by 13% compared to 2021 (2022 = 17 µg/m^3, 2021 = 15 µg/m^3).

At the M60 monitoring site, the 2022 annual mean PM_{10} concentration increased was the same as for 2021 (2022 = 20 µg/m3, 2021 = 20 µg/m^3).

2022 is the first year of PM_{10} monitoring at the Glazebury site, therefore there are no previous annual results to compare to.

The last 5 years of available monitoring data has shown that annual mean PM_{10} concentrations at both sites have remained relatively stable over the last 5 years, except for a reduction in concentrations during 2020, attributable to the Covid-19 pandemic and associated restrictions on travel.

There were no exceedances of either the annual mean or 24-hour national air quality objectives at these monitoring sites.

The Eccles and M60 automatic monitoring sites had very high rates of PM_{10} data capture during 2022 (both exceeded 98%) and there were no significant technical issues. The Glazebury site had low annual data capture (58%) due to the PM_{10} analyser becoming operational on 31/05/2022.

3.1.4.7 Stockport Metropolitan Borough Council

In 2022, two air quality monitoring stations monitored PM_{10}: Stockport Hazel Grove and Stockport Cheadle A34. Both sites are roadside sites.

At Stockport Cheadle A34, with a data capture rate of 95.92% the annual mean concentration for PM_{10} was 16 µg/m^3, equal to the annual mean in 2021.

At Stockport Hazel Grove, with a data capture rate of 99.2%, the annual mean concentration for PM_{10} was 20 µg/m^3, which marks an increase in 2 µg/m^3 on the previous year.

These annual mean concentrations are well below the annual mean objective.

3.1.4.8 Tameside Metropolitan Borough Council

Currently PM_{10} concentrations are monitored at two locations in Tameside, at the automatic monitoring stations on Mottram Moor, Hollingworth, and on the A635 Manchester Road, Ashton-under-Lyne.

Results from the station at Mottram Moor are well below the annual average objective set out in the legislation. The annual mean PM_{10} concentration has shown a downward trend over the last five years, falling each year from 19µg/m^3 to 15µg/m^3 in 2022.

The annual average PM_{10} concentration for 2022 at the A635 Manchester Road site was 20µg/m^3, well below the annual average objective set out in the legislation and the same annual average concentration as 2021(the first full year's data collected at the site).

3.1.4.9 Trafford Metropolitan Borough Council

Trafford Council operates 2 continuous automatic monitoring stations within the district which monitor Particulate Matter PM_{10}. The monitoring stations are operated to national AURN standards and are located at:

- Stretford A56, adjacent to Stretford House, M32 9AZ
- Moss Park Junior School, 71 Moss Park Rd, Stretford, Manchester M32 9HR

Levels of Particulates PM_{10} as measured at the Council's roadside air quality monitoring station in 2022 shows a slight increase in levels when compared against 2021. The increase in vehicle usage following lifting of Covid restrictions is likely to have caused this increase. Background monitoring at the Mosspark station showed an increase in levels when compared against 2021. Increased use of solid fuel burners during periods of cold weather was identified as potential cause of this increase. However, monitored levels were significantly below national objective levels.

3.1.4.10 Wigan Metropolitan Borough Council

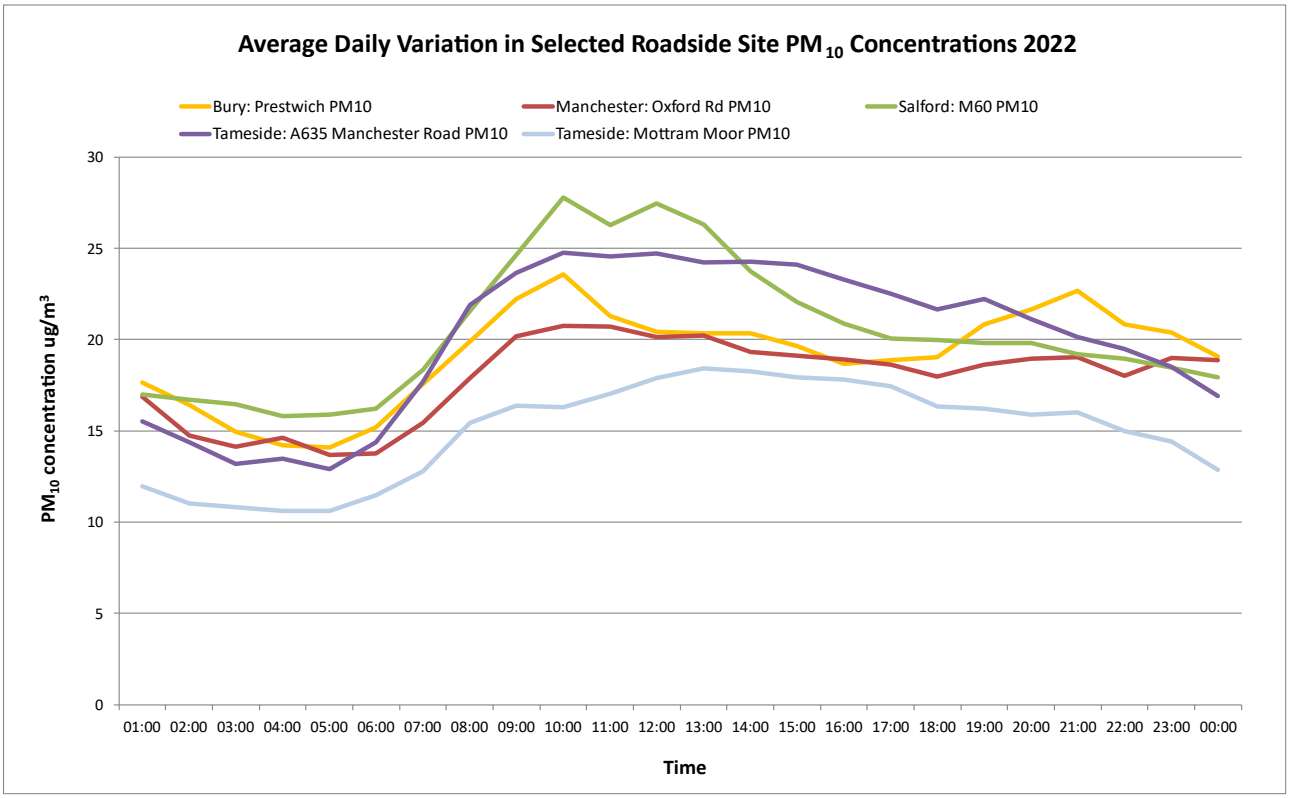
PM_{10} is monitored at both Wigan Centre and Wigan Leigh Three.

It can be seen from the results for Wigan Centre that there was a slight increase in PM_{10} levels in 2022 with a level of 15µg/m^3 recorded compared with 13µg/m3 in both 2020 and 2021.

For Wigan Leigh Three there was an increase in PM_{10} levels from 15µg/m^3 in 2020 and 18µg/m^3 in 2021 to 19µg/m^3 in 2022.

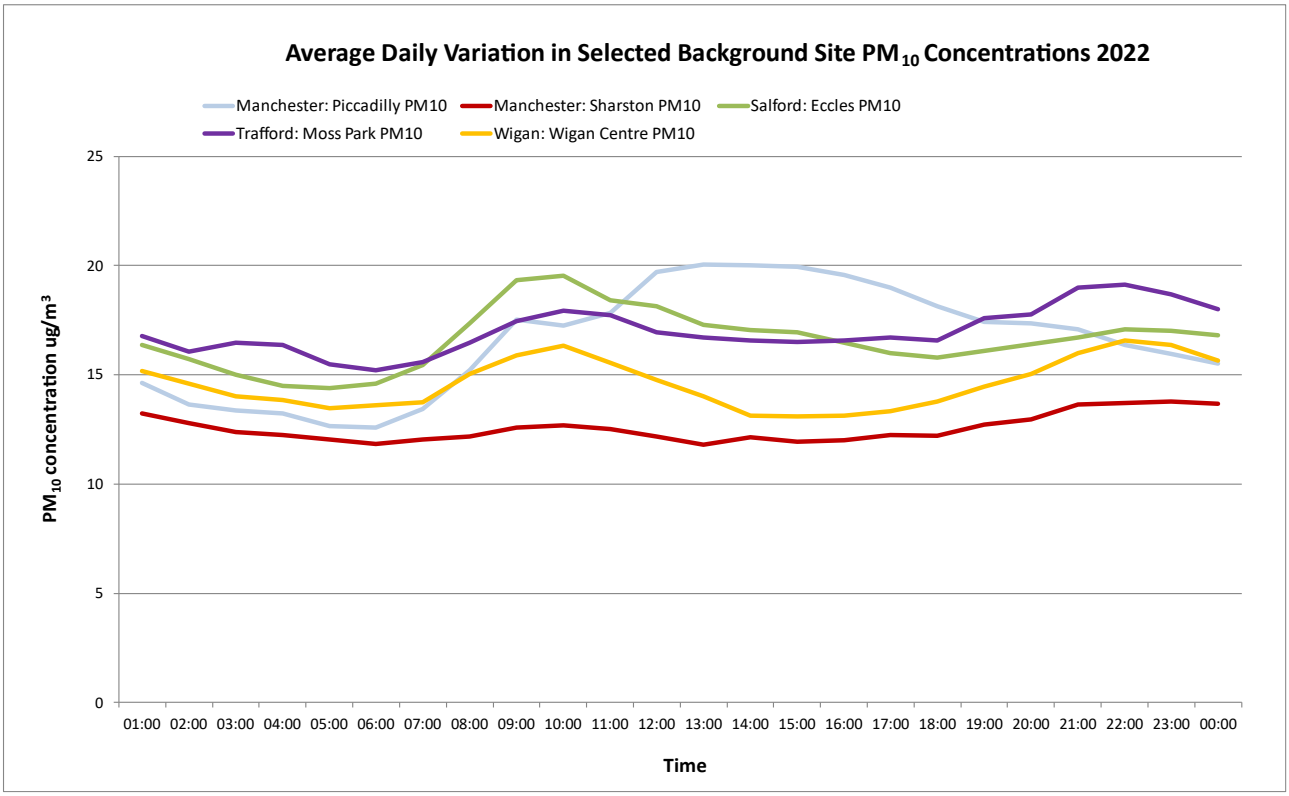
3.2.2.11 Diurnal Analysis for PM_{10}

Figure 3C: Daily variation in roadside PM_{10} concentrations 2022



The above chart shows the average daily variation in selected roadside site PM_{10} concentrations in 2022. Most monitoring sites show a similar trend - a peak in PM_{10} concentrations occurs in the AM from approximately 08:00. At the Manchester Oxford Road, Salford M60 and Tameside Manchester Road sites, this peak then gradually declines throughout the day. At the Bury Prestwich site, there is a second peak at around 21:00. At the Tameside Mottram Moor site, the peak concentration occurs at around 13:00. These trends are generally similar to 2021.

Figure 3D: Daily variation in background PM_{10} concentrations 2022



The above chart shows the average daily variation in selected background site PM_{10} concentrations in 2022. Most monitoring sites show a similar trend for the early part of the day - a peak in PM_{10} concentrations occurs in the AM at approximately 09:00. At the Manchester Piccadilly site, the peak concentration occurs at approximately 13:00.
At the Trafford Moss Park and Wigan Centre sites, another peak in PM_{10} concentrations is observed from approximately 19:00 to 23:00.

These trends are similar to 2021, however peaks at all sites occur at slightly higher concentration levels, e.g. diurnal analysis of 2021 automatic monitoring site data showed that the Salford Eccles site experienced a morning PM_{10} concentration peak of ~17 µg/m^3. In 2022, this peak had increased to ~20 µg/m^3.

3.1.5 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.

3.1.5.1 Bolton Metropolitan Borough Council

Monitoring of $PM_{2.5}$ is also undertaken at the site on the A579, Derby Street near the University of Bolton. The site is in a roadside location. $PM_{2.5}$ concentrations are measured using a BAM.

The annual mean concentration measured at the site was 11 µg/m^3, which is 1 µg/m^3 higher than the 10 µg/m^3 measured in 2021. The concentration measured in 2022 is above the target of 10 µg/m^3 which is to be achieved by 2040. The data capture at the site was 94.19%. Emissions in 2021 may have been lower as a result of restrictions imposed due to Covid, particularly during the first half of the year. There were no such restrictions in 2022. The site was commissioned in October 2020, so it is not possible to identify any long-term trends.

3.1.5.2 Bury Council

$PM_{2.5}$ is not currently monitored within Bury.

3.1.5.3 Manchester City Council

$PM_{2.5}$ is monitored at the Piccadilly Gardens and Sharston sites. Annual average $PM_{2.5}$ concentrations increased slightly during 2022 at both sites. At Piccadilly the level increased from 9 µg/m³ in 2021 to 10 µg/m³ in 2022 (decrease from 12 µg/m³ in 2019), and at Sharston the level increased from 6.3 µg/m³ in 2021 to 7 µg/m³ in 2022 (no available data for 2019). Neither site has exceeded the legal limit for this pollutant since the baseline monitoring year.

3.1.5.4 Oldham Metropolitan Borough Council

$PM_{2.5}$ is not currently monitored within Oldham.

3.1.5.5 Rochdale Metropolitan Borough Council

$PM_{2.5}$ is monitored at Rochdale Queensway automatic site. The annual average concentration at this site was 10 µg/m^3 in 2022. In 2021 there was an annualised average of 9.2µg/m^3 in 2021. Since there was no full year of data in 2021, we are unable to make accurate comparisons.

3.1.5.6 Salford City Council

In 2022 there were 3 automatic air quality monitoring sites in Salford that measured $PM_{2.5}$ concentrations:

- Eccles – an urban background site located close to Eccles town centre, operational since 2008
- M60 – a roadside monitoring site located close to the M60 in Worsley, operational since 2017
- Glazebury – a rural background site, operational since May 2022

At the Eccles monitoring site, the 2022 annual mean $PM_{2.5}$ concentration increased slightly compared to 2021 (2022 = 10 µg/m^3, 2021 = 9 µg/m^3).

At the M60 monitoring site, the 2022 annual mean $PM_{2.5}$ concentration also increased slightly compared to 2021 (2022 = 11 µg/m^3, 2021 = 10 µg/m^3).

2022 is the first year of $PM_{2.5}$ monitoring at the Glazebury site, therefore there are no previous annual results to compare to.

The last 5 years of available monitoring data has shown that annual mean $PM_{2.5}$ concentrations at both sites have remained relatively stable over the last 5 years, except for a reduction in concentrations during 2020, attributable to the Covid-19 pandemic and associated restrictions on travel.

There were no exceedances of the annual mean national air quality objective at these monitoring sites.

The Eccles and M60 automatic monitoring sites had very high rates of $PM_{2.5}$ data capture during 2022 (both exceeded 98%) and there were no significant technical issues. The Glazebury site had low annual data capture (58%) due to the $PM_{2.5}$ analyser becoming operational on 31/05/2022.

3.1.5.7 Stockport Metropolitan Borough Council

Stockport Metropolitan Borough Council does not currently monitor $PM_{2.5}$ at any of its automatic monitoring stations.

3.1.5.8 Tameside Metropolitan Borough Council

$PM_{2.5}$ concentrations are monitored at the automatic station on the A635 Manchester Road, Ashton-under-Lyne. The annual average concentration for this site was 11µg/m^3, the same as the annual average for 2021 (the first full year's data collected at the site).

3.1.5.9 Trafford Metropolitan Borough Council

$PM_{2.5}$ is not currently monitored within Trafford.

3.1.5.10 Wigan Metropolitan Borough Council

$PM_{2.5}$ is monitored at both Wigan Centre and Wigan Leigh Three.

It can be seen from the results for Wigan Centre that there was a slight increase in $PM_{2.5}$ levels in 2022 with a level of 9µg/m^3 recorded compared with 8µg/m^3 in both 2020 and 2021.

For Wigan Leigh Three there was an increase in $PM_{2.5}$ levels from 8µg/m^3 in 2020 and 9µg/m^3 in 2021 to 11µg/m^3 in 2022.

3.1.6 Sulphur Dioxide (SO_2)

Table A.9 in Appendix A compares the ratified continuous monitored SO_2 concentrations for 2022 with the air quality objectives for SO_2.

There were no exceedances of the annual mean objective in 2022.

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)
BOL03	Bolton A579 Derby Street	Roadside	371280	408577	NO2; PM10; PM2.5	YES	NOx – chemiluminescence, PM10 and PM2.5 - BAM	30	2.5	2
BUR03	Bury Bridge	Roadside	379840	410944	NO2	YES	API Nox Analyser	70	4	1.5
BUR2	Bury Prestwich	Roadside	381650	403222	NO2 PM10	YES	Chemiluminescent & TEOM/BAM(3)	15	2.5	1.5
BUR1	Bury Radcliffe	Roadside	378190	407480	NO2 PM10	YES	Chemiluminescent & TEOM/BAM(3)	10	2.5	1.5
BURW	Bury Whitefield	Roadside	380636	406973	NO2; PM10	YES	Chemiluminescent & FDMS	24	7	3
MAN09	Manchester Bridge St	Roadside	383556	398292	NO2	YES	Chemiluminescent	0	0.8	1.4
MAN1	Manchester Oxford Rd	Kerbside	384233	397287	NO2 PM10	YES	Chemiluminescent & BAM	1	1	2
MAN3	Manchester Piccadilly	Urban Centre	384310	398337	NO2 O3 PM10 PM2.5 SO2	YES	Chemiluminescent & UV absorption & BAM & UV fluorescence	2	30	4
MAHG	Manchester Sharston	Suburban	384179	386086	NO2 O3 SO2	NO	Chemiluminescent & UV absorption & UV fluorescence & Partisol	35	6	2.7
CW	Oldham Crompton Way	Roadside	393887	409191	NO2 PM10	YES	Chemiluminescent & BAM	10	1	1.5

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)
RDL001	Rochdale Queensway	Roadside	389325	411411	NO2, PM10, PM2.5	YES	Chemiluminescent & BAM	17	4	3
ECCL	Salford Eccles	Industrial	377926	398727	NO2 PM10 PM2.5	NO	Chemiluminescent, Palas Fidas	7	6	3.5
GLAZ	Salford Glazebury	Rural	368759	396027	NO2 O3	NO	Chemiluminescent & UV absorption	130	1372	3
M60	Salford M60	Roadside	374811	400857	NO2 PM10 PM2.5 O3	YES	Chemiluminescent, BAM & UV absorption	85	22	3
STK7	Stockport Cheadle A34	Roadside	385047	388339	NO2 PM10	YES	Chemiluminescent & TEOM/BAM(3)	18	2	2
STK5	Stockport Hazel Grv	Roadside	391481	387637	NO2 PM10	YES	Chemiluminescent & TEOM/BAM(3)	33	4	2
TS001	Tameside A635 Manchester Road	Roadside	392538	398419	NO2; PM10; PM2.5	YES	Chemiluminescent, BAM	10	1	2
TAM1	Tameside Mottram M'r	Roadside	399719	395804	NO2 PM10	YES	Chemiluminescent & TEOM	4	5	4
TRF2	Trafford A56	Urban Traffic	379413	394014	NO2 PM10	YES	Chemiluminescent & TEOM/BAM(3)	40	2	2.5
TRAF	Trafford	Urban Background	378783	394726	NO2 PM10 SO2	NO	Chemiluminescent & TEOM/BAM(3)	60	98	2.5
TRF3	Trafford Wellacre Academy	Urban Background	373758	394473	NO2	NO	Chemiluminescent	79	160	2.5
WIG5	Wigan Centre	Urban Background	357816	406024	NO2 O3 PM10, PM2.5	NO	Chemiluminescent & FIDAS	0	175	2.5
WIG07	Wigan Leigh 3	Roadside	365686	400243	NO2; PM10; PM2.5	NO	Chemiluminescent, BAM	23	3.6	2.6

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)
BO03NO	Quintins 3	Kerbside	370763	407929	NO2	2016 AQMA	2.0	0.5	No	2.4
BO04NO	Manley terr 4	Urban Background	371394	411718	NO2	2016 AQMA	0.0	2.5	No	2.4
BO08NO	Le Mans Crescent 8	Kerbside	371352	409094	NO2	NO	5.0	0.5	No	2.4
BO11NO	Horwich Allotments 11	Urban Background	363712	412396	NO2	NO	40.0	138.0	No	1.0
BO14NO	Farnworth Town Hall 14	Urban Background	373839	406130	NO2	NO	3.0	2.5	No	2.4
BO15NO	Astley Bridge t/lights 15	Kerbside	371435	411690	NO2	2016 AQMA	15.0	0.5	No	2.4
BO16NO	Drummond St 16	Urban Background	371304	411748	NO2	NO	6.0	2.0	No	2.4
BO41NO	Bolton Road 41	Urban Background	366286	406561	NO2	NO	5.0	1.5	No	2.4
BO43NO	Bee Hive Pub kerb 43	Kerbside	365501	409887	NO2	2016 AQMA	20.0	1.0	No	2.4
BO44NO, BO45NO	1007 Chorley new 45	Urban Background	365599	409845	NO2	2016 AQMA	0.0	19.0	No	2.0
BO48NO	Ainsworth Rd L/L 48	Urban Background	375397	407457	NO2	2016 AQMA	3.0	1.5	No	2.2
BO53NO	3 Turton Road yard 53	Urban Background	373236	411968	NO2	2016 AQMA	0.0	4.0	No	2.2

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)
BO54NO	20 Laburnham Park 54	Urban Background	372908	412120	NO2	NO	0.0	4.0	No	2.2
BO60NO	134 Buckley Lane 60	Roadside	373287	405061	NO2	2016 AQMA	3.0	1.5	No	2.4
BO61NO	Primrose Street 61	Kerbside	374450	405207	NO2	2016 AQMA	22.0	0.5	No	1.0
BO62NO	13 Higher Market Street 62	Urban Background	374194	405460	NO2	2016 AQMA	0.0	1.5	No	2.4
BO63NO	Fern Street 63	Urban Background	374282	406257	NO2	2016 AQMA	5.0	1.5	No	2.4
BO64NO	Bolton Gate Retail 64	Roadside	371965	409907	NO2	2016 AQMA	30.0	2.0	No	2.4
BO65NO	Pheonix Street 65	Urban Background	372059	409877	NO2	2016 AQMA	7.0	1.5	No	2.4
BO66NO	Blackburn Road 66	Roadside	371442	411599	NO2	2016 AQMA	20.0	3.0	No	2.4
BO67NO	The Welland 67	Urban Background	365163	405640	NO2	NO	8.0	1.5	No	2.4
BO68NO	26 Winslow Road 68	Urban Background	367672	406910	NO2	2016 AQMA	13.0	1.5	No	2.4
BO69NO	Red Lion Salford Road 69 Lamp Post No2	Roadside	369030	405809	NO2	2016 AQMA	30.0	1.5	No	2.4
BO70NO	Cornwall Avenue Lamp Post No. 4 70	Roadside	368757	405701	NO2	2016 AQMA	8.0	1.5	No	2.4

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)
BO71NO	Junct 4 traffic Lights - northbound exit 71	Roadside	370362	405400	NO2	2016 AQMA	300.0	1.5	No	2.4
BO72NO	Watergate Drive 72	Roadside	370115	405372	NO2	2016 AQMA	75.0	9.5	No	2.4
BO73NO	Turton Street 73	Roadside	371805	409820	NO2	2016 AQMA	3.0	2.0	No	2.4
BO74NO	Kay Street 74	Roadside	371805	409832	NO2	2016 AQMA	100.0	2.0	No	2.4
BO75NO	Oxford St. (post near costa coffee) 75	Roadside	371623	409235	NO2	2016 AQMA	50.0	3.0	No	2.4
BO76NO, BO77NO, BO78NO	Westland Avenue 78	Roadside	373491	404836	NO2	NO	1.0	3.0	No	2.0
BO79NO, BO80NO, BO81NO	Derby St (monitoring station) 81	Roadside	371296	408600	NO2	2016 AQMA	26.0	3.0	Yes	2.0
BOA101	Ivy Grove - Outside 26	Roadside	374561	405364	NO2	2016 AQMA	0.5	0.5	No	2.4
BOA102	Grosvenor Street - Outside 44	Roadside	374584	405525	NO2	2016 AQMA	0.5	0.5	No	2.4
BOA103	Bridge Street - Opposite 22	Roadside	374526	405906	NO2	NO	7.0	1.0	No	2.4
BOA104	All Saints - Outside 1 Devon Street	Roadside	373795	406600	NO2	NO	3.0	0.5	No	2.4

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)
BOA105	Starcliffe Street - Outside 37	Roadside	373604	406882	NO2	2016 AQMA	1.0	0.5	No	2.4
BOA107, BOA106	Sharman Street - Opposite Number 4	Roadside	372643	408070	NO2	NO	3.0	1.0	No	2.4
BOA109	Corner of Bury Rd/Oakenbottom Rd	Roadside	373818	409401	NO2	2016 AQMA	7.0	1.5	No	2.4
BOA110	Topp Way Next To Entrance To Davenport Street	Roadside	371501	409694	NO2	2016 AQMA	10.0	0.5	No	2.4
BOA111	Corner Ruth Street/ST. Georges Road	Roadside	371102	409575	NO2	2016 AQMA	0.5	0.5	No	2.4
BOA112	Derby Street Adjacent to Sweet Green Tavern/Crook Street	Roadside	371715	408681	NO2	2016 AQMA	5.0	0.5	No	2.4
BOA113	Grosvenor Street – outside 16	Roadside	374510	405522	NO2	2016 AQMA	0.5	0.5	No	2.4
BOA114	Church Bank, near parish church	Roadside	372122	409347	NO2	2016 AQMA	100.0	0.5	No	2.4
BOA115	93 Bradshawgate	Roadside	371903	409026	NO2	2016 AQMA	3.0	0.5	No	2.4
BOA116	Great Moor St, outside St	Roadside	371803	408976	NO2	2016 AQMA	5.0	0.5	No	2.4

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)
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BOA117	Derby Street, opposite 53	Roadside	371288	408592	NO2	2016 AQMA	5.0	1.0	No	2.4
BOA118	St Georges Street, The Rennaisance Flats	Roadside	371832	409625	NO2	2016 AQMA	0.5	1.0	No	2.4
BOA119	Marsden Road, outside Marsden House	Roadside	371328	409251	NO2	2016 AQMA	1.0	0.5	No	2.4
BU1NO	BU1	Roadside	384372	404917	NO2	2016 AQMA	7.0	1.2	NO	2.6
BU2NO	BU2	Roadside	379101	417145	NO2		6.0	2.0	NO	2.6
BU3ANO, BU3BNO, BU3CNO	BU3 c	Roadside	380636	406973	NO2		23.0	7.0	YES	3.0
BU4NO	BU4	Roadside	380964	404831	NO2	2016 AQMA	8.2	22.0	NO	2.3
BU5NO	BU5	Roadside	380497	405420	NO2		4.1	3.5	NO	2.5
BU6NO	BU6	Roadside	379658	410888	NO2	2016 AQMA	0.0	5.0	NO	2.0
BU7NO	BU7	Roadside	381984	411866	NO2	2016 AQMA	8.6	9.5	NO	2.7
BU8NO	BU8	Kerbside	380754	412619	NO2		6.0	0.3	NO	2.6

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)
BU9NO	BU9	Roadside	379630	411031	NO2	2016 AQMA	NA	3.5	NO	2.5
BU10NO	BU10	Roadside	379854	410978	NO2	2016 AQMA	NA	4.4	NO	2.5
BU11NO	BU11	Roadside	380980	411193	NO2	2016 AQMA	NA	1.5	NO	2.5
BU12NO	BU12	Kerbside	381344	410744	NO2	2016 AQMA	1.9	0.5	NO	2.2
BU13NO	BU13	Kerbside	381728	410677	NO2	2016 AQMA	11.0	0.5	NO	2.5
BU14NO	BU14	Roadside	380398	410455	NO2	2016 AQMA	NA	3.0	NO	2.2
BU15NO	BU15	Kerbside	380852	405209	NO2	2016 AQMA	NA	0.5	NO	2.3
BU16NO	BU16	Roadside	380914	404898	NO2	2016 AQMA	5.0	2.2	NO	2.6
BU17NO	BU17	Roadside	381105	404279	NO2	2016 AQMA	13.0	3.0	NO	2.3
BU18NO	BU18	Roadside	382071	411362	NO2	2016 AQMA	3.0	2.0	NO	2.3
BU19NO	BU19	Roadside	381321	405115	NO2	2016 AQMA	7.0	12.0	NO	2.5
BU20NO	BU20	Urban Background	382974	405930	NO2	2016 AQMA	6.0	25.0	NO	2.5
MA8ANO	8A	Urban Background	381398	387501	NO2	NO	10.0	1.5	NO	3.0

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)
MA9ANO	9A	Kerbside	384601	398303	NO2	2016 AQMA	43.0	0.5	NO	3.0
MA24NO	24	Kerbside	383968	398070	NO2	2016 AQMA	150.0	0.5	NO	3.0
MA26ANO	26A	Urban Background	383973	398874	NO2	2016 AQMA	5.0	59.0	NO	3.0
MA28NO	28	Roadside	387951	397430	NO2	2016 AQMA	3.0	1.0	NO	3.0
MA29ANO	29A	Roadside	384119	397503	NO2	2016 AQMA	2.0	2.5	NO	3.0
MA36NO	36	Roadside	385203	399750	NO2	2016 AQMA	7.0	3.0	NO	3.0
MA37NO	37	Roadside	382829	391493	NO2	2016 AQMA	10.0	4.0	NO	3.0
MA59NO, MA60NO, MA61NO	61	Urban Background	384310	398337	NO2	2016 AQMA	45.0	56.0	YES	4.0
MA71NO	71	Roadside	385161	398290	NO2	2016 AQMA	10.0	3.0	NO	3.0
MA72NO	72	Urban Background	384761	397384	NO2	2016 AQMA	7.0	46.0	NO	3.0
MA73NO	73	Roadside	388604	396042	NO2	2016 AQMA	12.0	3.0	NO	3.0
MA74NO	74	Roadside	385400	390095	NO2	2016 AQMA	7.0	3.0	NO	3.0
MA75NO	75	Kerbside	387363	394617	NO2	2016 AQMA	3.0	0.5	NO	3.0

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MA77NO	77	Urban Background	383576	397489	NO2	2016 AQMA	2.0	8.0	NO	3.0
MA78NO	78	Urban Background	386289	396828	NO2	2016 AQMA	7.5	23.0	NO	3.0
MA79NO	79	Urban Background	386875	395861	NO2	NO	3.0	5.0	NO	3.0
MA80NO	80	Roadside	387358	393990	NO2	NO	3.0	7.0	NO	3.0
MA81NO	81	Urban Background	386589	394083	NO2	NO	10.0	18.0	NO	3.0
MA82NO, MA83NO, MA84NO	84	Roadside	384239	397276	NO2	2016 AQMA	5.0	3.0	YES	2.0
MA88NO	88	Kerbside	384469	398981	NO2	2016 AQMA	5.0	1.0	NO	3.0
MA86ANO	86A	Roadside	387150	396808	NO2	2016 AQMA	30.0	4.0	NO	3.0
MA87ANO	87A	Roadside	386992	396569	NO2	2016 AQMA	10.0	3.0	NO	3.0
MA88ANO	88A	Roadside	386536	396699	NO2	2016 AQMA	25.0	3.0	NO	3.0
MA89ANO	89A	Roadside	386710	396824	NO2	2016 AQMA	20.0	2.5	NO	3.0
MA90BNO, MA91BNO, MA92BNO	92	Suburban	384202	386121	NO2	NO	35.0	44.0	YES	3.0

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MA93BNO	93	Roadside	382419	390010	NO2	2016 AQMA	22.0	3.0	NO	3.0
MA94BNO	94	Roadside	382072	388388	NO2	2016 AQMA	7.0	6.0	NO	3.0
MA95BNO	95	Roadside	386668	397566	NO2	2016 AQMA	9.0	2.5	NO	3.0
MA96BNO	96	Roadside	385189	397167	NO2	2016 AQMA	2.0	3.0	NO	3.0
MA97BNO	97	Roadside	382886	397215	NO2	2016 AQMA	11.0	7.5	NO	3.0
MA98BNO	98	Kerbside	388460	403313	NO2	NO	10.0	35.0	NO	3.0
MA99BNO	99	Roadside	385400	399245	NO2	2016 AQMA	8.0	3.0	NO	3.0
MA100BNO	100	Roadside	383605	402293	NO2	2016 AQMA	11.0	2.0	NO	3.0
MA101BNO	101	Roadside	385999	402026	NO2	2016 AQMA	3.0	2.0	NO	3.0
MA102BNO	102	Roadside	385792	402952	NO2	2016 AQMA	3.0	2.0	NO	3.0
MA103BNO	103	Roadside	385431	400653	NO2	2016 AQMA	2.0	2.0	NO	3.0
MA104BNO	104	Roadside	383511	399906	NO2	2016 AQMA	0.5	2.0	NO	3.0
MA112BNO	112	Roadside	383987	396734	NO2	2016 AQMA	2.0	2.0	NO	3.0

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MA113BNO	113	Roadside	385087	396891	NO2	2016 AQMA	2.3	2.0	NO	3.0
OLMRNO	OL1	Roadside	390746	405397	NO2	NO	3.5	2.0	NO	2.0
OLSHSNO	OL2	Roadside	390394	405454	NO2	2016 AQMA	11.0	2.3	NO	2.0
OL259BNO	OL3	Roadside	390089	404456	NO2	2016 AQMA	10.5	3.0	no	2.0
OL1RANO	OL4	Roadside	388698	404903	NO2	no	5.0	2.0	no	2.0
OL434BNO	OL5	Urban Background	389367	403280	NO2	2016 AQMA	4.5	9.9	no	2.0
OLOBNO	OL6	Roadside	389715	403625	NO2	2016 AQMA	10.0	8.0	NO	2.0
OLPSNO	OL7	Urban Background	388747	400973	NO2	2016 AQMA	11.1	13.4	no	2.0
OLWARNO	OL8	Roadside	389237	401310	NO2	2016 AQMA	17.7	4.1	no	2.0
OLHRNO	OL9	Roadside	390756	402571	NO2	2016 AQMA	5.0	3.0	NO	2.0
OLIRSNO	OL10	Urban Background	390675	402736	NO2	2016 AQMA	5.8	23.7	no	2.0
OL368MRNO	OL11	Roadside	390976	403252	NO2	2016 AQMA	2.0	4.4	no	2.0
OLESNO	OL12	Roadside	391367	404318	NO2	2016 AQMA	6.6	1.2	no	2.0

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OLARNO	OL13	Roadside	392771	402951	NO2	NO	3.0	3.0	NO	2.0
OLWOODNO	OL14	Urban Background	393056	404638	NO2	no	1.8	15.1	no	2.0
OLWSMSNO	OL15	Roadside	392947	404854	NO2	no	32.0	4.6	no	2.0
OL17SRNO	OL16	Kerbside	393643	405343	NO2	2016 AQMA	1.5	0.0	no	2.0
OLHS2NO	OL17	Roadside	393501	405186	NO2	2016 AQMA	-	15.0	No	2.0
OLRRNO	OL18	Roadside	394210	405752	NO2	NO	1.0	1.5	NO	2.0
OLHURNO	OL19	Roadside	395561	405751	NO2	NO	4.0	2.0	NO	2.0
OLCVNO	OL20	Roadside	399533	404454	NO2	NO	2.5	2.0	NO	2.0
OLHSNO	OL21	Roadside	399589	405511	NO2	NO	2.0	2.0	NO	2.0
OLCW1NO, OLCW2NO, OLCW3NO	OL24	Roadside	393884	409183	NO2	no	2.0	2.0	YES	1.5
OL21SRNO	OL25	Roadside	392217	407255	NO2	2016 AQMA	0.5	2.0	no	2.0
OLJSNO	OL26	Urban Background	393097	406897	NO2	no	5.1	7.2	no	2.0
OLRDNO	OL27	Roadside	392111	406432	NO2	2016 AQMA	3.0	3.0	NO	2.0

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OL12ORNO	OL28	Roadside	392045	407608	NO2	2016 AQMA	0.5	1.5	no	2.0
OLFANO	OL29	Urban Background	391100	406218	NO2	NO	6.8	1.9	no	2.0
RO3ANO	3	Urban Background	388581	409797	NO2	2016 AQMA	100.0	15.0	NO	2.0
RO4ANO	4	Urban Background	387080	406278	NO2	2016 AQMA	0.0	5.0	NO	2.0
RO5ANO	5	Roadside	386870	404044	NO2	2016 AQMA	100.0	10.0	NO	2.0
RO6ANO	6	Kerbside	385413	408320	NO2	2016 AQMA	15.0	1.0	NO	2.0
RO7ANO	7	Urban Background	388603	411925	NO2	2016 AQMA	0.0	6.0	NO	2.0
RO8ANO	8	Roadside	388932	412091	NO2	2016 AQMA	0.0	4.0	NO	2.0
RO9ANO	9	Kerbside	389057	412217	NO2	2016 AQMA	0.0	1.0	NO	2.0
RO10ANO	10	Urban Background	388800	413603	NO2	2016 AQMA	0.0	4.0	NO	2.0
RO12ANO	12	Roadside	392072	415687	NO2	2016 AQMA	20.0	2.0	NO	2.0
RO13ANO	13	Urban Background	392042	415707	NO2	NO	30.0	15.0	NO	2.0
RO14ANO	14	Rural	393665	417816	NO2	NO	100.0	50.0	NO	2.0

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)
RO15ANO	15	Roadside	392976	411906	NO2	2016 AQMA	30.0	10.0	NO	2.0
RO16ANO	16	Urban Background	392542	411709	NO2	2016 AQMA	40.0	2.0	NO	2.0
RO17ANO	17	Urban Background	391214	412609	NO2	2016 AQMA	50.0	12.0	NO	2.0
RO18ANO	18	Urban Background	389877	413590	NO2	NO	150.0	1.0	NO	2.0
RO20ANO	20	Roadside	385748	408931	NO2	2016 AQMA	50.0	1.0	NO	2.0
RO21ANO	21	Roadside	385820	410776	NO2	NO	50.0	2.0	NO	2.0
RO22ANO	22	Roadside	390464	411976	NO2	2016 AQMA	20.0	2.0	NO	2.0
RO23ANO	23	Roadside	390377	412030	NO2	NO	5.0	2.0	NO	2.5
RO24ANO	24	Urban Background	388089	410822	NO2	NO	13.0	3.0	NO	2.5
RO25ANO	25	Roadside	387792	406013	NO2	NO	1.0	1.5	NO	3.0
RO26ANO	26	Roadside	389782	414241	NO2	2016 AQMA	20.0	1.5	NO	3.0
RO27ANO	27	Roadside	390710	414563	NO2	2016 AQMA	1.0	1.5	NO	2.5
RO28ANO	28	Urban Background	392871	415127	NO2	NO	1.0	2.0	NO	3.0

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)
RO29ANO, RO30ANO, RO31ANO	31	Roadside	389325	411411	NO2	2016 AQMA	17.0	5.0	Yes	2.0
RO32ANO	32	Roadside	385145	407701	NO2	NO	2	2.5	NO	2.0
SA1NO	Irlam Locks	Urban Background	372767	394104	NO2	NO	-30.0	45.0	NO	1.7
SA2NO	Irlam (Princes Park)	Urban Background	372140	394210	NO2	NO	-57.0	67.0	NO	3.0
SA4NO	Crompton	Urban Background	377453	401830	NO2	NO	-5.0	21.5	NO	2.5
SA9NO	St Marks	Urban Background	374741	400937	NO2	NO	-10.0	125.0	NO	2.0
SA13NO	Buckland Road	Urban Background	379613	399784	NO2	NO	12.0	2.5	NO	3.0
SA16NO	Wharton School	Urban Background	371187	404453	NO2	NO	7.0	2.0	NO	2.5
SA20NO, SA21NO, SA22NO	M60 Co-location	Roadside	374811	400857	NO2	2016 AQMA	83.0	20.0	YES	3.0
SA23NO, SA24NO, SA29NO	Eccles AURN Co-location	Urban Background	377926	398727	NO2	NO	0.0	6.0	YES	3.5
SA25NO	Wythop Gardens	Urban Background	381304	398014	NO2	2016 AQMA	-8.5	22.5	NO	3.0
SA26NO	Halton Bank sub station	Roadside	380718	399597	NO2	2016 AQMA	8.0	6.0	NO	2.0

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)
SA27NO	Trinity Way	Roadside	383078	398741	NO2	2016 AQMA	2.0	1.5	NO	3.0
SA31NO	Walkden Road	Roadside	374025	401905	NO2	2016 AQMA	8.0	3.5	NO	3.0
SA34NO	Liverpool Road	Roadside	375367	397800	NO2	2016 AQMA	0.5	8.5	NO	1.7
SA38NO	Clifton Primary School	Roadside	377796	403065	NO2	NO	7.0	1.7	NO	2.5
SA39NO	Trinity Way/ Chapel Street	Roadside	383040	398563	NO2	2016 AQMA	0.0	8.5	NO	3.0
SA51NO	Liverpool Rd/ Claybank	Roadside	375213	397661	NO2	2016 AQMA	1.5	2.5	NO	2.0
SA53NO	Ryecroft Lane	Urban Background	374757	399891	NO2	NO	5.0	3.5	NO	3.0
SA55NO	Leigh Rd/ Ellenbrook Rd	Roadside	372871	400734	NO2	2016 AQMA	7.0	3.0	NO	2.5
SA56NO, SA57NO, SA58NO	Glazebury AURN Co-location	Rural	368759	396027	NO2	NO	130.0	N/A	YES	3.0
SA59NO	West Crown Avenue	Roadside	381822	397895	NO2	2016 AQMA	11.0	2.0	NO	3.0
SA60NO	Regent Road	Roadside	382445	397724	NO2	2016 AQMA	2.5	4.5	NO	2.0
SA61NO	Campbell Road	Roadside	377269	400943	NO2	2016 AQMA	5.0	3.5	NO	2.5
SA62NO	Maurice Drive/ Maurice St	Roadside	380768	399637	NO2	NO	5.0	4.0	NO	3.0

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)
SA63NO	Greenacre Lane	Roadside	374673	399912	NO2	2016 AQMA	-11.5	21.5	NO	3.0
SA64NO	Lancaster Road	Roadside	378804	399844	NO2	2016 AQMA	10.0	6.0	NO	2.5
SA65NO	Eccles Old Rd	Roadside	378584	399220	NO2	2016 AQMA	10.0	3.0	NO	3.0
SA66NO	Stannard Road	Roadside	375118	398502	NO2	2016 AQMA	5.0	12.5	NO	3.0
SA68NO	Walkden High St	Roadside	373570	403096	NO2	2016 AQMA	3.5	2.5	NO	3.0
SA69NO	Agecroft Rd/ Pendlecroft Ave	Roadside	379397	401370	NO2	2016 AQMA	8.5	1.5	NO	3.0
SA70NO	Belvedere Road	Roadside	381677	398832	NO2	2016 AQMA	4.0	12.8	NO	3.0
SA71NO	Trafford Road	Roadside	381351	397185	NO2	2016 AQMA	5.0	1.0	NO	3.0
SA72NO	Station Rd, Swinton	Roadside	377536	401804	NO2	2016 AQMA	2.0	0.5	NO	3.0
SA73NO	Worsley Brow	Roadside	374576	400611	NO2	2016 AQMA	0.0	N/A	NO	3.0
SA74NO	Canal Bank	Roadside	376315	399249	NO2	2016 AQMA	-3.5	24.0	NO	3.0
SA75NO	Weaste Road	Roadside	379608	398539	NO2	2016 AQMA	7.5	0.5	NO	3.0
SA76NO	Langworthy Road	Roadside	380540	398422	NO2	2016 AQMA	5.0	2.9	NO	3.0

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)
SA77NO	Albion Way	Roadside	381686	398504	NO2	2016 AQMA	3.0	13.5	NO	3.0
SA78NO	Broughton Road	Roadside	381220	399530	NO2	2016 AQMA	2.5	1.5	NO	3.0
SA79NO	Chapel Street	Roadside	382602	398519	NO2	2016 AQMA	2.0	10.0	NO	3.0
SA80NO	Hawthorne Drive	Roadside	375428	401417	NO2	2016 AQMA	-9.0	30.5	NO	3.0
SA81NO	Regent Road 2	Roadside	382561	397722	NO2	2016 AQMA	0.0	N/A	NO	3.0
SA82NO	Rooke Street	Roadside	375394	397816	NO2	2016 AQMA	10.0	2.2	NO	3.0
SA83NO	Bury New Road	Roadside	382945	400732	NO2	2016 AQMA	7.7	3.0	NO	2.5
SA84NO	Langley Road	Roadside	380776	400834	NO2	NO	2.0	2.0	NO	2.5
SA85NO	Bray Avenue	Roadside	375991	399237	NO2	2016 AQMA	-3.5	9.0	NO	2.5
SA86NO	Bury Old Road	Kerbside	383819	401771	NO2	NO	5.0	0.5	NO	2.5
SA87NO	Merlin Road	Roadside	372225	395616	NO2	NO	9.0	2.4	NO	2.5
SA88NO	Russell Street	Roadside	377469	398745	NO2	NO	5.0	2.0	NO	2.5
SA89NO	Velveteen Crescent	Roadside	373892	404569	NO2	2016 AQMA	7.0	30.0	NO	2.5

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)
ST3NO	ST 3	Urban Background	385047	388339	NO2	2016 AQMA	8.0	2.0	NO	2.5
ST4NO	ST 4	Rural	396469.167	390800.349	NO2	NO	15.0	20.0	NO	2.5
ST5NO	ST 5	Rural	396869	382699	NO2	NO	8.0	100.0	NO	1.5
ST6NO	ST 6	Urban Background	385960	388552	NO2	NO	24.0	20.0	NO	1.5
ST7NO	ST 7	Kerbside	392063.265	386972	NO2	2016 AQMA	3.0	1.0	NO	2.0
ST8NO	ST 8	Urban Background	392016.512	387042.782	NO2	2016 AQMA	14.0	15.0	NO	1.5
ST9NO	ST 9	Urban Background	392742.788	385680.865	NO2	NO	0.0	25.0	NO	1.5
ST10NO	ST 10	Urban Background	392781.3	387271.486	NO2	NO	0.0	6.0	NO	1.5
ST11NO	ST 11	Roadside	391083.207	387938.058	NO2	2016 AQMA	3.0	3.0	NO	2.0
ST13NO	ST 13	Urban Background	384675	386295	NO2	NO	4.0	2.0	NO	2.0
ST2NO, ST12NO, ST14NO	ST 14	Roadside	385047	388339	NO2	2016 AQMA	8.0	1.0	YES	2.0
ST15NO	ST 15	Roadside	389886.321	388961.332	NO2	2016 AQMA	4.0	2.0	NO	2.0
ST16NO	ST 16	Roadside	391568.679	391225.883	NO2	2016 AQMA	20.0	3.0	NO	2.5

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)
ST17NO	ST 17	Urban Background	388442.177	390077.487	NO2	2016 AQMA	82.0	2.0	NO	2.0
ST18NO	ST 18	Urban Background	389272.176	390440.811	NO2	2016 AQMA	20.0	3.0	NO	2.0
ST19NO	ST 19	Roadside	389479.355	393463.855	NO2	2016 AQMA	0.0	2.2	NO	2.5
ST20NO	ST 20	Urban Background	386921.232	389528.855	NO2	2016 AQMA	3.0	15.0	NO	2.0
ST21NO	ST 21	Urban Background	388598.721	389415.552	NO2	NO	0.0	1.0	NO	2.5
ST22NO, ST23NO, ST24NO	ST 24	Roadside	391483.11	387635.566	NO2	2016 AQMA	5.0	5.0	YES	2.0
ST25NO	ST 25	Roadside	395770.138	388655.432	NO2	NO	5.0	3.0	NO	2.5
ST26NO	ST 26	Urban Background	389396	387357	NO2	NO	0.0	10.0	NO	1.5
ST27NO	ST 27	Urban Background	387091	391384	NO2	NO	0.0	6.0	NO	1.5
ST28NO	ST 28	Roadside	385700.368	386219.938	NO2	2016 AQMA	2.0	3.0	NO	2.5
ST29NO	ST 29	Urban Background	390087.5	388545.187	NO2	NO	0.0	2.0	NO	1.5
ST31NO	ST 31	Roadside	392442	391752	NO2	2016 AQMA	10.0	2.0	NO	2.5
ST32NO	ST 32	Roadside	389480	390957	NO2	2016 AQMA	30.0	2.0	NO	2.5

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)
ST33NO	ST 33	Roadside	390416	390087	NO2	2016 AQMA	10.0	2.0	NO	2.5
ST34NO	ST 34	Roadside	388304	390351	NO2	2016 AQMA	6.0	2.0	NO	2.5
ST35NO	ST 35	Roadside	395020	385360	NO2	2016 AQMA	2.0	2.0	NO	2.5
ST36NO	ST 36	Roadside	389386	390142	NO2	2016 AQMA	4.0	4.0	NO	2.4
TA1NO	T 1	Roadside	394050	397190	NO2	2016 AQMA	1.0	2.0	NO	3.0
TA2NO	T 2	Roadside	394788	394933	NO2	NO	2.0	2.0	NO	3.0
TA3NO	T 3	Urban Background	390961	395417	NO2	2016 AQMA	3.0	2.0	NO	3.0
TA5NO	T 5	Urban Background	400507	396518	NO2	NO	6.0	2.0	NO	3.0
TA11NO	T 11	Roadside	400390	396025	NO2	2016 AQMA	1.0	2.0	NO	3.0
TA13NO	T 13	Roadside	392586	398431	NO2	2016 AQMA	10.0	3.0	NO	3.0
TA14NO	T 14	Roadside	393710	398790	NO2	2016 AQMA	30.0	10.0	NO	3.0
TA16NO	T 16	Roadside	391435	397970	NO2	2016 AQMA	8.0	2.0	NO	3.0
TA17NO	T 17	Roadside	389106	398242	NO2	2016 AQMA	4.0	4.0	NO	3.0

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)
TA18NO	T 18	Roadside	391970	395521	NO2	2016 AQMA	35.0	2.0	NO	3.0
TA19NO	T 19	Roadside	392477	395505	NO2	2016 AQMA	1.0	1.0	NO	3.0
TA20NO	T 20	Roadside	394610	395102	NO2	YES	3.0	1.0	NO	3.0
TA21NO	T 21	Roadside	400423	395965	NO2	YES	1.0	1.0	NO	3.0
TA23NO	T 23	Urban Background	393620	398588	NO2	NO	1.0	9.0	NO	3.0
TA24NO	T 24	Roadside	390475	395621	NO2	YES	5.0	2.0	NO	3.0
TA25NO	T 25	Roadside	396950	402329	NO2	YES	5.0	2.0	NO	3.0
TA27NO	T 27	Roadside	396177	398218	NO2	YES	17.0	2.0	NO	3.0
TA28NO	T 28	Roadside	393050	401038	NO2	NO	5.0	2.0	NO	3.0
TA29NO	T 29	Suburban	393370	399494	NO2	NO	3.0	75.0	NO	3.0
TA30NO	T 30	Roadside	393419	399691	NO2	YES	2.0	2.0	NO	3.0
TA31NO	T 31	Suburban	396899	402449	NO2	NO	5.0	2.0	NO	3.0
TA32NO	T 32	Suburban	396982	402437	NO2	NO	2.0	2.0	NO	3.0

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)
TA33NO	T 33	Roadside	397010	402560	NO2	NO	2.0	2.0	NO	3.0
TA34NO	T 34	Roadside	397060	402581	NO2	NO	16.0	2.0	NO	3.0
TA35NO	T 35	Roadside	397080	402540	NO2	NO	8.0	2.0	NO	3.0
TA36NO	T 36	Suburban	397060	402387	NO2	NO	2.0	1.0	NO	3.0
TA37NO	T 37	Roadside	396728	402073	NO2	NO	7.0	2.0	NO	3.0
TA38NO	T 38	Urban Background	394006	399392	NO2	NO	11.0	22.0	NO	3.0
TA39NO	T 39	Urban Background	394114	399366	NO2	NO	11.0	1.0	NO	3.0
TA40NO	T 40	Urban Background	394066	399314	NO2	NO	45.0	1.0	NO	3.0
TA41NO	T 41	Urban Background	394118	399259	NO2	YES	1.0	2.0	NO	3.0
TA42NO	T 42	Urban Background	394494	399010	NO2	NO	6.0	2.0	NO	3.0
TA43NO	T 43	Roadside	394214	398933	NO2	YES	30.0	13.0	NO	3.0
TA44NO	T 44	Urban Background	397418	394398	NO2	NO	22.0	12.0	NO	3.0
TA45NO, TA46NO, TA47NO	T 47	Roadside	399719	395805	NO2	YES	24.0	5.0	YES	3.0

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TA49NO	T 49	Roadside	393731	398770	NO2	YES	46.0	3.0	NO	4.0
TA50NO	T 50	Roadside	393498	398704	NO2	YES	140.0	4.0	NO	3.0
TA51NO	T 51	Kerbside	393314	398624	NO2	YES	82.0	1.0	NO	3.0
TA52NO	T 52	Roadside	393509	398737	NO2	YES	103.0	5.0	NO	3.0
TA53NO	T 53	Roadside	393133	398536	NO2	YES	31.0	3.0	NO	3.0
TA54NO	T 54	Roadside	392958	398474	NO2	YES	24.0	3.0	NO	3.0
TA55NO	T 55	Roadside	392743	398465	NO2	YES	6.0	3.0	NO	3.0
TA56NO	T 56	Roadside	392490	398368	NO2	YES	11.0	5.0	NO	3.0
TA57NO	T 57	Roadside	392844	398544	NO2	YES	28.0	3.0	NO	3.0
TA58NO	T 58	Roadside	393080	398620	NO2	YES	40.0	4.0	NO	3.0
TA59NO	T 59	Roadside	395652	399140	NO2	NO	23.0	2.0	NO	3.0
TA60NO	T 60	Roadside	395747	399112	NO2	NO	9.0	1.0	NO	3.0
TA61NO	T 61	Roadside	395682	399171	NO2	NO	6.0	1.0	NO	3.0

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)
TA62NO	T 62	Roadside	395589	399227	NO2	NO	25.0	4.0	NO	3.0
TA63NO	T 63	Kerbside	394917	400922	NO2	NO	13.0	0.0	NO	3.0
TA64NO	T 64	kerbside	395792	398758	NO2	YES	1.0	0.0	NO	3.0
TA65NO	T 65	Kerbside	392532	396768	NO2	YES	30.0	0.0	NO	3.0
TR5NO	5	Urban Background	379052	392043	NO2	NO	10.0	5.0	NO	4.0
TR9NO	9	Urban Background	380933	395889	NO2	2016 AQMA	20.0	100.0	NO	3.0
TR19NO, TR19ANO, TR19BNO	19b	Urban Background	378783	394728	NO2	NO	65.0	100.0	YES	2
TR20NO, TR20ANO, TR20BNO	20b	Roadside	379411	394014	NO2	2016 AQMA	42.0	5.0	YES	3
TR21NO	21	Roadside	379619	396371	NO2	NO	700.0	5.0	NO	3
TR22NO	22	Kerbside	377061	390086	NO2	2016 AQMA	50.0	1.0	NO	4
TR13NO	13	Roadside	381221	396441	NO2	2016 AQMA	300.0	5.0	NO	4
TR15NO	15	Roadside	379089	393282	NO2	2016 AQMA	350.0	5.0	NO	4

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)
TR16NO, TR16ANO	16a	Roadside	377418	395689	NO2	2016 AQMA	30.0	2.0	NO	3
TR23NO	23	Roadside	376438	396383	NO2	2016 AQMA	3.0	10.0	NO	3
TR23ANO	23a	Roadside	376395	396360	NO2	2016 AQMA	3.0	4.0	NO	3
TR24NO	24	Roadside	379263	385812	NO2	NO	16.0	3.0	NO	3
TR25NO, TR25ANO, TR25BNO	25b	Urban Background	373755	394477	NO2	NO	10.0	160.0	YES	2
TR27NO	27	Kerbside	371419	390760	NO2	NO	20.0	1.0	NO	2
TR28NO	28	Kerbside	376851	387792	NO2	NO	100.0	1.0	NO	2
TR29NO	29	Roadside	373906	392820	NO2	NO	10.0	3.0	NO	2
TR30NO	30	Urban Background	376789	392806	NO2	NO	0.0	30.0	NO	1.5
TR31NO	31	Kerbside	376206	392695	NO2	NO	120.0	0.5	NO	2
WI14NO	14	Roadside	366880	403255	NO2	2016 AQMA	0.0	6.0	NO	2.0
WI23NO	23	Roadside	361835	404090	NO2	2016 AQMA	0.0	3.0	NO	2.0
WI27NO	24	Roadside	358341	405539	NO2	No	0.0	8.0	No	2.0

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)
WI28NO	28	Roadside	366424	399894	NO2	2016 AQMA	1.0	1.0	NO	2.0
WI30NO	30	Roadside	363833	402028	NO2	NO	0.0	1.0	NO	2.0
WI33NO	33	Roadside	359723	405537	NO2	2016 AQMA	30.0	1.0	NO	2.0
WI35NO	35	Kerbside	357132	398670	NO2	2016 AQMA	7.0	1.0	NO	2.0
WI47NO, WI48NO, WI49NO	49	Urban Background	357812	406021	NO2	NO	0.0	177.0	YES	2.5
WI52NO	52	Roadside	362137	396948	NO2	2016 AQMA	35.0	3.0	NO	2.0
WI53NO	53	Urban Background	353896	408518	NO2	2016 AQMA	0.0	14.0	NO	2.0
WI54NO	54	Urban Background	370612	400586	NO2	2016 AQMA	0.0	17.0	NO	2.0
WI63NO	63	Roadside	356928	404982	NO2	2016 AQMA	0.0	8.0	NO	2.0
WI71NO	71	Roadside	368244	402563	NO2	NO	0.0	5.0	NO	2.0
WI81NO	81	Roadside	355979	410362	NO2	2016 AQMA	0.0	4.0	NO	2.0
WI114NO	114	Roadside	365115	400259	NO2	NO	0.0	3.0	NO	2.0
WI115NO	115	Urban Background	353845	405360	NO2	2016 AQMA	28.0	1.0	NO	2.0

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)
WI116NO	116	Urban Background	365864	401720	NO2	2016 AQMA	0.0	9.0	NO	2.0
WI121NO	121	Roadside	357088	405158	NO2	2016 AQMA	0.0	4.0	NO	2.0
WI122NO	122	kerbside	356883	405239	NO2	NO	0.5	0.5	NO	2.0
WI124NO	124	Roadside	357310	403672	NO2	NO	3.0	0.5	NO	2.0
WI125NO	125	Roadside	357645	404259	NO2	NO	6.0	0.0	NO	2.0
WI126NO	126	Roadside	355819	402194	NO2	NO	5.0	2.0	NO	2.0
WI127NO	127	Roadside	355484	403854	NO2	NO	6.0	2.0	NO	2.0
WI129NO	129	Roadside	356848	402906	NO2	NO	3.0	2.0	NO	2.0
WI130NO	130	Roadside	356354	403838	NO2	NO	20.0	2.0	NO	2.0
WI131NO	131	Roadside	356667	404065	NO2	NO	3.0	2.0	NO	2.0
WI132NO	132	Roadside	356869	404808	NO2	NO	3.0	2.0	NO	2.0
WI133NO	133	Roadside	356748	404786	NO2	NO	3.0	1.0	NO	2.0
WI134NO	134	Roadside	356428	404722	NO2	NO	4.0	1.0	NO	2.0

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)
WI135NO	135	Kerbside	354614	404685	NO2	NO	0.0	1.0	NO	2.0
WI136NO	136	Kerbside	354057	404824	NO2	NO	4.0	1.0	NO	2.0
WI137NO	137	Roadside	353844	404922	NO2	2016 AQMA	7.0	2.0	NO	2.0
WI138NO	138	Roadside	355321	404017	NO2	NO	100.0	1.0	NO	2.0
WI139NO	139	Roadside	355638	404023	NO2	NO	12.0	2.0	NO	2.0
WI140NO	140	Roadside	355816	404062	NO2	NO	4.0	2.0	NO	2.0
WI141NO	141	Roadside	356469	404550	NO2	NO	22.0	2.0	NO	2.0
WI144NO	144	Roadside	360643	402297	NO2	NO	4.0	2.0	NO	2.0
WI145NO	145	Roadside	360515	402212	NO2	NO	3.0	2.0	NO	2.0
WI147NO	147	Roadside	360437	405089	NO2	NO	18.0	2.0	NO	2.0
WI148NO	148	Kerbside	361247	404576	NO2	NO	5.0	1.0	NO	2.0
WI150NO	150	Kerbside	361579	404298	NO2	NO	16.0	2.0	NO	2.0
WI151NO	151	Kerbside	361501	404216	NO2	NO	2.0	1.0	NO	2.0

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)
WI152NO	152	Roadside	364021	402391	NO2	NO	10.0	2.0	NO	2.0
WI153NO	153	Roadside	364953	402783	NO2	NO	9.0	1.0	NO	2.0
WI154NO	154	Roadside	365054	403019	NO2	NO	18.0	2.0	NO	2.0
WI155NO	155	Roadside	366233	403024	NO2	NO	4.0	1.0	NO	2.0
WI156NO	156	Kerbside	366320	402136	NO2	NO	8.0	1.0	NO	2.0
WI157NO	157	Roadside	366458	402462	NO2	NO	13.0	2.0	NO	2.0
WI158NO	158	Roadside	365615	401368	NO2	NO	9.0	1.0	NO	2.0
WI159NO	159	Kerbside	368024	403514	NO2	NO	44.0	1.0	NO	2.0
WI160NO	160	Roadside	368671	402250	NO2	NO	18.0	2.0	NO	2.0
WI161NO	161	Roadside	369635	402019	NO2	NO	0.0	2.0	NO	2.0
WI162NO	162	Roadside	370534	401953	NO2	NO	5.0	1.0	NO	2.0
WI163NO	163	Kerbside	371234	401895	NO2	NO	15.0	1.0	NO	2.0
WI164NO	164	Roadside	371981	401209	NO2	NO	5.0	1.0	NO	2.0

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)
WI165NO	165	Kerbside	371039	400996	NO2	NO	23.0	2.0	NO	2.0
WI166NO	166	Kerbside	368414	399638	NO2	NO	23.0	1.0	NO	2.0
WI167NO	167	Roadside	363544	397933	NO2	NO	15.0	2.0	NO	2.0
WI168NO	168	Kerbside	362463	397005	NO2	2016 AQMA	15.0	2.0	NO	2.0
WI169NO	169	Roadside	362557	396906	NO2	NO	28.0	2.0	NO	2.0
WI170NO	170	Roadside	362236	396675	NO2	NO	11.0	1.0	NO	2.0
WI171NO	171	Roadside	357095	400717	NO2	NO	21.0	2.0	NO	2.0
WI172NO	172	Kerbside	356881	401314	NO2	NO	3.0	1.0	NO	2.0
WI173NO	173	Roadside	357983	405377	NO2	2016 AQMA	78.0	3.0	NO	2.0
WI174NO	174	Roadside	358294	405137	NO2	2016 AQMA	33.0	3.0	NO	2.0
WI175NO	175	Roadside	358537	405774	NO2	2016 AQMA	24.0	6.0	NO	2.0
WI176NO	176	Roadside	359227	405480	NO2	NO	1.0	3.0	NO	2.0
WI177NO	177	Kerbside	356230	410105	NO2	NO	1.0	3.0	NO	2.0

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)
WI178NO	178	Kerbside	356021	410128	NO2	NO	6.0	0.5	NO	2.0
WI179NO	179	Kerbside	354900	410475	NO2	NO	15.0	2.0	NO	2.0
WI180NO	180	Kerbside	362105	396491	NO2	NO	0.0	2.0	NO	2.0
WI181NO	181	Kerbside	354819	406235	NO2	NO	5.0	1.0	NO	2.0
WI183NO	183	Roadside	358595	405297	NO2	2016 AQMA	155.0	2.0	NO	2.0
WI184NO	184	Roadside	358013	405654	NO2	2016 AQMA	14.0	1.0	NO	2.0
WI185NO	185	Kerbside	358054	405613	NO2	2016 AQMA	30.0	1.0	NO	2.0
WI186NO	186	Kerbside	358070	405587	NO2	2016 AQMA	88.0	2.0	NO	2.0
WI188NO	188	Roadside	362111	396526	NO2	NO	18.0	2.0	NO	2.0
WI189NO	189	Kerbside	362095	396547	NO2	NO	26.0	2.0	NO	2.0
WI192NO	192	Roadside	356771	403124	NO2	NO	24.0	1.0	NO	2.0
WI193NO	193	Kerbside	363885	403129	NO2	NO	3.0	0.5	NO	2.0
WI194NO	194	Kerbside	371037	402472	NO2	NO	80.0	0.5	NO	2.0

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)
WI195NO	195	Roadside	366254	403598	NO2	NO	95.0	3.0	NO	2.0
WI196NO	196	Kerbside	365850	403263	NO2	NO	130.0	0.5	NO	2.0
WI197NO	197	Kerbside	361411	408031	NO2	NO	25.0	2.0	NO	2.0
WI199NO	199	Roadside	360501	397988	NO2	NO	20.0	0.5	NO	2.0
WI200NO	200	Kerbside	363262	399815	NO2	NO	10.0	1.0	NO	2.0
WI201NO	201	Roadside	356493	406759	NO2	NO	19.0	1.0	NO	2.0
WI202NO	202	Roadside	358222	407262	NO2	NO	6.0	1.0	NO	2.0
WI203NO	203	Roadside	357569	408645	NO2	NO	11.0	2.0	NO	2.0
WI204NO	204	Roadside	358161	399510	NO2	NO	17.0	2.0	NO	2.0
WI205NO	205	Kerbside	362151	396604	NO2	NO	6.5	1.0	NO	2.0
WI206NO	206	Kerbside	362162	396325	NO2	NO	66.0	1.0	NO	2.0
WI207NO	207	Kerbside	362171	396329	NO2	NO	65.0	1.0	NO	2.0
WI208NO, WI209NO, WI210NO	210	Roadside	365687	400238	NO2	NO	23.0	2.0	YES	2.0

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)
WI211NO	211	Roadside	372302	401593	NO2	NO	11.0	2.0	NO	2.0
WI212NO	212	Roadside	356827	402135	NO2	NO	143.0	2.0	NO	2.0
WI213NO	213	Roadside	362019	396512	NO2	No	19.0	1.0	No	2.0
WI214NO	214	Kerbside	361979	396501	NO2	No	26.0	1.0	No	2.0
WI215NO	215	Kerbside	361981	396490	NO2	No	16.0	1.0	No	2.0
WI216NO	216	Kerbside	358464	405342	NO2	2016 AQMA	2.0	1.0	No	2.0
WI217NO	217	Kerbside	357780	405306	NO2	No	20.0	0.5	No	2.0
WI218NO	218	Kerbside	357839	405296	NO2	No	n/a	n/a	No	n/a
WI219NO	219	Roadside	357484	405407	NO2	No	59.0	2.0	No	2.0
WI220NO	220	Roadside	357420	405407	NO2	No	146.0	2.0	No	2.0
WI221NO	221	Roadside	360499	397867	NO2	No	3.0	2.0	No	2.0
WI222NO	222	Roadside	360491	397842	NO2	No	12.0	2.0	No	2.0
WI223NO	223	Roadside	360430	397779	NO2	No	15.0	2.0	No	2.0

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)
WI224NO	224	Roadside	360418	397775	NO2	No	10.0	2.0	No	2.0
WI225NO	225	Roadside	360459	397995	NO2	No	11.0	2.0	No	2.0
WI226NO	226	Roadside	360462	398006	NO2	No	2.0	2.0	No	2.0
WI227NO	227	Roadside	360576	398144	NO2	No	21.0	2.0	No	2.0
WI228NO	228	Roadside	360578	398126	NO2	No	4.0	2.0	No	2.0
WI229NO	229	Roadside	360374	397928	NO2	No	2.0	0.0	No	2.0
WI230NO	230	Roadside	360380	397912	NO2	No	0.0	2.0	No	2.0
WI231NO	231	Roadside	357473	398990	NO2	No	25.0	2.0	No	2.0
WI232NO	232	Roadside	357635	399502	NO2	No	15.0	3.0	No	2.0
WI233NO	233	Kerbside	357445	406461	NO2	No	9.0	1.0	No	2.0
WI234NO	234	Roadside	363136	403467	NO2	No	10.0	3.0	No	2.0
WI235NO	235	Roadside	365419	399116	NO2	No	21.0	0.5	No	2.0
WI236NO	236	Kerbside	365386	400353	NO2	No	5.0	0.5	No	2.0

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)
WI237NO	237	Kerbside	367352	403200	NO2	No	12.0	0.5	No	2.0
WI238NO	238	Roadside	369056	402146	NO2	No	10.0	2.0	No	2.0
WI239NO	239	Roadside	357092	404213	NO2	No	20.0	3.0	No	2.0
WI240NO	240	Kerbside	360220	407146	NO2	No	14.0	2.0	No	2.0
WI241NO	241	Kerbside	358025	406658	NO2	No	8.0	0.5	No	2.0
WI242NO	242	Kerbside	362056	398246	NO2	No	8.0	0.5	No	2.0
WI243NO	243	Kerbside	362030	398210	NO2	No	14.0	2.0	No	2.0
WI244NO	244	Kerbside	357610	406859	NO2	No	14.0	1.0	No	2.0

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 NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
Bolton A579 Derby Street	371280	408577	Roadside	N/A	99.36	-	-	-	23	23
Bury Bridge	379840	410944	Roadside	N/A	39.55	-	-	-	-	22.6[27]
Bury Prestwich	381650	403222	Roadside	N/A	99.49	38	39	-	33.3	30
Bury Radcliffe	378190	407480	Roadside	N/A	99.44	25	26	20	21.7	20
Bury Whitefield	380636	406973	Roadside	N/A	92.04	25	27	19	20	21
Manchester Oxford Rd	384233	397287	Kerbside	N/A	99.41	**62**	**59**	36	**44**	**43**
Manchester Piccadilly	384310	398337	Urban Centre	N/A	99.1	35	36	27	30	29
Manchester Sharston	384179	386086	Suburban	N/A	98.7	24	23	14	16	15
Oldham Crompton Way	393887	409191	Roadside	N/A	99.52	28	30	23	25	24
Rochdale Queensway	389325	411411	Roadside	N/A	97.03	-	-	-	28.5	27
Salford Eccles	377926	398727	Industrial	N/A	97.68	25	25	20	23	22
Salford Glazebury	368759	396027	Rural	N/A	89.47	14	15	11	12	11
Salford M60	374811	400857	Roadside	N/A	98.57	**41**	**44**	34	34	34
Stockport Cheadle A34	385047	388339	Roadside	N/A	97.74	37	36	26	28	29

[27] Annualised.

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
Stockport Hazel Grv	391481	387637	Roadside	N/A	99.69	25	23	16	19	18
Tameside A635 Manchester Road	392538	398419	Roadside	N/A	99.75	-	-	29.2	34	32
Tameside Mottram M'r	399719	395804	Roadside	N/A	99.74	**43**	**40**	30	36	34
Trafford A56	379413	394014	Urban Traffic	N/A	80.37	29	30	21	23	24
Trafford	378783	394726	Urban Background	N/A	95.88	18	19	14	15	15
Trafford Wellacre Academy	373758	394473	Urban Background	N/A	99.43	15	15	11	13	11
Wigan Centre	357816	406024	Urban Background	N/A	97.4	17	19	15	17	17
Wigan Leigh 3	365686	400243	Roadside	N/A	99.68	-	-	23.8	25	22

☒ **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**

Notes:

The annual mean concentrations are presented as µg/m^3.

Exceedances of the NO_2 annual mean objective of 40µg/m^3 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 NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^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 2022 (%) (2)	2018	2019	2020	2021	2022
BO03NO	370763	407929	Kerbside	N/A	100.0	**40.3**	**41.2**	31.8	37.1	36.6
BO04NO	371394	411718	Urban Background	N/A	100.0	25.9	27.1	19.3	20.0	21.4
BO08NO	371352	409094	Kerbside	N/A	82.7	27.9	27.4	18.5	19.5	23.8
BO11NO	363712	412396	Urban Background	N/A	100.0	13.6	12.3	9.0	10.9	10.7
BO14NO	373839	406130	Urban Background	N/A	100.0	23.4	23.4	17.4	18.2	19.1
BO15NO	371435	411690	Kerbside	N/A	59.6	37.8	39.9	29.0	28.1	30.7
BO16NO	371304	411748	Urban Background	N/A	100.0	21.2	21.7	15.5	16.6	17.0
BO41NO	366286	406561	Urban Background	N/A	100.0	34.7	35.4	28.3	29.4	27.6
BO43NO	365501	409887	Kerbside	N/A	84.6	36.1	35.5	25.8	26.2	27.4
BO44NO, BO45NO	365599	409845	Urban Background	N/A	100.0	23.7	23.6	17.7	18.0	18.3
BO48NO	375397	407457	Urban Background	N/A	92.3	26.5	27.6	22.7	23.1	21.4
BO53NO	373236	411968	Urban Background	N/A	59.6	20.2	19.4	16.7	14.2	25.4
BO54NO	372908	412120	Urban Background	N/A	92.3	13.4	14.9	11.2	12.4	11.0

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 2022 (%) (2)	2018	2019	2020	2021	2022
BO60NO	373287	405061	Roadside	N/A	84.6	36.9	32.0	23.8	25.6	26.6
BO61NO	374450	405207	Kerbside	N/A	100.0	38.3	37.2	27.8	31.7	30.4
BO62NO	374194	405460	Urban Background	N/A	100.0	-	**47.7**	28.4	29.9	30.7
BO63NO	374282	406257	Urban Background	N/A	82.7	24.0	25.0	17.9	18.5	17.3
BO64NO	371965	409907	Roadside	N/A	67.3	27.8	28.6	21.8	21.1	23.9
BO65NO	372059	409877	Urban Background	N/A	90.4	27.9	26.8	21.5	21.8	23.0
BO66NO	371442	411599	Roadside	N/A	92.3	38.6	36.7	29.0	32.5	31.2
BO67NO	365163	405640	Urban Background	N/A	100.0	21.2	21.2	18.3	17.1	16.6
BO68NO	367672	406910	Urban Background	N/A	100.0	30.3	31.1	22.6	23.7	24.1
BO69NO	369030	405809	Roadside	N/A	100.0	**49.0**	**47.7**	36.0	38.1	39.2
BO70NO	368757	405701	Roadside	N/A	100.0	21.9	23.9	16.1	18.2	18.9
BO71NO	370362	405400	Roadside	N/A	100.0	**46.2**	**53.1**	38.0	**41.5**	39.7
BO72NO	370115	405372	Roadside	N/A	48.1	30.0	30.9	25.4	25.8	37.0
BO73NO	371805	409820	Roadside	N/A	82.7	**45.5**	**44.7**	33.0	37.4	38.3

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 2022 (%) [2]	2018	2019	2020	2021	2022
BO74NO	371805	409832	Roadside	N/A	90.4	**41.7**	**46.9**	31.8	33.8	34.5
BO75NO	371623	409235	Roadside	N/A	75.0	25.3	28.8	28.2	19.1	20.5
BO76NO, BO77NO, BO78NO	373491	404836	Roadside	N/A	100.0	-	-	22.1	24.7	26.0
BO79NO, BO80NO, BO81NO	371296	408600	Roadside	N/A	84.6	-	-	-	18.7	25.2
BOA101	374561	405364	Roadside	N/A	100.0	-	-	23.6	25.3	25.8
BOA102	374584	405525	Roadside	N/A	84.6	-	-	25.2	24.9	26.9
BOA103	374526	405906	Roadside	N/A	100.0	-	-	20.1	22.5	21.3
BOA104	373795	406600	Roadside	N/A	92.3	-	-	29.7	34.1	35.6
BOA105	373604	406882	Roadside	N/A	100.0	-	-	25.8	26.1	27.0
BOA107, BOA106	372643	408070	Roadside	N/A	100.0	-	-	19.1	24.1	23.8
BOA109	373818	409401	Roadside	N/A	100.0	-	-	17.9	18.6	19.0
BOA110	371501	409694	Roadside	N/A	100.0	-	-	30.1	33.4	32.3
BOA111	371102	409575	Roadside	N/A	100.0	-	-	26.7	28.8	28.7

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 2022 (%) (2)	2018	2019	2020	2021	2022
BOA112	371715	408681	Roadside	N/A	100.0	-	-	29.2	29.8	28.8
BOA113	374510	405522	Roadside	N/A	84.6	-	-	23.3	25.9	26.9
BOA114	372122	409347	Roadside	N/A	92.3	-	-	25.6	26.1	26.2
BOA115	371903	409026	Roadside	N/A	90.4	-	-	35.7	32.3	32.3
BOA116	371803	408976	Roadside	N/A	100.0	-	-	29.4	31.0	28.7
BOA118	371832	409625	Roadside	N/A	100.0	-	-	23.0	24.5	24.8
BOA119	371328	409251	Roadside	N/A	76.9	-	-	25.3	27.1	31.4
BU1NO	384372	404917	Roadside	N/A	100.0	32.3	32.4	24.4	25.3	26.6
BU2NO	379101	417145	Roadside	N/A	100.0	35.7	38.8	25.1	27.4	28.7
BU3ANO, BU3BNO, BU3CNO	380636	406973	Roadside	N/A	100.0	26.4	26.1	25.2	19.1	20.9
BU4NO	380964	404831	Roadside	N/A	100.0	-	39.2	27.4	28.4	31.8
BU5NO	380497	405420	Roadside	N/A	82.7	28.0	27.0	21.1	20.9	21.0
BU6NO	379658	410888	Roadside	N/A	100.0	36.7	36.4	27.5	30.4	30.7

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 2022 (%) (2)	2018	2019	2020	2021	2022
BU7NO	381984	411866	Roadside	N/A	100.0	-	30.6	23.4	24.8	25.9
BU8NO	380754	412619	Kerbside	N/A	100.0	-	34.3	23.7	25.6	25.9
BU9NO	379630	411031	Roadside	N/A	82.7	-	35.4	27.1	26.9	30.2
BU10NO	379854	410978	Roadside	N/A	90.4	-	37.1	27.3	27.9	30.7
BU11NO	380980	411193	Roadside	N/A	100.0	-	**41.3**	32.3	33.5	34.7
BU12NO	381344	410744	Kerbside	N/A	92.3	-	**53.6**	35.0	**40.9**	38.7
BU13NO	381728	410677	Kerbside	N/A	90.4	-	**49.7**	34.0	39.8	36.9
BU14NO	380398	410455	Roadside	N/A	82.7	-	37.5	26.9	26.8	30.7
BU15NO	380852	405209	Kerbside	N/A	100.0	-	**46.6**	34.4	37.4	**40.5**
BU16NO	380914	404898	Roadside	N/A	100.0	-	**46.8**	32.5	36.1	39.0
BU17NO	381105	404279	Roadside	N/A	100.0	-	35.4	25.7	28.2	28.6
BU18NO	382071	411362	Roadside	N/A	100.0	-	38.2	27.9	30.3	30.3
BU19NO	381321	405115	Roadside	N/A	92.3	-	**42.1**	32.7	33.1	37.7
BU20NO	382974	405930	Urban Background	N/A	100.0	-	-	26.1	28.4	28.8

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 2022 (%) [2]	2018	2019	2020	2021	2022
MA8ANO	381398	387501	Urban Background	N/A	100.0	26.6	28.0	18.2	20.6	23.9
MA9ANO	384601	398303	Kerbside	N/A	100.0	**45.8**	**44.9**	32.5	35.7	37.5
MA24NO	383968	398070	Kerbside	N/A	100.0	**40.3**	**40.8**	26.8	31.8	32.4
MA26ANO	383973	398874	Urban Background	N/A	100.0	33.4	33.0	22.9	25.9	27.5
MA28NO	387951	397430	Roadside	N/A	84.6	37.1	36.1	26.4	29.4	29.3
MA29ANO	384119	397503	Roadside	N/A	90.4	**58.8**	**55.4**	39.0	**44.8**	**49.8**
MA36NO	385203	399750	Roadside	N/A	100.0	33.1	31.7	24.3	26.7	27.4
MA37NO	382829	391493	Roadside	N/A	100.0	39.3	38.7	26.9	29.5	32.1
MA59NO, MA60NO, MA61NO	384310	398337	Urban Background	N/A	100.0	32.2	31.6	22.4	24.6	25.3
MA71NO	385161	398290	Roadside	N/A	100.0	**46.1**	**45.3**	31.4	34.2	34.4
MA72NO	384761	397384	Urban Background	N/A	100.0	33.4	32.8	24.5	27.5	26.3
MA73NO	388604	396042	Roadside	N/A	100.0	38.7	38.0	27.3	31.6	31.5
MA74NO	385400	390095	Roadside	N/A	100.0	35.7	33.6	23.3	25.6	25.4

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 2022 (%) [2]	2018	2019	2020	2021	2022
MA75NO	387363	394617	Kerbside	N/A	100.0	**47.6**	**47.0**	33.7	39.0	38.8
MA77NO	383576	397489	Urban Background	N/A	100.0	**41.0**	**43.7**	26.9	30.8	33.1
MA78NO	386289	396828	Urban Background	N/A	100.0	33.2	33.0	23.2	27.5	27.2
MA79NO	386875	395861	Urban Background	N/A	100.0	29.9	29.3	22.3	25.6	25.4
MA80NO	387358	393990	Roadside	N/A	100.0	32.2	33.2	22.5	25.7	25.7
MA81NO	386589	394083	Urban Background	N/A	100.0	21.8	23.1	16.6	18.1	18.8
MA82NO, MA83NO, MA84NO	384239	397276	Roadside	N/A	100.0	**54.0**	**52.0**	34.1	**40.7**	**42.6**
MA88NO	384469	398981	Kerbside	N/A	100.0	**46.8**	**45.2**	30.1	36.8	35.7
MA86ANO	387150	396808	Roadside	N/A	90.4	32.1	33.6	25.5	27.5	27.5
MA87ANO	386992	396569	Roadside	N/A	100.0	33.2	34.0	22.9	26.4	28.0
MA88ANO	386536	396699	Roadside	N/A	100.0	**44.3**	**43.3**	32.5	35.3	39.2
MA89ANO	386710	396824	Roadside	N/A	100.0	30.3	30.3	23.7	25.2	25.6
MA90BNO, MA91BNO, MA92BNO	384202	386121	Suburban	N/A	100.0	20.1	18.9	13.8	14.1	15.2

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 2022 (%) [2]	2018	2019	2020	2021	2022
MA93BNO	382419	390010	Roadside	N/A	100.0	-	**42.9**	29.4	33.8	34.0
MA94BNO	382072	388388	Roadside	N/A	100.0	-	32.1	25.2	26.0	28.0
MA95BNO	386668	397566	Roadside	N/A	100.0	-	**43.4**	31.5	34.1	33.7
MA96BNO	385189	397167	Roadside	N/A	100.0	-	**46.0**	36.4	**41.0**	**43.5**
MA97BNO	382886	397215	Roadside	N/A	100.0	-	32.3	23.4	28.4	27.8
MA98BNO	388460	403313	Kerbside	N/A	92.3	-	36.2	26.6	28.9	28.6
MA99BNO	385400	399245	Roadside	N/A	100.0	-	-	26.9	32.9	32.7
MA100BNO	383605	402293	Roadside	N/A	84.6	-	-	31.2	33.6	33.0
MA101BNO	385999	402026	Roadside	N/A	100.0	-	-	28.1	35.9	35.6
MA102BNO	385792	402952	Roadside	N/A	100.0	-	-	28.3	31.0	32.8
MA103BNO	385431	400653	Roadside	N/A	100.0	-	-	35.5	39.6	**40.1**
MA104BNO	383511	399906	Roadside	N/A	100.0	-	-	30.6	36.4	37.9
MA112BNO	383987	396734	Roadside	N/A	84.6	-	-	-	21.4	22.7
MA113BNO	385087	396891	Roadside	N/A	100.0	-	-	-	28.1	29.2

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 2022 (%) (2)	2018	2019	2020	2021	2022
OLMRNO	390746	405397	Roadside	N/A	84.6	-	31.5	37.7	28.6	35.0
OLSHSNO	390394	405454	Roadside	N/A	100.0	30.5	36.1	25.1	29.8	29.6
OL259BNO	390089	404456	Roadside	N/A	92.3	-	-	-	34.5	34.9
OL1RANO	388698	404903	Roadside	N/A	100.0	-	-	-	24.1	26.0
OL434BNO	389367	403280	Urban Background	N/A	100.0	-	-	-	28.3	28.4
OLOBNO	389715	403625	Roadside	N/A	90.4	38.4	37.3	27.2	27.8	28.2
OLPSNO	388747	400973	Urban Background	N/A	100.0	-	-	-	32.5	30.7
OLWARNO	389237	401310	Roadside	N/A	100.0	-	-	-	32.4	33.4
OLHRNO	390756	402571	Roadside	N/A	100.0	38.5	**40.6**	30.1	32.6	33.9
OLIRSNO	390675	402736	Urban Background	N/A	100.0	-	-	-	25.7	27.9
OL368MRNO	390976	403252	Roadside	N/A	100.0	-	-	-	38.2	38.9
OLESNO	391367	404318	Roadside	N/A	100.0	-	-	-	27.9	29.1
OLARNO	392771	402951	Roadside	N/A	100.0	29.1	30.6	23.7	25.5	26.4
OLWOODNO	393056	404638	Urban Background	N/A	92.3	-	-	-	31.1	31.4

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 2022 (%) (2)	2018	2019	2020	2021	2022
OLWSMSNO	392947	404854	Roadside	N/A	100.0	-	-	-	38.2	37.1
OL17SRNO	393643	405343	Kerbside	N/A	100.0	-	-	-	39.9	**40.4**
OLHS2NO	393501	405186	Roadside	N/A	100.0	-	-	-	25.6	26.1
OLRRNO	394210	405752	Roadside	N/A	100.0	-	35.3	28.6	32.4	30.2
OLHURNO	395561	405751	Roadside	N/A	100.0	-	35.8	27.0	30.9	28.5
OLCVNO	399533	404454	Roadside	N/A	100.0	-	19.1	14.5	15.3	15.4
OLHSNO	399589	405511	Roadside	N/A	100.0	-	30.0	22.8	25.2	25.8
OLCW1NO, OLCW2NO, OLCW3NO	393884	409183	Roadside	N/A	100.0	31.8	32.0	24.2	28.9	26.6
OL21SRNO	392217	407255	Roadside	N/A	84.6	-	-	-	**46.3**	**43.8**
OLJSNO	393097	406897	Urban Background	N/A	100.0	-	-	-	24.2	23.4
OLRDNO	392111	406432	Roadside	N/A	76.9	33.5	36.2	25.9	27.4	29.8
OL12ORNO	392045	407608	Roadside	N/A	90.4	-	-	-	**43.2**	**47.0**
OLFANO	391100	406218	Urban Background	N/A	92.3	-	-	-	18.4	20.7

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 2022 (%) [2]	2018	2019	2020	2021	2022
RO2ANO	388537	409942	Urban Background	N/A	19.2	28.9	32.7	21.7	-	-
RO3ANO	388581	409797	Urban Background	N/A	92.3	20.6	22.1	16.0	16.4	17.0
RO4ANO	387080	406278	Urban Background	N/A	76.9	26.7	33.2	22.2	22.8	22.7
RO5ANO	386870	404044	Roadside	N/A	92.3	31.5	24.5	16.5	16.4	16.4
RO6ANO	385413	408320	Kerbside	N/A	82.7	**41.9**	**42.5**	31.8	32.3	34.7
RO7ANO	388603	411925	Urban Background	N/A	92.3	32.3	32.1	25.2	27.7	26.4
RO8ANO	388932	412091	Roadside	N/A	82.7	**45.0**	**44.7**	33.6	36.6	36.3
RO9ANO	389057	412217	Kerbside	N/A	82.7	**40.5**	39.6	30.3	34.9	36.4
RO10ANO	388800	413603	Urban Background	N/A	92.3	18.7	17.7	14.8	14.9	15.0
RO12ANO	392072	415687	Roadside	N/A	84.6	31.4	39.4	30.4	30.3	31.0
RO13ANO	392042	415707	Urban Background	N/A	57.7	13.7	17.2	14.1	15.1	19.9
RO14ANO	393665	417816	Rural	N/A	92.3	29.2	12.9	11.6	10.2	12.9
RO15ANO	392976	411906	Roadside	N/A	51.9	24.2	27.0	20.3	23.0	19.7
RO16ANO	392542	411709	Urban Background	N/A	92.3	22.6	19.9	18.8	18.3	19.5

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 2022 (%) (2)	2018	2019	2020	2021	2022
RO17ANO	391214	412609	Urban Background	N/A	82.7	36.1	23.5	18.5	17.6	24.5
RO18ANO	389877	413590	Urban Background	N/A	67.3	31.1	26.8	20.9	18.7	22.7
RO19ANO	389971	413646	Roadside	N/A	9.6	27.2	35.8	29.3	35.4	-
RO20ANO	385748	408931	Roadside	N/A	92.3	27.2	31.3	23.9	24.9	24.3
RO21ANO	385820	410776	Roadside	N/A	76.9	28.6	37.4	28.3	28.2	27.7
RO22ANO	390464	411976	Roadside	N/A	82.7	28.6	**43.4**	31.5	32.7	32.2
RO23ANO	390377	412030	Roadside	N/A	92.3	-	37.8	27.6	31.4	31.7
RO24ANO	388089	410822	Urban Background	N/A	84.6	-	30.0	24.8	23.1	24.0
RO25ANO	387792	406013	Roadside	N/A	92.3	-	34.7	25.9	30.9	33.0
RO26ANO	389782	414241	Roadside	N/A	92.3	-	**41.6**	31.1	32.5	34.2
RO27ANO	390710	414563	Roadside	N/A	44.2	-	**46.1**	32.7	28.8	31.3
RO28ANO	392871	415127	Urban Background	N/A	84.6	-	29.5	21.3	22.8	23.3
RO29ANO, RO30ANO, RO31ANO	389325	411411	Roadside	N/A	92.3	-	-	-	31.1	30.6

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 2022 (%) [2]	2018	2019	2020	2021	2022
RO32ANO	385145	407701	Roadside	N/A	92.3	-	-	-	26.6	30.3
SA1NO	372767	394104	Urban Background	N/A	100.0	19.7	19.9	14.7	15.5	15.8
SA2NO	372140	394210	Urban Background	N/A	75.0	21.4	20.2	13.3	15.5	15.4
SA4NO	377453	401830	Urban Background	N/A	92.3	25.6	25.9	18.8	20.2	20.2
SA9NO	374741	400937	Urban Background	N/A	100.0	23.4	24.5	18.1	18.5	19.3
SA13NO	379613	399784	Urban Background	N/A	92.3	22.0	22.2	17.0	16.7	17.6
SA16NO	371187	404453	Urban Background	N/A	100.0	21.1	19.8	14.2	17.6	18.4
SA20NO, SA21NO, SA22NO	374811	400857	Roadside	N/A	100.0	**40.6**	**41.3**	31.6	33.0	34.8
SA23NO, SA24NO, SA29NO	377926	398727	Urban Background	N/A	100.0	25.8	25.3	18.5	20.5	20.2
SA25NO	381304	398014	Urban Background	N/A	100.0	29.2	30.2	21.2	24.7	22.7
SA26NO	380718	399597	Roadside	N/A	100.0	33.9	32.3	23.9	25.8	25.4
SA27NO	383078	398741	Roadside	N/A	100.0	34.1	37.2	26.7	28.8	27.2
SA31NO	374025	401905	Roadside	N/A	100.0	29.0	29.3	21.3	23.5	22.9

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 2022 (%) (2)	2018	2019	2020	2021	2022
SA34NO	375367	397800	Roadside	N/A	100.0	39.3	39.9	30.4	34.1	33.8
SA38NO	377796	403065	Roadside	N/A	100.0	25.8	26.6	19.6	21.6	21.7
SA39NO	383040	398563	Roadside	N/A	92.3	39.1	**41.7**	30.4	33.0	35.1
SA51NO	375213	397661	Roadside	N/A	100.0	33.2	34.7	25.0	26.5	26.0
SA53NO	374757	399891	Urban Background	N/A	100.0	29.7	31.6	23.7	25.5	25.6
SA55NO	372871	400734	Roadside	N/A	100.0	33.0	32.2	24.1	24.6	24.4
SA56NO, SA57NO, SA58NO	368759	396027	Rural	N/A	100.0	14.2	14.2	11.2	11.5	11.9
SA59NO	381822	397895	Roadside	N/A	90.4	33.3	32.4	23.0	27.5	26.2
SA60NO	382445	397724	Roadside	N/A	100.0	**40.2**	36.7	27.0	32.6	32.1
SA61NO	377269	400943	Roadside	N/A	90.4	38.9	38.8	28.8	34.0	33.3
SA62NO	380768	399637	Roadside	N/A	100.0	31.4	32.2	23.8	24.6	25.0
SA63NO	374673	399912	Roadside	N/A	100.0	**40.5**	**42.7**	29.7	35.3	38.0
SA64NO	378804	399844	Roadside	N/A	82.7	25.9	27.9	20.5	21.5	23.4

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 2022 (%) [2]	2018	2019	2020	2021	2022
SA65NO	378584	399220	Roadside	N/A	100.0	**41.8**	**43.1**	36.6	37.9	37.7
SA66NO	375118	398502	Roadside	N/A	100.0	32.9	32.1	23.9	25.7	25.3
SA68NO	373570	403096	Roadside	N/A	100.0	**44.4**	**50.6**	34.4	**44.3**	38.7
SA69NO	379397	401370	Roadside	N/A	100.0	**46.7**	**47.9**	36.0	36.8	39.9
SA70NO	381677	398832	Roadside	N/A	84.6	28.4	29.7	24.3	23.4	22.8
SA71NO	381351	397185	Roadside	N/A	26.9	36.8	37.1	25.0	25.9	30.5
SA72NO	377536	401804	Roadside	N/A	92.3	**47.4**	**49.6**	36.6	38.8	37.4
SA73NO	374576	400611	Roadside	N/A	100.0	-	**45.6**	34.8	38.5	39.7
SA74NO	376315	399249	Roadside	N/A	92.3	-	39.9	29.3	30.5	31.9
SA75NO	379608	398539	Roadside	N/A	100.0	-	33.4	24.0	25.2	27.2
SA76NO	380540	398422	Roadside	N/A	92.3	-	37.3	28.5	31.3	29.0
SA77NO	381686	398504	Roadside	N/A	100.0	-	33.6	23.2	25.8	26.5
SA78NO	381220	399530	Roadside	N/A	100.0	-	**46.7**	36.2	39.6	**40.5**
SA79NO	382602	398519	Roadside	N/A	100.0	-	**41.1**	27.3	30.0	30.8

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 2022 (%) (2)	2018	2019	2020	2021	2022
SA80NO	375428	401417	Roadside	N/A	92.3	-	30.1	23.6	25.5	25.6
SA81NO	382561	397722	Roadside	N/A	100.0	-	**46.4**	34.8	**42.3**	**44.2**
SA82NO	375394	397816	Roadside	N/A	100.0	-	-	36.9	39.6	**40.1**
SA83NO	382945	400732	Roadside	N/A	100.0	-	-	-	25.2	25.5
SA84NO	380776	400834	Roadside	N/A	100.0	-	-	-	25.1	24.6
SA85NO	375991	399237	Roadside	N/A	100.0	-	-	-	22.3	21.6
SA86NO	383819	401771	Kerbside	N/A	100.0	-	-	-	**44.0**	**45.2**
SA87NO	372225	395616	Roadside	N/A	92.3	-	-	-	23.7	23.0
SA88NO	377469	398745	Roadside	N/A	100.0					24.9
SA89NO	373892	404569	Roadside	N/A	100.0					27.7
ST3NO	385047	388339	Urban Background	N/A	100.0	26.0	25.7	19.0	19.5	19.4
ST4NO	396469.167	390800.349	Rural	N/A	100.0	14.9	13.4	9.6	10.9	11.1
ST5NO	396869	382699	Rural	N/A	100.0	8.8	8.9	6.3	9.7	6.8
ST6NO	385960	388552	Urban Background	N/A	90.4	16.7	16.7	11.9	9.7	12.9

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 2022 (%) [2]	2018	2019	2020	2021	2022
ST7NO	392063.265	386972	Kerbside	N/A	100.0	**48.1**	39.5	26.3	25.9	26.4
ST8NO	392016.512	387042.782	Urban Background	N/A	100.0	23.8	21.8	14.0	17.2	16.1
ST9NO	392742.788	385680.865	Urban Background	N/A	100.0	12.7	13.6	9.7	10.9	10.5
ST10NO	392781.3	387271.486	Urban Background	N/A	100.0	14.5	14.5	10.8	11.6	11.3
ST11NO	391083.207	387938.058	Roadside	N/A	100.0	38.1	36.2	21.9	24.4	23.9
ST13NO	384675	386295	Urban Background	N/A	100.0	18.3	18.8	11.6	13.6	13.3
ST2NO, ST12NO, ST14NO	385047	388339	Roadside	N/A	100.0	37.7	36.2	26.1	28.4	29.6
ST15NO	389886.321	388961.332	Roadside	N/A	92.3	25.2	22.3	21.0	23.7	22.0
ST16NO	391568.679	391225.883	Roadside	N/A	100.0	25.4	26.2	18.3	19.6	20.1
ST17NO	388442.177	390077.487	Urban Background	N/A	100.0	28.2	26.6	18.4	20.2	19.0
ST18NO	389272.176	390440.811	Urban Background	N/A	100.0	37.0	37.6	26.5	29.3	26.7
ST19NO	389479.355	393463.855	Roadside	N/A	100.0	37.8	**40.7**	30.5	32.2	31.6
ST20NO	386921.232	389528.855	Urban Background	N/A	92.3	**41.9**	37.7	29.6	32.2	30.2

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 2022 (%) (2)	2018	2019	2020	2021	2022
ST21NO	388598.721	389415.552	Urban Background	N/A	92.3	22.1	21.6	15.2	18.4	16.7
ST22NO, ST23NO, ST24NO	391483.11	387635.566	Roadside	N/A	100.0	26.5	24.6	16.4	18.5	17.7
ST25NO	395770.138	388655.432	Roadside	N/A	84.6	27.4	28.1	19.5	21.5	24.8
ST26NO	389396	387357	Urban Background	N/A	100.0	15.3	15.3	11.0	12.1	11.5
ST27NO	387091	391384	Urban Background	N/A	100.0	16.8	17.5	12.6	13.1	13.1
ST28NO	385700.368	386219.938	Roadside	N/A	100.0	**41.3**	38.6	25.7	30.3	30.3
ST29NO	390087.5	388545.187	Urban Background	N/A	100.0	18.5	18.2	13.1	14.3	13.3
ST31NO	392442	391752	Roadside	N/A	76.9	24.8	38.2	30.1	31.0	30.9
ST32NO	389480	390957	Roadside	N/A	82.7	-	34.7	24.8	24.6	27.7
ST33NO	390416	390087	Roadside	N/A	100.0	-	37.6	25.8	29.8	28.8
ST34NO	388304	390351	Roadside	N/A	100.0	-	**41.3**	29.0	35.8	36.0
ST35NO	395020	385360	Roadside	N/A	100.0	-	24.0	18.6	23.5	20.6
ST36NO	389386	390142	Roadside	N/A	100.0	-	-	-	34.7	35.8

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 2022 (%) (2)	2018	2019	2020	2021	2022
TA1NO	394050	397190	Roadside	N/A	100.0	25.8	25.5	21.4	21.1	22.4
TA2NO	394788	394933	Roadside	N/A	100.0	23.7	25.7	18.3	21.2	20.7
TA3NO	390961	395417	Urban Background	N/A	100.0	28.0	28.5	19.6	21.9	21.8
TA5NO	400507	396518	Urban Background	N/A	100.0	13.9	13.4	10.0	9.8	9.8
TA11NO	400390	396025	Roadside	N/A	100.0	**56.7**	**55.1**	39.9	**41.1**	**43.9**
TA13NO	392586	398431	Roadside	N/A	100.0	**41.8**	**41.2**	30.5	33.6	33.9
TA14NO	393710	398790	Roadside	N/A	92.3	35.6	37.4	28.9	31.3	32.1
TA16NO	391435	397970	Roadside	N/A	90.4	**40.5**	**42.4**	30.9	33.2	34.5
TA17NO	389106	398242	Roadside	N/A	100.0	31.1	34.1	26.6	28.7	29.0
TA18NO	391970	395521	Roadside	N/A	100.0	**41.6**	**43.5**	32.1	36.5	38.3
TA19NO	392477	395505	Roadside	N/A	100.0	36.0	37.9	27.1	29.5	26.9
TA20NO	394610	395102	Roadside	N/A	92.3	**40.1**	37.1	28.3	29.9	30.2
TA21NO	400423	395965	Roadside	N/A	100.0	**50.9**	**46.8**	36.7	37.9	39.0
TA23NO	393620	398588	Urban Background	N/A	100.0	22.9	22.8	17.4	18.7	19.3

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 2022 (%) (2)	2018	2019	2020	2021	2022
TA24NO	390475	395621	Roadside	N/A	100.0	32.1	35.7	24.7	31.6	26.6
TA25NO	396950	402329	Roadside	N/A	82.7	25.4	28.6	21.9	19.8	21.1
TA27NO	396177	398218	Roadside	N/A	100.0	26.8	28.7	20.7	22.5	22.1
TA28NO	393050	401038	Roadside	N/A	92.3	34.5	35.1	27.8	31.4	31.4
TA29NO	393370	399494	Suburban	N/A	100.0	24.3	24.6	18.4	19.0	20.6
TA30NO	393419	399691	Roadside	N/A	100.0	33.5	36.4	27.3	31.1	31.4
TA31NO	396899	402449	Suburban	N/A	100.0	17.7	27.2	15.9	16.1	16.7
TA32NO	396982	402437	Suburban	N/A	100.0	22.5	25.1	18.5	20.1	19.9
TA33NO	397010	402560	Roadside	N/A	100.0	24.0	24.2	18.2	19.2	19.9
TA34NO	397060	402581	Roadside	N/A	100.0	24.3	23.0	18.7	17.9	19.5
TA35NO	397080	402540	Roadside	N/A	100.0	33.7	36.9	27.7	29.1	30.4
TA36NO	397060	402387	Suburban	N/A	100.0	20.0	22.0	16.1	17.0	16.5
TA37NO	396728	402073	Roadside	N/A	100.0	35.8	31.7	26.6	27.7	28.1
TA38NO	394006	399392	Urban Background	N/A	92.3	28.6	31.1	22.0	23.4	23.0

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 2022 (%) (2)	2018	2019	2020	2021	2022
TA39NO	394114	399366	Urban Background	N/A	100.0	32.7	33.7	24.5	25.9	25.8
TA40NO	394066	399314	Urban Background	N/A	100.0	29.2	31.0	22.3	23.5	24.3
TA41NO	394118	399259	Urban Background	N/A	100.0	31.7	31.7	25.3	25.9	28.1
TA42NO	394494	399010	Urban Background	N/A	100.0	29.8	30.1	21.3	24.5	23.5
TA43NO	394214	398933	Roadside	N/A	100.0	39.6	**40.3**	31.2	33.2	35.3
TA44NO	397418	394398	Urban Background	N/A	100.0	15.1	15.5	12.1	12.2	12.1
TA45NO, TA46NO, TA47NO	399719	395805	Roadside	N/A	100.0	**55.6**	**55.6**	38.1	39.7	39.1
TA49NO	393731	398770	Roadside	N/A	92.3	35.4	37.2	27.3	30.8	28.8
TA50NO	393498	398704	Roadside	N/A	100.0	39.1	**43.5**	33.6	35.4	32.0
TA51NO	393314	398624	Kerbside	N/A	100.0	**40.4**	37.2	29.7	33.1	32.2
TA52NO	393509	398737	Roadside	N/A	100.0	**42.8**	**43.7**	32.9	35.3	36.9
TA53NO	393133	398536	Roadside	N/A	100.0	38.3	36.4	28.3	31.8	30.2
TA54NO	392958	398474	Roadside	N/A	82.7	**45.0**	**49.2**	36.6	39.9	**41.5**

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 2022 (%) [2]	2018	2019	2020	2021	2022
TA55NO	392743	398465	Roadside	N/A	100.0	**52.1**	**55.4**	**40.8**	**42.5**	**45.9**
TA56NO	392490	398368	Roadside	N/A	100.0	**42.8**	**43.7**	32.8	35.6	35.5
TA57NO	392844	398544	Roadside	N/A	65.4	**44.6**	**45.2**	36.8	35.2	32.9
TA58NO	393080	398620	Roadside	N/A	100.0	34.5	37.6	26.9	29.7	29.6
TA59NO	395652	399140	Roadside	N/A	100.0	19.6	19.8	15.0	15.9	15.1
TA60NO	395747	399112	Roadside	N/A	92.3	24.0	27.8	20.2	21.5	20.2
TA61NO	395682	399171	Roadside	N/A	92.3	23.8	24.0	18.2	20.3	19.0
TA62NO	395589	399227	Roadside	N/A	100.0	21.8	23.0	17.1	17.2	18.4
TA63NO	394917	400922	Kerbside	N/A	100.0	-	-	-	23.8	24.4
TA64NO	395792	398758	kerbside	N/A	100.0	-	-	-	37.4	36.7
TA65NO	392532	396768	Kerbside	N/A	100.0	-	-	-	-	28.0
TR5NO	379052	392043	Urban Background	N/A	92.3	24.0	24.3	16.3	21.5	22.2
TR9NO	380933	395889	Urban Background	N/A	84.6	24.8	24.1	16.5	20.1	18.4

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 2022 (%) (2)	2018	2019	2020	2021	2022
TR19NO, TR19ANO, TR19BNO	378783	394728	Urban Background	N/A	92.3	18.5	20.8	14.3	15.0	15.6
TR20NO, TR20ANO, TR20BNO	379411	394014	Roadside	N/A	92.3	29.5	29.8	20.9	23.9	23.4
TR21NO	379619	396371	Roadside	N/A	92.3	23.4	27.0	18.5	22.2	19.8
TR22NO	377061	390086	Kerbside	N/A	75.0	33.7	35.3	22.7	22.9	31.7
TR13NO	381221	396441	Roadside	N/A	82.7	35.9	37.5	23.2	28.0	26.5
TR15NO	379089	393282	Roadside	N/A	92.3	29.2	29.9	20.7	22.9	22.3
TR16NO, TR16ANO	377418	395689	Roadside	N/A	92.3	29.0	32.8	21.5	22.5	20.9
TR23NO	376438	396383	Roadside	N/A	92.3	36.5	36.6	25.1	26.0	24.8
TR23ANO	376395	396360	Roadside	N/A	92.3	35.8	36.5	25.1	29.5	27.3
TR24NO	379263	385812	Roadside	N/A	92.3	24.1	23.5	15.6	19.8	19.1
TR25NO, TR25ANO, TR25BNO	373755	394477	Urban Background	N/A	76.9	15.5	13.0	12.9	11.5	11.3
TR27NO	371419	390760	Kerbside	N/A	92.3	-	21.7	18.6	16.1	15.4
TR28NO	376851	387792	Kerbside	N/A	92.3	-	29.8	24.9	26.4	23.5

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 2022 (%) [2]	2018	2019	2020	2021	2022
TR29NO	373906	392820	Roadside	N/A	92.3	-	-	-	18.2	17.6
TR30NO	376789	392806	Urban Background	N/A	51.9	-	-	-	13.8	14.9
TR31NO	376206	392695	Kerbside	N/A	84.6	-	-	-	31.3	29.0
WI14NO	366880	403255	Roadside	N/A	100.0	32.6	32.7	25.7	27.2	27.3
WI23NO	361835	404090	Roadside	N/A	100.0	35.9	34.6	25.9	28.5	27.2
WI27NO	358341	405539	Roadside	N/A	92.3	-	-	20.1	21.7	22.3
WI28NO	366424	399894	Roadside	N/A	100.0	34.0	33.6	25.7	29.3	27.6
WI30NO	363833	402028	Roadside	N/A	100.0	26.5	27.5	20.5	21.8	20.1
WI33NO	359723	405537	Roadside	N/A	100.0	38.9	**42.1**	28.7	30.4	31.0
WI35NO	357132	398670	Kerbside	N/A	100.0	34.9	37.3	25.2	24.8	23.1
WI47NO, WI48NO, WI49NO	357812	406021	Urban Background	N/A	100.0	23.0	28.6	17.9	17.8	17.9
WI52NO	362137	396948	Roadside	N/A	100.0	37.3	39.4	27.1	30.5	29.7
WI53NO	353896	408518	Urban Background	N/A	100.0	25.4	25.9	18.1	19.4	18.5

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 2022 (%) [2]	2018	2019	2020	2021	2022
WI54NO	370612	400586	Urban Background	N/A	100.0	28.9	30.3	21.7	22.3	21.5
WI63NO	356928	404982	Roadside	N/A	100.0	27.5	28.7	20.3	23.2	21.5
WI71NO	368244	402563	Roadside	N/A	82.7	32.7	33.1	25.9	25.5	28.1
WI81NO	355979	410362	Roadside	N/A	100.0	26.4	28.1	19.3	20.0	19.8
WI114NO	365115	400259	Roadside	N/A	100.0	37.9	39.9	30.2	32.1	32.8
WI115NO	353845	405360	Urban Background	N/A	92.3	26.8	27.0	17.6	22.6	20.1
WI116NO	365864	401720	Urban Background	N/A	100.0	19.0	19.6	14.6	15.3	15.2
WI121NO	357088	405158	Roadside	N/A	82.7	37.6	36.9	28.2	31.7	27.7
WI122NO	356883	405239	kerbside	N/A	100.0	**43.2**	38.2	28.0	32.3	31.6
WI124NO	357310	403672	Roadside	N/A	90.4	25.3	27.6	17.5	18.2	18.2
WI125NO	357645	404259	Roadside	N/A	90.4	36.5	34.0	22.3	25.2	22.6
WI126NO	355819	402194	Roadside	N/A	100.0	18.2	16.9	13.2	13.8	12.9
WI127NO	355484	403854	Roadside	N/A	92.3	33.5	32.0	23.0	25.1	23.9
WI129NO	356848	402906	Roadside	N/A	100.0	**57.6**	**58.2**	34.8	36.7	36.8

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 2022 (%) [2]	2018	2019	2020	2021	2022
WI130NO	356354	403838	Roadside	N/A	100.0	27.4	28.9	19.9	22.5	21.1
WI131NO	356667	404065	Roadside	N/A	92.3	29.1	28.2	19.1	21.8	20.7
WI132NO	356869	404808	Roadside	N/A	92.3	27.0	27.6	20.8	22.2	19.1
WI133NO	356748	404786	Roadside	N/A	100.0	30.1	31.5	23.2	24.3	24.4
WI134NO	356428	404722	Roadside	N/A	100.0	24.9	25.4	19.1	19.0	18.8
WI135NO	354614	404685	Kerbside	N/A	92.3	35.2	37.8	30.3	31.0	30.6
WI136NO	354057	404824	Kerbside	N/A	90.4	32.7	33.0	23.6	24.9	27.3
WI137NO	353844	404922	Roadside	N/A	100.0	35.5	35.3	26.4	27.8	28.8
WI138NO	355321	404017	Roadside	N/A	92.3	22.9	23.3	15.8	18.5	17.2
WI139NO	355638	404023	Roadside	N/A	92.3	23.3	25.8	18.5	20.8	20.2
WI140NO	355816	404062	Roadside	N/A	92.3	27.5	27.8	20.3	21.6	20.9
WI141NO	356469	404550	Roadside	N/A	100.0	32.8	25.8	19.5	20.7	19.9
WI144NO	360643	402297	Roadside	N/A	92.3	34.2	34.8	23.8	26.0	24.0
WI145NO	360515	402212	Roadside	N/A	82.7	28.2	33.0	23.6	25.3	24.2

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 2022 (%) [2]	2018	2019	2020	2021	2022
WI147NO	360437	405089	Roadside	N/A	92.3	33.1	30.6	23.5	22.6	22.8
WI148NO	361247	404576	Kerbside	N/A	90.4	27.8	29.1	21.1	24.2	22.8
WI150NO	361579	404298	Kerbside	N/A	32.7	**41.1**	**41.4**	31.7	34.3	28.6
WI151NO	361501	404216	Kerbside	N/A	90.4	22.7	25.9	19.1	20.1	19.8
WI152NO	364021	402391	Roadside	N/A	100.0	20.7	23.7	16.8	18.9	17.9
WI153NO	364953	402783	Roadside	N/A	100.0	22.0	23.6	15.8	17.7	17.5
WI154NO	365054	403019	Roadside	N/A	90.4	18.6	21.1	14.4	17.1	15.9
WI155NO	366233	403024	Roadside	N/A	92.3	31.4	24.6	18.1	19.5	19.1
WI156NO	366320	402136	Kerbside	N/A	100.0	27.5	25.5	19.5	20.1	19.8
WI157NO	366458	402462	Roadside	N/A	100.0	23.9	26.3	17.5	18.8	18.7
WI158NO	365615	401368	Roadside	N/A	100.0	27.4	33.0	21.7	23.3	21.3
WI159NO	368024	403514	Kerbside	N/A	100.0	24.7	27.4	20.0	22.4	20.6
WI160NO	368671	402250	Roadside	N/A	100.0	31.1	33.0	24.0	26.3	27.6
WI161NO	369635	402019	Roadside	N/A	92.3	26.4	28.2	21.3	22.5	22.9

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 2022 (%) [2]	2018	2019	2020	2021	2022
WI162NO	370534	401953	Roadside	N/A	100.0	29.7	32.7	22.1	25.1	24.6
WI164NO	371981	401209	Roadside	N/A	100.0	25.9	28.4	19.4	21.9	21.6
WI165NO	371039	400996	Kerbside	N/A	100.0	26.8	29.3	20.5	22.5	19.7
WI167NO	363544	397933	Roadside	N/A	100.0	24.2	26.3	18.7	20.6	19.2
WI168NO	362463	397005	Kerbside	N/A	100.0	32.3	35.7	24.8	25.4	25.0
WI169NO	362557	396906	Roadside	N/A	100.0	33.1	32.7	23.9	26.1	24.1
WI170NO	362236	396675	Roadside	N/A	100.0	28.7	28.5	21.4	22.7	21.4
WI171NO	357095	400717	Roadside	N/A	82.7	31.5	33.2	24.0	26.3	25.3
WI172NO	356881	401314	Kerbside	N/A	82.7	32.7	32.2	22.0	25.1	23.9
WI173NO	357983	405377	Roadside	N/A	76.9	31.3	35.8	26.6	27.4	27.0
WI174NO	358294	405137	Roadside	N/A	100.0	33.0	38.2	27.3	32.1	31.6
WI175NO	358537	405774	Roadside	N/A	100.0	30.6	28.5	20.2	23.4	21.9
WI176NO	359227	405480	Roadside	N/A	82.7	28.3	33.7	21.9	25.9	25.9
WI177NO	356230	410105	Kerbside	N/A	100.0	30.5	35.1	20.5	23.5	22.1

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 2022 (%) [2]	2018	2019	2020	2021	2022
WI178NO	356021	410128	Kerbside	N/A	100.0	**42.1**	**46.1**	30.3	35.2	33.3
WI179NO	354900	410475	Kerbside	N/A	100.0	24.6	28.6	17.8	18.9	17.2
WI180NO	362105	396491	Kerbside	N/A	100.0	**57.7**	**57.9**	**41.9**	**44.6**	**45.3**
WI181NO	354819	406235	Kerbside	N/A	90.4	32.5	30.8	22.1	28.2	28.6
WI183NO	358595	405297	Roadside	N/A	92.3	32.0	39.2	27.1	29.2	28.6
WI184NO	358013	405654	Roadside	N/A	100.0	36.4	30.0	22.5	25.7	25.0
WI185NO	358054	405613	Kerbside	N/A	92.3	32.7	31.8	23.8	29.0	28.2
WI186NO	358070	405587	Kerbside	N/A	100.0	32.7	**40.6**	31.8	33.2	33.1
WI188NO	362111	396526	Roadside	N/A	100.0	36.4	38.3	27.9	30.6	30.7
WI189NO	362095	396547	Kerbside	N/A	32.7	34.3	35.1	22.0	25.3	21.9
WI192NO	356771	403124	Roadside	N/A	100.0	-	33.1	21.0	22.4	24.0
WI193NO	363885	403129	Kerbside	N/A	82.7	-	-	26.1	30.0	28.8
WI194NO	371037	402472	Kerbside	N/A	100.0	-	-	14.6	16.6	15.3
WI195NO	366254	403598	Roadside	N/A	92.3	-	-	14.1	15.9	15.7

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 2022 (%) (2)	2018	2019	2020	2021	2022
WI196NO	365850	403263	Kerbside	N/A	32.7	-	-	15.6	16.2	14.6
WI197NO	361411	408031	Kerbside	N/A	100.0	-	-	15.2	17.2	17.1
WI199NO	360501	397988	Roadside	N/A	90.4	-	-	21.3	23.1	22.8
WI200NO	363262	399815	Kerbside	N/A	100.0	-	-	18.7	19.2	19.3
WI201NO	356493	406759	Roadside	N/A	100.0	-	-	18.6	20.0	19.4
WI202NO	358222	407262	Roadside	N/A	100.0	-	-	15.1	15.7	16.5
WI203NO	357569	408645	Roadside	N/A	100.0	-	-	14.2	15.4	15.2
WI204NO	358161	399510	Roadside	N/A	100.0	-	-	16.3	18.6	17.8
WI205NO	362151	396604	Kerbside	N/A	100.0	-	-	22.4	23.0	22.9
WI206NO	362162	396325	Kerbside	N/A	32.7	-	-	20.4	22.6	20.7
WI207NO	362171	396329	Kerbside	N/A	32.7	-	-	24.7	27.3	23.2
WI208NO, WI209NO, WI210NO	365687	400238	Roadside	N/A	100.0	-	-	21.8	24.0	23.7
WI211NO	372302	401593	Roadside	N/A	100.0	-	-	13.2	15.9	15.6

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 2022 (%) [2]	2018	2019	2020	2021	2022
WI212NO	356827	402135	Roadside	N/A	92.3	-	-	23.0	25.0	26.4
WI213NO	362019	396512	Roadside	N/A	100.0	-	-	-	17.1	16.0
WI214NO	361979	396501	Kerbside	N/A	92.3	-	-	-	17.1	17.0
WI215NO	361981	396490	Kerbside	N/A	90.4	-	-	-	19.0	17.7
WI216NO	358464	405342	Kerbside	N/A	90.4	-	-	-	31.0	31.7
WI217NO	357780	405306	Kerbside	N/A	84.6	-	-	-	24.3	22.0
WI219NO	357484	405407	Roadside	N/A	73.1	-	-	-	19.3	17.9
WI220NO	357420	405407	Roadside	N/A	100.0	-	-	-	18.5	18.3
WI221NO	360499	397867	Roadside	N/A	100.0	-	-	-	20.9	21.8
WI222NO	360491	397842	Roadside	N/A	100.0	-	-	-	22.1	24.9
WI223NO	360430	397779	Roadside	N/A	100.0	-	-	-	20.7	22.4
WI224NO	360418	397775	Roadside	N/A	100.0	-	-	-	29.6	30.3
WI225NO	360459	397995	Roadside	N/A	100.0	-	-	-	19.9	20.5
WI226NO	360462	398006	Roadside	N/A	100.0	-	-	-	20.8	20.3

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 2022 (%) [2]	2018	2019	2020	2021	2022
WI227NO	360576	398144	Roadside	N/A	92.3	-	-	-	25.1	23.9
WI228NO	360578	398126	Roadside	N/A	75.0	-	-	-	21.6	22.4
WI229NO	360374	397928	Roadside	N/A	40.4	-	-	-	22.8	21.1
WI230NO	360380	397912	Roadside	N/A	100.0	-	-	-	27.1	29.1
WI231NO	357473	398990	Roadside	N/A	100.0	-	-	-	27.9	26.2
WI232NO	357635	399502	Roadside	N/A	82.7	-	-	-	19.0	19.3
WI233NO	357445	406461	Kerbside	N/A	76.9	-	-	-	19.7	22.1
WI234NO	363136	403467	Roadside	N/A	92.3	-	-	-	26.8	26.6
WI235NO	365419	399116	Roadside	N/A	92.3	-	-	-	21.3	19.7
WI236NO	365386	400353	Kerbside	N/A	100.0	-	-	-	16.4	16.4
WI237NO	367352	403200	Kerbside	N/A	100.0	-	-	-	20.4	21.0
WI238NO	369056	402146	Roadside	N/A	100.0	-	-	-	20.7	22.1
WI239NO	357092	404213	Roadside	N/A	75.0	-	-	-	-	15.3
WI240NO	360220	407146	Kerbside	N/A	100.0	-	-	-	20.4	19.2

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 2022 (%) (2)	2018	2019	2020	2021	2022
WI241NO	358025	406658	Kerbside	N/A	80.8	-	-	-	24.3	23.3
WI242NO	362056	398246	Kerbside	N/A	67.3	-	-	-	-	17.1
WI243NO	362030	398210	Kerbside	N/A	67.3	-	-	-	-	17.9
WI244NO	357610	406859	Kerbside	N/A	34.6	-	-	-	-	18.5

☒ **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 µg/m^3.

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

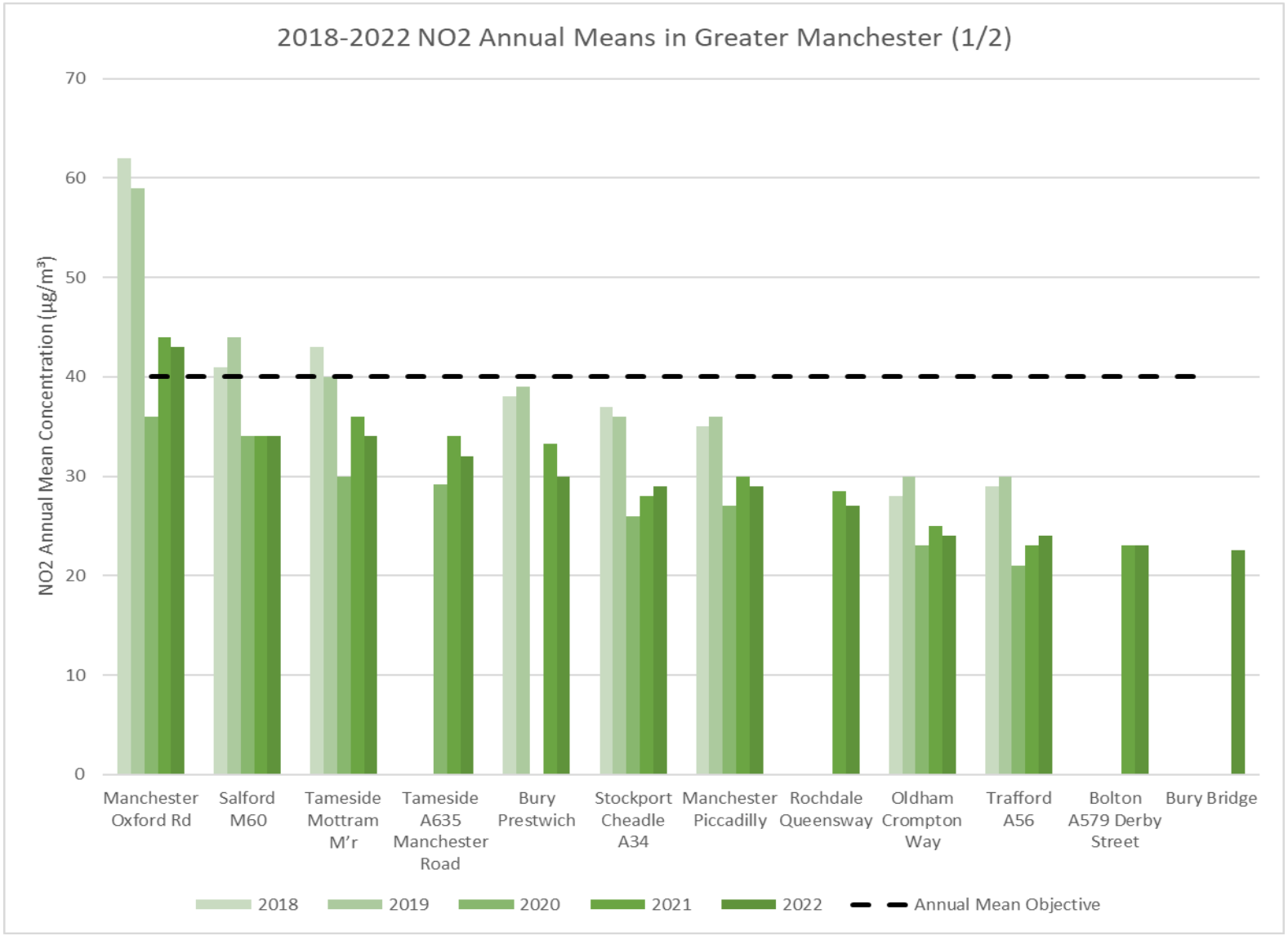
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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 NO_2 Concentrations



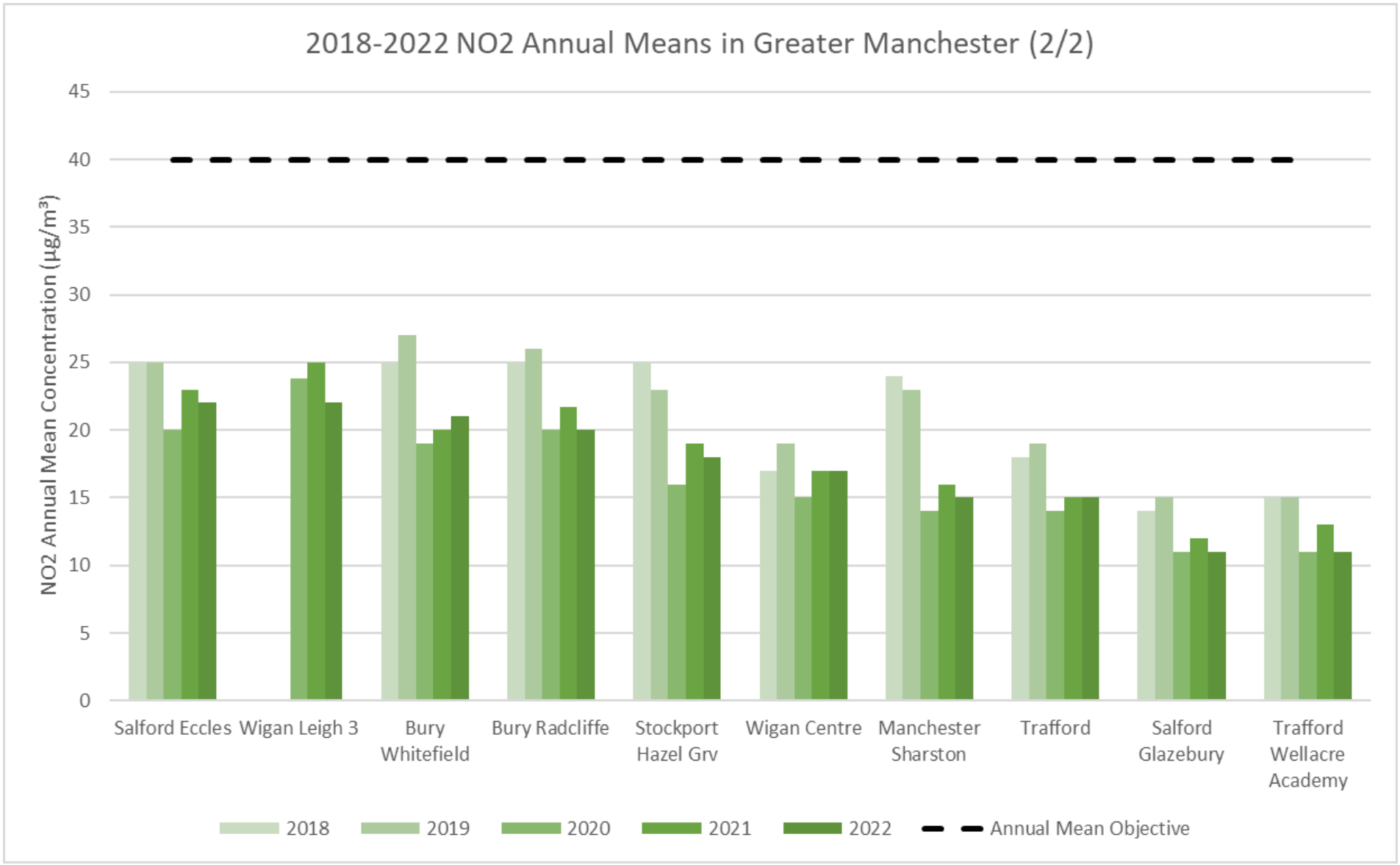

2018-2022 NO2 Annual Means in Greater Manchester (2/2)
NO2 Annual Mean Concentration (µg/m³)
45
40
35
30
25
20
15
10
5
0
Salford Eccles
Wigan Leigh 3
Bury Whitefield
Bury Radcliffe
Stockport Hazel Grv
Wigan Centre
Manchester Sharston
Trafford
Salford Glazebury
Trafford Wellacre Academy
2018
2019
2020
2021
2022
Annual Mean Objective

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
Bolton A579 Derby Street	371280	408577	Roadside	N/A	99.36	-	-	**0(92)**	0	0
Bury Bridge	379840	410944	Roadside	N/A	39.55	-	-	-	-	**0(82)**
Bury Prestwich	381650	403222	Roadside	N/A	99.49	0	0	**0(91)**	**0(96)**	0
Bury Radcliffe	378190	407480	Roadside	N/A	99.44	0	0	0	**0(79)**	0
Bury Whitefield	380636	406973	Roadside	N/A	92.04	0	2	0	0	0
Manchester Oxford Rd	384233	397287	Kerbside	N/A	99.41	2	1	0	0	3
Manchester Piccadilly	384310	398337	Urban Centre	N/A	99.1	0	0	0	0	0
Manchester Sharston	384179	386086	Suburban	N/A	98.7	0	0	0	0	0
Oldham Crompton Way	393887	409191	Roadside	N/A	99.52	0	0	0	0	0
Rochdale Queensway	389325	411411	Roadside	N/A	97.03	-	-	-	0	0
Salford Eccles	377926	398727	Industrial	N/A	97.68	0	0	0	0	0
Salford Glazebury	368759	396027	Rural	N/A	89.47	**0(69)**	0	0	0	0
Salford M60	374811	400857	Roadside	N/A	98.57	0	0	0	0	0
Stockport Cheadle A34	385047	388339	Roadside	N/A	97.74	0	0	0	0	0
Stockport Hazel Grv	391481	387637	Roadside	N/A	99.69	0	0	0	0	0
Tameside A635 Manchester Road	392538	398419	Roadside	N/A	99.75	-	-	0	0	0

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
Tameside Mottram M'r	399719	395804	Roadside	N/A	99.74	0	0	0	0	0
Trafford A56	379413	394014	Urban Traffic	N/A	80.37	0	0	0	0	**0(98)**
Trafford	378783	394726	Urban Background	N/A	95.88	0	0	0	0	0
Trafford Wellacre Academy	373758	394473	Urban Background	N/A	99.43	0	0	0	0	0
Wigan Centre	357816	406024	Urban Background	N/A	97.4	0	0	0	0	0
Wigan Leigh 3	365686	400243	Roadside	N/A	99.68	-	-	**0(87)**	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m^3 have been recorded.

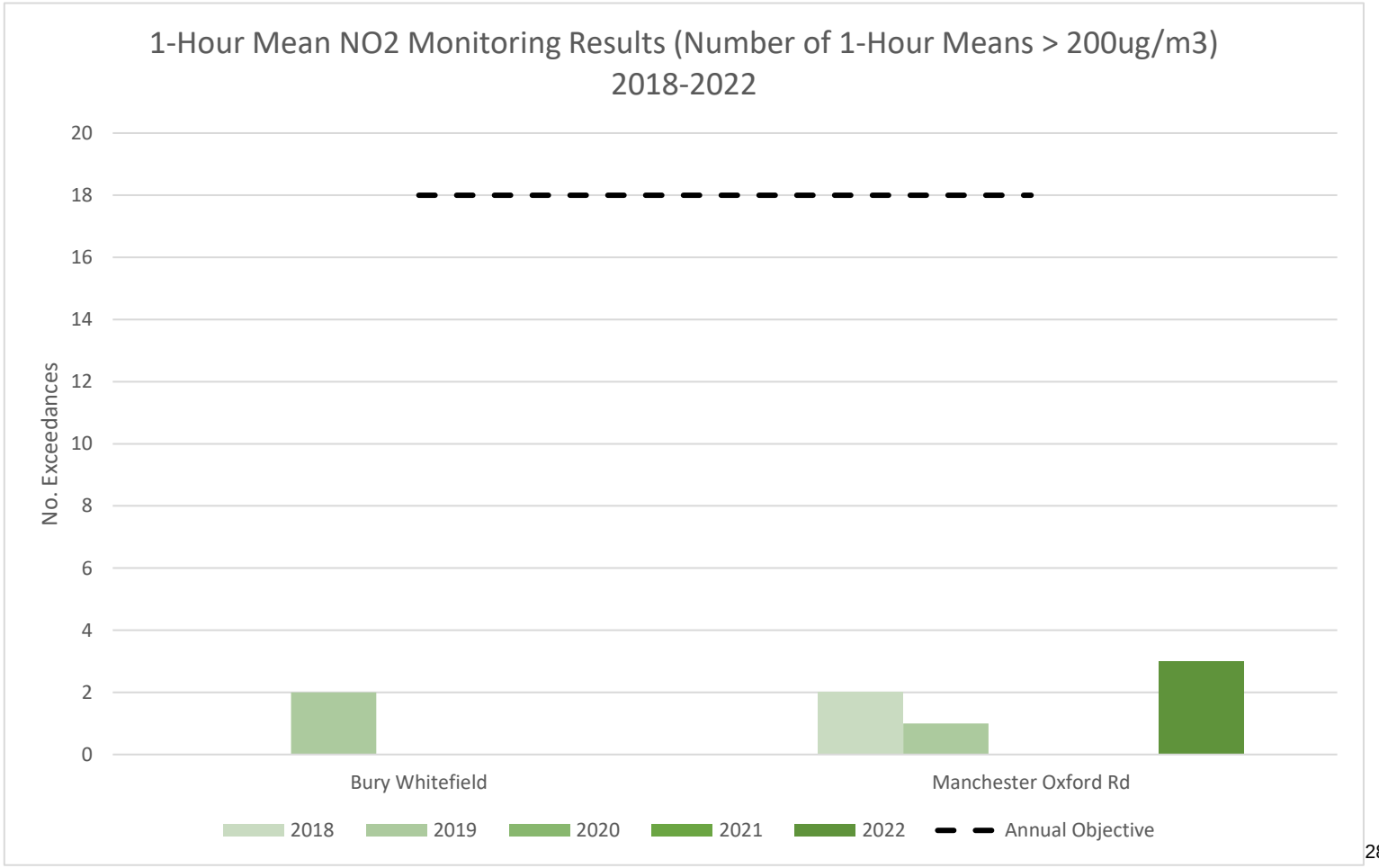
Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.

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 NO_2 1-Hour Means > 200µg/m^3



[28]

[28] Only sites where an exceedance has been recorded between 2018 and 2022 have been included in this graph.

Table A.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
Bolton A579 Derby Street	371280	408577	Roadside	N/A	95.15	-	-	-	**17**	**19**
Bury Prestwich	381650	403222	Roadside	N/A	98.11	19	19	-	17.5	19
Bury Radcliffe	378190	407480	Roadside	N/A	97.8	18	17	18	17	18
Bury Whitefield	380636	406973	Roadside	N/A	95.87	16	18	16	15	16
Manchester Oxford Rd	384233	397287	Kerbside	N/A	96.26	30	26	18	18	18
Manchester Piccadilly	384310	398337	Urban Centre	N/A	98.05	21	20	15	15	17
Manchester Sharston	384179	386086	Suburban	N/A	95.9	14.2	**14.2**	11.9	12	13
Oldham Crompton Way	393887	409191	Roadside	N/A	97.61	19	**19**	15	17	18
Rochdale Queensway	389325	411411	Roadside	N/A	98.06	-	-	-	15.5	18
Salford Eccles	377926	398727	Industrial	N/A	99.93	17	15	14	15	17
Salford Glazebury	368759	396027	Rural	N/A	58.33	-	-	-	-	12.7[29]
Salford M60	374811	400857	Roadside	N/A	98.6	20	21	19	20	20
Stockport Cheadle A34	385047	388339	Roadside	N/A	95.92	19	17	15	16	16
Stockport Hazel Grv	391481	387637	Roadside	N/A	99.2	19	15	18	18	20
Tameside A635 Manchester Road	392538	398419	Roadside	N/A	91.72	-	-	15.8	20	20

[29] Annualised due to low data capture.

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
Tameside Mottram M'r	399719	395804	Roadside	N/A	95.37	19	18	17	15	15
Trafford	378783	394726	Urban Background	N/A	85.24	14	15	13	13	17
Trafford A56	379413	394014	Urban Traffic	N/A	85.07	18	17	14	14	16
Wigan Centre	357816	406024	Urban Background	N/A	99.91	17	15.7	13	13	15
Wigan Leigh 3	365686	400243	Roadside	N/A	97.37	-	-	16.3	18	19

☒ **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/m^3.

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 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 PM_{10} Concentrations

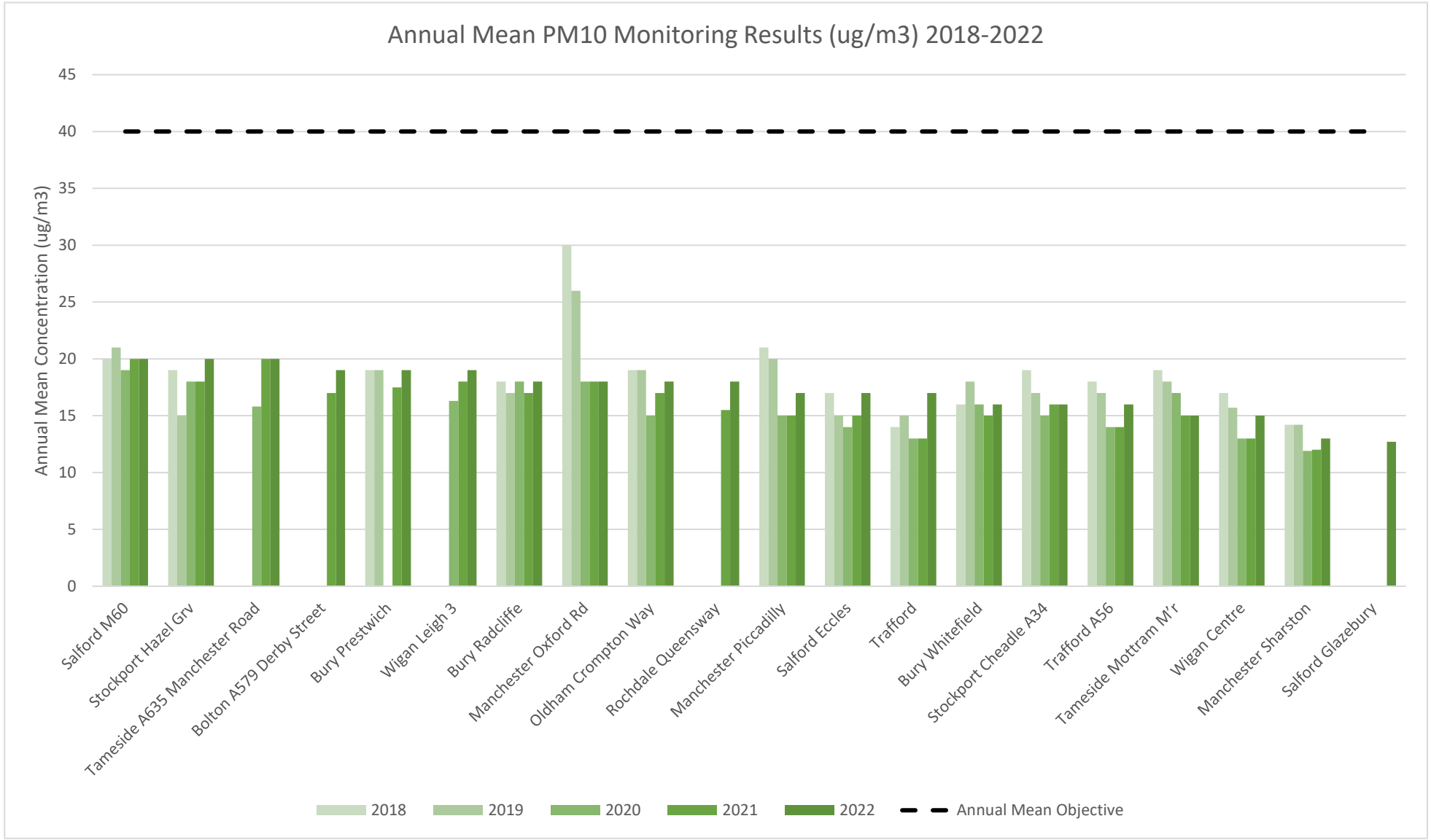


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m³

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
Bolton A579 Derby Street	371280	408577	Roadside	N/A	95.15	-	-	**1(22)**	2	7
Bury Prestwich	381650	403222	Roadside	N/A	98.11	1	9	**0(25)**	**1(27)**	6
Bury Radcliffe	378190	407480	Roadside	N/A	97.8	1	10	3	1(23)	7
Bury Whitefield	380636	406973	Roadside	N/A	95.87	2	9	0	0	5
Manchester Oxford Rd	384233	397287	Kerbside	N/A	96.26	15	18	5	2	8
Manchester Piccadilly	384310	398337	Urban Centre	N/A	98.05	2	7	1	2	4
Manchester Sharston	384179	386086	Suburban	N/A	95.9	-	-	-	-	1
Oldham Crompton Way	393887	409191	Roadside	N/A	97.61	0	9	0	0	1
Rochdale Queensway	389325	411411	Roadside	N/A	98.06	-	-	-	0	6
Salford Eccles	377926	398727	Industrial	N/A	99.93	2	8	0	1	7
Salford Glazebury	368759	396027	Rural	N/A	58.33	-	-	-	-	0(18)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
Salford M60	374811	400857	Roadside	N/A	98.6	4	11	0	2	8
Stockport Cheadle A34	385047	388339	Roadside	N/A	95.92	0	3	0	1	1
Stockport Hazel Grv	391481	387637	Roadside	N/A	99.2	5(33)	3(26)	0	1	7
Tameside A635 Manchester Road	392538	398419	Roadside	N/A	91.72	-	-	1(25)	2	7
Tameside Mottram M'r	399719	395804	Roadside	N/A	95.37	0	7	0	1	1
Trafford	378783	394726	Urban Background	N/A	85.24	0	3	0	0	4
Trafford A56	379413	394014	Urban Traffic	N/A	85.07	0	5	1	0	4
Wigan Centre	357816	406024	Urban Background	N/A	99.91	1	3	1	1	6
Wigan Leigh 3	365686	400243	Roadside	N/A	97.37	-	-	2(24)	1	7

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 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 PM_{10} Results > 50µg/m^3

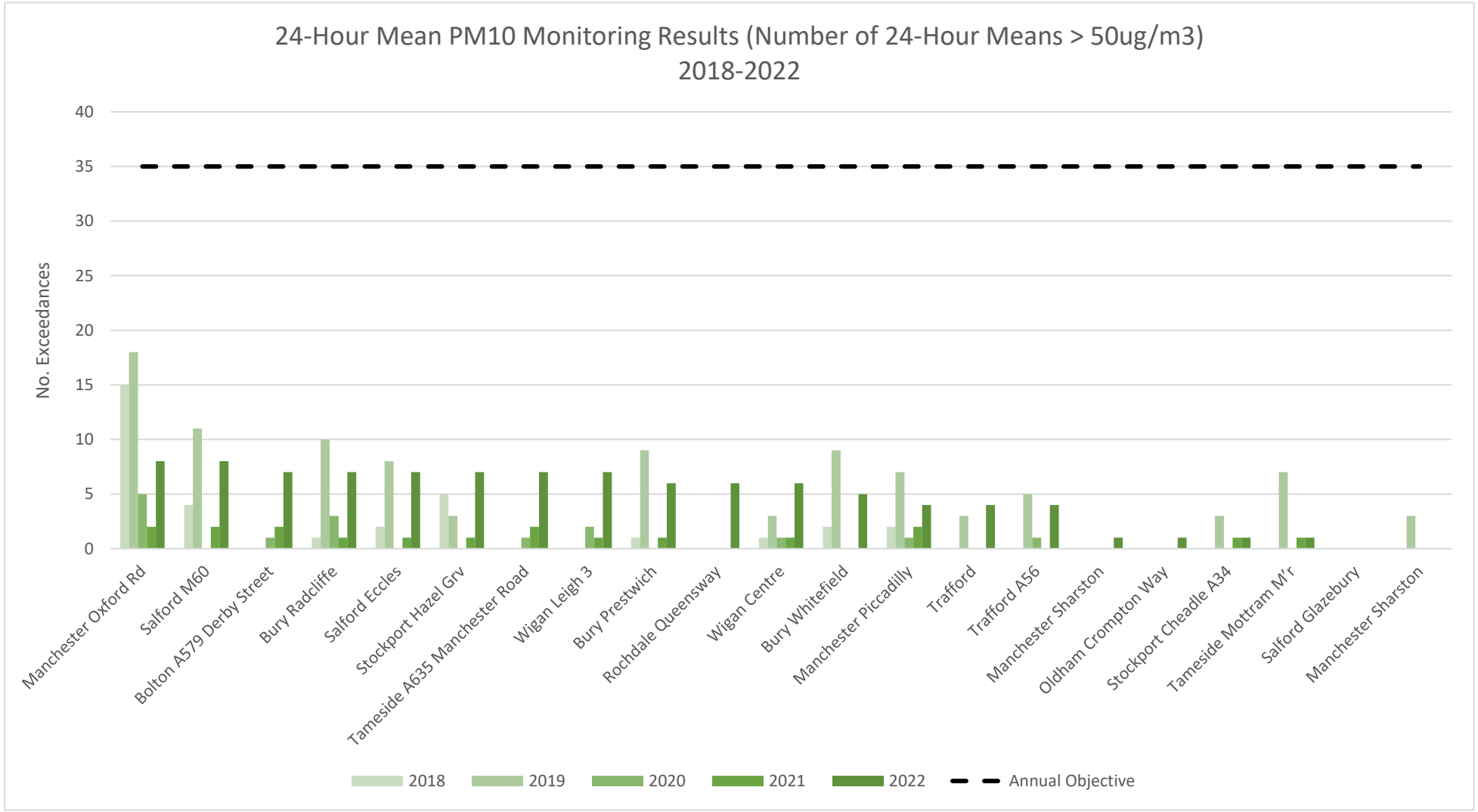


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2022 (%) [2]	2018	2019	2020	2021	2022
Bolton A579 Derby Street	371280	408577	Roadside	N/A	94.19	-	-	-	10	11
Manchester Piccadilly	384310	398337	Urban Centre	N/A	98.05	11	12	8	9	10
Manchester Sharston	384179	386086	Suburban	N/A	95.9	8.1	-	-	6.3	7
Rochdale Queensway	389325	411411	Roadside	N/A	98.42	-	-	-	9.2	10
Salford Eccles	377926	398727	Industrial	N/A	99.93	11	9	8	9	10
Salford Glazebury	368759	396027	Rural	N/A	58.44	-	-	-	-	7.6
Salford M60	374811	400857	Roadside	N/A	96.59	-	-	-	-	11
Tameside A635 Manchester Road	392538	398419	Roadside	N/A	91.71	-	-	8.4	11	11
Wigan Centre	357816	406024	Urban Background	N/A	99.91	12	10	8	8	9
Wigan Leigh 3	365686	400243	Roadside	N/A	95.99	-	-	7.8	9	11

☒ **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/m^3.

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

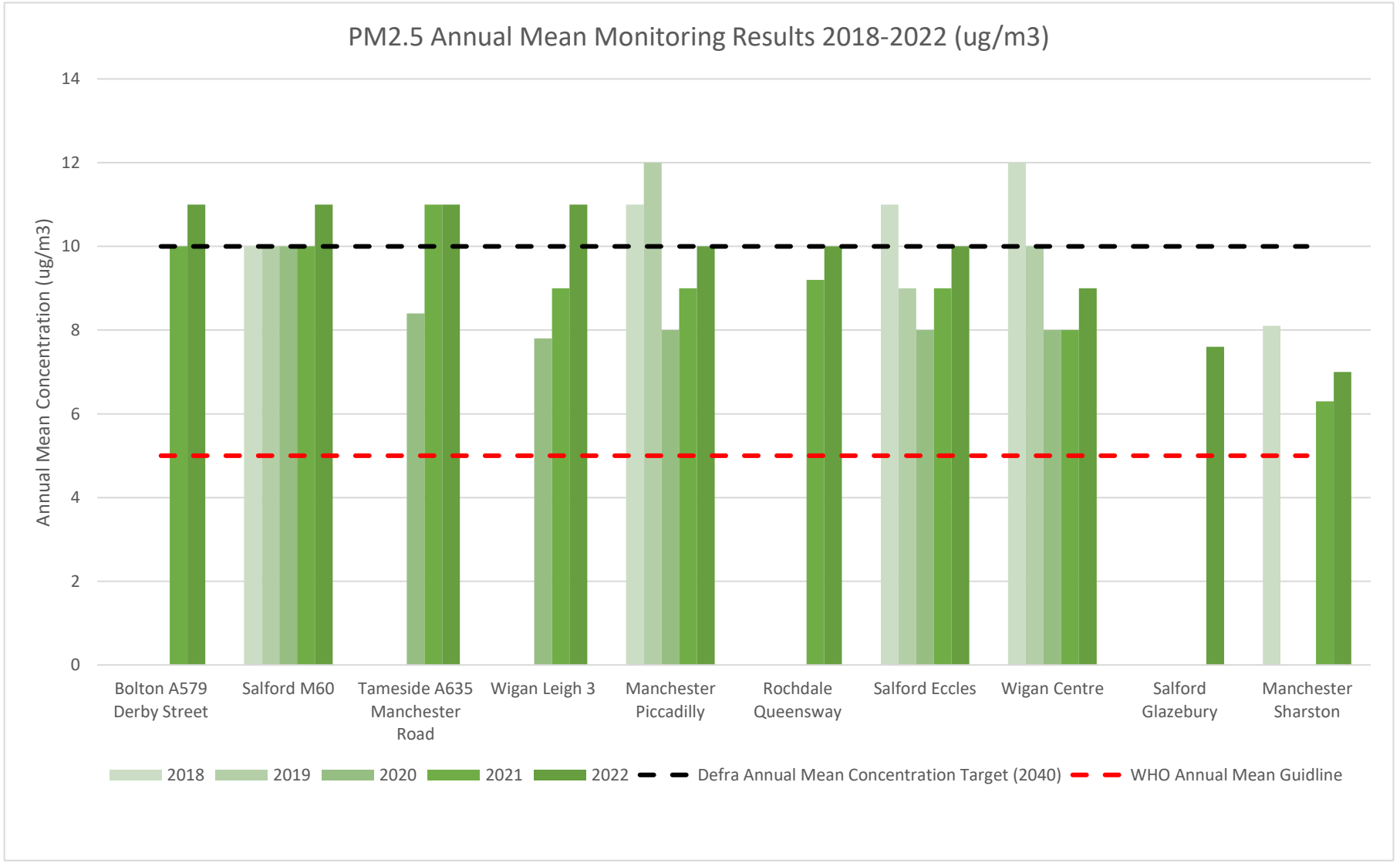


Table A.9 – SO_2 2022 Monitoring Results, Number of Relevant Instances

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	Number of 15-minute Means > 266µg/m³	Number of 1-hour Means > 350µg/m³	Number of 24-hour Means > 125µg/m³
Manchester Piccadilly	384310	398337	Urban Centre	N/A	96.85	0	0	0
Manchester Sharston	384179	386086	Suburban	N/A	99.08	0	0	0

Notes:

Results are presented as the number of instances where monitored concentrations are greater than the objective concentration.

Exceedances of the SO_2 objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year).

If the period of valid data is less than 85%, the relevant percentiles are 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%).

Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO_2 2022 Diffusion Tube Results ($\mu g/m^3$)

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
BO03 NO	370763	407929	47.5	38.6	54.1	33.7	34.7	25.5	37.3	41.1	55.7	29.7	47.3	59.2	42.0	36.6	30.6	
BO04 NO	371394	411718	31.3	27.4	26.5	17.5	17.7	17.5	20.1	17.8	19.2	30.9	33.1	36.1	24.6	21.4	-	
BO08 NO	371352	409094	89.2	26.5	16.2	-	14.2	10.6	19.7	14.7	25.0	18.4	-	38.7	27.3	23.8	-	
BO11 NO	363712	412396	18.6	11.7	12.4	8.3	8.1	6.2	9.1	8.3	10.4	13.0	20.1	21.1	12.3	10.7	-	
BO14 NO	373839	406130	31.2	22.4	23.9	17.9	14.2	12.0	19.1	16.3	18.9	24.9	28.5	34.2	22.0	19.1	-	
BO15 NO	371435	411690	36.2	32.0	-	28.4	26.0	-	-	54.5	32.1	-	-	43.8	36.1	30.7	-	
BO16 NO	371304	411748	25.5	24.5	23.1	15.1	11.8	11.6	14.3	12.4	16.3	21.2	25.9	33.0	19.6	17.0	-	
BO41 NO	366286	406561	41.8	24.8	35.7	30.0	24.6	22.8	29.4	31.2	32.9	30.5	34.8	42.4	31.7	27.6	-	
BO43 NO	365501	409887	-	-	33.2	27.3	27.4	23.6	27.1	28.9	26.6	33.0	41.0	47.3	31.5	27.4	-	
BO44 NO	365599	409845	35.7	27.2	20.6	16.2	17.1	14.4	17.9	14.0	16.9	19.7	22.3	26.9	-	-	-	Duplicate Site with BO44NO and BO45NO - Annual data provided for BO45NO only
BO45 NO	365599	409845	36.2	25.5	19.6	15.8	17.8	16.7	17.5	16.2	16.6	22.1	26.1	25.8	21.0	18.3	-	Duplicate Site with BO44NO and BO45NO - Annual data provided for BO45NO only
BO48 NO	375397	407457	-	46.6	22.4	20.1	18.4	15.6	19.9	20.1	21.3	22.7	27.4	35.9	24.6	21.4	-	
BO53 NO	373236	411968	-	-	22.7	17.7	-	-	-	34.6	39.2	36.5	38.7	42.9	33.2	25.4	-	
BO54 NO	372908	412120	-	13.6	17.4	10.0	7.6	7.2	9.6	8.9	10.6	14.4	17.0	22.8	12.6	11.0	-	
BO60 NO	373287	405061	42.9	31.2	31.9	26.5	23.5	-	-	24.4	28.0	28.1	35.6	33.7	30.6	26.6	-	
BO61 NO	374450	405207	37.8	33.3	43.6	34.9	26.2	25.1	30.6	33.0	39.6	36.2	38.8	40.7	35.0	30.4	-	
BO62 NO	374194	405460	44.1	36.3	39.0	30.2	29.3	24.5	30.4	29.8	34.8	36.8	44.2	43.4	35.2	30.7	-	
BO63 NO	374282	406257	29.8	20.6	23.1	18.5	13.4	12.5	18.4	-	20.1	20.8	21.2	-	19.8	17.3	-	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
BO64 NO	371965	409907	43.9	-	-	-	19.0	14.4	21.6	-	20.6	30.1	34.9	36.6	27.6	23.9	-	
BO65 NO	372059	409877	36.4	28.6	25.2	22.0	-	18.1	21.6	20.5	22.6	27.6	31.9	35.9	26.4	23.0	-	
BO66 NO	371442	411599	46.4	32.6	42.0	31.1	27.7	-	30.2	26.5	29.3	33.2	42.1	54.0	35.9	31.2	-	
BO67 NO	365163	405640	29.6	17.3	23.4	18.3	12.7	10.2	13.9	14.2	16.2	20.4	21.3	31.1	19.1	16.6	-	
BO68 NO	367672	406910	35.0	32.0	32.0	20.7	24.5	25.5	26.9	21.8	21.9	33.4	22.3	36.1	27.7	24.1	-	
BO69 NO	369030	405809	55.4	45.1	44.2	43.8	34.9	35.3	44.9	48.0	46.8	41.6	46.2	54.9	45.1	39.2	23.3	
BO70 NO	368757	405701	31.0	14.4	47.2	21.1	11.9	9.0	14.6	18.2	22.1	18.9	19.0	33.0	21.7	18.9	-	
BO71 NO	370362	405400	58.1	40.5	25.2	47.2	42.3	40.2	44.4	48.8	50.6	45.6	48.2	55.9	45.6	39.7	-	
BO72 NO	370115	405372	37.2	-	35.1	25.1	-	-	61.2	-	50.4	-	67.5	-	46.1	37.0	-	
BO73 NO	371805	409820	52.9	51.1	42.3	36.8	41.1	35.4	45.5	40.4	-	-	43.3	51.3	44.0	38.3	34.0	
BO74 NO	371805	409832	48.3	33.6	48.0	39.2	32.2	25.6	34.3	35.6	38.4	-	47.9	53.4	39.7	34.5	-	
BO75 NO	371623	409235	31.8	25.7	24.6	-	13.8	10.8	-	12.6	-	16.5	37.1	38.9	23.5	20.5	-	
BO76 NO	373491	404836	39.8	35.2	33.3	25.7	22.9	21.2	27.1	24.9	26.5	32.4	38.7	42.6	-	-	-	Triplicate Site with BO76NO, BO77NO and BO78NO - Annual data provided for BO78NO only
BO77 NO	373491	404836	38.7	28.0	31.5	21.9	21.2	17.9	26.3	24.9	28.3	32.3	20.1	49.1	-	-	-	Triplicate Site with BO76NO, BO77NO and BO78NO - Annual data provided for BO78NO only
BO78 NO	373491	404836	40.2	30.5	33.4	25.4	21.6	17.5	26.6	25.3	27.7	30.9	37.2	47.0	29.8	26.0	-	Triplicate Site with BO76NO, BO77NO and BO78NO - Annual data provided for BO78NO only
BO79 NO	371296	408600	-	56.3	36.6	22.0	-	14.7	19.6	-	27.5	22.7	34.3	41.7	-	-	-	Triplicate Site with BO79NO, BO80NO and BO81NO - Annual data provided for BO81NO only
BO80 NO	371296	408600	-	53.7	33.0	19.8	19.8	15.2	-	-	25.9	21.3	34.1	42.4	-	-	-	Triplicate Site with BO79NO, BO80NO and BO81NO - Annual data provided for BO81NO only
BO81 NO	371296	408600	-	52.8	34.7	20.6	19.1	15.8	21.2	-	-	22.6	33.8	40.2	28.9	25.2	-	Triplicate Site with BO79NO, BO80NO and BO81NO - Annual data provided for BO81NO only
BOA101	374561	405364	40.8	31.0	29.4	24.6	22.6	20.6	25.1	25.4	28.0	31.2	37.3	40.3	29.7	25.8	-	
BOA102	374584	405525	37.5	35.5	30.4	24.0	22.0	16.8	-	26.5	-	35.9	39.6	41.2	30.9	26.9	-	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
BOA103	374526	405906	33.3	25.7	34.2	18.2	16.2	13.5	19.5	19.7	21.9	26.6	33.2	31.5	24.5	21.3	-	
BOA104	373795	406600	-	23.5	25.3	21.2	74.5	13.6	57.2	33.1	46.6	42.6	29.9	82.9	40.9	35.6	-	
BOA105	373604	406882	40.9	35.5	32.9	20.7	29.6	26.3	29.4	24.1	25.2	34.4	32.6	40.2	31.0	27.0	-	
BOA107	372643	408070	30.2	24.4	30.1	21.8	16.4	13.6	19.0	19.9	23.0	24.0	31.6	35.9	-	-	-	Duplicate Site with BOA107 and BOA106 - Annual data provided for BOA106 only
BOA106	372643	408070	44.1	29.7	30.1	24.8	25.8	21.8	27.4	26.3	27.4	29.3	36.4	42.6	27.3	23.8	-	Duplicate Site with BOA107 and BOA106 - Annual data provided for BOA106 only
BOA109	373818	409401	33.8	22.6	21.6	20.4	16.0	13.5	17.7	18.4	17.9	21.2	27.0	31.3	21.8	19.0	-	
BOA110	371501	409694	43.1	36.9	42.3	34.1	30.0	22.7	30.4	31.2	33.9	40.4	49.2	51.6	37.2	32.3	-	
BOA111	371102	409575	45.7	33.6	34.5	27.2	23.6	24.2	32.0	27.0	30.6	37.8	37.8	41.3	32.9	28.7	-	
BOA112	371715	408681	44.3	36.6	38.0	26.2	26.9	19.1	33.5	32.0	42.2	22.2	30.2	45.8	33.1	28.8	-	
BOA113	374510	405522	42.5	29.0	-	23.9	25.4	-	23.2	22.9	25.2	35.1	38.1	44.3	31.0	26.9	-	
BOA114	372122	409347	36.7	-	41.4	10.3	25.9	20.2	24.8	25.5	29.5	37.9	39.5	39.5	30.1	26.2	-	
BOA115	371903	409026	51.3	42.2	34.1	32.8	33.6	20.1	30.4	37.5	50.6	34.5	41.3	-	37.1	32.3	-	
BOA116	371803	408976	40.4	34.6	42.9	25.3	28.5	20.8	29.0	29.0	30.0	23.3	42.5	49.9	33.0	28.7	-	
BOA118	371832	409625	38.2	27.9	33.1	25.2	21.5	17.0	23.8	23.9	24.9	31.0	35.0	40.9	28.5	24.8	-	
BOA119	371328	409251	-	24.7	42.2	32.4	24.5	14.8	26.2	-	-	57.4	48.2	54.5	36.1	31.4	-	
BU1NO	384372	404917	40.7	32.4	32.6	23.6	24.9	22.7	25.9	25.8	26.6	33.4	37.6	41.1	30.6	26.6	-	
BU2NO	379101	417145	39.7	34.0	32.5	29.0	29.0	27.5	29.9	29.8	30.1	38.7	38.6	37.6	33.0	28.7	-	
BU3ANO	380636	406973	32.3	24.0	25.1	19.8	19.6	17.0	20.3	19.4	20.8	26.3	28.7	35.8	-	-	-	Triplicate Site with BU3ANO, BU3BNO and BU3CNO - Annual data provided for BU3CNO only
BU3BNO	380636	406973	34.3	24.8	26.3	19.9	17.6	17.5	19.5	19.3	20.4	25.9	28.0	33.4	-	-	-	Triplicate Site with BU3ANO, BU3BNO and BU3CNO - Annual data provided for BU3CNO only
BU3CNO	380636	406973	32.4	23.7	27.2	20.2	19.8	17.0	19.7	18.9	20.6	25.5	29.4	34.3	24.0	20.9	-	Triplicate Site with BU3ANO, BU3BNO and BU3CNO -

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
																		Annual data provided for BU3CNO only
BU4NO	380964	404831	46.0	39.3	41.8	29.8	34.3	24.4	30.1	30.3	33.2	36.7	45.3	46.8	36.5	31.8	-	
BU5NO	380497	405420	36.5	27.4	27.1	I/S	18.2	17.6	20.4	20.6	22.2	24.5	I/S	27.3	24.2	21.0	-	
BU6NO	379658	410888	42.8	36.9	40.4	28.7	31.2	29.8	32.1	34.5	31.9	34.9	40.4	39.9	35.3	30.7	-	
BU7NO	381984	411866	41.2	34.4	25.1	20.6	24.6	25.9	27.2	27.1	26.9	31.0	36.1	37.8	29.8	25.9	-	
BU8NO	380754	412619	31.0	31.4	31.8	24.4	23.1	19.7	25.1	26.5	29.6	31.8	37.2	46.0	29.8	25.9	-	
BU9NO	379630	411031	43.0	35.5	I/S	I/S	28.2	21.4	30.6	27.6	30.8	38.5	48.1	43.9	34.8	30.2	-	
BU10NO	379854	410978	44.3	39.1	35.9	26.5	I/S	28.1	31.3	27.2	28.3	40.2	43.7	43.1	35.2	30.7	-	
BU11NO	380980	411193	47.7	40.6	41.1	34.3	35.0	29.9	36.8	35.3	36.3	43.2	50.1	48.0	39.9	34.7	-	
BU12NO	381344	410744	58.8	46.2	37.4	35.1	39.2	40.4	I/S	46.2	44.8	41.2	49.0	51.0	44.5	38.7	32.1	
BU13NO	381728	410677	47.4	41.8	48.8	I/S	35.4	33.8	37.7	42.3	39.2	41.0	47.1	51.7	42.4	36.9	24.7	
BU14NO	380398	410455	43.0	33.0	33.8	30.5		I/S	27.5	32.6	33.2	32.5	39.5	47.2	35.3	30.7	-	
BU15NO	380852	405209	59.0	48.6	45.5	38.5	42.2	40.7	42.4	44.2	42.7	48.3	53.6	52.9	46.6	**40.5**	-	
BU16NO	380914	404898	53.4	46.5	48.5	39.3	36.6	34.8	39.3	39.0	41.2	48.0	54.4	56.3	44.8	39.0	33.9	
BU17NO	381105	404279	45.7	35.0	34.9	28.1	24.4	21.4	28.5	30.6	30.8	31.0	38.1	45.9	32.9	28.6	-	
BU18NO	382071	411362	41.3	33.7	39.4	28.4	27.7	18.5	29.3	37.2	37.3	35.7	42.4	47.4	34.9	30.3	-	
BU19NO	381321	405115	46.2	43.0	50.4	35.7	39.9	I/S	37.8	33.9	35.7	49.0	52.4	52.6	43.3	37.7	34.4	
BU20NO	382974	405930	46.0	39.1	29.7	27.9	28.2	30.2	31.2	30.4	31.8	30.1	33.3	39.3	33.1	28.8	-	
MA8ANO	381398	387501	37.4	23.5	30.4	23.7	20.4	20.0	20.8	23.3	26.8	29.4	35.7	37.9	27.4	23.9	-	
MA9ANO	384601	398303	51.6	49.4	43.7	32.4	38.0	36.1	39.1	39.1	40.9	44.4	52.0	50.6	43.1	37.5	28.6	
MA24NO	383968	398070	47.5	36.6	41.1	33.6	31.4	29.6	35.0	36.6	37.8	34.4	40.3	43.3	37.3	32.4	-	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
MA26 ANO	383973	398874	43.3	31.6	36.6	27.3	22.0	18.5	21.5	27.8	30.8	31.6	43.2	44.9	31.6	27.5	-	
MA28 NO	387951	397430	I/S	I/S	39.8	32.0	30.6	26.3	30.8	33.9	36.6	30.0	37.5	39.5	33.7	29.3	-	
MA29 ANO	384119	397503	59.1	49.8	61.1	57.3	57.1	53.4	56.2	56.5	57.4	I/S	62.4	59.3	57.2	**49.8**	**46.2**	
MA36 NO	385203	399750	48.3	32.4	32.0	27.6	24.8	24.3	25.7	30.4	29.1	29.5	31.3	43.1	31.5	27.4	-	
MA37 NO	382829	391493	48.3	38.2	33.3	28.0	32.1	34.8	32.8	35.4	34.5	33.3	48.3	43.1	36.8	32.1	-	
MA59 NO	384310	398337	35.9	28.9	32.1	23.9	21.8	18.8	21.1	32.2	28.3	30.3	35.5	39.2	-	-	-	Triplicate Site with MA59NO, MA60NO and MA61NO - Annual data provided for MA61NO only
MA60 NO	384310	398337	40.9	28.2	35.1	26.2	22.1	19.1	22.0	25.4	28.5	25.2	35.9	39.4	-	-	-	Triplicate Site with MA59NO, MA60NO and MA61NO - Annual data provided for MA61NO only
MA61 NO	384310	398337	40.1	28.7	30.6	25.2	22.4	20.0	22.3	25.1	28.7	32.1	35.2	39.9	29.1	25.3	-	Triplicate Site with MA59NO, MA60NO and MA61NO - Annual data provided for MA61NO only
MA71 NO	385161	398290	56.8	43.1	35.3	29.0	35.2	34.9	38.2	35.2	38.1	40.1	46.5	41.8	39.5	34.4	-	
MA72 NO	384761	397384	43.2	33.2	33.2	24.4	25.0	21.2	25.3	28.0	30.9	25.0	34.5	38.4	30.2	26.3	-	
MA73 NO	388604	396042	46.7	31.0	43.2	37.5	29.1	26.5	32.4	39.0	39.5	30.7	36.4	42.7	36.2	31.5	-	
MA74 NO	385400	390095	44.5	31.0	27.6	25.1	23.8	24.3	25.2	25.9	27.7	24.5	33.2	37.0	29.2	25.4	-	
MA75 NO	387363	394617	51.4	39.2	48.8	41.8	37.4	36.4	38.4	44.0	46.3	45.6	52.2	54.3	44.7	38.8	31.2	
MA77 NO	383576	397489	47.6	39.0	35.3	34.9	33.7	31.0	33.1	37.9	38.3	38.7	42.1	44.3	38.0	33.1	-	
MA78 NO	386289	396828	43.0	34.8	34.8	23.6	25.7	25.2	27.9	27.4	31.3	31.6	35.5	34.9	31.3	27.2	-	
MA79 NO	386875	395861	44.7	33.1	28.5	24.6	22.6	23.1	22.7	24.1	27.3	28.1	32.3	38.7	29.2	25.4	-	
MA80 NO	387358	393990	42.5	27.0	30.4	23.4	25.7	22.8	25.2	27.6	31.5	28.2	33.1	37.1	29.5	25.7	-	
MA81 NO	386589	394083	33.5	19.9	24.7	16.8	16.6	16.2	17.6	19.0	19.4	21.2	24.5	29.7	21.6	18.8	-	
MA82 NO	384239	397276	60.7	48.8	49.7	39.9	46.4	45.5	46.0	49.5	52.0	52.0	54.1	56.1	-	-	-	Triplicate Site with MA82NO, MA83NO and MA84NO - Annual data provided for MA84NO only

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
MA83 NO	384239	397276	59.3	42.9	46.7	43.6	43.8	44.2	45.8	42.2	53.2	48.6	53.0	50.4	-	-	-	Triplicate Site with MA82NO, MA83NO and MA84NO - Annual data provided for MA84NO only
MA84 NO	384239	397276	60.9	42.9	47.4	46.2	42.2	44.1	45.6	48.2	52.9	49.2	54.7	55.1	49.0	**42.6**	38.1	Triplicate Site with MA82NO, MA83NO and MA84NO - Annual data provided for MA84NO only
MA88 NO	384469	398981	56.8	37.4	42.2	40.5	33.2	34.5	36.0	43.2	42.2	38.2	43.3	45.1	41.1	35.7	-	
MA86 ANO	387150	396808	48.8	31.1	31.4	27.9	15.6	24.1	24.3	28.7	32.9	I/S	39.3	44.2	31.7	27.5	-	
MA87 ANO	386992	396569	48.0	34.4	33.5	25.8	26.5	24.6	26.5	27.6	29.8	32.5	35.7	40.8	32.1	28.0	-	
MA88 ANO	386536	396699	52.7	44.6	48.8	34.9	40.2	40.7	40.5	40.4	42.8	49.2	51.7	54.0	45.0	39.2	26.2	
MA89 ANO	386710	396824	46.5	33.7	24.7	22.1	22.9	23.4	23.2	23.6	26.8	30.2	37.1	39.3	29.5	25.6	-	
MA90 BNO	384202	386121	29.7	19.2	20.5	14.4	13.2	12.1	12.7	16.0	15.1	16.2	18.5	23.6	-	-	-	Triplicate Site with MA90BNO, MA91BNO and MA92BNO - Annual data provided for MA92BNO only
MA91 BNO	384202	386121	27.0	18.5	20.2	14.7	13.2	12.4	12.9	15.5	15.5	16.6	17.8	22.7	-	-	-	Triplicate Site with MA90BNO, MA91BNO and MA92BNO - Annual data provided for MA92BNO only
MA92 BNO	384202	386121	27.4	19.0	19.0	16.2	13.3	12.3	13.8	16.2	16.1	16.1	18.4	22.7	17.5	15.2	-	Triplicate Site with MA90BNO, MA91BNO and MA92BNO - Annual data provided for MA92BNO only
MA93 BNO	382419	390010	49.2	40.3	39.2	32.3	36.0	37.9	37.3	38.3	35.8	37.9	40.7	44.1	39.1	34.0	-	
MA94 BNO	382072	388388	44.1	34.6	30.5	27.0	28.6	30.0	29.1	31.0	31.9	30.0	31.4	38.1	32.2	28.0	-	
MA95 BNO	386668	397566	57.8	46.0	35.4	33.2	32.5	33.0	32.8	34.6	34.0	35.7	42.5	46.9	38.7	33.7	-	
MA96 BNO	385189	397167	85.7	38.1	48.2	38.7	37.9	34.3	42.4	53.4	52.2	60.6	52.0	56.5	50.0	**43.5**	**40.6**	
MA97 BNO	382886	397215	47.2	29.9	34.7	30.3	26.9	21.2	26.5	36.5	36.1	18.0	35.3	41.5	32.0	27.8	-	
MA98 BNO	388460	403313	I/S	38.0	30.7	28.2	27.5	27.1	27.0	30.4	32.8	36.7	40.2	43.1	32.9	28.6	-	
MA99 BNO	385400	399245	52.7	38.6	36.2	33.7	30.9	28.1	31.0	35.7	34.7	39.7	44.8	45.1	37.6	32.7	-	
MA10 0BNO	383605	402293	I/S	39.1	42.2	37.2	31.2	I/S	32.2	35.0	37.5	37.7	41.2	45.8	37.9	33.0	-	

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MA10 1BNO	385999	402026	54.6	37.1	40.7	39.4	32.9	31.2	35.8	38.5	40.4	39.6	50.0	50.7	40.9	35.6	-	
MA10 2BNO	385792	402952	50.1	36.3	37.7	32.6	34.4	34.0	36.2	35.2	35.2	37.8	42.0	40.6	37.7	32.8	-	
MA10 3BNO	385431	400653	57.1	42.8	45.3	38.1	44.5	40.6	42.2	46.0	47.9	47.3	49.8	51.3	46.1	**40.1**	36.3	
MA10 4BNO	383511	399906	55.4	43.5	40.2	38.4	37.0	36.4	36.2	42.5	41.4	48.4	51.3	52.0	43.6	37.9	36.9	
MA11 2BNO	383987	396734	40.0	27.7	24.3	22.3	20.5	I/S	18.7	21.9	24.9	25.3	I/S	35.7	26.1	22.7	-	
MA11 3BNO	385087	396891	49.5	36.6	31.5	28.4	27.7	23.2	27.5	32.3	35.4	31.6	38.6	40.3	33.6	29.2	-	
OLMR NO	390746	405397	46.7	36.3	-	32.9	66.0	27.7	30.9	27.8	-	50.0	39.7	43.9	40.2	35.0	-	
OLSH SNO	390394	405454	25.5	34.1	47.9	32.2	26.8	23.8	25.8	34.8	36.5	34.1	43.5	43.9	34.1	29.6	-	
OL259 BNO	390089	404456	52.1	41.7	40.5	36.8	32.5	30.5	30.8	I/S	40.9	38.3	44.4	53.2	40.2	34.9	-	
OL1R ANO	388698	404903	42.2	30.2	33.4	27.0	22.5	19.9	24.2	25.1	28.8	29.1	33.9	42.8	29.9	26.0	-	
OL434 BNO	389367	403280	46.3	29.0	33.5	27.4	27.1	21.9	24.9	30.0	32.9	32.5	38.6	47.1	32.6	28.4	-	
OLOB NO	389715	403625	46.2	38.5	28.3	25.7	28.5	28.9	29.6	30.0	32.4	32.5	36.4	I/S	32.5	28.2	-	
OLPS NO	388747	400973	57.4	36.0	31.8	30.4	30.1	30.9	30.5	33.8	35.6	28.9	36.4	41.1	35.2	30.7	-	
OLWA RNO	389237	401310	46.7	38.2	44.4	30.1	32.4	28.2	33.0	33.5	33.6	38.7	48.1	53.9	38.4	33.4	-	
OLHR NO	390756	402571	54.3	44.4	36.8	28.1	33.8	37.9	35.0	31.0	37.6	38.8	43.9	45.9	39.0	33.9	-	
OLIRS NO	390675	402736	43.8	38.7	24.2	24.3	29.4	28.6	29.0	25.4	32.6	31.7	35.1	42.7	32.1	27.9	-	
OL368 MRN O	390976	403252	58.0	42.5	46.0	39.4	38.1	32.1	36.4	41.3	47.3	43.1	49.0	63.2	44.7	38.9	36.5	
OLES NO	391367	404318	44.2	33.2	39.7	30.2	24.9	22.9	26.0	31.7	34.7	30.7	40.0	43.4	33.5	29.1	-	
OLAR NO	392771	402951	41.4	30.2	31.1	25.9	22.5	24.2	23.9	26.8	35.3	29.3	34.8	38.8	30.4	26.4	-	
OLW OODN O	393056	404638	47.3	I/S	31.9	29.9	31.0	29.1	33.0	34.3	38.9	34.2	34.8	52.0	36.0	31.4	-	
OLWS MSNO	392947	404854	61.6	59.6	38.1	37.9	38.3	35.2	36.7	38.3	40.7	40.3	42.0	43.0	42.6	37.1	25.3	

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OL17 SRNO	393643	405343	51.3	44.3	56.2	43.2	52.7	38.2	39.6	40.3	42.4	42.1	51.6	56.0	46.5	**40.4**	-	
OLHS 2NO	393501	405186	44.4	32.5	28.9	27.0	26.0	22.6	23.0	24.1	27.6	30.7	33.8	39.2	30.0	26.1	-	
OLRR NO	394210	405752	47.1	34.8	30.7	31.5	32.4	31.1	32.8	32.3	35.7	29.6	37.2	40.7	34.7	30.2	-	
OLHU RNO	395561	405751	41.0	33.8	31.7	32.6	30.6	27.9	29.8	31.4	34.3	28.2	34.6	37.7	32.8	28.5	-	
OLCV NO	399533	404454	29.3	19.3	16.8	15.9	14.2	13.3	15.4	16.9	17.5	14.9	17.1	22.1	17.7	15.4	-	
OLHS NO	399589	405511	40.6	31.5	29.3	26.0	24.5	24.0	26.1	27.1	28.9	28.5	32.8	36.3	29.6	25.8	-	
OLCW 1NO	393884	409183	44.9	29.8	26.3	25.5	27.9	28.2	28.2	27.3	29.0	26.4	32.8	37.0	-	-	-	Triplicate Site with OLCW1NO, OLCW2NO and OLCW3NO - Annual data provided for OLCW3NO only
OLCW 2NO	393884	409183	I/S	33.3	27.7	25.1	27.1	29.4	29.8	28.4	29.2	27.9	33.6	35.3	-	-	-	Triplicate Site with OLCW1NO, OLCW2NO and OLCW3NO - Annual data provided for OLCW3NO only
OLCW 3NO	393884	409183	44.3	31.6	26.2	25.2	28.8	27.5	30.4	28.1	29.1	27.7	32.7	34.9	30.6	26.6	-	Triplicate Site with OLCW1NO, OLCW2NO and OLCW3NO - Annual data provided for OLCW3NO only
OL21 SRNO	392217	407255	60.4	44.9	52.4	46.6	40.5	51.6	I/S	I/S	39.8	52.2	56.8	58.5	50.4	**43.8**	**42.3**	
OLJS NO	393097	406897	32.8	28.1	33.1	23.7	20.8	17.5	17.2	25.0	25.1	26.7	33.7	38.6	26.9	23.4	-	
OLRD NO	392111	406432	41.9	I/S	34.8	28.8	22.8	26.4	29.0	I/S	I/S	36.3	44.8	43.5	34.3	29.8	-	
OL12 ORNO	392045	407608	67.0	51.5	48.4	I/S	48.7	55.0	56.2	45.6	57.0	47.1	58.9	58.6	54.0	**47.0**	**44.9**	
OLFA NO	391100	406218	35.8	24.1	21.8	21.3	16.8	I/S	16.1	17.9	23.0	22.9	27.3	34.6	23.8	20.7	-	
RO3A NO	388581	409797	24.3	-	22.7	19.4	16.4	14.7	17.8	18.9	19.1	17.6	21.3	22.7	19.5	17.0	-	
RO4A NO	387080	406278	I/S	-	I/S	23.1	23.8	19.7	23.6	22.6	24.6	32.2	32.0	33.2	26.1	22.7	-	
RO5A NO	386870	404044	26.3	-	21.8	16.1	15.3	12.7	15.8	14.3	14.6	20.9	21.8	27.7	18.8	16.4	-	
RO6A NO	385413	408320	43.0	-	39.9	35.2	36.2	35.4	47.3	36.4	37.6	45.4	42.2	I/S	39.9	34.7	-	
RO7A NO	388603	411925	36.5	-	37.8	28.5	24.0	19.1	24.3	24.1	28.6	29.1	39.5	41.8	30.3	26.4	-	
RO8A NO	388932	412091	39.0	-	47.5	37.9	< 1.5	32.5	40.2	39.6	43.8	42.3	46.3	48.1	41.7	36.3	-	

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RO9ANO	389057	412217	41.2	-	42.5	I/S	44.8	35.0	41.7	39.9	37.1	44.1	44.3	47.8	41.8	36.4	-	
RO10ANO	388800	413603	22.9	-	19.5	14.2	13.0	9.9	13.1	12.8	15.4	17.6	24.4	26.3	17.2	15.0	-	
RO12ANO	392072	415687	-	-	58.4	29.5	33.8	26.8	32.8	29.9	31.6	24.7	42.6	45.7	35.6	31.0	-	
RO13ANO	392042	415707	41.4	-	38.4	11.9	18.2	10.1	13.1	10.8	I/S	I/S	I/S	I/S	20.6	19.9	-	
RO14ANO	393665	417816	20.5	-	12.0	8.4	8.2	7.1	9.6	7.8	8.7	15.9	43.6	20.9	14.8	12.9	-	
RO15ANO	392976	411906	19.9	-	28.5	21.7	21.0	17.9	I/S	I/S	I/S	22.9	I/S	I/S	22.0	19.7	-	
RO16ANO	392542	411709	26.5	-	26.9	20.7	18.8	15.4	19.4	19.2	19.9	20.1	28.6	31.4	22.4	19.5	-	
RO17ANO	391214	412609	29.1	-	20.7	17.3	17.3	14.4	19.0	103.4	14.8	20.8	24.5	I/S	28.1	24.5	-	
RO18ANO	389877	413590	I/S	-	65.4	I/S	15.3	12.2	16.7	16.1	19.0	23.5	I/S	30.1	24.8	22.7	-	
RO20ANO	385748	408931	31.0	-	28.5	19.8	20.7	16.5	23.4	24.3	25.8	34.1	39.9	42.8	27.9	24.3	-	
RO21ANO	385820	410776	-	-	34.6	27.0	31.1	23.2	31.0	27.2	28.7	37.6	I/S	45.7	31.8	27.7	-	
RO22ANO	390464	411976	43.9	-	39.3	35.3	36.8	32.0	35.9	34.4	36.4	36.0	39.8	-	37.0	32.2	-	
RO23ANO	390377	412030	40.7	-	40.3	33.6	30.4	24.8	31.6	31.6	42.3	32.4	45.6	47.9	36.5	31.7	-	
RO24ANO	388089	410822	I/S	-	31.6	24.0	23.6	21.0	25.8	23.3	27.1	28.5	36.1	35.4	27.6	24.0	-	
RO25ANO	387792	406013	45.9	-	39.0	38.4	34.3	25.4	33.9	38.4	38.8	33.5	38.3	51.9	38.0	33.0	-	
RO26ANO	389782	414241	45.0	-	35.4	33.4	35.9	35.8	34.8	36.0	38.0	48.0	45.3	44.3	39.3	34.2	-	
RO27ANO	390710	414563	41.9	-	39.9	33.1	32.8	I/S	I/S	I/S	I/S	40.6	I/S	I/S	37.7	31.3	-	
RO28ANO	392871	415127	32.7	-	29.9	20.8	21.2	22.1	25.6	25.6	25.9	25.7	I/S	38.1	26.8	23.3	-	
RO29ANO	389325	411411	41.2	-	35.7	32.1	31.8	25.9	34.0	32.1	33.5	36.4	39.1	42.9	-	-	-	Triplicate Site with RO29ANO, RO30ANO and RO31ANO - Annual data provided for RO31ANO only
RO30ANO	389325	411411	39.4	-	37.2	30.6	30.6	I/S	34.1	33.1	34.3	39.1	42.5	40.2	-	-	-	Triplicate Site with RO29ANO, RO30ANO and RO31ANO - Annual data provided for RO31ANO only

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RO31 ANO	389325	411411	42.1	-	35.4	29.0	34.0	I/S	35.6	33.6	36.2	35.9	39.7	42.8	35.2	30.6	-	Triplicate Site with RO29ANO, RO30ANO and RO31ANO - Annual data provided for RO31ANO only
RO32 ANO	385145	407701	35.7	-	87.8	25.5	26.6	25.1	26.9	28.1	28.2	28.8	33.4	36.8	34.8	30.3	-	
SA1NO	372767	394104	29.5	16.6	21.0	15.4	13.2	13.2	13.8	16.2	16.9	16.8	19.0	26.1	18.1	15.8	-	
SA2NO	372140	394210	27.8	17.5	I/S	13.9	I/S	12.8	14.1	15.6	16.0	15.0	I/S	26.1	17.6	15.4	-	
SA4NO	377453	401830	37.4	19.0	28.2	19.1	15.2	13.5	16.3	I/S	23.3	23.4	25.0	35.0	23.2	20.2	-	
SA9NO	374741	400937	29.2	19.5	27.4	17.8	15.0	15.2	15.9	16.3	21.4	24.9	30.0	33.0	22.1	19.3	-	
SA13 NO	379613	399784	31.9	18.3	23.7	16.2	12.5	12.0	I/S	15.7	17.7	20.2	24.1	30.2	20.2	17.6	-	
SA16 NO	371187	404453	32.6	19.6	22.7	15.4	14.5	14.5	16.0	16.3	19.4	24.6	27.0	30.9	21.1	18.4	-	
SA20 NO	374811	400857	43.1	38.6	48.2	37.2	37.8	33.4	29.5	29.1	38.1	44.2	49.4	53.3	-	-	-	Triplicate Site with SA20NO, SA21NO and SA22NO - Annual data provided for SA22NO only
SA21 NO	374811	400857	40.9	37.8	42.1	38.4	36.2	32.6	29.1	29.5	39.3	44.0	48.1	49.9	-	-	-	Triplicate Site with SA20NO, SA21NO and SA22NO - Annual data provided for SA22NO only
SA22 NO	374811	400857	42.2	40.7	50.9	40.1	35.8	30.3	29.9	31.0	37.9	48.1	50.4	53.2	40.0	34.8	-	Triplicate Site with SA20NO, SA21NO and SA22NO - Annual data provided for SA22NO only
SA23 NO	377926	398727	37.1	20.2	28.1	22.5	16.8	12.6	I/S	21.2	24.7	26.2	24.7	33.9	-	-	-	Triplicate Site with SA23NO, SA24NO and SA29NO - Annual data provided for SA29NO only
SA24 NO	377926	398727	36.8	18.8	28.6	19.8	16.4	I/S	18.1	21.2	24.1	21.0	25.3	34.4	-	-	-	Triplicate Site with SA23NO, SA24NO and SA29NO - Annual data provided for SA29NO only
SA29 NO	377926	398727	36.0	20.9	28.6	21.3	16.0	I/S	18.2	20.8	22.4	21.7	22.8	33.0	23.3	20.2	-	Triplicate Site with SA23NO, SA24NO and SA29NO - Annual data provided for SA29NO only
SA25 NO	381304	398014	36.8	24.4	30.9	26.1	18.7	16.4	20.0	22.4	26.8	25.6	29.2	35.8	26.1	22.7	-	
SA26 NO	380718	399597	39.2	24.3	33.0	29.7	23.3	20.9	22.6	29.0	30.3	27.3	31.2	39.5	29.2	25.4	-	
SA27 NO	383078	398741	41.1	35.5	31.3	28.1	28.5	26.5	27.3	26.8	30.7	38.5	34.6	26.9	31.3	27.2	-	
SA31 NO	374025	401905	36.7	23.9	30.8	22.9	19.8	19.1	19.0	22.9	26.4	26.3	30.2	37.4	26.3	22.9	-	
SA34 NO	375367	397800	52.3	39.2	35.8	35.9	36.9	35.8	37.4	39.9	34.3	34.1	39.4	45.6	38.9	33.8	-	
SA38 NO	377796	403065	35.0	22.6	27.5	24.5	18.0	16.8	22.3	23.5	23.2	23.1	28.0	35.1	25.0	21.7	-	

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SA39 NO	383040	398563	45.4	I/S	45.7	37.5	34.7	31.9	33.4	39.7	41.8	41.3	44.9	47.3	40.3	35.1	-	
SA51 NO	375213	397661	39.2	29.5	38.9	28.1	23.6	22.0	25.1	29.0	32.3	28.8	24.4	38.4	29.9	26.0	-	
SA53 NO	374757	399891	38.5	35.7	29.7	21.1	26.2	26.8	27.0	26.3	24.9	28.5	31.4	36.8	29.4	25.6	-	
SA55 NO	372871	400734	42.5	28.8	29.7	21.3	23.0	20.1	23.2	24.4	24.9	27.2	32.3	38.6	28.0	24.4	-	
SA56 NO	368759	396027	23.3	12.9	16.1	12.0	8.8	8.1	9.4	10.9	11.3	12.9	15.5	21.3	-	-	-	Triplicate Site with SA56NO, SA57NO and SA58NO - Annual data provided for SA58NO only
SA57 NO	368759	396027	23.3	13.2	16.9	11.3	8.6	7.2	9.4	11.3	11.2	13.5	15.7	20.6	-	-	-	Triplicate Site with SA56NO, SA57NO and SA58NO - Annual data provided for SA58NO only
SA58 NO	368759	396027	23.1	13.0	18.2	12.7	9.2	7.9	9.5	11.5	11.3	13.4	16.6	22.4	13.7	11.9	-	Triplicate Site with SA56NO, SA57NO and SA58NO - Annual data provided for SA58NO only
SA59 NO	381822	397895	42.4	26.7	34.1	I/S	22.3	19.6	26.0	32.1	33.2	28.0	29.5	37.9	30.2	26.2	-	
SA60 NO	382445	397724	48.5	31.3	37.7	38.6	35.2	30.9	34.1	42.6	40.1	31.3	31.9	40.1	36.9	32.1	-	
SA61 NO	377269	400943	50.7	36.1	37.1	38.0	I/S	30.9	35.8	41.4	40.2	32.7	33.9	44.2	38.3	33.3	-	
SA62 NO	380768	399637	44.1	30.6	27.6	22.6	23.5	22.3	24.0	24.6	25.2	30.0	33.6	37.1	28.8	25.0	-	
SA63 NO	374673	399912	51.7	50.0	36.6	32.3	43.6	47.0	43.9	38.8	35.9	40.2	47.4	57.2	43.7	38.0	**45.8**	
SA64 NO	378804	399844	38.8	27.1	25.2	I/S	18.4	I/S	20.4	20.1	22.8	27.3	30.8	38.4	26.9	23.4	-	
SA65 NO	378584	399220	63.6	55.7	35.8	33.2	40.6	38.0	36.2	39.3	37.2	41.2	51.2	48.3	43.4	37.7	30.2	
SA66 NO	375118	398502	37.0	20.1	38.6	31.7	20.4	21.0	23.4	22.2	33.5	29.8	33.8	37.1	29.1	25.3	-	
SA68 NO	373570	403096	52.0	39.4	48.4	34.1	35.6	35.4	38.5	37.5	41.6	49.7	49.4	72.6	44.5	38.7	33.7	
SA69 NO	379397	401370	55.6	49.4	46.2	37.8	44.9	43.7	42.8	46.4	36.9	49.0	52.2	45.2	45.8	39.9	29.7	
SA70 NO	381677	398832	I/S	I/S	28.1	23.8	21.1	19.6	22.3	25.9	27.7	26.3	30.4	36.4	26.2	22.8	-	
SA71 NO	381351	397185	I/S	I/S	I/S	24.7	25.1	26.5	I/S	I/S	I/S	I/S	I/S	I/S	25.4	30.5	-	
SA72 NO	377536	401804	55.7	43.0	36.9	38.5	40.2	38.8	43.3	I/S	42.4	39.0	47.9	46.9	43.0	37.4	31.6	
SA73 NO	374576	400611	42.9	43.4	55.1	40.3	40.3	39.1	39.2	36.3	43.5	42.4	52.7	72.9	45.7	39.7	-	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
SA74 NO	376315	399249	47.6	38.9	< 1.0	27.6	27.7	30.5	30.5	31.3	32.2	38.5	47.7	51.4	36.7	31.9	-	
SA75 NO	379608	398539	45.9	29.1	38.7	29.7	21.5	22.0	26.3	28.6	31.8	28.0	34.9	39.1	31.3	27.2	-	
SA76 NO	380540	398422	45.6	35.3	< 1.0	29.6	27.1	26.2	28.2	28.9	33.5	34.6	36.5	41.1	33.3	29.0	-	
SA77 NO	381686	398504	41.9	28.4	36.2	25.6	23.6	22.4	24.1	27.0	29.5	32.1	35.4	39.8	30.5	26.5	-	
SA78 NO	381220	399530	55.1	44.6	41.4	40.3	44.8	42.3	45.8	45.2	46.1	48.5	51.5	53.7	46.6	**40.5**	35.9	
SA79 NO	382602	398519	47.4	33.2	40.8	25.7	29.9	27.1	29.9	32.3	35.0	37.2	42.0	44.5	35.4	30.8	-	
SA80 NO	375428	401417	43.2	31.0	24.5	23.4	27.8	I/S	26.6	30.2	28.8	26.9	28.0	33.9	29.5	25.6	-	
SA81 NO	382561	397722	66.3	46.9	50.5	41.0	47.7	47.6	50.5	54.4	50.8	48.7	53.1	52.5	50.8	**44.2**	-	
SA82 NO	375394	397816	57.8	40.8	47.7	43.1	43.4	39.9	45.6	49.1	45.9	42.1	45.5	51.8	46.1	**40.1**	31.7	
SA83 NO	382945	400732	40.0	27.7	29.5	23.2	23.9	23.3	24.2	25.7	28.8	30.8	35.9	39.4	29.4	25.5	-	
SA84 NO	380776	400834	40.3	27.3	29.1	23.0	22.1	22.8	24.3	25.0	26.4	26.1	34.8	38.0	28.3	24.6	-	
SA85 NO	375991	399237	36.8	23.6	28.2	24.4	16.7	16.4	20.9	22.3	25.7	24.2	28.8	29.8	24.8	21.6	-	
SA86 NO	383819	401771	70.2	49.8	50.2	40.9	49.1	52.5	56.4	56.9	52.3	45.8	48.1	51.7	52.0	**45.2**	32.9	
SA87 NO	372225	395616	36.8	26.0	28.5	23.5	21.5	22.9	28.6	I/S	26.4	23.2	22.8	30.6	26.4	23.0	-	
SA88 NO	377469	398745	42.0	25.2	33.1	25.2	21.6	20.1	23.8	26.5	29.0	28.3	31.1	37.4	28.6	24.9	-	
SA89 NO	373892	404569	40.2	24.8	37.4	31.8	24.2	21.6	24.8	31.9	36.1	30.3	34.8	44.1	31.8	27.7	-	
ST2NO	385047	388339	47.7	37.7	34.1	28.0	32.3	31.9	31.5	34.5	35.6	29.8	33.3	36.6	-	-	-	Triplicate Site with ST2NO, ST12NO and ST14NO - Annual data provided for ST14NO only
ST3NO	385047	388339	35.3	22.7	21.6	16.2	16.9	15.7	18.5	18.3	22.7	21.9	27.1	31.3	22.4	19.4	-	
ST4NO	396469	390800	19.9	11.9	12.5	10.6	10.2	7.8	10.7	11.8	11.1	11.0	14.1	21.5	12.8	11.1	-	
ST5NO	396869	382699	11.7	7.4	10.1	8.4	4.7	4.6	5.6	6.9	8.3	6.3	8.1	11.6	7.8	6.8	-	
ST6NO	385960	388552	23.6	14.0	15.7	11.9	9.6	10.0	10.9	13.4	14.9	I/S	16.5	22.0	14.8	12.9	-	

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ST7NO	392063	386972	43.8	23.5	31.2	23.4	22.5	24.5	25.6	26.4	33.2	28.8	41.6	39.6	30.3	26.4	-	
ST8NO	392017	387043	30.3	20.1	17.9	13.9	14.8	14.5	16.3	15.8	18.3	16.9	18.7	24.7	18.5	16.1	-	
ST9NO	392743	385681	21.9	11.1	11.8	10.9	7.9	8.5	9.2	10.6	11.9	10.6	12.0	18.7	12.1	10.5	-	
ST10NO	392781	387271	24.0	13.7	12.9	9.7	8.8	9.0	9.8	9.5	12.3	12.0	13.9	20.3	13.0	11.3	-	
ST11NO	391083	387938	41.4	21.3	32.9	24.9	21.8	22.0	25.5	23.2	28.8	25.2	29.0	33.7	27.5	23.9	-	
ST12NO	385047	388339	46.7	39.3	46.3	28.5	31.3	27.6	31.5	33.7	33.3	31.0	32.7	38.2	-	-	-	Triplicate Site with ST2NO, ST12NO and ST14NO - Annual data provided for ST14NO only
ST13NO	384675	386295	24.4	15.4	15.2	11.8	10.6	9.5	11.9	13.3	14.7	14.5	17.5	25.0	15.3	13.3	-	
ST14NO	385047	388339	42.7	35.3	28.2	30.2	31.3	30.2	29.3	34.3	33.6	29.6	31.4	36.8	34.1	29.6	-	Triplicate Site with ST2NO, ST12NO and ST14NO - Annual data provided for ST14NO only
ST15NO	389886	388961	40.7	26.0	16.2	23.4	19.0	19.2	I/S	24.7	25.5	23.9	27.0	32.2	25.3	22.0	-	
ST16NO	391569	391226	24.0	26.5	18.8	19.7	20.1	19.3	20.5	24.0	24.0	22.6	27.7	29.9	23.1	20.1	-	
ST17NO	388442	390077	34.8	18.3	24.3	21.1	13.7	15.8	18.1	22.0	23.0	19.7	23.1	28.1	21.8	19.0	-	
ST18NO	389272	390441	45.0	34.3	26.9	25.2	28.5	28.1	27.2	30.5	29.2	30.5	30.8	32.2	30.7	26.7	-	
ST19NO	389479	393464	48.8	38.0	32.5	29.7	34.5	33.1	35.6	31.1	37.0	34.7	36.0	44.6	36.3	31.6	-	
ST20NO	386921	389529	48.5	35.9	31.2	37.4	30.2	I/S	32.5	42.2	37.2	25.0	25.5	36.2	34.7	30.2	-	
ST21NO	388599	389416	31.1	19.1	I/S	15.3	12.4	12.5	15.1	17.0	20.2	18.2	20.0	30.1	19.2	16.7	-	
ST22NO	391483	387636	32.6	14.8	25.7	22.4	13.8	13.3	16.1	20.2	24.1	13.9	19.7	29.7	-	-	-	Triplicate Site with ST22NO, ST23NO and ST24NO - Annual data provided for ST24NO only
ST23NO	391483	387636	28.8	15.0	25.4	20.5	13.6	13.0	16.6	20.0	24.1	14.9	21.4	28.9	-	-	-	Triplicate Site with ST22NO, ST23NO and ST24NO - Annual data provided for ST24NO only
ST24NO	391483	387636	29.5	15.1	22.8	21.1	12.8	13.0	17.4	20.7	23.5	15.1	21.4	29.6	20.3	17.7	-	Triplicate Site with ST22NO, ST23NO and ST24NO - Annual data provided for ST24NO only
ST25NO	395770	388655	36.1	23.2	24.8	21.8	20.1	I/S	41.4	24.7	26.2	22.4	< 1.5	44.8	28.6	24.8	-	
ST26NO	389396	387357	23.0	12.1	15.2	12.1	8.0	7.6	9.9	10.7	12.8	11.7	13.8	21.1	13.2	11.5	-	

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ST27 NO	387091	391384	24.7	14.1	16.7	13.3	9.1	9.4	12.0	12.2	14.6	14.0	16.5	24.5	15.1	13.1	-	
ST28 NO	385700	386220	43.1	29.1	36.0	35.6	28.8	29.0	33.7	37.3	38.4	32.8	34.2	40.4	34.9	30.3	-	
ST29 NO	390088	388545	30.0	14.9	15.1	11.4	10.3	10.8	11.6	11.9	14.9	13.7	16.6	21.9	15.3	13.3	-	
ST31 NO	392442	391752	49.5	I/S	27.4	30.7	32.3	30.0	I/S	35.5	35.7	34.8	I/S	43.4	35.5	30.9	-	
ST32 NO	389480	390957	40.7	28.8	32.2	26.3	28.7	23.0	28.6	I/S	33.4	I/S	38.1	39.0	31.9	27.7	-	
ST33 NO	390416	390087	46.3	30.9	34.6	31.5	26.5	25.9	28.7	31.5	33.1	29.1	37.0	41.5	33.1	28.8	-	
ST34 NO	388304	390351	51.1	35.2	45.6	45.4	36.8	34.6	38.0	40.9	44.2	39.8	41.0	44.2	41.4	36.0	31.2	
ST35 NO	395020	385360	34.8	20.9	26.6	23.5	19.1	20.0	23.7	25.7	26.6	16.8	19.4	27.1	23.7	20.6	-	
ST36 NO	389386	390142	52.6	40.8	36.0	31.0	37.3	32.8	40.6	41.9	43.4	46.8	47.0	43.2	41.1	35.8	-	
TA1N O	394050	397190	37.1	30.4	22.7	20.8	18.4	18.5	21.2	21.5	22.7	25.1	33.8	36.6	25.7	22.4	-	
TA2N O	394788	394933	37.0	24.3	24.1	18.7	18.0	16.6	20.6	21.4	23.9	22.9	27.4	30.0	23.7	20.7	-	
TA3N O	390961	395417	34.3	25.1	28.7	25.3	17.6	15.8	18.5	23.3	26.2	22.9	27.9	35.4	25.1	21.8	-	
TA5N O	400507	396518	21.8	13.0	12.0	8.3	8.0	6.6	8.9	9.4	9.1	10.8	13.6	13.9	11.3	9.8	-	
TA11 NO	400390	396025	60.6	51.8	45.5	43.6	44.6	45.3	52.0	54.7	47.2	50.4	54.1	56.0	50.5	**43.9**	**40.6**	
TA13 NO	392586	398431	56.9	42.0	30.6	30.7	35.1	35.8	39.2	36.9	37.3	40.0	39.8	43.0	38.9	33.9	-	
TA14 NO	393710	398790	53.5	39.4	37.2	30.5	32.7	< 1.5	31.9	32.0	32.4	36.4	37.6	42.0	36.9	32.1	-	
TA16 NO	391435	397970	54.8	41.1	37.1	34.1	I/S	32.6	37.3	36.6	39.2	38.2	40.2	44.8	39.6	34.5	-	
TA17 NO	389106	398242	46.0	37.5	31.1	27.2	26.0	28.1	29.0	28.3	32.0	30.7	38.2	46.1	33.4	29.0	-	
TA18 NO	391970	395521	64.2	46.4	34.7	31.8	38.2	34.7	39.6	70.8	42.9	39.8	37.0	47.9	44.0	38.3	25.7	
TA19 NO	392477	395505	35.4	31.9	32.6	27.3	24.6	24.2	27.6	35.2	35.5	29.3	28.6	38.5	30.9	26.9	-	
TA20 NO	394610	395102	51.6	40.4	28.0	29.8	29.0	26.6	34.0	I/S	35.2	33.1	36.1	38.5	34.8	30.2	-	

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TA21 NO	400423	395965	53.4	43.9	38.4	43.1	44.2	44.7	46.1	48.3	42.4	43.6	44.9	45.4	44.9	39.0	34.9	
TA23 NO	393620	398588	35.6	21.0	28.0	18.8	16.3	14.3	18.1	18.3	22.2	20.5	23.4	29.4	22.2	19.3	-	
TA24 NO	390475	395621	46.7	29.8	34.1	30.8	24.4	21.5	25.5	31.6	31.9	26.9	32.6	31.7	30.6	26.6	-	
TA25 NO	396950	402329	36.8	23.2	18.6	21.4	-	-	20.6	21.6	22.8	23.7	24.4	29.8	24.3	21.1	-	
TA27 NO	396177	398218	39.9	27.4	24.9	21.3	20.1	18.1	21.8	23.1	26.4	23.7	26.5	31.3	25.4	22.1	-	
TA28 NO	393050	401038	I/S	37.3	33.2	31.9	32.1	35.6	37.7	32.8	33.9	39.5	39.4	43.4	36.1	31.4	-	
TA29 NO	393370	399494	39.2	26.1	23.0	18.3	16.9	14.8	18.1	18.6	22.4	24.1	29.4	32.6	23.6	20.6	-	
TA30 NO	393419	399691	47.0	38.9	36.8	28.6	26.9	30.1	33.2	32.2	36.3	37.1	41.5	44.3	36.1	31.4	-	
TA31 NO	396899	402449	30.9	19.4	18.0	16.6	15.4	13.9	15.9	16.0	17.3	18.2	21.2	27.0	19.2	16.7	-	
TA32 NO	396982	402437	36.6	22.6	21.7	18.5	18.6	17.8	19.8	20.0	21.2	23.7	24.1	29.9	22.9	19.9	-	
TA33 NO	397010	402560	36.9	25.1	23.0	18.7	18.5	18.3	19.9	19.1	20.4	21.7	25.1	27.7	22.9	19.9	-	
TA34 NO	397060	402581	32.7	24.1	22.5	19.1	18.6	18.3	18.0	18.1	19.1	22.0	25.7	30.7	22.4	19.5	-	
TA35 NO	397080	402540	35.4	32.7	37.8	31.8	30.8	27.2	33.4	32.0	32.7	35.4	45.8	44.5	35.0	30.4	-	
TA36 NO	397060	402387	35.9	22.1	15.3	9.8	16.3	15.6	17.8	15.3	16.7	17.0	21.4	23.8	18.9	16.5	-	
TA37 NO	396728	402073	44.3	30.1	27.6	27.4	29.3	31.3	32.0	31.3	33.7	28.1	36.2	36.1	32.3	28.1	-	
TA38 NO	394006	399392	I/S	31.3	21.7	20.8	21.5	22.2	24.2	23.8	27.6	27.9	33.5	36.1	26.4	23.0	-	
TA39 NO	394114	399366	48.4	36.0	24.4	22.7	20.0	21.3	25.8	24.1	26.4	31.9	36.1	38.3	29.6	25.8	-	
TA40 NO	394066	399314	45.3	33.5	27.3	22.3	21.0	19.7	23.2	23.5	27.0	26.6	29.5	35.6	27.9	24.3	-	
TA41 NO	394118	399259	51.3	37.5	29.5	26.6	27.3	29.4	31.8	28.6	30.7	34.9	36.0	24.6	32.4	28.1	-	
TA42 NO	394494	399010	41.2	29.5	24.7	23.1	21.8	20.6	23.3	18.3	27.5	27.8	31.4	35.1	27.0	23.5	-	
TA43 NO	394214	398933	52.0	43.5	40.4	34.8	36.0	38.3	36.6	37.3	37.8	42.7	42.6	44.6	40.6	35.3	-	

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TA44 NO	397418	394398	21.9	16.5	13.5	11.2	10.5	9.8	11.4	12.4	12.9	11.5	15.6	19.4	13.9	12.1	-	
TA45 NO	399719	395805	60.4	45.7	41.6	40.1	38.8	37.1	46.3	60.6	49.1	37.7	40.5	45.8	-	-	-	Triplicate Site with TA45NO, TA46NO and TA47NO - Annual data provided for TA47NO only
TA46 NO	399719	395805	60.1	42.6	44.6	37.5	36.5	35.7	48.0	49.9	52.3	39.4	43.4	47.9	-	-	-	Triplicate Site with TA45NO, TA46NO and TA47NO - Annual data provided for TA47NO only
TA47 NO	399719	395805	59.9	44.2	43.1	35.0	39.5	37.0	47.0	53.2	48.5	38.9	45.6	45.8	45.0	39.1	24.0	Triplicate Site with TA45NO, TA46NO and TA47NO - Annual data provided for TA47NO only
TA49 NO	393731	398770	55.5	43.7	27.3	28.2	27.8	26.6	< 1.5	31.3	27.9	28.3	30.0	38.1	33.2	28.8	-	
TA50 NO	393498	398704	49.7	38.9	33.8	32.7	37.1	15.3	37.0	36.6	36.8	38.3	40.4	45.3	36.8	32.0	-	
TA51 NO	393314	398624	63.3	42.8	26.2	27.1	30.8	30.2	34.3	50.0	35.0	28.7	34.2	42.2	37.1	32.2	-	
TA52 NO	393509	398737	63.5	46.3	39.0	35.5	37.5	33.1	37.3	38.0	41.1	44.5	45.7	46.8	42.4	36.9	-	
TA53 NO	393133	398536	50.3	33.4	36.7	32.4	29.6	25.0	29.8	32.8	34.9	33.0	37.8	41.3	34.8	30.2	-	
TA54 NO	392958	398474	61.7	40.1	I/S	I/S	41.9	40.0	45.7	53.0	48.8	45.3	50.6	49.4	47.7	**41.5**	30.3	
TA55 NO	392743	398465	62.7	61.6	48.3	46.1	49.7	50.5	53.1	49.5	51.9	51.3	57.2	50.9	52.7	**45.9**	39.1	
TA56 NO	392490	398368	58.9	51.4	31.3	32.7	35.9	38.3	40.2	43.3	41.9	34.3	36.5	44.9	40.8	35.5	-	
TA57 NO	392844	398544	53.9	37.8	38.3	40.8	I/S	I/S	32.9	39.7	38.8	I/S	I/S	47.0	41.2	32.9	-	
TA58 NO	393080	398620	53.6	33.7	29.2	28.4	29.2	31.6	33.5	32.9	35.6	30.2	32.5	38.4	34.1	29.6	-	
TA59 NO	395652	399140	31.1	20.4	16.3	11.2	13.3	11.1	13.0	13.8	15.1	16.8	20.4	25.8	17.4	15.1	-	
TA60 NO	395747	399112	I/S	27.1	24.5	20.3	20.2	18.4	20.4	20.7	23.3	22.7	25.8	31.7	23.2	20.2	-	
TA61 NO	395682	399171	I/S	27.3	21.4	18.2	18.4	16.8	19.1	16.7	21.2	23.5	28.2	29.0	21.8	19.0	-	
TA62 NO	395589	399227	34.1	25.1	19.5	15.2	16.7	15.8	17.2	16.0	18.4	22.1	26.8	26.6	21.1	18.4	-	
TA63 NO	394917	400922	44.3	28.0	22.4	22.6	22.0	22.2	23.6	22.7	25.8	29.7	34.8	38.8	28.1	24.4	-	
TA64 NO	395792	398758	60.0	42.1	39.5	37.7	35.7	32.6	39.8	39.3	42.3	43.4	47.3	47.0	42.2	36.7	-	
TA65 NO	392532	396768	51.5	38.7	25.3	28.1	29.7	27.9	30.1	29.3	25.1	28.9	35.0	36.0	32.1	28.0	-	

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TR5NO	379052	392043	-	28.5	31.1	24.5	19.2	18.0	19.6	35.9	21.7	24.9	24.9	32.1	25.5	22.2	-	
TR9NO	380933	395889	-	25.1	25.0	17.3	17.9	19.4	19.6	21.3	19.4	20.7	I/S	25.8	21.2	18.4	-	
TR19NO	378783	394728	30.7	14.6	19.5	12.5	9.8	9.3	12.3	13.1	15.4	14.0	I/S	46.9	-	-	-	Triplicate Site with TR19NO, TR19ANO and TR19BNO - Annual data provided for TR19BNO only
TR19ANO	378783	394728	32.7	15.1	18.0	13.2	10.1	9.4	11.1	14.3	16.8	14.0	I/S	46.0	-	-	-	Triplicate Site with TR19NO, TR19ANO and TR19BNO - Annual data provided for TR19BNO only
TR19BNO	378783	394728	24.7	15.5	20.5	14.3	10.2	9.6	11.3	15.1	15.2	13.8	I/S	43.2	17.9	15.6	-	Triplicate Site with TR19NO, TR19ANO and TR19BNO - Annual data provided for TR19BNO only
TR20NO	379411	394014	-	26.0	28.4	23.5	20.4	22.5	22.7	31.3	23.6	20.1	33.1	38.1	-	-	-	Triplicate Site with TR20NO, TR20ANO and TR20BNO - Annual data provided for TR20BNO only
TR20ANO	379411	394014	-	27.7	34.0	22.9	20.1	23.3	22.1	30.8	22.8	26.8	31.9	39.3	-	-	-	Triplicate Site with TR20NO, TR20ANO and TR20BNO - Annual data provided for TR20BNO only
TR20BNO	379411	394014	-	26.0	34.4	24.2	19.6	23.3	24.0	30.6	23.6	25.8	27.4	37.4	26.9	23.4	-	Triplicate Site with TR20NO, TR20ANO and TR20BNO - Annual data provided for TR20BNO only
TR21NO	379619	396371	-	22.0	26.8	19.9	15.4	16.7	18.3	25.2	20.4	24.7	29.0	31.4	22.7	19.8	-	
TR22NO	377061	390086	-	26.0	I/S	31.9	I/S	60.6	26.4	42.1	29.3	33.8	39.6	38.0	36.4	31.7	-	
TR13NO	381221	396441	-	28.9	35.7	26.3	25.5	21.6	26.3	35.0	23.9	I/S	40.8	40.5	30.5	26.5	-	
TR15NO	379089	393282	-	19.6	32.5	27.1	18.3	17.2	16.4	37.7	22.5	25.7	31.3	33.2	25.6	22.3	-	
TR16NO	377418	395689	-	22.0	33.3	20.8	16.4	I/S	17.5	32.7	17.3	25.7	28.0	32.4	-	-	-	Duplicate Site with TR16NO and TR16ANO - Annual data provided for TR16ANO only
TR16ANO	377418	395689	-	19.6	32.5	23.8	18.3	16.3	17.9	31.1	20.5	25.0	29.3	I/S	24.1	20.9	-	Duplicate Site with TR16NO and TR16ANO - Annual data provided for TR16ANO only
TR23NO	376438	396383	-	28.8	36.8	28.1	22.4	23.9	25.3	35.5	28.0	24.2	27.5	33.6	28.6	24.8	-	
TR23ANO	376395	396360	-	30.8	33.8	34.2	25.5	27.6	27.8	38.0	30.6	25.9	32.6	37.8	31.3	27.3	-	
TR24NO	379263	385812	-	20.4	31.6	21.0	16.9	18.2	17.0	27.4	21.2	17.0	22.3	28.0	21.9	19.1	-	
TR25NO	373755	394477	-	11.3	21.8	9.4	8.7	I/S	8.3	12.0	I/S	11.2	13.4	21.1	-	-	-	Triplicate Site with TR25NO, TR25ANO and TR25BNO -

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																		Annual data provided for TR25BNO only
TR25 ANO	373755	394477	-	13.2	20.4	9.5	8.4	I/S	8.4	12.0	I/S	11.3	14.2	21.2	-	-	-	Triplicate Site with TR25NO, TR25ANO and TR25BNO - Annual data provided for TR25BNO only
TR25 BNO	373755	394477	-	12.5	22.0	9.3	9.6	I/S	8.4	11.2	I/S	10.8	12.4	20.1	13.0	11.3	-	Triplicate Site with TR25NO, TR25ANO and TR25BNO - Annual data provided for TR25BNO only
TR27 NO	371419	390760	-	20.8	20.3	14.8	14.6	15.0	13.5	18.4	14.5	17.5	19.8	25.2	17.7	15.4	-	
TR28 NO	376851	387792	-	26.8	31.5	25.6	21.2	18.5	21.4	35.2	21.8	27.4	30.5	36.7	27.0	23.5	-	
TR29 NO	373906	392820	-	20.3	27.9	22.2	16.3	14.3	16.2	26.1	18.9	16.1	19.2	25.2	20.2	17.6	-	
TR30 NO	376789	392806	-	15.3	20.6	14.2	I/S	11.5	I/S	I/S	I/S	12.9	I/S	37.7	18.7	14.9	-	
TR31 NO	376206	392695	-	28.1	38.6	35.2	34.5	11.0	27.0	41.6	34.3	34.6	I/S	48.0	33.3	29.0	-	
WI14 NO	366880	403255	42.2	30.8	30.8	25.7	29.4	22.6	29.1	29.5	29.4	30.1	38.4	38.4	31.4	27.3	-	
WI23 NO	361835	404090	43.7	26.9	29.3	28.7	25.0	20.6	27.4	29.2	33.8	30.6	37.2	43.0	31.3	27.2	-	
WI27 NO	358341	405539	34.3	20.6	I/S	22.0	19.3	15.7	19.8	21.6	30.8	26.6	36.0	35.4	25.6	22.3	-	
WI28 NO	366424	399894	44.6	26.8	29.2	24.7	27.0	25.8	33.4	29.6	32.0	30.7	37.5	39.4	31.7	27.6	-	
WI30 NO	363833	402028	36.1	17.4	23.0	19.5	18.2	15.2	21.1	21.2	24.4	23.3	26.4	31.8	23.1	20.1	-	
WI33 NO	359723	405537	45.5	34.2	34.1	28.8	31.4	25.8	33.8	31.3	35.7	36.8	46.8	42.8	35.6	31.0	-	
WI35 NO	357132	398670	31.7	32.4	25.3	20.6	23.4	15.7	23.4	23.6	23.4	28.8	35.6	35.3	26.6	23.1	-	
WI47 NO	357812	406021	33.7	19.9	20.5	15.7	14.2	11.3	14.7	14.1	I/S	19.8	29.8	33.3	-	-	-	Triplicate Site with WI47NO, WI48NO and WI49NO - Annual data provided for WI49NO only
WI48 NO	357812	406021	33.0	21.6	24.3	15.5	13.4	11.0	14.5	14.4	14.7	23.9	30.1	34.1	-	-	-	Triplicate Site with WI47NO, WI48NO and WI49NO - Annual data provided for WI49NO only
WI49 NO	357812	406021	34.7	21.1	23.4	14.6	13.8	10.2	13.1	14.1	18.0	22.0	30.0	32.6	20.6	17.9	-	Triplicate Site with WI47NO, WI48NO and WI49NO - Annual data provided for WI49NO only
WI52 NO	362137	396948	46.5	32.3	33.1	27.5	29.1	25.2	32.2	32.1	34.6	34.9	44.9	37.6	34.2	29.7	-	
WI53 NO	353896	408518	30.4	19.9	22.1	18.2	15.9	14.3	18.1	17.8	20.6	22.3	26.4	28.6	21.2	18.5	-	

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WI54 NO	370612	400586	36.6	23.9	26.9	21.3	20.3	15.0	21.8	19.8	22.0	23.7	30.8	34.2	24.7	21.5	-	
WI63 NO	356928	404982	34.1	19.9	27.0	21.5	19.9	16.2	20.9	23.3	25.4	22.6	30.2	36.0	24.8	21.5	-	
WI71 NO	368244	402563	45.3	30.5	30.1	30.7	28.7	23.5	31.6	30.6	I/S	I/S	34.0	37.7	32.3	28.1	-	
WI81 NO	355979	410362	34.6	21.7	23.4	17.8	17.6	17.2	18.5	19.2	22.1	21.4	27.1	32.4	22.8	19.8	-	
WI114 NO	365115	400259	52.8	38.5	31.7	30.0	34.7	32.8	41.3	37.8	36.5	30.4	40.9	44.6	37.7	32.8	-	
WI115 NO	353845	405360	27.5	16.3	26.0	23.0	17.3	12.7	I/S	22.8	22.5	25.8	29.9	30.9	23.2	20.1	-	
WI116 NO	365864	401720	28.7	17.2	18.0	13.9	11.0	9.5	13.9	14.3	14.0	18.8	22.0	28.8	17.5	15.2	-	
WI121 NO	357088	405158	44.9	22.1	32.0	25.6	28.3	25.4	34.0	33.4	38.6	33.6	I/S	< 1.2	31.8	27.7	-	
WI122 NO	356883	405239	48.5	31.1	36.4	29.9	24.0	24.8	35.1	35.6	38.3	36.4	47.6	48.8	36.4	31.6	-	
WI124 NO	357310	403672	30.1	18.2	20.3	17.2	I/S	11.4	16.0	16.8	18.3	23.2	27.4	30.8	20.9	18.2	-	
WI125 NO	357645	404259	35.8	22.7	28.5	24.4	I/S	17.1	21.4	23.0	24.8	24.8	27.5	35.7	26.0	22.6	-	
WI126 NO	355819	402194	23.5	13.6	15.8	12.5	10.6	7.6	10.4	11.5	11.9	15.3	20.8	24.5	14.8	12.9	-	
WI127 NO	355484	403854	29.3	22.9	26.8	23.6	24.6	18.1	I/S	28.9	29.0	29.5	31.3	38.5	27.5	23.9	-	
WI129 NO	356848	402906	55.6	43.0	36.0	37.0	36.5	33.6	36.8	40.2	38.7	42.8	53.8	53.9	42.3	36.8	31.6	
WI130 NO	356354	403838	37.0	23.8	29.4	22.3	17.6	16.5	18.7	21.1	22.7	24.9	28.3	29.3	24.3	21.1	-	
WI131 NO	356667	404065	34.1	23.8	I/S	21.9	18.9	18.3	20.6	19.3	20.4	20.3	28.6	35.0	23.7	20.7	-	
WI132 NO	356869	404808	I/S	18.0	36.8	17.8	15.0	10.4	16.1	19.4	21.5	22.8	28.4	35.2	21.9	19.1	-	
WI133 NO	356748	404786	42.4	27.2	29.0	25.2	18.9	15.8	22.6	23.2	25.0	30.1	36.3	41.0	28.1	24.4	-	
WI134 NO	356428	404722	31.9	19.3	24.2	20.8	16.4	11.8	16.6	18.9	21.3	20.0	26.0	32.3	21.6	18.8	-	
WI135 NO	354614	404685	52.1	36.3	29.3	31.5	31.0	25.4	I/S	32.3	32.3	34.5	38.8	43.5	35.2	30.6	-	
WI136 NO	354057	404824	41.2	30.7	26.4	26.5	I/S	45.3	25.7	28.5	29.7	25.2	29.7	36.5	31.4	27.3	-	

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WI137 NO	353844	404922	44.2	31.5	31.2	31.5	29.5	21.3	27.6	32.7	31.2	33.4	41.2	42.4	33.1	28.8	-	
WI138 NO	355321	404017	I/S	19.5	21.6	17.7	14.9	11.8	16.4	16.5	18.9	22.8	28.2	29.8	19.8	17.2	-	
WI139 NO	355638	404023	I/S	21.2	27.5	20.3	17.4	16.0	20.7	20.7	20.9	23.8	31.9	34.4	23.2	20.2	-	
WI140 NO	355816	404062	36.3	18.9	26.3	20.5	19.3	14.3	19.8	20.7	24.5	25.4	I/S	38.4	24.0	20.9	-	
WI141 NO	356469	404550	33.6	23.6	24.5	17.5	17.4	13.7	18.2	18.9	20.1	22.7	29.3	34.9	22.9	19.9	-	
WI144 NO	360643	402297	44.3	28.2	27.0	22.9	22.4	18.9	20.9	22.9	26.1	27.3	I/S	42.2	27.6	24.0	-	
WI145 NO	360515	402212	42.7	26.6	26.7	24.6	25.5	22.5	I/S	24.9	26.3	26.8	31.1	I/S	27.8	24.2	-	
WI147 NO	360437	405089	34.0	26.5	23.4	19.4	24.0	20.3	I/S	21.9	23.6	28.9	31.8	34.6	26.2	22.8	-	
WI148 NO	361247	404576	37.8	25.7	27.1	20.7	22.9	19.5	24.1	22.3	24.4	27.7	35.6	I/S	26.2	22.8	-	
WI150 NO	361579	404298	50.3	33.1	33.9	34.2	I/S	I/S	N/A	N/A	N/A	N/A	N/A	N/A	37.9	28.6	-	
WI151 NO	361501	404216	33.5	20.1	26.7	23.9	16.7	11.7	19.3	17.9	23.5	24.7	31.9	I/S	22.7	19.8	-	
WI152 NO	364021	402391	33.2	19.0	21.5	15.0	13.0	11.3	15.6	17.2	21.0	21.5	25.8	32.9	20.6	17.9	-	
WI153 NO	364953	402783	29.2	17.1	22.4	17.0	14.3	11.8	16.0	16.2	20.2	21.1	24.6	31.9	20.2	17.5	-	
WI154 NO	365054	403019	29.4	19.1	21.4	17.7	13.3	10.6	16.0	15.1	18.6	16.6	23.8	I/S	18.3	15.9	-	
WI155 NO	366233	403024	33.1	< 1.0	22.4	19.4	15.7	12.3	17.9	18.6	21.4	21.1	26.9	32.2	21.9	19.1	-	
WI156 NO	366320	402136	35.0	20.3	24.1	20.0	16.8	12.6	19.0	19.0	22.2	21.9	29.2	32.8	22.7	19.8	-	
WI157 NO	366458	402462	32.4	20.1	19.1	18.4	17.8	14.3	18.8	19.4	22.7	20.3	23.4	30.8	21.5	18.7	-	
WI158 NO	365615	401368	31.7	26.2	22.1	19.5	20.7	15.9	22.3	21.2	23.9	21.5	31.2	37.5	24.5	21.3	-	
WI159 NO	368024	403514	36.0	22.7	25.3	20.6	18.2	11.9	19.1	21.7	23.1	22.6	27.6	35.3	23.7	20.6	-	
WI160 NO	368671	402250	43.2	32.9	29.5	24.4	28.5	22.0	29.4	41.5	28.9	25.7	36.8	37.2	31.7	27.6	-	
WI161 NO	369635	402019	42.7	26.1	24.6	22.3	19.0	16.9	I/S	21.4	24.2	24.3	30.1	37.6	26.3	22.9	-	

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WI162 NO	370534	401953	43.6	25.6	28.5	26.8	22.4	18.7	25.1	26.9	30.9	27.7	28.8	34.5	28.3	24.6	-	
WI163 NO	371234	401895	51.1	I/S	I/S	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	-	-	
WI164 NO	371981	401209	37.8	24.3	24.1	19.7	20.3	17.3	20.2	20.6	25.8	25.4	29.5	33.6	24.9	21.6	-	
WI165 NO	371039	400996	36.2	18.8	24.0	18.5	18.5	13.5	21.1	20.2	22.7	23.1	25.8	28.8	22.6	19.7	-	
WI166 NO	368414	399638	30.6	I/S	I/S	I/S	I/S	I/S	I/S	I/S	I/S	I/S	I/S	I/S	-	-	-	
WI167 NO	363544	397933	25.1	23.4	23.4	19.7	19.6	16.6	21.0	20.9	20.4	21.1	26.0	27.6	22.1	19.2	-	
WI168 NO	362463	397005	39.2	30.7	26.5	23.1	25.1	19.7	26.1	24.5	25.8	31.1	34.4	38.3	28.7	25.0	-	
WI169 NO	362557	396906	42.2	30.1	22.8	25.0	23.8	21.1	26.5	28.6	29.6	24.7	25.7	32.0	27.7	24.1	-	
WI170 NO	362236	396675	35.4	22.9	22.3	22.6	21.8	19.3	24.0	26.6	25.9	20.3	23.3	30.8	24.6	21.4	-	
WI171 NO	357095	400717	38.1	26.2	27.1	26.5	I/S	20.1	I/S	27.3	25.8	30.5	31.7	37.8	29.1	25.3	-	
WI172 NO	356881	401314	37.5	29.3	28.1	22.7	21.3	20.2	23.9	25.9	I/S	29.6	35.7	I/S	27.4	23.9	-	
WI173 NO	357983	405377	40.3	28.5	31.0	28.9	23.4	19.1	I/S	I/S	I/S	31.4	36.7	40.2	31.1	27.0	-	
WI174 NO	358294	405137	53.9	37.9	31.0	31.5	34.5	25.4	35.1	35.9	35.8	32.2	35.4	47.0	36.3	31.6	-	
WI175 NO	358537	405774	35.2	23.4	25.8	21.0	18.7	14.7	19.7	20.2	25.7	24.6	30.6	42.2	25.2	21.9	-	
WI176 NO	359227	405480	41.1	31.4	27.3	23.8	< 1.5	I/S	20.6	25.2	27.3	23.9	38.9	37.7	29.7	25.9	-	
WI177 NO	356230	410105	37.5	22.2	27.1	19.5	20.7	18.9	21.5	21.6	23.8	26.2	31.8	33.9	25.4	22.1	-	
WI178 NO	356021	410128	49.3	35.0	33.3	36.9	35.1	31.9	37.6	38.5	39.3	32.6	42.9	46.7	38.3	33.3	-	
WI179 NO	354900	410475	31.6	19.1	18.4	14.6	15.9	13.9	17.1	16.8	16.6	20.0	23.9	28.7	19.7	17.2	-	
WI180 NO	362105	396491	71.8	55.4	37.9	45.1	52.9	46.8	57.4	53.2	50.6	48.7	52.5	52.9	52.1	**45.3**	-	
WI181 NO	354819	406235	39.6	29.5	34.6	28.9	28.2	24.3	31.8	33.2	33.0	I/S	36.0	41.9	32.8	28.6	-	
WI183 NO	358595	405297	47.2	36.7	30.1	27.1	30.0	26.5	30.1	31.9	29.9	33.0	I/S	38.6	32.8	28.6	-	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
WI184 NO	358013	405654	39.4	21.0	30.1	24.9	21.4	17.8	22.9	24.2	32.3	31.4	37.9	41.4	28.7	25.0	-	
WI185 NO	358054	405613	41.1	27.4	32.3	26.8	28.1	24.8	30.8	30.3	I/S	35.5	39.4	40.4	32.4	28.2	-	
WI186 NO	358070	405587	51.0	33.1	36.5	34.7	34.4	26.6	31.0	33.9	38.7	38.7	47.5	49.8	38.0	33.1	-	
WI188 NO	362111	396526	47.1	36.2	31.8	29.7	34.4	30.7	34.4	33.2	35.8	34.8	39.5	35.6	35.3	30.7	-	
WI189 NO	362095	396547	37.8	23.1	28.8	26.2	I/S	I/S	N/A	N/A	N/A	N/A	N/A	N/A	29.0	21.9	-	
WI192 NO	356771	403124	34.1	23.6	29.7	24.3	20.1	16.4	21.2	23.6	26.9	30.7	38.3	41.8	27.6	24.0	-	
WI193 NO	363885	403129	49.7	29.7	33.0	I/S	23.4	18.1	30.5	I/S	33.8	31.1	38.6	42.8	33.1	28.8	-	
WI194 NO	371037	402472	28.4	14.4	16.7	14.7	12.8	10.0	16.6	15.3	17.0	16.7	21.5	27.2	17.6	15.3	-	
WI195 NO	366254	403598	25.8	11.4	I/S	16.4	12.1	9.8	16.5	16.2	18.2	19.7	23.5	28.4	18.0	15.7	-	
WI196 NO	365850	403263	27.5	16.8	18.3	14.8	I/S	I/S	N/A	N/A	N/A	N/A	N/A	N/A	19.4	14.6	-	
WI197 NO	361411	408031	32.7	19.4	21.4	14.7	13.3	10.9	16.2	14.8	15.8	18.2	28.5	30.2	19.7	17.1	-	
WI199 NO	360501	397988	35.6	23.5	29.2	22.9	20.3	15.8	23.4	24.0	27.1	I/S	32.4	33.5	26.2	22.8	-	
WI200 NO	363262	399815	34.3	20.3	22.1	19.1	17.5	15.2	18.6	19.1	19.7	21.1	27.2	32.6	22.2	19.3	-	
WI201 NO	356493	406759	34.3	19.4	24.9	18.5	16.0	12.2	18.0	17.9	22.4	23.2	27.6	33.5	22.3	19.4	-	
WI202 NO	358222	407262	29.6	17.3	18.9	13.7	12.3	11.7	14.0	13.7	16.7	19.9	25.5	34.1	19.0	16.5	-	
WI203 NO	357569	408645	24.4	13.3	20.6	15.7	11.2	10.1	13.0	15.8	17.4	18.4	23.2	27.0	17.5	15.2	-	
WI204 NO	358161	399510	30.1	20.3	21.7	17.4	15.9	13.8	16.9	17.8	19.9	19.3	22.2	30.9	20.5	17.8	-	
WI205 NO	362151	396604	35.8	22.9	28.7	22.1	21.0	17.0	24.2	23.5	24.2	28.3	32.6	35.1	26.3	22.9	-	
WI206 NO	362162	396325	34.9	20.3	30.8	24.0	I/S	I/S	N/A	N/A	N/A	N/A	N/A	N/A	27.5	20.7	-	
WI207 NO	362171	396329	44.0	28.4	25.9	24.6	I/S	I/S	N/A	N/A	N/A	N/A	N/A	N/A	30.7	23.2	-	
WI208 NO	365687	400238	38.8	27.6	26.7	20.2	21.2	20.0	24.7	24.4	27.2	26.8	32.0	38.9	-	-	-	Triplicate Site with WI208NO, WI209NO and WI210NO - Annual data provided for WI210NO only

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
WI209 NO	365687	400238	37.6	25.9	25.0	21.6	23.1	17.9	24.2	25.2	26.3	26.1	32.2	38.4	-	-	-	Triplicate Site with WI208NO, WI209NO and WI210NO - Annual data provided for WI210NO only
WI210 NO	365687	400238	41.7	26.3	27.4	21.9	20.7	19.5	I/S	24.5	25.7	28.4	33.3	36.5	27.3	23.7	-	Triplicate Site with WI208NO, WI209NO and WI210NO - Annual data provided for WI210NO only
WI211 NO	372302	401593	30.8	16.3	18.2	13.7	10.5	8.8	13.3	13.0	17.0	17.4	24.6	31.3	17.9	15.6	-	
WI212 NO	356827	402135	29.9	24.5	32.0	29.5	25.5	I/S	23.8	30.2	31.5	35.2	35.1	36.2	30.3	26.4	-	
WI213 NO	362019	396512	27.7	14.6	22.4	14.9	12.7	9.2	15.3	16.2	17.1	18.5	23.8	28.6	18.4	16.0	-	
WI214 NO	361979	396501	31.5	17.6	I/S	17.9	14.1	10.0	16.3	16.5	18.5	19.3	23.5	29.9	19.6	17.0	-	
WI215 NO	361981	396490	31.5	17.1	19.3	I/S	15.6	12.1	19.4	19.4	19.5	18.0	21.9	29.4	20.3	17.7	-	
WI216 NO	358464	405342	49.8	36.9	32.4	29.3	32.6	28.5	36.3	37.1	36.8	38.3	42.5	I/S	36.4	31.7	-	
WI217 NO	357780	405306	I/S	I/S	28.6	22.0	17.7	14.0	21.8	22.0	23.9	29.4	38.4	34.7	25.3	22.0	-	
WI218 NO	357839	405296	I/S	I/S	I/S	I/S	I/S	I/S	I/S	I/S	I/S	I/S	I/S	I/S		-	-	
WI219 NO	357484	405407	31.6	21.6	26.6	17.8	15.9	13.4	18.0	18.0	22.0	I/S	I/S	I/S	20.5	17.9	-	
WI220 NO	357420	405407	31.1	20.0	19.8	17.4	15.5	13.3	16.6	17.3	20.4	22.0	26.6	32.1	21.0	18.3	-	
WI221 NO	360499	397867	36.6	24.6	27.1	21.6	19.9	16.0	21.9	20.5	21.4	25.7	31.5	33.6	25.0	21.8	-	
WI222 NO	360491	397842	42.0	27.8	25.3	23.3	24.8	20.9	25.5	23.3	26.4	31.1	36.6	36.9	28.7	24.9	-	
WI223 NO	360430	397779	37.5	24.8	26.7	21.6	20.9	17.4	21.2	22.3	24.2	26.8	30.8	35.0	25.8	22.4	-	
WI224 NO	360418	397775	46.1	30.6	34.5	29.3	31.7	24.2	31.8	33.0	33.1	37.3	41.5	45.1	34.9	30.3	-	
WI225 NO	360459	397995	35.9	23.4	26.6	19.4	19.1	15.7	20.4	19.1	21.5	26.5	20.2	35.0	23.6	20.5	-	
WI226 NO	360462	398006	33.9	19.8	24.3	17.8	17.2	15.3	20.5	19.5	23.0	25.5	28.7	34.5	23.3	20.3	-	
WI227 NO	360576	398144	43.3	31.5	I/S	19.7	21.1	18.9	23.4	23.0	23.0	27.4	33.5	37.8	27.5	23.9	-	
WI228 NO	360578	398126	I/S	24.5	28.2	I/S	21.7	19.3	23.0	I/S	23.8	26.3	31.2	33.9	25.8	22.4	-	

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	Annual Mean: Distance Corrected to Nearest Exposure	Comment
WI229 NO	360374	397928	34.2	22.9	27.9	20.6	I/S	I/S	21.2	I/S	I/S	I/S	I/S	I/S	25.4	21.1	-	
WI230 NO	360380	397912	50.1	35.3	30.7	29.2	29.6	25.0	30.4	27.9	27.7	34.2	38.9	42.6	33.5	29.1	-	
WI231 NO	357473	398990	39.1	27.4	26.3	28.2	26.0	22.8	28.3	30.4	33.8	31.0	30.7	37.3	30.1	26.2	-	
WI232 NO	357635	399502	33.3	19.7	24.2	17.8	14.1	14.3	I/S	17.2	18.6	I/S	28.4	33.7	22.1	19.3	-	
WI233 NO	357445	406461	35.6	21.2	25.1	17.1	14.4	I/S	I/S	I/S	22.3	24.9	32.2	35.6	25.4	22.1	-	
WI234 NO	363136	403467	43.5	I/S	31.3	24.4	22.9	21.7	28.3	23.7	29.0	29.8	39.0	43.3	30.6	26.6	-	
WI235 NO	365419	399116	35.6	23.4	I/S	18.3	18.9	15.9	20.6	19.2	19.7	20.8	25.9	31.4	22.7	19.7	-	
WI236 NO	365386	400353	30.7	16.8	19.9	14.7	12.3	10.3	14.6	14.3	16.6	18.4	24.6	32.4	18.8	16.4	-	
WI237 NO	367352	403200	34.2	22.0	25.7	20.3	17.6	12.8	20.8	20.5	22.7	24.7	31.5	36.8	24.1	21.0	-	
WI238 NO	369056	402146	35.9	23.6	24.7	19.6	19.7	17.2	22.5	22.2	24.5	26.8	32.1	35.8	25.4	22.1	-	
WI239 NO	357092	404213	I/S	I/S	18.4	I/S	11.0	10.3	13.3	13.9	18.2	19.2	24.9	29.5	17.6	15.3	-	
WI240 NO	360220	407146	33.9	21.8	22.3	17.8	16.5	13.8	17.6	22.3	22.0	21.7	24.4	31.2	22.1	19.2	-	
WI241 NO	358025	406658	38.9	25.8	25.5	I/S	20.1	15.0	20.8	22.4	24.2	I/S	34.7	40.8	26.8	23.3	-	
WI242 NO	362056	398246	N/A	N/A	N/A	I/S	13.4	10.6	13.6	15.0	17.1	19.5	25.9	30.6	18.2	17.1	-	
WI243 NO	362030	398210	N/A	N/A	N/A	I/S	15.9	13.0	16.0	15.0	18.7	19.7	24.8	29.9	19.1	17.9	-	
WI244 NO	357610	406859	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	19.8	23.3	28.5	31.3	25.7	18.5	-	

☒ **All erroneous data has been removed from the NO_2 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**

☒ **Greater Manchester confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Greater Manchester During 2022

Bury Metropolitan Borough Council

Air Quality Assessment reports for a number of sites have been reviewed and assessed in 2022. The air quality assessments all demonstrated that the impacts would not be significant at relevant receptor locations. All planning applications with parking spaces have been required to install EV charging points. The specification for which is submitted and assessed by Bury Council. Construction and environmental management plans are also required for the construction phase of larger developments.

An application was received for the installation of 7 biomass boilers (total thermal input of 940kW) at an industrial premises. The site is not located within an Air Quality Management Area but is located within a Smoke Control Area. An air quality assessment was undertaken using a dispersion model (ADMS-5 v5.2.4.00). The modelling concluded that stack emissions would not lead to concentrations of NO_2 or $PM_{10}/_{2.5}$ exceeding the relevant AQOs at sensitive receptors, therefore the impact on air quality of the development was considered negligible and 'not significant'. However, planning conditions were recommended to ensure that:

- the proposed boilers are Defra exempt appliances,
- only high-quality fuels (*ENplus certified* wood pellets) are burnt.
- the stacks terminate above the apex of the building.
- regular maintenance of the boilers is undertaken.
- the boilers do not cause any odours to be present at the nearest odour sensitive property.

Salford City Council

A search was conducted using the Salford City Council planning public access website pages for all types of major development planning applications with an associated air

quality assessment, which were granted planning permission during 2022. Eight results were found, with half (4) relating to major large and small scale dwelling developments.

The associated air quality assessments concluded that none of these new developments were deemed to have a significant adverse impact on air quality. Dust control mitigation measures were proposed during the construction/ demolition phase for all the developments. Recommended mitigation measures also included the installation of electric vehicle charging points at the majority of developments in accordance with Local Plan policy and Building Regulations requirements.

There have been no planning applications related to large biomass installations, combined heat and power (CHP) or district heating schemes in 2022.

In 2022, 1 x part A industrial process permit variation was granted and 4 x part B industrial installations were granted a permit in Salford under the Environmental Permitting (England and Wales) Regulations 2016. The air quality impact of these installations is not considered to be significant assuming the use of best available techniques to minimise pollution.

Trafford Metropolitan Borough Council

Significant applications that have been received in 2022 in relation to air quality impacts include:

- Trafford Waters Residential Development
- Warehousing/Commercial Park in Carrington
- HS2
- Small energy reserve facilities
- Residential development within Air Quality Management Area

Additional Air Quality Works Undertaken by Greater Manchester During 2022

Salford City Council

In July 2019, Salford City Council declared a climate emergency. Salford's Climate Change work is organised so that it reflects the Greater Manchester five year environment plan under the following themes:

- Our energy supply
- Our homes, workplaces and public buildings
- Transport
- Our natural environment
- Our production and consumption of resources
- Our resilience and adaptation to climate change

A climate action board was established to bring together stakeholders from across the council and external organisations to oversee projects and programmes associated with meeting the city's carbon neutral target. A number of subgroups of the board have been organised to do more detailed work on various subject areas, outlined below:

- Our homes - Reducing carbon emissions from homes by retrofitting and reducing heat demand.
- Our buildings - Reducing carbon emissions and heat demand from existing and new commercial and public buildings
- Our resources - Producing Goods and services more sustainably, and becoming more responsible consumers. Also, Managing our waste as sustainably as possible and reducing unnecessary food waste
- Our green infrastructure - Increasing biodiversity and managing green and blue infrastructure sustainably. Increasing investment and engagement in the natural environment.
- Our travel - Increasing use of public transport and active travel modes and phasing out fossil-fuelled private vehicles with zero emission vehicles
- Culture change and engagement - Encouraging positive engagement and behaviour change and raising awareness of programme and impact

Salford City Council continues to implement energy efficiency measures across its portfolio to reduce it's carbon emissions. This includes securing over £7.5M in Salix grant funding as part of the Public Sector Decarbonisation Scheme to install roof top solar PV, air source heat pumps and battery storage. Total CO2 savings via the climate change work up to end of December 2019 was 59% - equivalent to a reduction of 21,777 Tonnes of CO2 since 2007.

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Trafford Metropolitan Borough Council

In 2022 Trafford Council commenced work, in conjunction with the other Greater Manchester Authorities, on collating emissions data from industrial premises within the borough to inform a review of the air quality management area. This work will be completed in 2023

QA/QC of Diffusion Tube Monitoring

Diffusion Tube Annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%.

Table C.1 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Piccadilly	Annualisation Factor Wigan Centre	Annualisation Factor Glazebury	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
Diffusion Tubes						
BO15NO	0.9751	0.9902	0.9601	0.9751	36.1	35.2
BO53NO	0.9096	0.8725	0.8520	0.8780	33.2	29.1
BO64NO	1.0126	0.9752	1.0003	0.9960	27.6	27.5
BO72NO	0.9120	0.9211	0.9360	0.9230	46.1	42.5
RO13ANO	1.0757	1.1429	1.1270	1.1152	20.6	22.9
RO15ANO	1.0034	1.0164	1.0736	1.0311	22.0	22.7
RO18ANO	1.0787	1.0555	1.0264	1.0535	24.8	26.1
RO27ANO	0.9354	0.9406	0.9856	0.9539	37.7	35.9
SA71NO	1.3084	1.4701	1.3578	1.3787	25.4	35.1
TA57NO	0.9270	0.9272	0.9009	0.9184	41.2	37.8
TR30NO	0.9385	0.9025	0.9097	0.9169	18.7	17.1
WI150NO	0.8396	0.8656	0.8958	0.8670	37.9	32.8
WI189NO	0.8396	0.8656	0.8958	0.8670	29.0	25.1
WI196NO	0.8396	0.8656	0.8958	0.8670	19.4	16.8
WI206NO	0.8396	0.8656	0.8958	0.8670	27.5	23.8
WI207NO	0.8396	0.8656	0.8958	0.8670	30.7	26.6
WI229NO	0.9183	0.9598	0.9892	0.9558	25.4	24.2
WI242NO	1.1030	1.0802	1.0498	1.0777	18.2	19.6
WI243NO	1.1030	1.0802	1.0498	1.0777	19.1	20.6
WI244NO	0.8828	0.7969	0.8042	0.8280	25.7	21.3
Automatic Monitoring Stations						
Bury Bridge Automatic NO2	0.919996089	0.862590459	0.82435686	0.868981136	26	22.59
Manchester Bridge St Automatic NO2	0.828845068	0.737667193	0.729744803	0.7654206	50	38.27
Site ID	**Annualisation Factor Salford Eccles**	**Annualisation Factor**	**Annualisation Factor Warrington**	**Average Annualisation Factor**	**Raw Data Annual Mean**	**Annualised Annual Mean**

Site ID	Annualisation Factor Piccadilly	Annualisation Factor Wigan Centre	Annualisation Factor Glazebury	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
		Wigan Centre				
Salford Glazebury Automatic PM10	1.12	1.13	1.15	1.13	11.2	12.7
Salford Glazebury Automatic PM2.5	1.14	1.16	1.17	1.16	6.5	7.6

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 ASR have been corrected for bias using an adjustment factor. 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.

Greater Manchester have applied a National bias adjustment factor of 0.87 to the 2022 monitoring data. A summary of bias adjustment factors used by Greater Manchester over the past five years is presented in Table C.2.

The National Bias Adjustment Factor used (Staffordshire Scientific Services) was calculated using factors generated from nine sites across four Local Authorities in Greater Manchester, in addition to several studies from outside of GM; all with a range of site types. For these reasons, the National factor was felt to be more appropriate than a local factor, as well as more robust.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor

2022	National	03/23[30]	0.87[31]
2021	National	03/22	0.86
2020	National	03/21	0.85
2019	National	03/20	0.93
2018	National	03/19	0.87

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

Table C.3 – NO_2 Fall off With Distance Calculations (concentrations presented in $\mu g/m^3$)

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
BO03NO	0.5	2.5	36.6	15.6	30.6	
BO69NO	1.5	31.5	39.2	15.4	23.3	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
BO71NO	1.5	301.5	39.7	15.3	-	*Warning: Receptor to kerb must be between 0.1m and 50m to calculate concentration*

[30] For more information, see the National Bias Adjustment Factor Spreadsheet March 2023

[31] 12 Studies used to calculate the factor.

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
						. Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road
BO72NO	9.5	84.5	37.0	15.3	-	*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*
BO73NO	2.0	5.0	38.3	18.45648	34.0	
BU12NO	0.5	2.4	38.7	14.9	32.1	
BU13NO	0.5	11.5	36.9	14.9	24.7	
BU15NO	0.5		40.5	19.7	-	*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*

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
						Kerb of Nearest Road
BU16NO	2.2	7.2	39.0	21.33821	33.9	
BU19NO	12.0	19.0	37.7	19.69197	34.4	*Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.*
MA9ANO	0.5	43.5	37.5	26.3	28.6	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
MA29ANO	2.5	4.5	49.8	24.7	**46.2**	*Predicted concentration at Receptor above AQS objective.*
MA75NO	0.5	3.5	38.8	16.5	31.2	
MA82NO, MA83NO, MA84NO	3.0	8.0	42.6	24.74275	*38.1*	*Predicted concentration at Receptor within 10% the AQS objective.*
MA88ANO	3.0	28.0	39.2	16.75132	26.2	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
MA96BNO	3.0	5.0	43.5	21.7	**40.6**	*Predicted concentration at Receptor above AQS objective.*
MA103BNO	2.0	4.0	40.1	17.0	*36.3*	*Predicted concentration at Receptor within 10% the AQS objective.*
MA104BNO	2.0	2.5	37.9	19.0	*36.9*	*Predicted concentration at Receptor*

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
						within 10% the AQS objective.
OL368MRNO	4.4	6.4	38.9	16.5	*36.5*	*Predicted concentration at Receptor within 10% the AQS objective.*
OLWSMSNO	4.6	36.6	37.1	17.5	25.3	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
OL17SRNO	0.0	1.5	40.4	17.0	-	*Warning: Monitoring Site 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*
OL21SRNO	2.0	2.5	43.8	14.58871	**42.3**	*Predicted concentration at Receptor above AQS objective.*
OL12ORNO	1.5	2.0	47.0	14.58871	**44.9**	*Predicted concentration at Receptor above AQS objective.*
SA63NO	21.5	25.5	38.0	18.9	*36.3*	*Predicted concentration at Receptor within 10% the AQS objective.*

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
						Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution. Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.
SA65NO	3.0	13.0	37.7	17.9	30.2	
SA68NO	2.5	6.0	38.7	15.5	33.7	
SA69NO	1.5	10.0	39.9	15.34758	29.7	
SA72NO	0.5	2.5	37.4	17.16764	31.6	
SA73NO	3.0	78.0	39.7	21.1	-	*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*
ST34NO	2.0	8.0	36.0	21.2	31.2	
TA11NO	2.0	3.0	43.9	9.3	**40.6**	*Predicted concentration at Receptor above AQS objective.*
TA18NO	2.0	37.0	38.3	19.9	25.7	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat*

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
						result with caution.
TA21NO	1.0	2.0	39.0	9.2	34.9	
TA45NO, TA46NO, TA47NO	5.0	29.0	39.1	10.30091	24.0	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
TA52NO	5.0	108.0	36.9	18.9958	-	*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*
TA54NO	3.0	27.0	41.5	21.9	30.3	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*
TA55NO	3.0	9.0	45.9	21.9	*39.1*	*Predicted concentration at Receptor within 10% the AQS objective.*
TA64NO	0.0	1.0	36.7	16.3	-	*Warning: Monitoring Site to Kerb must be between 0.1m and 50m to calculate*

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
						concentration . Please check distances and update STEP 2 - Diffusion Tube Inputs tab Columns Distance to Relevant Exposure and Distance to Kerb of Nearest Road
WI129NO	2.0	5.0	36.8	12.3	31.6	
(Automatic) Manchester Oxford Road	3.0	8.0	24.7	43.0	*38.4*	Predicted concentration at Receptor within 10% the AQS objective.

Table C.4 Monthly Outliers

Diffusion Tube data will occasionally report monthly concentrations that do not correlate with expected values at this site. Table C.4 outlines outlying monthly values, including the annual mean at the site before and after the monthly concentration has been removed. These monthly concentrations have been regarded by the Authority as erroneous given the type of location, and comparison with other measured concentrations from the same location. As a consequence, these have been removed from the annual results.

Tube	Monthly Concentration Observed (µg/m^3)	Month	Reason	Annual Mean at site when including month (µg/m^3)	Annual Mean at site when excluding month (µg/m^3)
BO48	581.5	Jan	High	**61.8**	21.4
BOA104	183.5	Jan	High	**46**	35.6
OL1	513.4	March	High	**79.4**	35
OL1	180	September	High		
RO12	350.3	Jan	High	**55.8**	31
BU14	8.2	May	Low	28.6	30.7
RO21	5.6	Jan	Low	25.4	27.7
RO22	6.7	Dec	Low	29.8	32.2
TA25	2	May	Low	18.3	21.1
TA25	7.6	June	Low		

QA/QC of Automatic Monitoring

Greater Manchester Air Quality Network (GMAQN)

Automatic air quality analysers in the GMAQN are subject to a high level of quality assurance/ quality control. All analysers are either operated as part of the national Automatic Urban and Rural Network (AURN) or to equivalent standards.

Data management and ratification

Analysers that are not part of or affiliated to the AURN are part of the 'Calibration Club' scheme run by Ricardo-AEA. Data management and ratification procedures are equivalent to the AURN, the main features being:-

- Data screened daily for errors including manual and automatic checks.
- Data scaled in accordance with AURN and DEFRA Technical Guidance (TG 16) procedures.
- Any data errors or faults reported to Local Site Operators on the same or next working day.
- Independent audits twice per year.
- Final data set scaled and ratified to same standard as the AURN.

Automatic data used in the report is fully ratified.

Analyser service and maintenance

Automatic analysers that are not part of or affiliated to the AURN have a dedicated Equipment Support Unit (ESU), which is currently Enviro Technology Services Ltd. The ESU service contract specification includes:

- Analyser routine servicing and maintenance twice per year to manufacturers specifications and AURN procedures.
- 48 hour callout to attend analyser non-routine maintenance and breakdown repair events.
- Air conditioning system routine service and maintenance in accordance with the manufacturers recommendations and 48 hour callout to attend maintenance and breakdown repair events.
- Fixed wire and portable appliance electrical testing.

Local Site Operators (LSOs)

Local authority officers carry out LSO duties, which includes:

- Management of automatic sites within their local authority area.
- Routine instrument calibrations using calibration gases traceable to primary standards – every 2 weeks for Roadside sites, every 4 weeks for Urban Background/ Urban Industrial sites.
- Emergency call-out visits, including carrying out some simple or temporary repairs as directed by the AURN management unit, Ricardo or the ESU.

Live and historic data is available at **Air Quality England** and **CleanAirGM**.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

All Automatic PM_{10} and $PM_{2.5}$ continuous analysers use BAM and FIDAS, which are reference equivalent and do not require correction.

A number of different instruments are used in Greater Manchester for the measurement of particles. Historically TEOM have been used, but DEFRA replaced a number of instruments with TEOM FDMS and some sites use the BAM or Partisol.

The reference method for the UK PM_{10} Objectives (and EU limit values) is based upon measurements from a gravimetric sampler. This samples over a 24 hour period and the particulate proportion less than 10 microns (PM_{10}) is measured by the mass difference before and after exposure. It is labour intensive and the UK, and European countries have invested heavily in the TEOM (Tapered Element Oscillating Microbalance). The TEOM measurements have been historically adjusted by a factor of 1.3 to make them gravimetric equivalent. However to further improve the technique; the measurement was modified by lowering the sampling temperature from 50°C to 30°C and adding a dryer to remove water vapour. This system is referred to a Filter Dynamics Measurement System (FDMS) and is equivalent to the EU reference method.

Due to widespread use of the TEOM, and its reliability and the need to report to the EU using an 'equivalent method', The Volatile Correction Model (VCM) was developed by Kings College London, to adjust the TEOM data. Studies have shown that FDMS sites within 200 kilometres can be used to correct the TEOM data as it assumes that the sample lost by the heating is the same over this geographical area. Sufficient FDMS sites have only been available since 2008/9 for the correction to be applied. VCM corrections have been applied to TEOM analyser results automatically since 2014 and historic records within the ASR have been altered to reflect VCM corrected results.

Automatic Monitoring Annualisation

Two sites have required Annualisation for 2022: Bury Bridge, a new site monitoring NO_2, which went live on 8th August 2022, and as a result had a data capture rate of 39.55%; and Salford Glazebury, an existing site, which began monitoring PM_{10} & $PM_{2.5}$ on June 1st 2022, and as a result had a data capture of 58.33% for these pollutants. See Table C1 for details.

Another new site monitoring NO_2, Manchester Bridge Street, went live on 25th September 2022 producing an annual data capture rate of 23%, and therefore does not qualify for inclusion within this report according to the LAQM guidelines.

NO_2 Fall-off with Distance from the Road

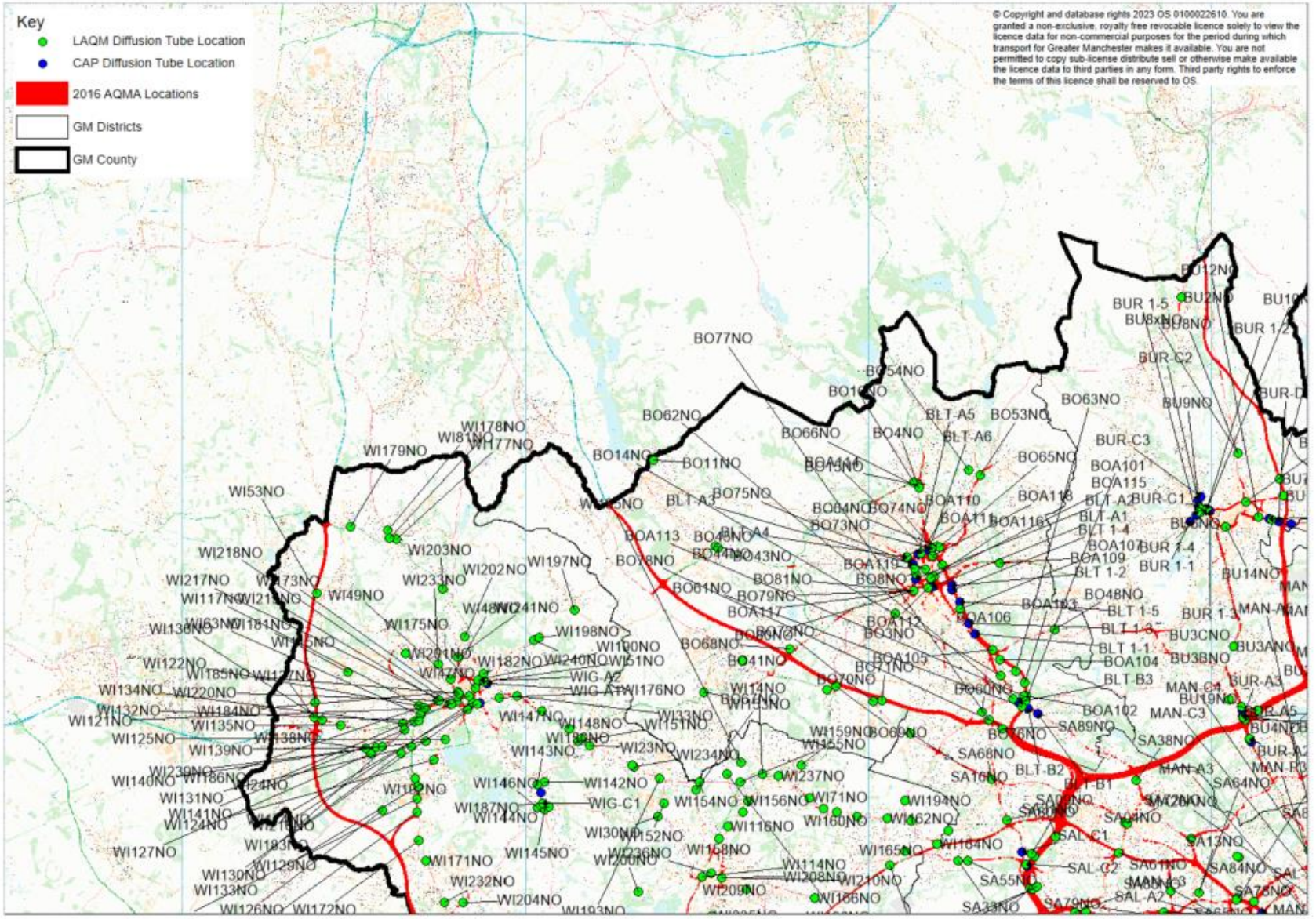
Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

Only one exceedance was recorded in 2022 at an automatic station at Oxford Road Manchester (43 µg/m^3), when corrected for exposure was calculated at 38.4 µg/m^3. Please see Table C.3 for details.

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

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

Maps of Non-Automatic Monitoring Sites (Diffusion Tubes) are presented below. For an interactive map, please visit the Clean Air GM Data Hub.


Key
LAQM Diffusion Tube Location
CAP Diffusion Tube Location
2016 AQMA Locations
GM Districts
GM County
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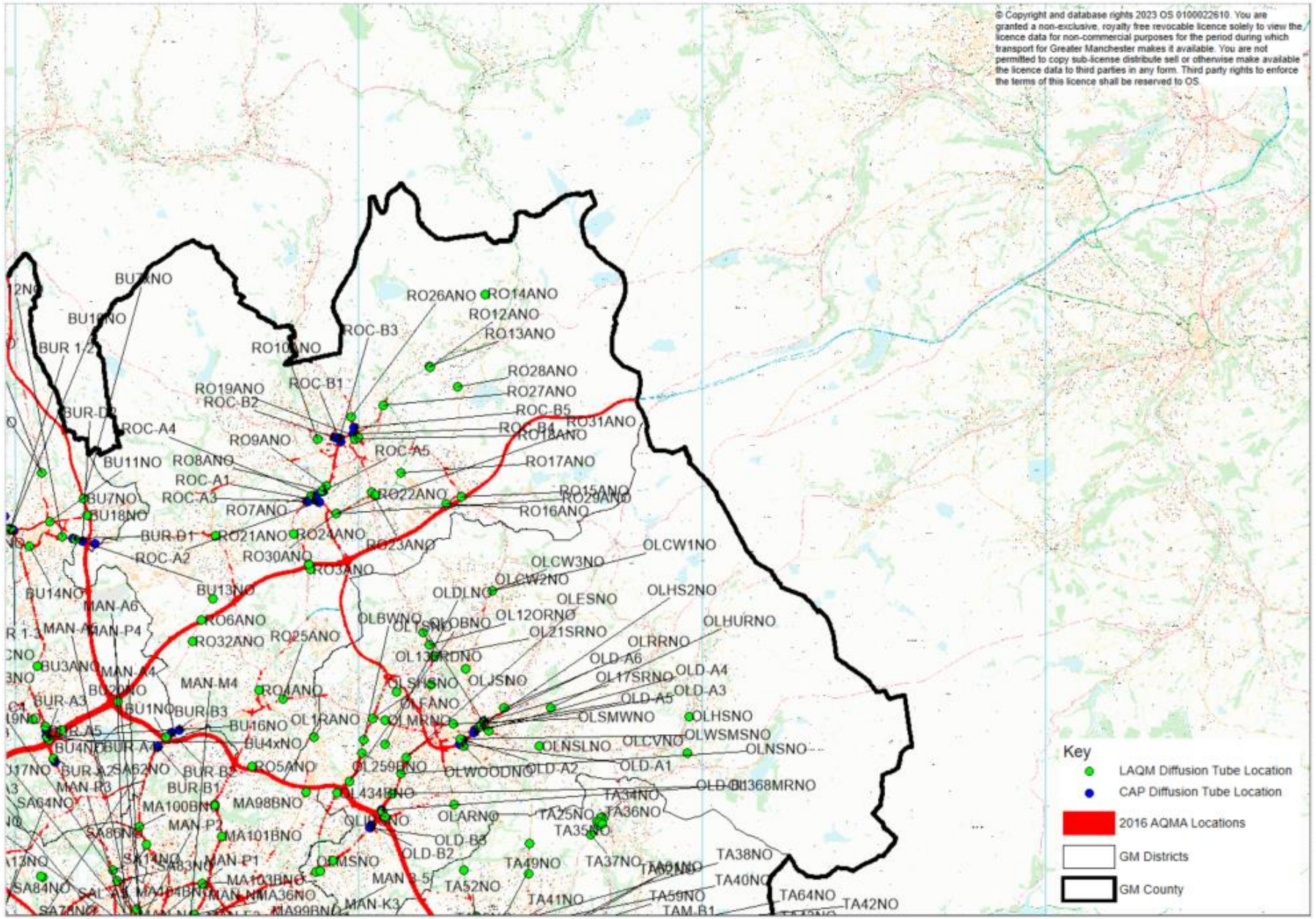
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Key
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CAP Diffusion Tube Location
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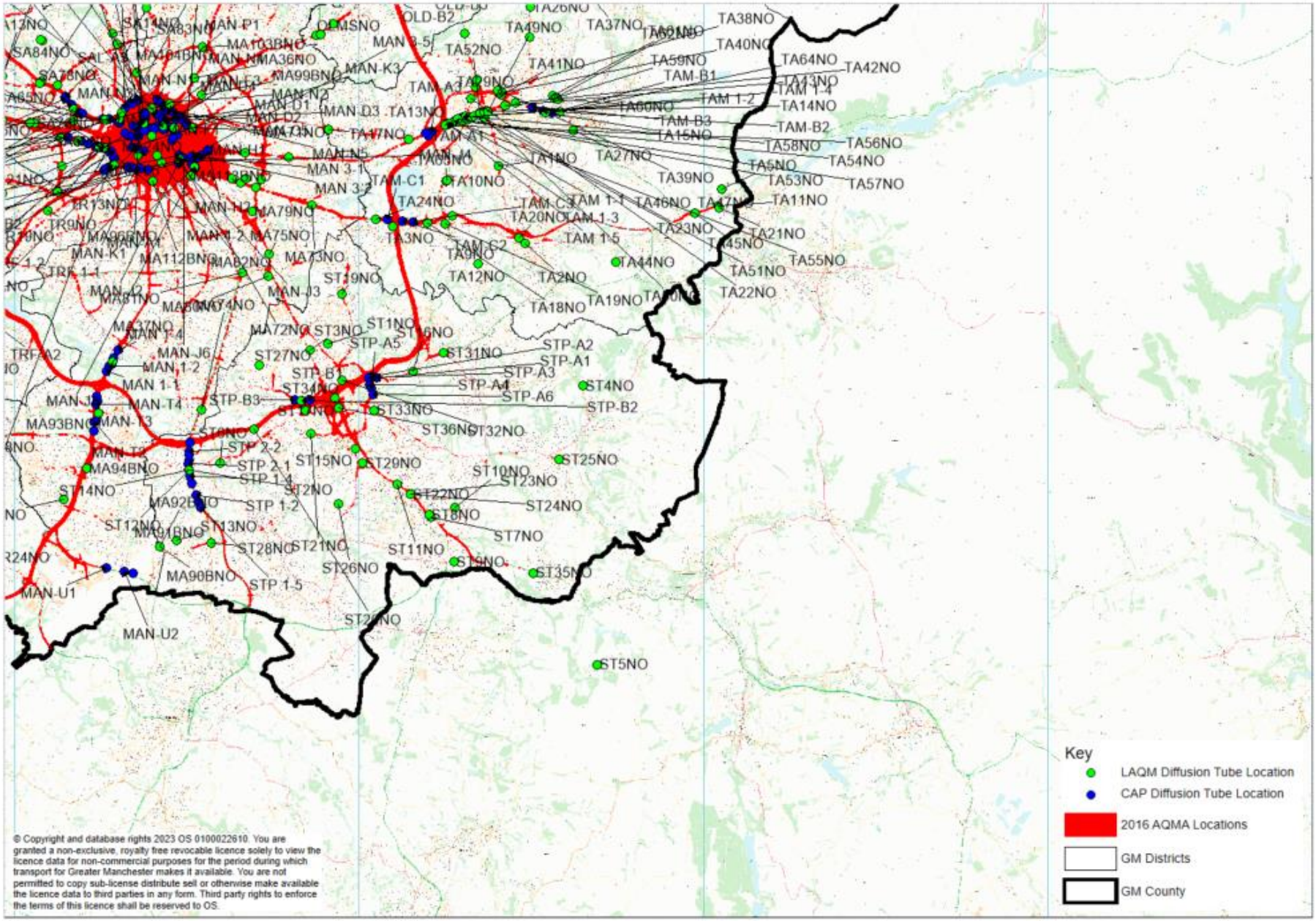
GM Districts
GM County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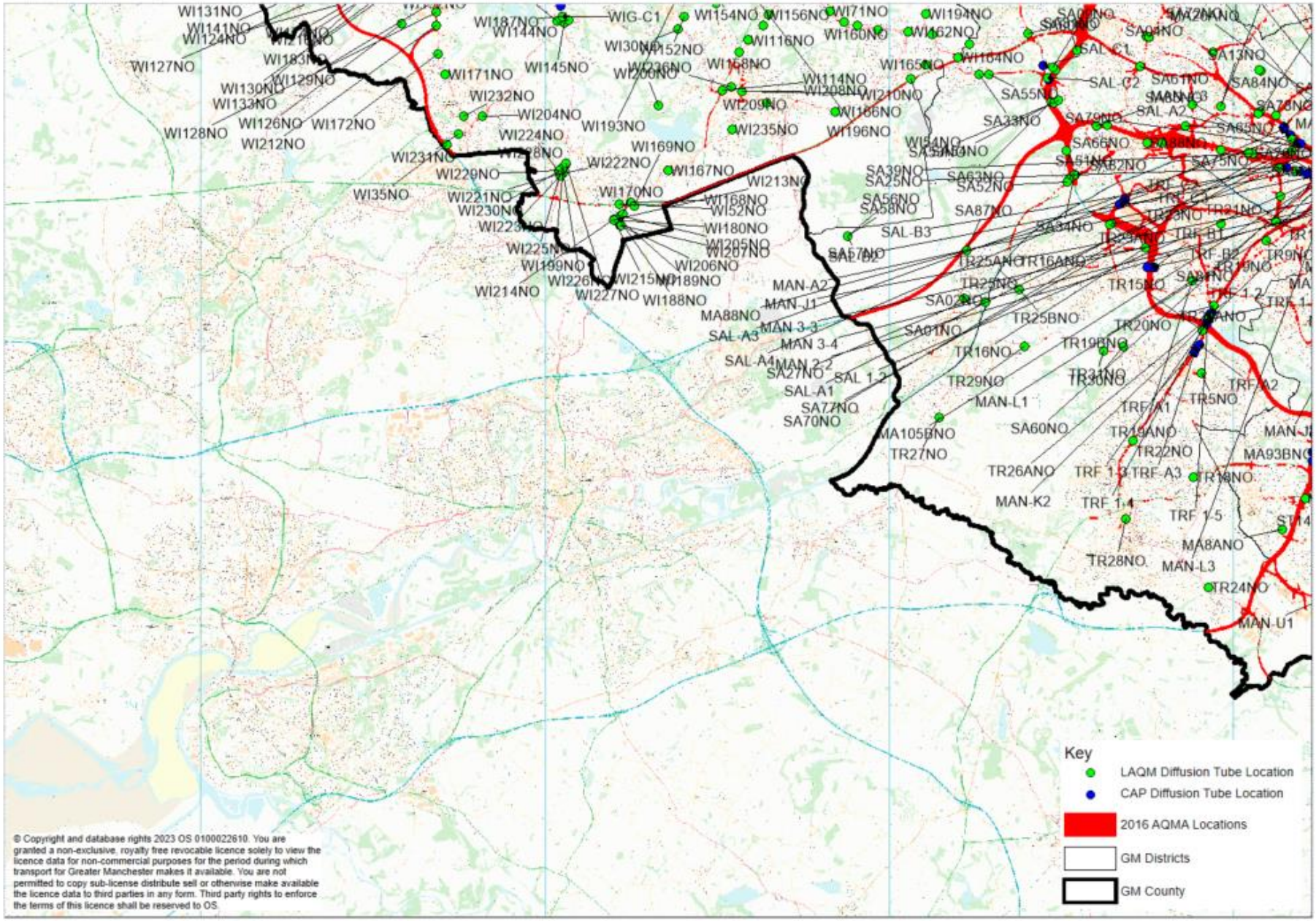
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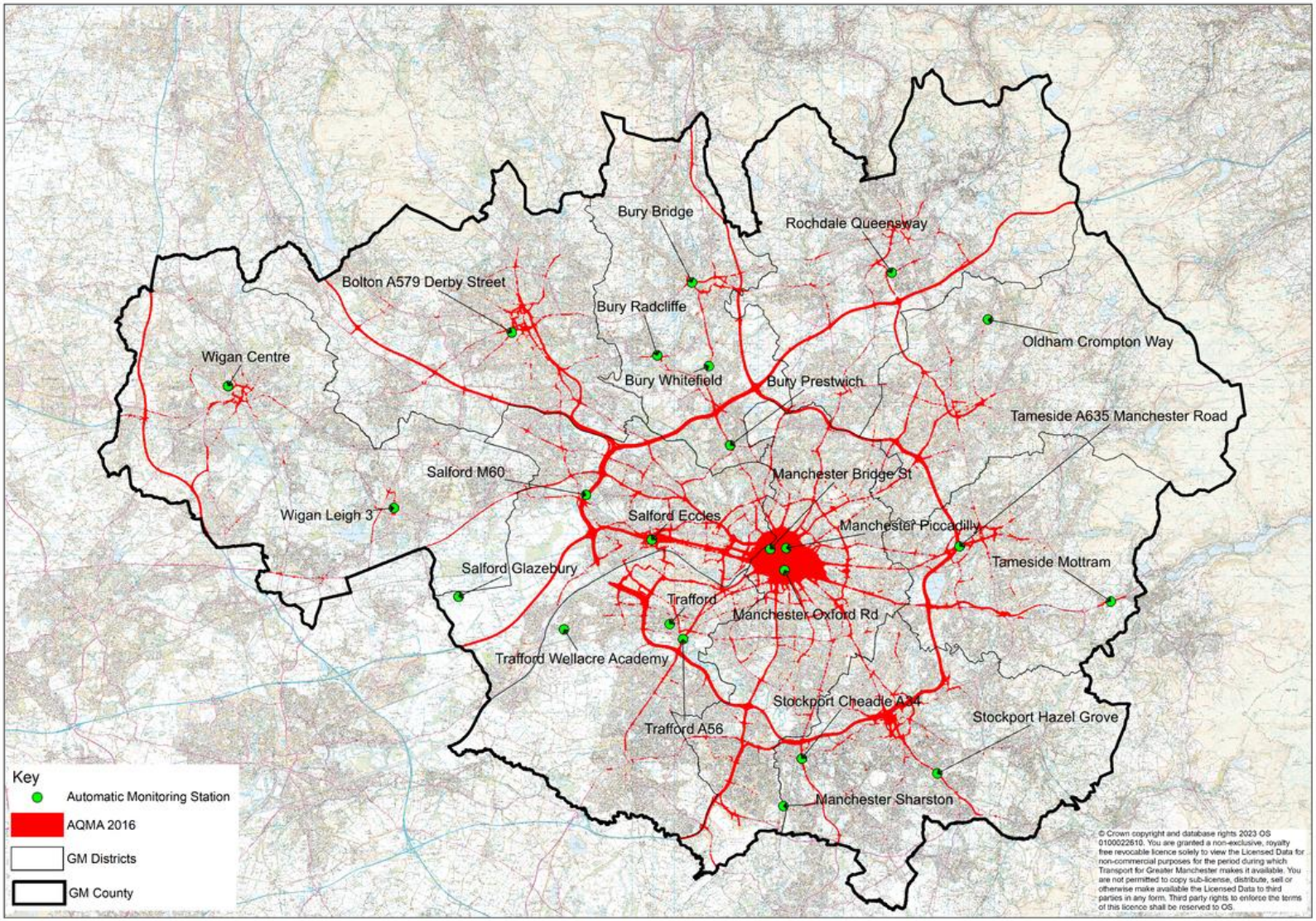
Figure D.2 – Map of Automatic Monitoring Sites



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[32]

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

[32] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Appendix F: Feedback from 2021 ASR

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

1. The boundary of the single AQMA has not been amended by the Combined Authority

   GM Response: As set out in the Greater Manchester Combined Authority LAQM Annual Status Report 2021. Defra confirmed that GM's Air Quality Action Plan does not need to be updated until the outcome of the implemented GM Clean Air Plan to address roadside NO_2 has been determined. Consequently, modelling of a renewed AQMA around sites of high pollution, and close observation of the situation here, have also been deferred. However, areas outside the AQMA that have been identified as having non-compliant pollution concentrations are under investigation.
2. Trends are presented and discussed extensively. The Combined Authority generally see increased NO_2 concentrations compared to 2020, but reductions compared to pre-pandemic levels. This can be attributed to traffic volumes returning to pre-pandemic levels in 2021, and the overall downward trend is encouraging. A robust comparison to air quality objectives is also provided.
3. The Greater Authority has provided an extensive list of action plan measures across its constituent councils and all the relevant fields have been completed with detailed comments.
4. The number of diffusion tube and automatic monitoring sites have been increased by the Combined Authority across its constituent councils within their monitoring network. This is very much welcomed, and will help to inform the efficacy of measures, such as the Greater Manchester Clean Air Plan, in improving air quality.
5. The Combined Authority has robust QA/QC procedures, which were applied appropriately and accurately to the 2021 monitoring data. Calculations for bias adjustment and the annualisation completed were outlined in detail. However, although it is agreed that the correct decision was made, it is not clear why there was a preference for a national bias adjustment factor over a local bias adjustment factor. An explicit justification of this choice of adjustment factor should be provided.

   GM: The National Bias Adjustment Factor used (Staffordshire Scientific Services) was calculated using factors generated from nine sites across four

Local Authorities in Greater Manchester, in addition to several studies from outside of GM; all with a range of site types. For these reasons, the National factor was felt to be more appropriate than a local factor, as well as more robust.

6. Comments from last year's appraisal have been included and responded to, where necessary. This is encouraging to see and should be carried forward in subsequent reports.
7. There were several instances where formatting issues were encountered. This included incorrectly emboldened / coloured text and missing subscripted letters and numbers. Although this did not affect the readability of the report, it is advised that it is checked for formatting and typographical issues prior to submission.
8. Overall, the report is detailed, concise and satisfies the criteria of the relevant standards. The Greater Authority should continue their good and thorough work.

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
EVCI	Electric Vehicle Charging Infrastructure
FDMS	Filter Dynamics Measurement System
GM CAP	Greater Manchester Clean Air Plan
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
SRN	Strategic Road Network
UTC	Urban Traffic Control

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.