City of
BRADFORD
METROPOLITAN DISTRICT COUNCIL

2025 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 2025

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Local Responsibilities and Commitment

This ASR was prepared by the Sustainability team of City of Bradford Metropolitan District Council with the support and agreement of the following officers and departments:

- Planning, Transportation & Highways
- Health and Well Being

This ASR has been approved by:

Andrew Whittles, Assistant Director, Sustainability, Department of Place

e-signature 

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This ASR has not been signed off by a Director of Public Health as responsibility for air quality management sits with the Assistant Director of Sustainability at City of Bradford MDC. The position of the DPH at City of Bradford MDC is currently vacant.

If you have any comments on this ASR please send them in the first instance to Kane Armatage or Elizabeth Bates main report authors at:

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Executive Summary: Air Quality in Our Area

Air Quality in City of Bradford MDC

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality.

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Low-income communities are also disproportionately impacted by poor air quality, exacerbating health and social inequalities.

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

Table ES 1 - Description of Key Pollutants

Pollutant	Description
Nitrogen Dioxide (NO_2)	Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation.
Sulphur Dioxide (SO_2)	Sulphur dioxide (SO_2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil.
Particulate Matter (PM_{10} and $PM_{2.5}$)	Particulate matter is everything in the air that is not a gas. Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes. PM_{10} refers to particles under 10 micrometres. Fine particulate matter or $PM_{2.5}$ are particles under 2.5 micrometres.

Bradford has areas of high deprivation and significant levels of health inequality. 27% of the Bradford district population live in areas classed as the 10% most deprived in England. There are above average numbers of deaths from smoking, cancer, heart disease and

strokes. It is estimated that emissions of man-made fine particles, PM2.5 cause 5.2[1]% of total mortality. There are marked differences in people's health within the Bradford district with people living in Wharfedale (to the north) typically living five years longer than people living in Tong (to the south). In Bradford there are more deaths resulting from smoking, cancer, heart disease, and strokes, and higher rates of mortality in children, than in most parts of the UK

Poor air quality is closely linked to poor health and is frequently identified in the most deprived wards of the city. City of Bradford MDC fully recognises that improving local air quality is essential to deliver better health outcomes for all. This is particularly important for the above national average numbers of young people in the district (22.8% of the total population are under 16) who are particularly sensitive to the effects of poor air quality. They may experience life-long impacts resulting from pollutant exposure in their early years.

The main air pollutants of concern in Bradford are nitrogen dioxide (NO_2) and particulate matter (PM). A significant source of these pollutants is traffic, but industry, heat and power generation, domestic sources, agriculture, and natural activities also contribute.

At present Bradford has four declared Air Quality Management Areas

- AQMA order 1 – Mayo Avenue
- AQMA order 2 – Manningham Lane / Queen's Road
- AQMA order 3 – Thornton Road
- AQMA order 4 – Shipley Airedale Road

Maps showing the locations of the AQMAs are available in Appendix D of this report or can be viewed on the council's website here:

Air Quality Management Areas | Bradford Council

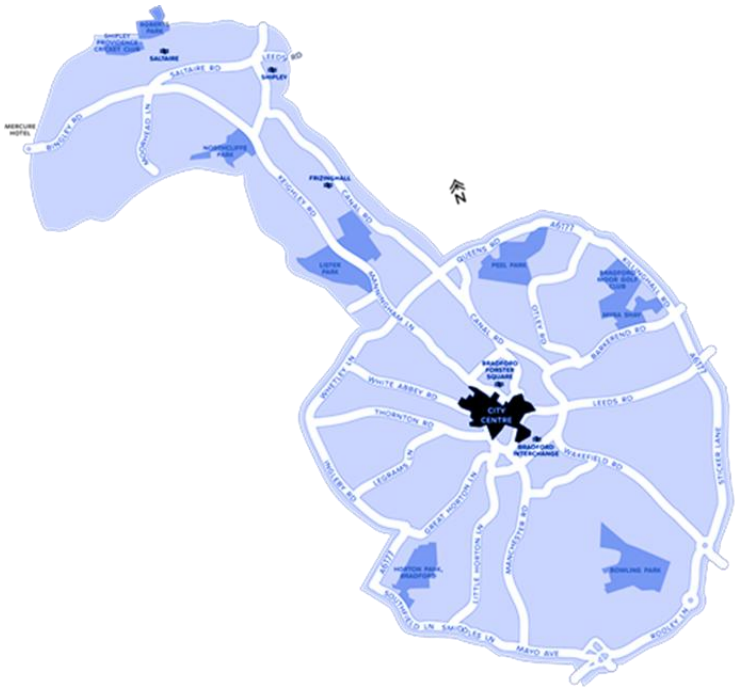
A Government mandated Class C+ Clean Air Zone (CAZ) was introduced into Bradford in September 2022. The zone requires buses, HGVs, LGVs, coaches, hackney carriages, and private hire vehicles to meet minimum emission standards. Private cars are not affected. Vehicles entering the CAZ that don't meet the required emission standards are required to pay a daily entry fee.

[1] Fingertips Public Health data (2023) – Office for Health Improvement and Disparities

The Bradford CAZ covers the area inside, and including, the Bradford outer ring road and extends out along the Aire valley corridor, (Manningham Lane/Bradford Road and Canal Road area) to include Shipley and Saltaire.

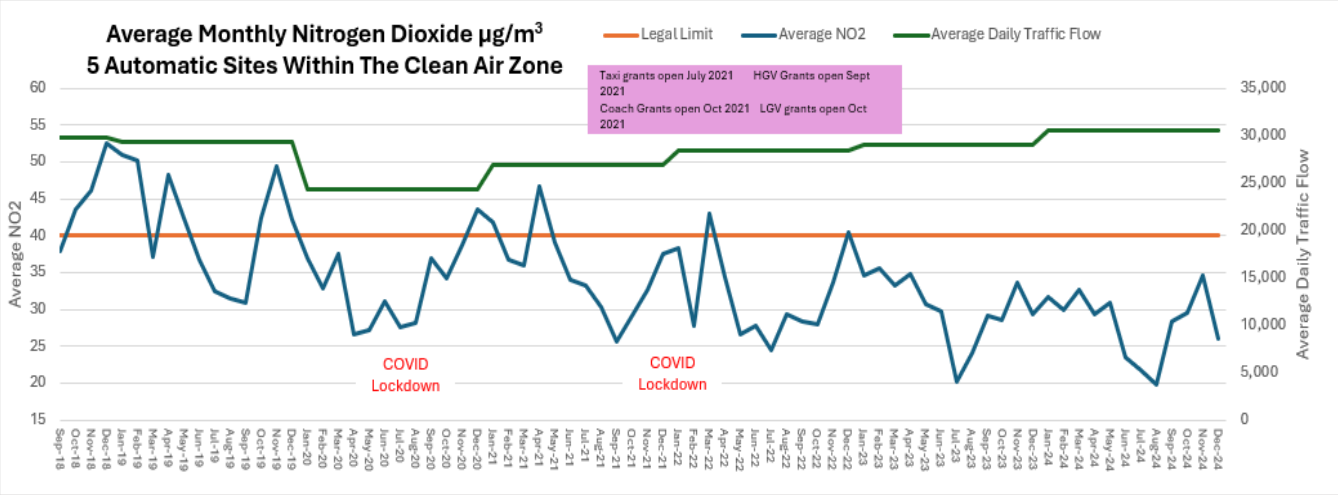
Figure 1 shows the extent of the Bradford CAZ. A full-sized map of the CAZ can be viewed here: **Link to interactive CAZ map on CBMDC website**.

Figure 1: Extent of the Bradford Clean Air Zone

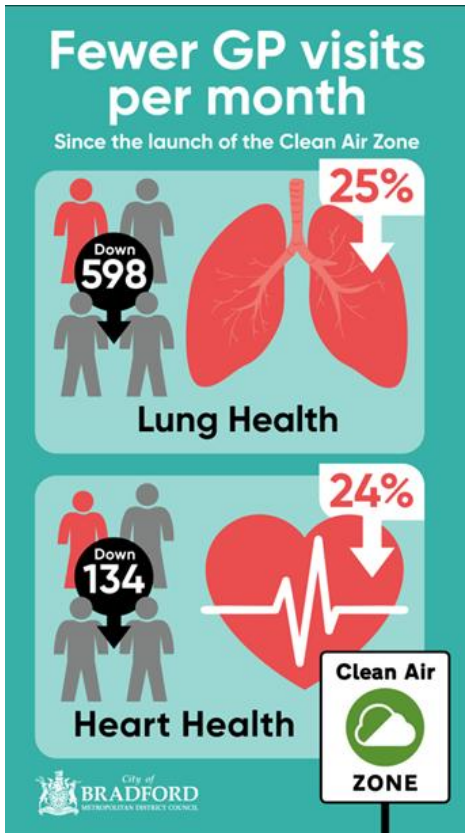


Air pollution in Bradford is improving. Figure 2 shows monthly data from automatic monitoring sites in the Bradford CAZ. The automatic monitoring stations are the most accurate type of equipment used to monitor air quality in Bradford. During 2024 some of the lowest levels of nitrogen dioxide continued to be recorded since Bradford's records began, despite traffic returning to pre-Covid 19 pandemic levels.

Figure 2: Monthly average NO_2 concentration at Bradford real time monitoring sites in the CAZ (pre and post CAZ)



A study undertaken by Born in Bradford (BiB) during 2024 found a 25% monthly average reduction in visits to GP surgeries for respiratory health since the Bradford CAZ was introduced. The research publication can be found here: [Link to BiB report on health service use since introduction of Clean Air Zone]



During 2024 there were only 2 monitored locations in the Bradford district where the annual average nitrogen dioxide air quality objective of 40µg/m^3 was exceeded:

- DT12 - Shipley Airedale Road (AQMA order 4)
- DT72 - Queen's Road (AQMA order 2)

Site DT105 in the Mayo Avenue AQMA (order 1) exceeded 40µg/m^3 at the roadside monitoring location but when corrected for distance to the nearest relevant receptor point the air quality objective level was met.

A fourth site (DT191 Low Mill, Keighley) also exceeded 40µg/m^3. There are no relevant receptor points at this location. Due to the lack of a relevant receptor point this is not an exceedance of the national air quality objective and no AQMA needs to be declared.

All four sites listed above remain in exceedance of the national air quality limit value and were identified by the Government's Joint Air Quality Unit (JAQU) as requiring further air quality improvement in their state 1 assessment of the Bradford CAZ.[2]

Bradford is currently proposing to retain all current AQMAs until the JAQU CAZ state assessment is passed at all monitoring sites within the Bradford CAZ.

The current situation in each of the AQMAs is as follows:

AQMAs 2 (Manningham Lane) and 4 (Shipley Airedale Road) are still in exceedance of both the air quality limit value and the national air quality annual average objective for nitrogen dioxide.

AQMA 1 is still in exceedance of the air quality limit value for nitrogen dioxide but meets both the hourly and annual average national air quality objectives for nitrogen dioxide at the nearest relevant receptor point.

AQMA 3 on Thornton Road is currently compliant with both the air quality limit value and the national air quality objectives for nitrogen dioxide but concentrations in this area could be subject to further change due to planned development proposals.

Elevated pollutant levels have previously been identified in other areas of the district. These include:

- Harrogate Road / Killinghall Road
- Saltaire crossroads
- Rooley Lane
- Tong Street
- Canal Road

[2] Local authorities are required to review and assess air quality against the national air quality objectives which apply at locations where there are relevant receptors points. These are locations where there is regularly human exposure over the averaging time of the objective levels. For the annual average NO_2 objective this includes places where people live or are exposed long term whilst receiving health care or education. JAQU are required to assess air quality (and the success of the CAZ) against the Air Quality Limit values / standards. These are absolute limits not to be exceeded at locations where exposure can arise even for short periods. Site DT191 has a footpath running past it where people are present for short periods. It is therefore considered to be in breach of the air quality limit value but not the air quality objective.

Concentrations in these areas have been well within the annual average nitrogen dioxide objective throughout the last five years and are no longer of concern.

During 2024 there was a major improvement in air quality at most long term city centre monitoring sites. This was due to recent pedestrianisation of a large proportion of the city centre and changes to traffic routing in other areas.

The greatest improvements in air quality during 2024 were achieved on Market Street which is now completely closed to all traffic. The annual average nitrogen dioxide concentration on Market Street in 2024 was reduced by over 17µg/m^3 compared to the pre-scheme concentrations in 2021. This will provide considerable long term health benefits for local residents and others who regularly visit Bradford city centre.

Additional air quality improvements have also been recorded in Sunbridge Road (up to 6µg/m^3 reduction) due to removal of through traffic, and on Godwin Street where all monitoring sites are now well below the annual average objective level following changes to the road layout in 2023. Exceedances of the annual average nitrogen dioxide objective had previously been recorded in both these locations.

Due to the amount of change that has taken place to the city centre road network during 2023 and 2024, trend data from the city centre monitoring sites in recent years needs to be treated with caution. Monitoring is being continued to fully evaluate the longer term impacts of the city centre changes and additional monitoring sites have been estabished to assess conditions in locations where traffic (particularly buses) has been relocated to.

Remaining challenges

Air quality is still generally improving across the Bradford district, but the rate of improvement has slowed since the initial introduction of the CAZ during the 2022/2023 period. During this introductory period there was a large step change reduction in emissions within the CAZ as vehicles were upgraded or replaced to meet the CAZ standard. As many vehicles entering the CAZ are now compliant the slowdown in rate of air quality improvement within the CAZ is expected.

Detailed source apportionment studies for each of these areas were submitted to JAQU in late 2024. It has been identified that zero emission buses would significantly reduce pollution levels and bring forward compliance in all areas.

Further opportunities to accelerate local air quality improvement across the wider district are being examined alongside the development of Bradford’s climate change action plan

and Net Zero pathways. Net Zero projects that can provide air quality co-benefits will be prioritised at a local level.

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.

Since the Ministerial Direction to implement the CAZ, City of Bradford MDC has distributed over £30m in government grants to residents and businesses to help upgrade their vehicles. CAZ exemptions for locally based vehicles have now reduced from a peak of over 10,000 to 8,000 locally registered vehicles due to local migration into CAZ compliant vehicles. Compliant vans entering the CAZ have increased from 70 percent to 88 percent while larger vehicles like articulated lorries have increased from around 97 percent to 98 percent. The Bradford taxi fleet is already over 99.9 percent compliant, mainly comprised of hybrid electric vehicles. It is the cleanest fleet in the country.

The number of fully electric, zero emission licensed vehicles has increased from 195 to 581, with applications for a further 100 EVs still in process. All buses operating within the CAZ are compliant and non-chargeable, with £10m ZEBRA funding for new additional electric buses secured. Per month, only 1.1 percent of approximately 5.2 million journeys into the CAZ are non-compliant vehicles. Most of the vehicles charged in the zone are coming from outside the Bradford District.

Due to the success of the CAZ grants schemes, all the schemes are currently closed to new applications. Further consideration will be given should there be any funds remaining once all current applications have been processed and paid.

City of Bradford MDC is using revenue income from the CAZ on projects to further improve air quality in the district. The first major project was the Clean Air Schools Programme (CASP) launched in autumn 2023. This has provided approximately £500,000 of grants to local schools to help reduce emissions and exposure to poor air quality in and around their grounds. Individual schools could apply for up to £10,000 each. In 2024 City of Bradford MDC began delivery of a district wide environmental and educational programme in schools. Link to information on Clean Air Schools Programme on CBMDC website.

Additional support is also being provided to schools to help tackle idling emissions and to improve awareness of air quality issues within their school communities. In total, 478 anti-idling interventions have taken place at school's district wide. City of Bradford MDC also

continues to deliver school street programmes, play streets and other active travel measures.

Figure 3: Bradford anti-idling campaign

Figure 4: Bradford Clean Air Schools Programme

Figure 5: Bradford Clean Air Schools Educational Program

Figure 6: Clean Air Day Event

A large-scale event took place at City Hall on Clean Air Day 2024. City of Bradford MDC invited several local primary schools to attend the event. Around 60 children took part in air quality related workshops and activities and gave short presentations on their own Clean Air Schools grant projects. Another large-scale Clean Air Day event for schools will take place on Clean Air Day 2025.

A £25,000 CAZ revenue grant has been provided to support a fully electric HGV trial at Joseph Parrs Bradford. They are currently operating the first zero-tailpipe flatbed HGV with a crane lift at a builders' merchant in the UK on a one-year trial basis.

Figure 7: Bradford Electric HGV trial

There are many other projects currently taking place in the district that will result in longer term air quality improvements.

These include:

- **Bradford Low Carbon Hydrogen** - a partnership project between Hygen and N-GEN (developed by Renewable Connections) to build a groundbreaking hydrogen production facility at the old Birkshall gas storage site on Bowling Back Lane in Bradford. Once built the facility will produce enough hydrogen to fuel up to 800 buses a day. Link to project information on Hygen website
- **Bradford Energy Network** – Development of an air source heat pump-based energy centre has been approved on Thornton Road in Bradford. The energy centre has the potential to replace a significant number of old gas and biomass fired boiler plants in large buildings across the city centre through creation of a District Heat Network (DHN) scheme. 1Energy have already begun construction of the Bradford Energy Network. The network will start supplying low-carbon heat to organisations across the city from summer 2026. Link to Bradford energy information website
- **Biomethane Project** - The council is currently investigating opportunities for anaerobic digestion of food / green waste to produce methane to fuel the district's refuse trucks. City of Bradford MDC has received £3,660,690 in Government funding to support food waste collection services which become mandatory in 2026.
- **Transforming Cities Fund (TCF) -** At a regional level City of Bradford MDC is involved with delivery of numerous Transforming Cities Fund (TCF) projects managed by WYCA. These include bus, cycle, and pedestrian improvements in Bradford city centre, improving walking access to the Bradford Interchange Rail station and providing a new Park and Ride project on the Manchester Road corridor. Other regional projects include extension of the Leeds / Bradford cycle superhighway on Thornton Road and highway improvement measures on the Shipley / Airedale corridor and in West Bradford. The City Centre Walking and Cycling improvement scheme is now fully complete with a major part of the city centre pedestrianised and new bus routes established.
- **West Yorkshire LEVI project –** WYCA has received LEVI funding to enhance the number of publicly accessible charge points across the region specifically targeting 'close to home' charging for residents without access to off street parking. There are currently 1345 publicly available electric vehicle charging devices in West

Yorkshire. Government figures predict over 10,000 may be needed by 2030 to meet demand. City of Bradford MDC will help to facilitate the use of LEVI funding within the Bradford district.

Traffic is not the only source of air pollution in Bradford. Other activities such as domestic solid fuel burning, agricultural emissions and industrial emissions also impact on local air quality.

During 2024 City of Bradford MDC continued to monitor particulate air pollution in residential areas using a network of 12 'Zephyr' real-time low-cost air pollution sensors and worked with local universities to investigate the impacts of indoor air pollution. A domestic solid fuel awareness campaign aimed at raising awareness about emissions from domestic solid fuel burning and associated legislation was continued into Autumn/Winter 2024/2025 (Figure 8). These activities were funded by a Defra Air Quality Grant.

During early 2025 the City of Bradford MDC Sustainability department developed materials to undertake community workshops on air quality issues. The first workshops were delivered in March 2025.

Figure 8: City of Bradford MDC solid fuel burning campaign (winter 2024/25)

Regional initiatives

City of Bradford MDC has worked with other West Yorkshire authorities to improve regional quantification of emissions associated with domestic, commercial, and industrial activities.

During 2024 City of Bradford MDC worked with the West Yorkshire Combined Authority (WYCA), Cambridge Environmental Research Centre (CERC) and the other West Yorkshire local authorities (Leeds, Wakefield, Calderdale and Kirklees) to develop a West Yorkshire Emission Inventory. This project updated national emissions inventory data for the West

Yorkshire region with more granular local emissions data, especially in relation to domestic solid fuel use and other local commercial / industrial emission sources. This revised emissions inventory is now being used to help evaluate potential co-benefits of the emerging Bradford Climate Action Plan.

The revised WY emission inventory has also been used to inform the placement of an additional 36 Zephyr particulate monitors around the West Yorkshire region as part of the West Yorkshire Particle Information Improvement Project (PIIP). This is a collaborative regional project to establish a West Yorkshire wide particulate sensor network and associated public information dashboard. Six of the new Zephyr units have been placed in the Bradford district with a longer-term plan to have data from all Bradford's 18 Zephyr units integrated onto the West Yorkshire PIIP dashboard.

Conclusions and Priorities

During 2024 air quality continued to generally improve across most of the Bradford District but at a slower rate than that seen in the 2022/2023 period when the CAZ was first introduced. The exception to this was the city centre where very large improvements in air quality (up to 17µg/m^3) were recorded in 2024 due to extensive pedestrianisation works and rerouting of traffic.

Only two monitored locations exceeded both the annual average nitrogen dioxide air quality objective and the national annual average nitrogen dioxide limit value in 2024:

- Site DT72 - AQMA order 2
- Site DT12 – AQMA order 4

A further two sites, DT105 (in the Mayo Avenue AQMA (order 1)) and another site at Keighley (DT191) exceeded the limit value only. Options for further local air quality interventions in all these locations are currently being investigated in conjunction with the JAQU.

Bradford is currently proposing to retain all current AQMAs until the JAQU CAZ state assessment is passed at all monitoring sites within the Bradford CAZ.

The current situation in each of the AQMAs is as follows:

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AQMA 3 on Thornton Road is currently compliant with both the air quality limit value and the national air quality objectives for nitrogen dioxide but concentrations in this area could be subject to further change due to planned development proposals.

Bradford continues to make good progress with a wide range of action planning measures and is actively reinvesting revenue from the CAZ into new air quality improvement projects. The CAZ funded Clean Air Schools programmes are now well developed and other projects such as the electric vehicle truck trial and the solid fuel burning campaigns are still ongoing. Bradford has continued to contribute to regional air quality improvement through its support of the West Yorkshire emissions inventory project and the West Yorkshire Particulate Information Improvement Project (PIIP).

Over the next year Bradford will be focusing on the following areas:

- Continued evaluation of the Bradford CAZ – ongoing monitoring and evaluation by the council and by independent assessors working on behalf of JAQU
- Completion of the CASP grant scheme – final grant allocations were provided during 2024 with some project delivery within schools likely to continue into 2025.
- Further development and delivery of anti-idling measures at schools.
- Ongoing delivery of air quality education sessions for schools.
- Delivery of Clean Air Day 2025 event for schools
- Continued evaluation of the HGV electric vehicle trial.
- Supporting development and implementation of the hydrogen test bed facility.
- Supporting local implementation of the District Heat Network (DHN) scheme and energy centre.
- Investigating opportunities for anaerobic digestion of food waste and production of methane to power refuse trucks
- Introduction of electric bike and pedi-cab scheme
- Further development of the Bradford particulate reduction strategy and West Yorkshire Particulate Information Improvement Project (PIIP).
- Continued delivery and evaluation of school streets, play streets and other active travel measures

- Supporting WYCA with continued planning and delivery of the TCF programme and feasibility into a mass transit system for the region
- Delivery of Low Emission Vehicle Infrastructure (LEVI) funded projects in Bradford.
- Continued local dissemination of information on air quality information, improvement measures and outcomes to the public via the Breathe Better Bradford Website
- Continued review of planning applications and requirements for air quality mitigation measures – including the updating of local air quality planning guidance

How to get Involved

How can you help?

You can help improve air quality in Bradford by:

- If able, reducing your vehicle use by walking and cycling for shorter journeys. Try to pick routes which are not as heavily trafficked (e.g. through parks and lesser used streets) to reduce the amount of pollution exposure.
- Make the most of public transport as an alternative to using a car, this can save money and reduce impact on the environment. Check out information on local transport provision to help plan journeys - Link to public transport information on CBMDC website
- If you have children who are travelling to school, consider the advice on the council website to help make this journey more sustainable and improve their health - Link to sustainable school travel advice on CBMDC website
- If you own a vehicle which is regularly driven in urban areas, think about the impact on the environment when the time comes to replace it. Consider low emission alternatives, such as hybrids and electric vehicles. Although the initial purchase price may seem high in the longer term, they may prove more cost effective through reduced fuel and tax costs. Grants are available to help with the purchase of some low emission vehicles. More information is available here:

  Link to UK Government information on EV vehicle grants

If you need to own a vehicle and cannot replace it just yet you can still reduce your impact on the environment by following these ECO-driving tips:

- **Switch off your engine when parked**, especially outside schools and homes where children and residents are present. Idling your vehicle is an offence for which a fixed penalty notices of £20 can be served.
- **Check your tyres -** Under-inflated tyres mean an engine must work harder and will produce more emissions.
- **Clear the clutter -** remove unnecessary clutter from your boot and reduce engine workload.
- **Stick to the speed limit -** high speeds produce more emissions. At 70mph a driver could be using up to 15 per cent more fuel than at 50mph.
- **Slow down as you approach traffic jams** - Stop-start traffic jams use more fuel. Slow down early and take your foot off the accelerator. Use the stop start technology on your vehicle if it has it.
- **Close windows and cut down on the use of air conditioning** to reduce emissions
- **Share your journeys** - consider using the West Yorkshire car share scheme to help with this.

If you have a solid fuel appliance, such as a wood burning stove, ensure you use it correctly with approved dry fuels to minimise smoke emissions. If you live in a Smoke Control Area (SCA) you must comply with the legal requirements for smokeless zones. Residents are advised that if they fail to comply, they could risk a fine of up to £1,000 per offence.

You can find out where Bradford's smoke control areas are here Link to Smoke Control area map on CBMDC website

More information on smoke control rules can be found here:

Link to smoke control rules on UK Government website

Even if you don't live in a SCA you must avoid creating a smoke nuisance.

Link to smoke nuisance information on UK Government website

For your domestic heating, especially if you live in an urban area, consider buying a zero-emission air or ground source heat pump next time your boiler needs replacing.

If you would like to see more done to improve air quality in your area, then you could contact the local Councillor or MP and tell them about your concerns or ideas. To find out who your local Councillor or MP is and how to contact them;

Link to local democracy information on CBMDC website

Link to UK Parliament website

For more information on national campaigns to improve air quality visit;

Link to Global Action Plan Clean Air Day website

Link to Friends of the Earth website

Link to Asthma and Lung UK website

Link to mums for lungs website

Daily national air quality updates, pollution forecasts and advice about how to protect yourself from the impacts of poor air quality can be found at:

Link to UK Air website operated by Defra

Consultations on regional West Yorkshire projects to improve access and transport are available on the West Yorkshire Combined Authority website West Yorkshire Combined Authority Project consultations.

Consultations on schemes undertaken by City of Bradford MDC are available on the council website here CBMDC public consultation webpage

Lots more information about the CAZ, air quality in Bradford and help and advice on how to improve air quality can be found on the Breathe Better Bradford website.

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Figures

Tables

1 Local Air Quality Management

This report provides an overview of air quality in City of Bradford MDC during 2024. 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 City of Bradford MDC 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

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by City of Bradford MDC can be found in Table 2.1. The table presents a description of the 4 AQMA(s) that are currently designated within City of Bradford MDC. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMA(s) and also the air quality monitoring locations in relation to the AQMA(s). The air quality objectives pertinent to the current AQMA designation(s) are as follows:

- NO_2 annual mean*
  ** All the AQMAs in Bradford were originally declared for both the annual and hourly NO_2 objectives but only the annual average objective is now at risk of being exceeded*

The main purpose of an ASR report is to provide an update on compliance with the national air quality objectives within designated AQMAs and an update on all air quality improvement measures taking place within a district.

During 2024 there were only 2 monitored locations in the Bradford district where the annual average nitrogen dioxide air quality objective of 40µg/m^3 was exceeded:

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AQMA 3 on Thornton Road is currently compliant with both the air quality limit value and the national air quality objectives for nitrogen dioxide but concentrations in this area could be subject to further change due to planned development proposals (for more details see the response to 2024 appraisal report at section 2.2).

[3] Local authorities are required to review and assess air quality against the national air quality objectives which apply at locations where there are relevant receptors points. These are locations where there is regularly human exposure over the averaging time of the objective levels. For the annual average NO_2 objective this includes places where people live or are exposed long term whilst receiving health care or education. JAQU are required to assess air quality (and the success of the CAZ) against the Air Quality Limit values / standards. These are absolute limits not to be exceeded at locations where exposure can arise even for short periods. Site DT191 has a footpath running past it where people are present for short periods. It is therefore considered to be in breach of the air quality limit value but not the air quality objective.

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
Mayo Avenue / Manchester Road (Order 1)	2006	NO_2 annual mean	An area surrounding the junction of the A6177 and A641 with terrace housing and a primary school close to the roadside	NO	57 Mayo Ave at continuous monitoring station not distance corrected)	No exceedance - highest measured concentration in 2024 is 36.5 ug/m3 distance corrected tube DT105	6	Bradford Clean Air Plan (2020), Bradford Low Emission Strategy (2013), Bradford AQAP (2009)	Visit the AQAPs for Mayo Ave AQMA Link to Bradford Clean Air Plan (CAP) Link to Bradford Low Emission Strategy Link to Bradford Air Quality Action Plan

Manningham Lane / Queens Road (Order 2)	2006	NO_2 Annual Mean	An area surrounding the junction of the A6177 and A650 with terrace housing close to the roadside	NO	33 (Manningham Lane at continuous monitoring station not distance corrected)	47.7 Queens Road in line with receptor (fallen from 54 in 2008)	0	Bradford Clean Air Plan (2020), Bradford Low Emission Strategy (2013), Bradford AQAP (2009)	Visit the AQAPs for Manningham Lane Link to Bradford Clean Air Plan (CAP) Link to Bradford Low Emission Strategy Link to Bradford Air Quality Action Plan
Thornton Road (order3)	2006	NO_2 Annual Mean	A canyonised area adjacent to the B6145 with residential accommodation and student accommodation adjacent to the road	NO	35 (Thornton Road continuous monitoring station at relevant receptor)	No exceedance - highest measured concentration in 2024 29.9 ug/m3 at tube DT108 (not distance corrected)	6	Bradford Clean Air Plan (2020), Bradford Low Emission Strategy (2013), Bradford AQAP (2009)	Visit the AQAPs for Thornton Road Link to Bradford Clean Air Plan (CAP) Link to Bradford Low Emission Strategy Link to Bradford Air Quality Action Plan

Shipley Airedale Road (order 4)	2006	NO_2 Annual Mean	An area of the A650 Shipley Airedale Road where apartments are adjacent to multi-lane traffic flow	NO	68 (Shipley Airedale Rd continuous monitoring station not distance corrected)	46.8 (Shipley Airedale Rd distance corrected diffusion tube DT12)	0	Bradford Clean Air Plan (2020), Bradford Low Emission Strategy (2013), Bradford AQAP (2009)	Visit the AQAPs for Shipley Airedale Road Link to Bradford Clean Air Plan (CAP) Link to Bradford Low Emission Strategy Link to Bradford Air Quality Action Plan
Mayo Avenue / Manchester Road (Order 1)	2006	NO_2 1 Hour Mean	An area surrounding the junction of the A6177 and A641 with terrace housing and a primary school close to the roadside	NO	unknown	0 hours exceeded 200, max hourly conc = 117.1	10	Bradford Clean Air Plan (2020), Bradford Low Emission Strategy (2013), Bradford AQAP (2009)	Visit the AQAPs for Mayo Ave AQMA Link to Bradford Clean Air Plan (CAP) Link to Bradford Low Emission Strategy Link to Bradford Air Quality Action Plan

Manningham Lane / Queens Road (order 2)	2006	NO_2 1 Hour Mean	An area surrounding the junction of the A6177 and A650 with terrace housing close to the roadside	NO	unknown	0 hours exceeded 200, max hourly conc = 99.1	>10 years	Bradford Clean Air Plan (2020), Bradford Low Emission Strategy (2013), Bradford AQAP (2009)	Visit the AQAPs for Manningham Lane Link to Bradford Clean Air Plan (CAP) Link to Bradford Low Emission Strategy Link to Bradford Air Quality Action Plan
Thornton Road (order 3)	2006	NO_2 1 Hour Mean	A canyonised area adjacent to the B6145 with residential accommodation and student accommodation adjacent to the road	NO	unknown	0 hours exceeded 200, max hourly conc=96.6	10	Bradford Clean Air Plan (2020), Bradford Low Emission Strategy (2013), Bradford AQAP (2009)	Visit the AQAPs for Thornton Road Link to Bradford Clean Air Plan (CAP) Link to Bradford Low Emission Strategy Link to Bradford Air Quality Action Plan

Shipley Airedale Road (Order 4)	2006	NO_2 1 Hour Mean	An area of the A650 Shipley Airedale Road where apartments are adjacent to multi-lane traffic flow	NO	unknown	0 hours exceeded 200,max hourly conc = 117.6	>10 years	Bradford Clean Air Plan (2020), Bradford Low Emission Strategy (2013), Bradford AQAP (2009)	Visit the AQAPs for Shipley Airedale Road Link to Bradford Clean Air Plan (CAP) Link to Bradford Low Emission Strategy Link to Bradford Air Quality Action Plan

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

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

2.2 Progress and Impact of Measures to address Air Quality in City of Bradford MDC

Defra's appraisal of last year's ASR concluded that the report was well structured, detailed, and provided all the information specified in the Guidance. The use of colour coding in the AQAP table to highlight the expected impact of measures or implementation time was considered particularly useful as was the commentary on Defra's previous appraisal points.

The following areas were identified for future action within ASR reports:

1. *Results that were not available for a monitoring month was shown in the data table as "n/a". The correct formatting technique for the report is to use a dash (-) to denote any missing data. In future reports, use a dash (-) to show that a result is missing.*
2. *The shorthand version of NO_2 was used a considerably throughout the report. When using the shorthand version for NO_2, ensure that the subscript is used throughout the entirety of the report.*
3. *Figures are clear and well-presented, with consistency between the chosen background mapping and colour-coding of the monitoring sites. However, it may be useful to include both AQMAs and monitoring sites within the same figure for completeness.*

Response: These points have been noted and addressed as far as possible within this 2025 report. New maps incorporating the AQMA boundaries alongside monitoring locations are available in Appendix D.

The following advice was issued to the council:

1. *Defra recommends that Directors of Public Health approve draft ASRs. Sign off is not a requirement, however collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all. Please bear this in mind for the next annual reporting process*

Response: In Bradford responsibility for air quality improvement sits with the Assistant Director of Sustainability and it has been locally determined that he is the most appropriate person to sign off this report. The DPH post in Bradford is currently vacant.

2. *The revocation of an AQMA should be considered following three consecutive years of compliance with the relevant objective as evidenced through monitoring.*

Response: As detailed elsewhere in this report Bradford is currently proposing to retain all current AQMAs until the JAQU CAZ state assessment is passed at all monitoring sites within the Bradford CAZ. Although the AQMA at Thornton Road is currently compliant there is still some uncertainty about future air quality at this location due to its position relative to a new District Heat Network (DHN) Scheme (currently under development) and the large scale Bradford City Village regeneration scheme (currently in the process of obtaining planning permission). The City Village regeneration area covers approximately 25 hectares of the city centre and will include up to 1000 new homes. The site sits immediately adjacent to the Thornton Road AQMA as shown in Figure X. Air quality impact assessment work has been requested for this site as part of the ongoing planning process. More details about the scale and nature of the Bradford City Village project is available here Link to information on the Bradford City Village regeneration scheme.

As the Thornton Road AQMA sits within the Bradford CAZ there is already an ongoing legal requirement for continual air quality improvement at this location. Retention of the Thornton Road AQMA does not place any additional administrative or financial burdens on the council and ensure the emphasis on protecting and improving air quality at this location remains high on the local agenda as new large-scale development is being planned and delivered.

Figure 9: Location of Thornton Road AQMA (order 3) in relation to the Bradford Village regeneration scheme

City of Bradford MDC has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 36 measures are included within Table 2.2, with the type of measure and the progress City of Bradford MDC have made during the reporting year of 2024 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans; the Bradford AQAP, the Bradford Low Emission Strategy, and the more recent Bradford Clean Air Plan (CAP). Some measures have also been delivered via the West Yorkshire Low Emission Strategy (WYLES).

Key completed / ongoing measures during 2024 are:

- **Continued implementation and evaluation of the Bradford Clean Air Zone** – the government mandated Bradford CAZ went live on 26th September 2022 setting minimum emission standards for HGVs, buses, coaches, taxis and LGVs within the Braford Outer Ring Road and into the Aire Valley corridor. The impacts of the scheme on local air quality and health are subject to ongoing evaluation with regular meetings held between the council and JAQU to review progress and agree next steps. A detailed source apportionment study of traffic emissions at locations that remain in exceedance of the air quality limit values was completed during 2024. The availability

and feasibility of additional interventions to address the remaining exceedance points is currently being explored.

- **Further expansion of the Bradford Zephyr monitoring network** – in June 2023 a new network of 12 'low cost' air pollution sensors was established to investigate pollutant concentrations in residential areas and close to schools. Data from these sites is being used to investigate the impact of domestic solid fuel burning in residential areas and to help assess the impact of school street interventions. The network was established using funding from Defra's Air Quality Grant scheme. In 2024, the Bradford Zephyr monitoring network was expanded further through the West Yorkshire Combined Authority (WYCA) PIIP (West Yorkshire Combined Authority's Particle Information Improvement Project) with a further 6 Zephyr analysers installed in the Bradford district. The WYCA PIIP is a collaborative project involving the West Yorkshire Combined Authority, its five district partners (Bradford, Calderdale, Kirklees, Leeds, and Wakefield), and partners like Leeds Beckett University and the University of Leeds. Its primary goal is to establish a West Yorkshire-wide particulate sensor network and information dashboard, allowing for online viewing of PM (particulate matter) data across the region. Preparations are currently underway to combine the data from the original 12 Zephyr analysers with the PIIP network. This will allow all the Zephyr data gathered in the Bradford district to be accessed on a single information dashboard. Further updates will be included in the 2026 ASR.
- **Updating of the West Yorkshire Emissions Inventory** – During 2024, Bradford worked with WYCA and the other WT district authorities on a project to enhance the national atmospheric emissions inventory data for the WYCA region. The outputs of this work are now being used to inform the development of Bradford's net zero pathways and assess the co-benefits of the Bradford Climate Action Plan.
- **Launch of Clean Air Schools Programme (CASP)** – Bradford's CASP was formally launched in August 2023 with local schools invited to bid for grants of up to £10,000 to improve air quality and reduce exposure to emissions at their sites. A total of 48 schools applied for funding and all were successful. A total of £ £443,422 was allocated to projects.
- Examples of the projects which have now been implemented are:
    - Lower Fields Primary have installed two additional junior covered cycle shelters to encourage more children to use a cycle or a scooter for their journeys to and from school rather than travelling by car.

- Harden Primary have installed a “wheels road” to provide a safe entrance for children cycling or scooting and allowing children to safely dismount away from the main thoroughfare.
- Ready Steady Pedal are a Bradford based organisation specialising in learn to ride (they’ve taught over 8000 children to ride in the last 10 years), cycle skills, bike rides, staff training in both scooter and cycle skills and active travel consultation. They are providing several services to schools who have been allocated CASP grants such as bike servicing and cycle skills. Ready Steady Pedal hosted a Dr Bike session at Dixons Marchbank Primary school and managed to service 60 bikes that are now ready to ride. There will also be learn to ride sessions for adults and children along with installation of living screens helping to capture and block particulate pollution from the children’s play area.
- East Morton Primary school has continued their eco-school journey by creating clean air spaces which are safe for children to play, they are also learning about science and will be monitoring air quality around the school
- Russell Hall Primary has transformed unused space at the back of the school away from the busy main road into clean and peaceful outdoor learning space.

- **Development and delivery of new school educational engagement programme –** The Clean Air School’s Programme is a district wide environmental and educational programme focused primarily on improving the health and well-being of young people within the Bradford district. It addresses their needs and perspectives in relation to exposure to harmful air pollutants by:
    - Providing practical measures to reduce exposure to air pollutants
    - Encouraging emission reduction behavioural change
    - Encouraging active travel
    - Improving knowledge of pollutants and health impacts within school communities.

  The education programme is tailored and designed with activities and interventions that cater for different ages, groups, abilities and interests carried out within a school learning environment. The activities are stimulating and engaging for children, enabling them to explore their environment whilst learning and taking into consideration measures to take in improving air quality and reduce emissions.
  The programme has educational enrichment which integrates educational components that supports a child’s academic learning through critical and creative thinking which is aligned with the national curriculum. Since the launch of the

programme, February 2024, over 630 CASP sessions have been carried out in schools, a combination of engagement, awareness or educational elements of the programme. The programme works collaboratively with direct and indirect services as well as external stakeholders. Link to Bradford Clean Air Schools Programme Website and Resources

- **Breathe Better Bradford website** – in November 2023 the Breathe Better Bradford air quality information pages were re-launched with enhanced public information on sources of air pollution, air quality monitoring, pollutant health impacts, smoke control areas, solid fuel burning advice, work in schools and indoor air quality. During 2024, the Breathe Better Bradford website has continued to be enhanced and updated. The web pages can be viewed here Breathe Better Air Quality webpages on CBMDC website .
- **Solid fuel / wood burning campaign** – During 2023 City of Bradford BMDC developed a solid fuel / wood burning public information campaign. The campaign included a radio advert and billboards located across the district with messaging related to the health impacts of burning solid fuels and where to find advice on smoke control areas and legal requirements within them. The campaign was launched following research undertaken in conjunction with Sheffield University which identified that solid fuel stove users often do not recognise the impacts that burning can have on their health or fully understand the legislation surrounding the use of stoves, particularly in smoke control areas. In 2024, the campaign was re-run with billboards located on 4 major routes into and around the city and a radio advert on Hits Radio (West Yorkshire). A questionnaire was developed by Sheffield University to obtain feedback on the campaign allowing progression and adaptation in the future, views on the campaign were gathered during workshops held within the community in March 2025. An update from this consultation will be provided in the 2026 ASR.
- **Anti-idling staff training sessions –** During 2024 wardens implemented the training received in 2023 on how to deliver anti-idling awareness sessions and interventions. They now deliver regular awareness raising sessions and anti-idling patrols as part of their daily work. Anti-idling interventions to date have mainly been targeted at local schools with positive support from students, staff and parents. In total, 478 anti-idling interventions have taken place at school's district wide. 88% of car users asked to switch off their engine have complied.
- **Planning permission granted for district heat energy centre –** In November 2023 planning permission was granted for the development of a privately operated air

source heat-based energy centre at Thornton Road that will enable the development of a District Heat Network (DHN) scheme to serve key large buildings within the city centre. The scheme has the potential to replace many old and inefficient gas / biomass boilers across the city centre and to considerably reduce emissions of NO_2, PM2.5 and CO2. 1Energy have already begun construction of the Bradford Energy Network. The network will start supplying low-carbon heat to organisations across the city from summer 2026. Link to Bradford energy information website

- **Planning application submitted for construction and operation of a hydrogen production facility and hydrogen refuelling station –** Planning permission for the development of a hydrolysis plant and hydrogen refuelling facility at the former Birkshill Holder station on Peace Street was granted in April 2024. When established the site will allow transition of diesel buses and HGVs to hydrogen fuel cells and will also provide additional EV charging facilities. More details about the scheme can be found here Link to project information on Hygen website
- **School streets pilot schemes** – City of Bradford MDC have been undertaking a series of school street initiatives. In 2024 a further two schools were introduced as a third round to the scheme. These were Horton Park Primary School and The Academy at St James in Allerton. Air pollution monitoring has been installed to help with evaluation at both sites. Link to Bradford School Streets website
- **Continued implementation of the West Yorkshire Transforming Cities Fund (TCF) projects** - during 2023 there was considerable pre-planning undertaken towards implement of several large-scale projects in the centre of Bradford that will improve public realm and improve access to public transport. These include planning / delivery of major infrastructure projects including Park and Ride development, cycle superhighway extension, transport interchange improvements and major junction improvements / relief road provisions. A number of these city centre-based schemes are currently being delivered with works due to be completed by 2025. More details about these schemes can be found here Future Bradford webpages on CBMDC website. During 2024 significant changes were made to how traffic can flow around and access the city centre. The City Centre walking and cycling improvement scheme is now fully complete with a major part of the city centre pedestrianised and new bus routes established. As a result of these changes, air quality conditions in some parts of the city centre have improved considerably. Monitoring is still ongoing to assess the wider impact of these changes.

- **Launch and evaluation of the HGV electric vehicle trial –** During 2024 a £25,000 CAZ revenue grant project to support a fully electric HGV trial at Joseph Parrs, Bradford commenced. They are operating the first zero-tailpipe flatbed HGV with a crane lift at a builders' merchant in the UK on a one-year trial basis. The evaluation of this trial is still ongoing, and further updates will be provided in ASR 2026.
- **Delivery of Clean Air Day (CAD) 2024 schools' event –** a large-scale event took place for CAD 2024 (20th June 2024) with local school children invited to City Hall to take part in air quality related workshop activities including building hydrogen powered model cars, making pollution catchers and finding out more about indoor air pollutants and their sources. The event was run in partnership with Born in Bradford, Northern Gas and Asthma and Lung UK. The event was a success with positive feedback from learners and school staff. Another event is planned for CAD 2025.

City of Bradford MDC expects the following measures to be completed over the course of the next reporting year (2025):

- **Continued evaluation of the Bradford CAZ –** ongoing monitoring and evaluation by the council and by independent assessors working on behalf of JAQU
- **Completion of round one of the CASP grant scheme –** The final remaining projects that received funding will be completed during 2025.
- **Hydrogen test bed facility** - continued support for the development and implementation of the facility
- **District Heat Network (DHN) scheme** - continued support for the development and implementation of the energy centre and commitment for council buildings to join the scheme in the future.
- **Investigation of opportunities for anaerobic digestion of food waste** – feasibility of producing methane to power refuse trucks will be further considered.
- **Continued evaluation of the HGV electric vehicle trial –** Continued operation and evaluation of the trial throughout 2025.
- **Continued delivery of new school educational engagement programme –** The scheme was fully established during 2024 and will be continued to be delivered in the local community and schools for the foreseeable future.
- **Delivery of Clean Air Day (CAD) 2025 schools' event –** following the CAD event in 2024 another large scale event is planned for CAD 2025 (19th June 2025) with local school children being invited to city hall to take part in air quality related workshop activities including building hydrogen powered model cars, making LEGO® clean air cities and finding out more about indoor air pollutants and their sources. The event is being run in partnership with Born in Bradford, University of Leeds and National Education Nature Park.
- **Development of a Particulate Reduction Strategy (PRS) –** the first stage of this project (WY emissions inventory update and emission scenario testing) is now complete.
- **Planning for delivery of an electric bike and electric pedi-cab scheme –** this scheme will support the ongoing city centre pedestrianisation works by providing a zero-emission alternative to walking in areas where car access has recently been removed.
- **Electric vehicle salary sacrifice scheme** – scheme still under development during 2025.

- **Continued planning and implementation of TCF projects –** Continued planning / delivery of major infrastructure projects including Park and Ride development, cycle superhighway extension, transport interchange improvements and major junction improvements / relief road provisions. As detailed above many of these schemes are currently in the implementation phase. – West Yorkshire Combined Authority
- **Delivery of Low Emission Vehicle Infrastructure (LEVI) funded projects in Bradford –** WYCA has received LEVI funding to enhance the number of publicly accessible charge points across the region specifically targeting 'close to home' charging for residents without access to off street parking. City of Bradford MDC will be facilitating the use of some of this funding within the Bradford district. More information on the WYCA LEVI project is available here Information on LEVI funding on WYCA Your Voice website
- **Further delivery of WYCA Particle Information and Improvement Project (PIIP)** - This project will continue to be progressed during 2025 with the fully accessible public facing WYCA particulate dashboard due to launch in summer 2025.
- **Continued review of planning applications and requirements for air quality mitigation measures** – including the updating of local air quality planning guidance
- **BIB Health Economics Project** –The Bradford Clean Air Zone (CAZ) has significantly reduced air pollution due to reductions in non-compliant vehicles driving in the zone. An initial analysis of the early health impacts was undertaken by BiB during 2024. The researchers studied nearly 200,000 visits to GPs and to the emergency department at the Bradford Royal Infirmary. They found GP visits for respiratory illnesses were down by 25% and those for heart problems decreased by 24%. An interrupted time series analysis reported savings of £30,000 per month in the NHS since the zone went live. Link: Impact of an urban city-wide Bradford clean air plan on health service use and nitrogen dioxide 24 months after implementation: An interrupted time series analysis - ScienceDirect These figures were calculated on the cost per visit at the GPs using a standard formula and do not take into account the full cost savings of the potential improvement in health across the population. During 2025 City of Bradford MDC will be working with BiB and the Centre for Health Economics at University of York to examine potential wider health saving within the NHS arising from the implementation of the Bradford CAZ.
- **Air Quality Workshops** – During early 2025 the Sustainability team developed materials to undertake community workshops on air quality issues. The first

workshops were delivered in March 2025, more details about the workshops will be provided in the 2026 ASR.

- **Climate Plan** – City of Bradford MDC is currently developing and consulting on a Climate Action Plan and Net Zero pathways. As part of this work co-benefits of carbon reduction measures with air quality are being considered.

City of Bradford MDC is working to implement air quality improvement measures in partnership with the following stakeholders:

- Public health / highways department/ neighbourhood warden service at City of Bradford MDC
- Local bus operators
- Local business community
- Local schools
- Residents
- Born in Bradford (BiB)
- Joint Air Quality Unit (JAQU)
- University of Leeds
- Leeds Beckett University
- University of Bradford
- West Yorkshire Combined Authority (WYCA) and other West Yorkshire local authorities (Kirklees, Calderdale, Leeds, Wakefield)
- University of York
- University of Sheffield
- Northern Gas
- Hygen and N-GEN (hydrogen refuelling facility)
- Bradford Energy Ltd (1 energy UK) – District Heat scheme
- Joseph Parr Bradford Timber and Building Supplies
- National Education Nature Park

Progress on the following measures has been slower than expected:

- **Implementation of measures to reduce emissions from Non-Road Mobile Machinery (NRMM)**. This is due to insufficient staff time being available at present to implement this project and local pressure to prioritise other air quality improvement activities ahead of this one. The delivery of this project remains an aspiration for the council.

The measures presented in Table 2.2 are arranged in chronological order of introduction except for the top 3 measures which City of Bradford MDC has identified for inclusion on UK-Air to assist wider public dissemination. These have been highlighted in yellow as required by Defra.

The effectiveness of all the other measures in Table 2.2 is indicated by the shade of the colours.

The lighter shaded measures will have only a relatively small impact or take longer to implement.

The darker shaded measures are those which are expected to deliver the greatest or fastest emission reductions in Bradford.

Whilst the measures stated above and in Table 2.2 will help to contribute towards and ensure compliance with air quality objectives within all the current AQMAs, City of Bradford MDC is currently investigating feasibility of further additional measures not yet prescribed which may be required to ensure compliance with the air quality limit values at all locations in the district. Until this is achieved the CAZ will remain in place.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Clean Air Zone (CAZ)	Promoting Low Emission Transport	Low Emission Zone	2019	To be agreed with JAQU once state assessment conditions are met	City of Bradford MDC in partnership with JAQU and local stakeholders	£39.3m Central Government funded project	No	Funded	>£10m	Implementation	The CAZ has resulted in a huge shift in the compliance rate of vehicles. 93% of HGVs, 77% of LGVs and 99.9% of the Bradford taxi fleet are now compliant including an increase in fully electric licensed vehicles from 10 in 2023 to 555 early 2025.There are now only 3 remining points of exceedance within the CAZ compared to 36 before its introduction.	Compliance with NO_2 air quality standards	CAZ implemented in September 2022 and subject to ongoing evaluation by JAQU	The CAZ required installation of 360 cameras, 2500 signs and 6 new fibre digital rings to monitor compliance. It also required the setting up of a new team within the council to issue grants and administer payments. There were some initial delays due to the covid pandemic but since launch the scheme has operated successfully. Revenue from the CAZ is being re-invested into local air quality improvement programmes such as the CASP programme. The CAZ must remain in place until the state assessment undertaken annually by JAQU is met.
2	Clean Air Schools Programme (CASP)	Other	Other	2023	Ongoing delivery	CBMDC and local schools	CAZ revenue	No	Funded	£100k - £500k	Implementation	Scheme offers up to £10K to individual schools to implement bespoke measures to reduce emissions from traffic outside schools and to minimise exposure of children to pollutants. Scheme is supported by an education programme including anti-idling awareness raising and classroom visits. The funding has now been processed and schools are now implementing	Number of grants issues to schools Number of completed projects. Number of school educational visits Number of anti-idling interactions	CASP scheme launched in August 2023. 48 applications for improvement schemes have since been received and approved. New school engagement officer commenced work in March 2024. Anti-idling awareness scheme has recently been relaunched and wardens trained to assist with anti-idling awareness raising activities.	CBMDC has ambitions to extend this programme to nursery schools in the district. An air quality grant fund application was submitted in October 2023 to support this extension but was unsuccessful. Anti-idling enforcement is complex and difficult to achieve in practice. The Bradford scheme will focus mainly on awareness raising with enforcement

											individual projects.		Classroom education programme currently in development. The number of successful anti-idling interactions are being recorded on SnapSurvey. To date 88% of people asked to switch off have complied. 478 interventions have taken place at schools district wide.	reserved in the first instance for persistent offenders. To date most people approached have complied.
3	Bradford Climate Action Plan (CAP) development	Policy Guidance and Development Control	Other	2025	2028	CBMDC, Ricardo AEA and key stakeholders	CAZ, external grants, regional funding, stakeholder investment	no	Plan development fully funded. Additional grant and stakeholder funding will be needed to support some delivery measures	Plan development £ Delivery of Individual measures still to be agreed and costed	Planning	NetZero pathway modelling of all measures indicates 40% reduction in CO2 by 2030 and 82% by 2038 compared to 2022 baseline if delivered in full. Co-benefits modelling indicates that full delivery of CAP could achieve air quality co-benefits including a 60% reduction in NO_x emissions compared to a 2023 baseline	TBC	Draft plan drawn up and to be consulted on in summer 2025 Co-benefits study and pathway modelling work ongoing.	CBMDC declared a climate emergency in 2019 and is currently developing a Climate Action Plan (CAP) to map out key actions with the aim of reaching net zero by 2038, with significant progress towards the goal by 2030. Draft document will be consulted upon in 2025. Delivery of some key measures will be dependent on availability of local and regional funding
4	Hydrogen Test Bed	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV charging, Gas Fuel recharging	2019	2027	N-Gen Energy Solutions Ltd, Hygen Energy Holdings and Ryze Hydrogen / CBMDC/ local fleets operators	Hydrogen Production Business Model / Net Zero Hydrogen Fund	No	Funded	>10m	Planning/Enabling Works	The facility will have the capacity to produce 12.5 tonnes of hydrogen per day enough to allow decarbonisation of up to 800 diesel buses and will provide Bradford businesses and residents the opportunity to invest in hydrogen fuel cell technology which has zero tailpipe emissions. EV charging will also be provided at the site.	TBD	Planning permission for the site was granted in April 2024.Enabling works to commence in 2025, with first hydrogen production on track for 2027.	The scheme is being delivered by private companies with delivery beyond the direct control of CBMDC.
5	On-going implementation and review of the Bradford	Policy Guidance and Development Control	Low Emissions Strategy	2013	Policy completed 2013.	CBMDC, WYCA, BiB, Local	Defra air quality grant of £102,000 provided to	Yes	Funded	£100K-£500K	Implementation	Contains many policies to address emissions from	Level of measured ongoing air quality	This is a live document subject to on-going local	Availability of staff to continually update and

	Low Emission Strategy (LES)					universities, local developers	develop the LES. Various Government/ WYCA/CBMDC/ BiB/ academia funded infrastructure / research/ education projects delivered as part of the LES.					vehicles and other sources in Bradford. Overarching policy for measures 5 to 13 in this table. Air quality in Bradford has steadily improved since 2013 as detailed in this report.	improvement in Bradford AQMAs	delivery and review in response to national, regional, and local policy developments	implement measures. Availability of funding for major schemes and the amount of time and resources needed to develop successful funding bids.
6	Bradford low emission planning guidance	Policy Guidance and Development Control	Clean Air Planning and Policy Guidance	2013	Policy completed 2013.	City of Bradford MDC, Local developers	Defra air quality grant of £102,000 provided to develop the LES and associated guidance	Yes	Funded	£100K-£500K	Implementation	Prevention and mitigation of vehicle and point source emissions from new development assessed on a case by cases basis.	Number of EV charging points delivered on new developments. (indicator currently under review as EV charging now provided predominantly through building control regulations)	Planning applications reviewed regularly since 2014 Number of EV charging points conditioned on new developments estimated to be more than 8,000+ Guidance requires update to take account of new building regulation requirements in relation to EV charging points.	Availability of staff to update the planning guidance in response to building control and planning policy changes. Level of planning enforcement able to be undertaken at a local level due to staffing constraints Increasing workload with respect to number of planning applications requiring review and comment.
7	Bradford / WY LEZ feasibility study	Promoting Low Emission Transport	Low Emission Zone (LEZ)	2013	2015	CBMDC in conjunction with City of Leeds Council	DEFRA air quality grant 2013 £50,000	Yes	Funded	£50k -£100K for feasibility study	Aborted	LEZ study indicated NOx emission of 195.6 tonnes on Bradford outer ring road. The more recent CAP proposals are expected to achieve full compliance with the NO_2 objectives across the whole district by 2023.	Not applicable – scheme not progressed	LEZ not implemented. Superseded by Bradford Clean Air Plan (CAP) / CAZ	Following completion of the LEZ feasibility study both Leeds and Bradford were mandated to undertake new CAP feasibility studies at different times resulting in two different CAZ plans to replace the regional LEZ concept. The Leeds CAZ is currently on hold. The Bradford CAZ commenced in September 2022.
8	Feasibility study for Alternate Fuel Centre	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2013	2013	City of Bradford MDC	Feasibility study funded from DEFRA LES funding	Yes	Funded	<£10K	Completed	77 tonnes NOx saving predicted from gas re-fuelling facilities (from 2013 feasibility study)	Not applicable – feasibility study only	Feasibility study completed. Gas vehicle trials completed.	Feasibility of producing biomethane from compulsory food waste collections (from 2026 onwards) to fuel refuse trucks is currently being considered.

9	Bradford bus retrofitting programme	Vehicle fleet efficiency	Vehicle retrofitting programmes	2014	2015	City of Bradford MDC in partnership with local bus operators	CVTF (2014) £394,998	No	Funded	£100K-£500K	Completed	Real world (PEMS) emission testing of the retrofitted buses showed an initial 95% reduction in NOx emissions	Number of buses retrofitted	25 Euro III buses in Bradford retrofitted with SCRT. 11 in the city centre and 14 on Manningham Lane	Bradford CAZ-C implemented in September 2022 now sets minimum Euro 6 equivalent standard for all local bus services operating in the CAZ. There are no plans for further retrofitting of buses in Bradford as policy has moved towards providing the widespread provision of zero emission buses and a move towards rapid transit systems.
10	Voluntary emission standards for buses	Promoting Low Emission Transport	Other	2015	2021	City of Bradford MDC / (WYCA / Bus operators	n/a - additional improvements funded by bus operators	No	Not funded	Cost reflects CBMDC staff time on liaison with bus companies only, not the cost of improvements made.	Completed	24.7 tonnes of NOx reduction estimated for first local agreed target of Euro IV by 2018	Number of buses meeting locally agreed emission standard targets	Good progress was made with locally negotiated bus fleet emission reductions prior to the introduction of the CAZ standards that are now driving local bus improvements.	Measure now superseded by formal CAZ entry standards for buses of Euro 6 equivalent.
11	Car clubs	Alternatives to private vehicle use	Car Clubs	2015	On-going implementation	CBMDC/ WYCA / Enterprise	No funding is provided to Enterprise to run the scheme. The original contract provided upfront promotion and vehicle leasing funding only (WYCA Local Transport Plan ITB funding).	No	Partially Funded	<10k	Implementation	Not measured by CBMDC	Number of registered car club members	Membership of the car club at Bradford sites increased by 158% in 2022 compared to 2021. There were 2236 bookings made in 2022 compared with 1637 in 2021. The site with highest use is at South Street, Keighley. – Struggling to update this?	Membership and usage of the car club continues to grow but is still below capacity. CBMDC continues to promote the car club and seeks to obtain space and EV charging for car club bays on new developments.
12	Adoption of West Yorkshire Low Emission Strategy	Policy Guidance and Development Control	Low Emissions Strategy	2016	Policy completed 2016.	City of Bradford MDC in conjunction with City of Leeds Council, Wakefield City Council, Calderdale Council and Kirklees Council	£150,0000 DEFRA air quality grant (2012) to develop the strategy and additional contributions from the WY LAs to deliver various measures around the region	Yes	Funded	£100K-£500K	Implementation	Contains many policies to address emissions from vehicles and other sources in West Yorkshire	Level of measured ongoing air quality in West Yorkshire	This is a live document subject to on-going local delivery and review in response to national, regional and local policy developments	Loss of dedicated WYLES officer post in 2021 and availability of remaining WY officers to update the WYLES and ensure continued implementation. Availability of funding for major schemes and the amount of time and resources needed to develop

															successful regional funding bids.
13	WYLES procurement guidance	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2016	2016	City of Bradford MDC in conjunction with City of Leeds Council, Wakefield City Council, Calderdale Council and Kirklees Council	DEFRA air quality grant 2012 £1500000	Yes	Funded	£100K-£500K	implementation	Reduced emission impact from vehicle-based services and transport procured by WY LAs. Contracts assessed on an individual basis by several LAs. Overall impact difficult to quantify.	Number of contracts the policy is applied to in Bradford	Ongoing implementation within individual LAs	LEV procurement policy 5% of award decision as part of procurement policy (social values)
14	Low emission procurement policies for City of Bradford MDC fleet	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2013	2016	City of Bradford MDC	In house project	No	Funded	<£10K	Implementation	Reduction of 332t/CO2e 2014/15-2015/16 via procurement of 7 electric vans and 2 electric pool cars with 3 additional charging stations	Number of CAZ compliant vehicles in CBMDC fleet	Whole life costs have been introduced into vehicle procurement considerations including air quality damage costs.	CBMDC working towards making all council fleet cars and vans < 3.5 tonnes electric.
15	Cycle Super Highway	Transport Planning and Infrastructure	Cycle network	2013	2016	City of Bradford MDC / WYCA (Metro)/ City Connect Partnership	DfT £18M, £11M local funding	No	Funded	>£10M	Implementation	Nearly 3 million bike trips were recorded on the cycle superhighway between 2016 and 2024.	Number of cycle journeys	Main scheme opened in 2016. Additional Shipley to Bradford (Canal Road) section opened May 2019. The Bradford – Leeds Cycle Superhighway has seen an average of over 800 daily users.	Further extension on Thornton Road in Bradford currently being implemented. Estimated end of construction is Autumn 2025.
16	Delivery of new railway stations at Apperley Bridge and Low Moor	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2000	Apperley Bridge opened Dec 2015	City of Bradford MDC / WYCA	Apperley Bridge £8 million (WYCA) Low Moor £10.8 million (WYCA)	No	Funded	>£10m	Completed	The new stations encourage rail travel as an alternative to the car. The actual emission savings to date have not been calculated.	Passenger numbers using the stations	Passenger numbers have increased at Apperley Bridge from 362,988 in 2022/23 to 388,504 in 2023/24. At Low Moor numbers have increased from 199,418 in 2022/23 to 250,298 in 2023/24.	The pandemic resulted in lower use of trains in 2020 and 2021 but passenger numbers have recovered and are still growing. Additional improvements have been made to improve parking at Steeton and Silsden station car park to encourage more rail travel in the district.
17	Staff Travel Plan	Promoting Travel Alternatives	Workplace Travel Planning	2013	2015	City of Bradford MDC	Developed in house	No	Not funded	<£10k	Completed	Plan aims to reduce single occupancy car trips by 5% over 5 years and reduce car commuter trips by staff from 62% (2014) to 57% by 2029	Number of single occupancy car trips and reduction in staff commuter car trips.	Progress monitoring not yet completed.	Plan is actively promoted to new starters. Progress monitoring and plan review /update due.
18	Identifying barriers to walking to school	Promoting Travel Alternatives	School Travel Plans	2017	School travel plan policy adopted 2017	City of Bradford MDC / Bradford Institute of Health Research / Born in Bradford / Local education providers	Research partnership funding	No	Not funded	£10k to £50k	Completed	Study identified best policy measures to include in the CBMDC school travel plan policy. Subsequent	Not applicable	Bradford school travel plan published 2017.School streets programme currently being developed to	Willingness of parents and schools to engage with the research and/or change behaviour. On-going on-site

												policy continues to address school travel. Overall impact difficult to quantify.		address some of the issues identified in the study	management of school street closures is a challenge.
19	Eco-stars Fleet Recognition Scheme	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	2017	2020	WYLES steering group / City of Bradford MDC / ECO-stars scheme	WYCA funded	No	Funded	£10K to £50K	Completed	The ECO stars scheme claims a typical van operator could see its annual output of carbon dioxide fall by six tonnes per year	Number of Bradford based operators joining the scheme	Scheme operated in West Yorkshire between 2017 and 2020	The introduction of the West Yorkshire ECO-stars scheme was a measure in the WYLES. Local scheme was reliant on an annual funding allocation which was not renewed in 2021.
20	West Yorkshire bus retrofitting project	Vehicle fleet efficiency	Vehicle retrofitting programmes	2018	2020	City of Bradford MDC in partnership with DEFRA, WYCA, West Yorkshire bus operators	DEFRA - £7.186 million LPTIP - £850k	No	Not funded	£1m to £10m	Completed	Programme estimated to have delivered 560 tonnes of NOx removal annually across the WY region	Not applicable	Programme retrofitted 471 buses across WY	Bradford CAZ-C implemented in September 2022 now sets minimum Euro 6 equivalent standard for all local bus services operating in the CAZ. Regional policies have now moved away from retrofitting with a focus on providing zero emission buses and a rapid transit systems
21	Encouraging uptake of low emission taxis	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018	2020	City of Bradford MDC / WYCA/ EQUANS	OLEV £2 million WYCA and partner LAs £1.2 million match funding	No	Funded	£1m-£10m	Completed	Over 2,164 tonnes of CO2 have been saved across the WY region by drivers since the scheme launched The charging points have since provided more than nine million free miles to over 10,000 registered drivers in WY	Number of charges undertaken	22 Rapid chargers installed across the Bradford District each has 2 bays one for public and the other designated for Taxi use. 100+ charge points installed across wider WY region.	One of the biggest rapid charging networks outside London.
22	Public awareness	Public Information	Via other mechanisms	2016	Delivery ongoing	City of Bradford MDC / NHS / Born in Bradford/ Universities	Early activities funded mainly by partners. Government funded CAP settlement included funding for public engagement / marketing campaign for the CAP / CAZ.	No	Funded	£100-£500K	Implementation	Not quantified	-	Activities to date have included raising public awareness through the use of street infographics on air pollution stations, air quality and health online petition in partnership with Doctors and academics at the University of Leeds, workshops held	Evaluating the reach / impact of public information campaigns is more difficult following stricter rules on collection of cookies from council website interactions. Lack of evidence on impact of schemes could be a barrier to

														in schools and anti-idling awareness raising. Development of the Breathe Better Bradford public information website and a 1 hour drive campaign to raise awareness about the CAZ. The Breathe Better Bradford website was developed further in 2023 to include more information on sources of air pollutants, impacts and detailed information on location of smoke control areas and rules for burning in these areas, A wood burning public information campaign was undertaken in winter 2023/24 and 2024/25. A large-scale event for schools was undertaken for CAD 2024, this event is also planned for 2025.	ongoing implementation.
23	School Streets Pilot Schemes	Traffic Management	Other	2021	2024	CBMDC/ Local schools/ Act Early Research Consortium	WYCA funded £66,000	No	Funded	£10K to £50K	Implementation	AQ impacts of first round not measured. Monitoring was put in place to evaluate AQ impacts for the second round of interventions that commenced in June 2023.	Self-reported measures on travel modes to school/perceptions of school environment pre- and post-school street. Traffic Counts. AQ monitoring results (before and after)	First pilot schemes trialled in 2021/2022. Second round commenced in June 2023 Third round commenced in 2024.	Staff time/capacity to put out signs and marshall the schemes have been the main issues identified in the first rounds. Due to the relatively short period of time the interventions are in place each day it has been difficult to identify significant reductions in pollutant concentrations using diffusion tubes. Real-time low-cost sensor monitoring has been placed at some participating schools and control sites but

															last minute changes to participating school have limited the use of this data.
24	ZEBRA funded electric buses	Promoting Low Emission Transport	Public vehicle Procurement – Prioritising uptake of low emission vehicles	2022	2025	City of Bradford MDC in partnership with local bus operators and WYCA	£10M ZEBRA bus funding for 32 new electric buses in Bradford to support CAZ implementation. Some private investment from local bus operator	No	Funded	>£10M	Implementation	Predicted 0.5µg/m3 reduction in NO_2 on Godwin Street and Sunbridge Road.	WYCA project	15 ZEBs are on order with Transdev to operate from their Keighley depot on the 662 Shuttle route, due for phased delivery between June and July 2025. All should be in operation by August.	The buses will operate on a shuttle corridor between Keighley and Bradford. Original plans for an electric shuttle to Leeds Bradford Airport are not progressing due to a land ownership issue.
25	South Bradford Park and Ride scheme	Alternatives to private vehicle use	Bus based Park and Ride	2019	Currently unknown	CBMDC / WYCA	To be delivered as part of the wider West Yorkshire Transforming Cities Fund. £317 million from the Department for Transport (DfT) plus local match funding of up to £140 million. Link to TCF information on WYCA Your Voice website	No	Partially funded	>£10M	Planning	Impact assessment work ongoing at present. Should improve air quality in Mayo Avenue AQMA and the wider CAZ especially around Manchester Road	WYCA project	Due to increased costs the original scheme has been scaled back. Proposals for dedicated bus and cycle expressways on Manchester Road have been removed with the P&R now to be served by existing bus stops and cycle routes to be provided on quieter side streets. In the first instance works will concentrate on delivery of bus and cycle route upgrades. Plans for the P&R facility at Odsal stadium will form a second later phase.	Funding is a currently a barrier to delivering the P&R scheme. The revised scheme will not provide the rapid transport link into the city centre originally planned and the dedicated P&R facility will be delayed. The remaining improvements should encourage some modal shift to cycling and reduce current bus journey times. More information on this project is available on WYCA Your Voice website.
26	Bradford Interchange Enhanced rail Gateway	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2019	Works to commence by 2023	CBMDC / WYCA	To be delivered as part of the wider West Yorkshire Transforming Cities Fund. £317 million from the Department for Transport (DfT) plus local match funding of up to £140 million. Link to TCF information on WYCA Your Voice website	No	Funded	>£10M	Implementation	Scheme will improve access and environment around the rail / bus interchange to encourage further uptake of low emission transport options. Scheme will also incorporate low emission infrastructure for cars and taxis.	WYCA project	Scheme currently in the process of being delivered.	Long term ambition is still to have a new Northern Powerhouse rail station in Bradford to replace the current interchange and Foster Square stations. The scaling back of the HS2 scheme is likely to considerably set back the timeline for new rail facilities in Bradford making upgrade of the current

															interchange an essential interim measure. More information on this project is available on WYCA Your Voice website.
27	Bradford City Centre Cycling and Walking Improvements	Transport Planning and Infrastructure	Cycle network	2019	Works to commence by 2023	CBMDC / WYCA	To be delivered as part of the wider West Yorkshire Transforming Cities Fund. £317 million from the Department for Transport (DfT) plus local match funding of up to £140 million. Link to TCF information on WYCA Your Voice website	No	Funded	>£10m	Implementation	The scheme will implement a series of bus, cycle and pedestrian improvement measures to promote bus use and enable safe walking and cycling to and within Bradford City Centre. Large reductions in emissions expected in some locations, others may experience slight increases due to displacement of bus stops etc.	WYCA project	Scheme reached completion in April 2025. Monitoring of air quality continuing throughout the works and new locations being added as location of bus stops etc change.	More information on the proposed walking, cycling and bus infrastructure upgrades can be found on WYCA Your Voice website.
28	West Bradford Cycle Superhighway extension	Transport Planning and Infrastructure	Cycle network	2019	Works to commence by 2023	CBMDC / WYCA	To be delivered as part of the wider West Yorkshire Transforming Cities Fund. £317 million from the Department for Transport (DfT) plus local match funding of up to £140 million. Link to TCF information on WYCA Your Voice website	No	Funded	>£1m	Implementation	The scheme will provide an additional link to the existing cycle superhighway and will run through the Thornton Road AQMA	WYCA project	Business case completed and public consultation took place in 2020. Detailed scheme design and planning in progress. May 2024 enabling work was complete and construction has begun. Estimated completion Autumn 2025.	This project and laying of district heat network pipes currently causing disruption to traffic and increased pollution in the Thornton Road AQMA delaying the planned revocation of the AQMA. More information on the West Bradford Cycle Superhighway extension can be found on WYCA Your Voice website.
29	Particle Reduction Strategy	Policy Guidance and Development Control	Low Emissions Strategy	2021	2025	CBMDC universities/BiB	Defra AQ grant fund 2021/22 £253k	Yes	Funded	£100k to £500k	Implementation	The strategy will aim to deliver PM reduction across the whole district with a focus on domestic and construction emissions. An emission impact assessment will form part of the strategy development.	Not yet set	A study into indoor air quality in homes has been undertaken in partnership with University of York and BiB and a research questionnaire around use of domestic wood burning stoves was undertaken by Sheffield University in 2023. Based on the findings of the report a solid fuel burning information campaign was	Plans to develop a scheme to reduce emissions from Non Road Mobile Machinery (NRMM) on construction sites has been delayed due to a lack of staff resources to progress it, it will be revisited in the coming year with a view to aligning the project with exploratory NRMM currently

														delivered in winter 23/24. A network of low cost PM analysers was deployed into residential areas in summer 2023. The Bradford Council Breathe Better Bradford website has been updated to include more information on particulate pollution. A regional update of the PM emissions inventory has been completed and scenario testing for different PM reduction measures has been undertaken. We are currently extending the PM model for the whole district.	being carried out by DEFRA
30	District Heat Network	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	2023	2024	CBMDC and Bradford Energy Ltd	TBD	NO	Partly funded by Green Heat Network Fund (GHNF) from BEIS and partly through private investment from 1 Energy	> £10 million	Planning	8,000 tonnes/yr of carbon	Tonnes CO2Eq reduction NO_2 reduction	The DHN is at implementation stage pipes have now been installed. CBMDC have supported development of this project but delivery is via a 3rd party supplier. It will be largest air source heat district heating scheme in the UK.	The DHN will improve air quality via offset of older individual boiler plant. The DHN is substantially powered via air source heat pump offering a clean low carbon alternative to other heating sources. There is a backup gas supply for winter spikes in demand and other unforeseen reduction is supply via air source.
31	West Yorkshire PIIP project	Public information	Via other mechanisms	2023	2025	WYCA, CBMDC, Kirklees Council, Wakefield Council, Leeds City Council, Calderdale Council	Defra AQ Grant	Yes	funded	£100k to £500k	Implementation	Scheme aimed at highlighting pollutant levels and encouraging behavioural change	not quantified	Procurement of new low-cost analyser network completed and data dashboard in development.	Analysers are now in situ and the dashboard is now under test.
32	WY EV charging network - LEVI	Promoting low emission transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2023	TBD	WYCA / CBMDC, Kirklees Council, Wakefield Council, Leeds City Council, Calderdale Council	LEVI funding	no	funded	> £10 million	planning	The WY LEVI project will enhance the number of publicly accessible charge points across the region	Scheme will make electric zero emission vehicles a more viable option for a greater number of WY residents	CBMDC is drawing up proposals for implementation in conjunction with WYCA There are currently 1345	Finding suitable locations and grid capacity may be barriers to implementation in some areas.

												specifically targeting 'close to home' charging for residents without access to off street parking		publicly available electric vehicle charging devices in West Yorkshire. Government figures predict over 10,000 may be needed by 2030 to meet demand.	
33	Electric HGV trial	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2023	2024	CBMDC and local partners (Joseph Parr, Bradford)	CAZ revenue funded	No	Funded	£10k - £50k	Implementation	Emission savings from the trial will be minimal but if the technology can be demonstrated to work it could result in further grants for electric HGVs and potentially 1000 tonnes of emission savings across the Bradford district and beyond.	Number of zero emission miles completed during 1 year trial	Availability of funding was advertised in 2023. A local company (Joseph Parr, Bradford) has been recruited and an electric flatbed HGV with crane lift procured for building supplies delivery is now operational. Still ongoing.	Level of interest from local companies to take part.
34	salary sacrifice scheme for staff EV purchases	Promoting Low Emission Transport	Other	2024	Ongoing availability	CBMDC / car lease company	Salary sacrifice scheme with tax advantages for staff -not directly funded	no	Not funded	No direct cost to CBMDC	Planning	Will depend on level of uptake from CBMDC staff	Number of electric vehicles leased by CBMDC staff	Scheme administration being set up and approved prior to launch.	Requires significant additional administration costs to set up.
35	Anerobic digestion and methane production feasibility study	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2024	TBD	CBMDC	Funding received from government to facilitate new statutory food waste collection duties form 2026 onwards. Funding for the plant is to be provided from CAZ revenue.	no	Not funded	> £10 million	Planning	Potentially large reductions in greenhouse gas emissions from prevention of decomposition of food waste in landfill and large reductions in NOx and PM emissions from diesel waste collection fleet.	Not yet determined	Business case development	Cost of providing digestion plant and converted refuse trucks may be prohibitive. Planning permission for digestor location will need to be sought. A business case/feasibility study has been commissioned to be undertaken in 2025
36	E-Bike Share Scheme / electric pedi-cab hire scheme	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2024	2025	CBMDC, University of Bradford, Bradford Collage, Bradford 2025, West Yorkshire Police and delivery partners (to be procured)	CAZ revenue funded	no	funded	£800k	Implementation Period (subject to signed contract).	Will enable alternative forms of zero emission transport to be used in newly pedestrianised city centre to transport goods and people with scope to expand to other urban centres in the district via existing off road cycling infrastructure	Not yet determined	Business case development has been approved (September 2024)	The procurement process has been completed.

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[4], local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter ($PM_{2.5}$)). There is clear evidence that $PM_{2.5}$ (particulate matter smaller 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

In Bradford, emissions of man-made fine particles PM2.5 are estimated to cause 5.2[5]% of total mortality. Road transport emissions are a significant source of fine particulate, but locally elevated concentrations can also arise from biomass combustion, heating, industry, agriculture and wind-blown dust. The World Health Organisation (WHO) classifies diesel exhaust emissions as carcinogenic.

Born in Bradford (BiB) is one of the largest and most important medical research studies currently being undertaken in the UK. It is tracking the lives of 13,500 Bradford born babies (and their families) to ascertain more about the causes of childhood illness. Their work has identified important linkages between air pollution exposure including PM2.5 related impacts. Office for Health Improvement and Disparities (OHID) data shows that rates of asthma admissions for 0 to 9 year olds in Bradford is 279.1 per 100,000 compared to the England figure of 172.7. BiB have identified that up to 38% of the total annual childhood asthma cases may be attributable to air pollution[6]. The council continues to collaborate closely with BiB, the aim being to develop evidence-based policy making for air quality improvement.

City of Bradford MDC is taking the following measures to address $PM_{2.5}$:

- **Long term PM2.5 monitoring** - City of Bradford MDC Public Health Department has funded PM2.5 monitoring at real time air pollution stations since 2013. PM2.5 analysers are currently located at Tong Street, Keighley and Shipley Airedale Road. The data from these sites is used to inform major research programmes (such as the

[4] Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023

[5] Fingertips Public Health data (2023) – Office for Health Improvement and Disparities

[6] Born in Bradford:10 Key findings for Policy and Practice 2019 report

Born in Bradford (BiB) programme) and is made available to the public via the Air Quality net website available here: Link to Air Quality Net Data Management website. At the end of 2024 the operators of the national AURN network placed a new real time PM2.5 analyser at City of Bradford MDC's air quality station on Shipley Airedale Road. Data from this analyser can be viewed on the UK Air website Link to UK Air data selector. It is expected that a further AURN funded particulate monitoring site will be established within the Bradford district during 2025.

- **Low cost CBMDC monitoring network** – in June 2023 a network of 12 'low cost' Zephyr air pollution sensors was established within the Bradford district to investigate pollutant concentrations in residential areas and close to schools. The units simultaneously measure PM10, PM2.5, NO_2, O_3 and CO^2. Data from these sites is being used to investigate the impact of domestic solid fuel burning in residential areas and to help assess the impact of school street interventions. The network was established using funding from Defra's Air Quality Grant scheme. Results obtained from the 2024 monitoring period are discussed further in section 3.2.2.
- **Development of West Yorkshire Particle Information and Improvement Project (PIIP) -** an additional 6 Zephyrs were added to the Bradford network during 2024 as part of the establishment of a regional 'low-cost' analyser network within the wider West Yorkshire region. These additional units were funded from a Defra air quality grant obtained jointly by WYCA and the WY district authorities. A WY regional air quality dashboard is being developed to host the air quality data that will be collected from the new WY low-cost sensor network. Data from the new WY sensor network will be managed through a collaboration with Leeds University and Leeds Beckett University. The longer term aim is to include the 12 low-cost analysers which were previously installed in the Bradford district in 2023, into the WY regional air quality dashboard once it is available. This will allow for all PM data which is collected in the Bradford district to be accessed via one public facing dashboard.
- **Bradford CAZ -** has removed many older diesel vehicles from Bradford's roads which were a significant former source of exhaust PM2.5 emissions. These have been replaced with either cleaner Euro 6 diesel vehicles, Euro 4-6 petrol vehicles or hybrid and zero emission electric vehicles. Whilst the CAZ vehicle emission upgrades have removed significant amounts of exhaust related PM2.5 emissions a significant amount of PM2.5 emissions relating to brake and tyre wear remain. It is therefore important that the council tackles other sources of PM2.5 emissions in the district and continues work to facilitate the use of other modes of zero emission transport.

- **Electric HGV trial -** during 2025 the council will continue to support a local business to trial a fully electric HGV. A revenue grant of up to £25K has been provided to support a one-year trial project. Transitioning HGVs to electric has the potential to significantly reduce emissions of PM2.5 in the Bradford district. This trial is being funded from CAZ revenue.
- **Clean Air taxi programme** – Due to the success of the CAZ clean air taxi programme, the scheme is currently closed to new applications. Most of the taxi fleet has already been upgraded to CAZ standards (Euro 6 diesel or Euro 4 petrol hybrid) but further transition towards fully electric taxis will offer further air quality improvement. The number of fully electric, zero emission licensed vehicles has increased from 195 to 581, with applications for a further 100 EVs still in process.
- **Hydrogen production and refuelling centre** – as detailed earlier in this document planning permission has been granted for the development of a hydrolysis plant and hydrogen refuelling facility at the former Birkshill Holder station on Peace Street. This will facilitate the transition of heavy diesel vehicles (HGVs and buses) towards the use of hydrogen fuel cells within significant potential to reduce emissions of diesel based PM2.5.
- **District heat energy centre** – planning permission has been granted for an air source heat pump-based energy centre on Thornton Road which will replace older gas and biomass plant in Bradford city centre via a district heat scheme arrangement. Gas boilers are not a significant source of PM2.5 emissions but some of the older biomass plant in the city will have considerable emissions of PM2.5 that could be eliminated via the district heat scheme.
- **Anti-idling campaign –** As detailed in the previous section regular anti-idling interventions are being undertaken by warden teams. As many private cars emit diesel particulate this measure will help address PM2.5 emissions near schools as well as reducing nitrogen dioxide emissions.
- **West Yorkshire LEVI project –** the LEVI projects will enhance the number of publicly accessible charge points across the region specifically targeting ‘close to home’ charging for residents without access to off street parking. This will offer more opportunity for residents to transition to zero emission vehicles if they are able. As many private vehicles currently run on diesel the LEVI project provides an opportunity to further reduce PM2.5 emissions as well as NO_x emissions.

- **Bradford Particulate Reduction Strategy (PRS) -** over the past three years City of Bradford MDC has been working closely with BiB, the University of York, the University of Sheffield and the West Yorkshire Combined Authority (WYCA) to progress implementation of a Particle Reduction Strategy (PRS). Activities so far include:
  - **Indoor air quality measurements (including PM2.5) undertaken in 300 homes around Bradford by the University of York.** This forms part of the wider INGENIOUS research programme designed to investigate the causes of indoor air pollution in homes and develop intervention programmes. The results of this work are now being used to develop targeted interventions and advice for householders to reduce exposure to pollutants in the home.
    Link to INGENIOUS project on University of York website
  - **Domestic solid fuel burning research questionnaire by Sheffield University** - this research investigated the reasons why some residents opt to use solid fuel heating appliances and what steps they currently take to minimise emissions from these appliances inside and outside their home. It was identified from the research that many users of solid fuel appliances are currently unaware of the potential impacts on their health and often do not fully understand or follow smoke control area rules. This led to the development of solid fuel wood burning campaigns.
  - **Solid fuel / wood burning campaigns -** the main pollutant of concern from domestic solid fuel burning activities is PM2.5. A solid fuel /wood burning campaign was developed in 2023/2024 and a follow up campaign was run in Autumn/Winter of 2024/2025. The campaign sought to highlight the health impacts of solid fuel appliances and to educate users on the location of SCAs and requirements within these areas. It was developed using intelligence gathered from the Sheffield research questionnaire findings. The poster and radio advert campaign were used to signpost people to the more detailed information and advice around domestic solid fuel burning on the updated Breathe Better Bradford website. The impact of the campaign was further evaluated during community workshops held in March 2025.
  - **Continual update of Breathe Better Bradford website** – during 2024 City of Bradford MDC staff continue to make updates to the Breathe Better Bradford website including information on:
    - Sources of PM2.5

- Health impacts of PM2.5
- Information on PM2.5 air quality monitoring in Bradford
- Information and advice on how to reduce exposure to PM2.5
- Locations of smoke control areas
- Smoke control area rules.
- Advice on how to burn more cleanly.
- Advice on purchase and labelling of Eco-stoves

- **Updated regional particulate emission database** – Bradford has worked with WYCA, WY district authorities and CERC to compile an updated regional emission database. This has more granularity with respect to locations of domestic solid fuel burning appliances and industrial / biomass emissions of PM2.5 than the national NAEI. The study included high level scenario testing of possible regional PM2.5 emission interventions. The outcomes of this scenario testing work will form the basis of the Particulate Reduction Strategy (PRS) for Bradford. This will complement the existing Bradford Clean Air Plan (B-CAP) (increasing its scope beyond NO_2 reduction mainly from traffic) and will also support Bradford's emerging Climate Action Plan and wider measures to address health inequalities in the city.
- **Review of planning applications for biomass boilers and other processes likely to give rise to significant PM2.5 emissions –** air quality staff at City of Bradford MDC are routinely consulted on any planning applications for combustion processes and any other activities such as quarrying which could give rise to significant PM2.5 emissions. Staff check the validity of air quality impact reports submitted with these applications (or request them if not provided). In some cases, it is recommended that applications are refused where it is considered they will have a detrimental impact on the health of the surrounding population. In other cases, additional emission mitigation is requested.
- **Non-Road Mobile Machinery (NRMM) project** - As most Non-Road Mobile Machinery (used mainly in construction and agriculture) is diesel operated it can be a significant source of PM2.5. AQ grant funding has previously been obtained to develop local measures to control PM2.5 emissions from construction sites but due to the focus on other air quality improvement activities this project has not yet

been commenced. The delivery of this project remains an aspiration for the council.

- **Air Quality Workshop** – During early 2025 the Sustainability Department developed mobile display materials and attended community workshops to provide information and advice on air quality issues. The first workshops were delivered in March 2025. During these community workshops council officers interacted with the public to provide information on how air quality issues (particularly domestic burning) impact their health. Members of the public were advised on the presence of Smoke Control Areas (SCAs), types of solid fuels and stoves to be used in them, how to identify the 'Ready to Burn' logo and how to store wood and maintain stoves correctly. The sessions were also used to gain feedback on the wood burning campaign materials.

In addition to the projects outlined above other existing measures in the local actions table (Table 2.2) are expected to deliver further reductions in PM2.5 emissions:

- Continued implementation of the Bradford and West Yorkshire Low Emission Strategies (measure 4 and 11) which aim to minimise emissions of all pollutants (including PM2.5) from a wide range of local authority activities. The updated version of the WYLES (currently in development) will place a greater emphasis on reducing PM2.5 emissions than the current plan.
- Continued implementation of the Bradford and West Yorkshire Low Emission Planning Guidance (measure 5) which seeks to mitigate emissions of all pollutants (including PM2.5) from developments in the West Yorkshire region. Specifically, the guidance encourages the use of electric vehicles and requires the undertaking of Construction Dust risk assessments and development of dust management plans to reduce PM emissions during construction and demolition.
- Continued implementation of low emission procurement policies (measure 12) which will further reduce PM2.5 emissions from vehicles operated by City of Bradford MDC.
- Continued implementation of the TCF schemes in central Bradford to improve public realm, encourage cycling and walking and reduce emissions in the city centre and other urban centres within the district.
- Continued improvement to rail facilities throughout the district to reduce road-based trips (reducing both exhaust and road based PM2.5 emissions).

Smoke Control Areas

Large areas of Bradford are designated as Smoke Control Areas (SCAs). Within these areas it is an offence to emit visible smoke from a chimney. Fixed Penalty Notices (FPNs) can now be issued for emission of smoke in SCAs. Smoke control areas in Bradford are enforced by the Environmental Health Department.

Domestic smoke emissions from chimneys in any location can under some circumstances constitute a statutory nuisance. Investigate of statutory nuisance complaints is also undertaken by the Environmental Health Department.

Maps showing the extent of SCAs in Bradford can be found here:

Link to Smoke Control area information on CBMDC website

More information on smoke control rules can be found here:

Link to smoke control rules on UK Government website

More information on nuisance provisions in relation to domestic emissions can be found here:

Link to UK Government advice page on smoke and statutory nuisances

During 2024 there were 40 complaints about domestic smoke emissions received by the Environmental Health Department resulting in 14 visits, 27 warning letters, issuing of 3 Community Protection Warnings (CPWs) and serving of 1 Statutory Nuisance Abatement Notice.

The Sustainability team support the work of the Environmental Health department by undertaking campaigns to raise awareness about the health impacts of solid fuel burning and providing advice on how to use and store wood correctly. Example materials from the recent solid fuel burning campaign work are available in Executive Summary of this report.

Bonfires

Bonfires can be another significant source of $PM_{2.5}$ emissions. City of Bradford MDC provides advice on bonfires via this website

Link to nuisance bonfire advice on CBMDC website

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

This section sets out the monitoring undertaken within 2024 by City of Bradford MDC and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2020 and 2024 to allow monitoring trends to be identified and discussed.

When viewing these trends it should be noted that the 2020 data (and to a lesser extent the 2021 data) was impacted on by the Covid 19 lockdowns. Concentrations of pollutants measured in these years are likely to be lower than they would have been had the lockdowns not taken place.

In September 2022 Bradford introduced a Clean Air Zone across a large part of the district. The impacts of this scheme are reflected in the trend data for some parts of the district from 2022 onwards.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

City of Bradford MDC undertook automatic (continuous) monitoring at 7 sites during 2024. 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 UK air quality net page presents automatic monitoring results for monitoring undertaken by City of Bradford MDC. Results for the AURN (Automatic and Urban Rural Network) site at Mayo Avenue are available on the UK air website here: link to Bradford Mayo Avenue information on 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

City of Bradford MDC undertook non- automatic (i.e. passive) monitoring of NO_2 at 219 sites during 2024.

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 or can be viewed here GIS map of Bradford Diffusion Tube data. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (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 2024 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.

Figure A.2: Trends in Annual Mean NO_2 Concentrations at all background sites

Figure A.3: Trends in Annual Mean NO_2 Concentrations in Mayo Avenue AQMA (order 1)

Figure A.4: Trends in Annual Mean NO_2 Concentrations in Manningham Lane AQMA (order 2)

Figure A.5: Trends in Annual Mean NO_2 Concentrations in Thornton Road AQMA (order 3)

Figure A.6: Trends in Annual Mean NO_2 Concentrations in Shipley Airedale Road AQMA (order 4)

Figure A.7: Trends in Annual Mean NO_2 Concentrations around Harrogate Road / Killinghall junction

Figure A.8 Trends in Annual Mean NO_2 Concentrations around Saltaire Crossroads

Figure A.9: Trends in Annual Mean NO_2 Concentrations around Rooley Lane and Tong Street

Figure A.10: Trends in Annual Mean NO_2 Concentrations around Canal Road

Figure A.11: Trends in Annual Mean NO_2 Concentrations around Greengates Crossroads

Figure A.12: Trends in Annual Mean NO_2 Concentrations at long term city centre sites

Figure A.13: Trends in Annual Mean NO_2 Concentrations around Parry Lane and Leeds Road

Figure A.14: Trends in Annual Mean NO_2 Concentrations at planning baseline sites

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.

Compliance with hourly NO_2 objective

During 2024 there were no exceedances of the hourly objective for nitrogen dioxide at any automatic monitoring sites in the Bradford District. There have been no recorded exceedances of the hourly objective at any of the Bradford automatic sites in the last 5 years. The last recorded exceedances of the hourly nitrogen dioxide objective in Bradford occurred in the Thornton Road (CM5) and Mayo Avenue (CM4) AQMAs during 2014.

Annual mean nitrogen dioxide concentrations of >60 µg/m^3 measured at a passive diffusion tube monitoring site can be indicative of exceedances of the hourly objective. The highest annual mean concentration recorded at a diffusion tube monitoring site in Bradford during 2024 was 48µg/m^3 at site DT12 on Shipley Airedale Road. This site is in the Shipley Airedale Road AQMA very close to the continuous analyser (CM6). As the highest recorded diffusion tube measurement in 2024 was below 60µg/m^3 (adjacent to a continuous analyser which also showed no breaches of the hourly objective) it is unlikely that the hourly nitrogen dioxide objective was exceeded at any monitored location in the Bradford district during 2024.

Compliance with annual average NO_2 objective

As presented in Table A.3 (Appendix A) there were no exceedances of the annual mean nitrogen dioxide objective at any of Bradford's automatic monitoring sites during 2024.

There were four locations where passive diffusion tube monitoring returned an annual average concentration of greater the 40µg/m^3 as detailed in Table A.4 (Appendix A). These were:

- DT12 (48 µg/m^3): Treadwell Mills, Shipley Airedale Road (non-relevant location within AQMA 4)
- DT72 (47.7 µg/m^3): Queen's Road, Manningham (relevant location within AQMA 2)
- DT191 (44.7 µg/m^3): Low Mill, Keighley (non-relevant location not in an AQMA or in the CAZ)

- DT105 (42.5 µg/m^3): Manchester Road (non-relevent location within AQMA 1)

Sites DT72 and DT12 are both within the CAZ and have a long history of exceedance. After distance correcting to the nearest relevant receptor point tube DT12 (in AQMA 4) still exceeded the annual average nitrogen dioxide objective returning a value of 46.8µg/m^3. At site DT105 (in AQMA 1) distance correction to nearest relevant receptor point returned a value of 36.5µg/m^3 bringing it below the 40µg/m^3 objective exceedance threshold. A distance correction was not undertaken for site DT72 as this site is located close to a junction but in line with a relevant receptor point further along the road. A distance correction was not undertaken for site DT191 as there are no relevant receptor points near this site.

The annual average nitrogen dioxide concentration recorded at site DT12 in 2024 was similar to that seen in 2023 and continues to be lower than in earlier years. The rate of improvement has slowed since the initial introduction of the CAZ but the overall trend is still downwards. The long term trend at site DT72 is less clear. This site showed an improvement in 2022 and 2023 but increased again in 2024. Further monitoring is needed to determine the long term air quality trend at this location. Both these sites site failed the state 1 assessment[7] of the Bradford CAZ carried out by JAQU during 2023 which covered the period January 2023 to June 2023 and have recently been subject to detailed source apportionment studies. Options to achieve further air quality improvement in these AQMAs are currently being discussed and evaluated with JAQU.

Air quality at site DT105 has not shown any recent signs of improvement and is currently showing an upward trend. This site also failed the state 1 assessment[8] of the Bradford

[7] The process of state assessment is undertaken by the Government's Joint Air Quality Unit and assesses progress against meeting national air quality standards. Unlike the LAQM process undertaken by local authorities to establish AQMAs the state assessment has no regard for the presence of relevant receptor points. A roadside location will fail the state assessment if there is public access to a location even if members of the public spend very little time there. This is different to an AQMA which is only declared if members of the public regularly spend periods of time at a location that are comparable with the averaging time of the air quality objectives. The Bradford CAZ must remain in place until the state assessment is met and predicted to remain met with or without the CAZ in place. The first state 1 assessment of the Braford CAZ considered data for the period January 2023 to June 2023 only.

[8] The process of state assessment is undertaken by the Government's Joint Air Quality Unit and assesses progress against meeting national air quality standards. Unlike the LAQM process undertaken by local authorities to establish AQMAs the state assessment has no regard for the presence of relevant receptor points. A roadside location will fail the state assessment if there is public access to a location even if members of the public spend very little time there. This is different to an AQMA which is only declared if members of the public regularly spend periods of time at a location that are comparable with the averaging time of the air quality objectives. The

CAZ and has also been subject to a detailed source apportionment study. Options for further air quality improvement at this location are also being evaluated and discussed with JAQU.

As detailed in section 2.1 City of Bradford MDC is currently proposing to retain all current AQMAs until the JAQU CAZ state assessment is passed at all monitoring sites within the Bradford CAZ.

Site DT191 is a kerbside site adjacent to the A6035 in Keighley where a planning proposal for an apartment block on the opposite side of the road was approved in July 2022 (21/00583/MAF). The tube is being used to assess air quality in the locality before and after the development takes place. Since monitoring commenced in 2021 concentrations at DT191 have fluctuated with no immediate sign of long-term improvement. At the opposite side of the road (where the relevant development has been approved) concentrations are well below the objective concentration (27.1µg/m^3 recorded in 2023 and 26.5µg/m^3 in 2024).

No AQMA is proposed at site DT191 as it is not a relevant location and there is currently no other relevant location within the vicinity of the site considered to be at risk of exceeding air quality objectives.

Discussions are currently on-going with JAQU regarding the need for further air quality improvement in this area due to the location being in exceedance of the air quality limit value for nitrogen dioxide.

Update on areas of previous air quality concern

At the following locations elevated concentrations of nitrogen dioxide have been measured in the past and have previously been considered at risk of exceeding national air quality objectives.

- Harrogate Road / Killinghall junction
- Saltaire crossroads
- Rooley Lane / Tong Street
- Canal Road

Bradford CAZ must remain in place until the state assessment is met and predicted to remain met with or without the CAZ in place. The first state 1 assessment of the Braford CAZ considered data for the period January 2023 to June 2023 only.

Figure A.7 (Appendix A) shows annual mean nitrogen dioxide concentrations at monitoring locations around the Harrogate Road / Killinghall Road junction for the period 2000 to 2024. The locations of the monitoring sites in this area are shown on Figure D.10. The last recorded exceedance of the annual average objective in this area was recorded in 2018 at site DT42. Since 2018 concentrations in this area have signficantly reduced at all sites and are now well within the annual average objecitve. Although some 2024 concentrations in this area were slightly higher than those recorded in 2023 the increases are very small and do not raise any immediate concerns.

Figure A.8 (Appendix A) shows annual mean nitrogen dioxide concentrations at monitoring locations around Saltaire crossroads for the period 2020 to 2024. The locations of the monitoring sites in this area are shown on Figure D.11. During 2024 all monitoring sites in this area continued to meet the annual average nitrogen dioxide air quality objective. All sites, with the exception of DT101, showed further improvement compared to 2023 with with an average improvement across the area of 0.96µg/m^3. Monitoring around Saltaire crossroads will continue during 2025 and a further update on pollutant concentrations in this area provided in the 2026 ASR report.

Figure A.9 (Appendix A) shows annual mean nitrogen dioxide concentrations at monitoring locations around Rooley Lane and Tong Street for the period 2020 to 2024. The location of the monitoring sites in this area are shown on Figure D.13. The last recorded exceedance of the annual average objective in this area was in 2018 at site DT64 (Tong Street). Since 2020 all sites in this area have consistently been within the nitrogen dioxide annual average objective level. Some sites in this area showed very slight increases during 2024 compared to 2023, with the highest increase being at 0.4µg/m3 at DT88 and DT200C. The largest improvement arose at the continous analyser CM7(Rook Lane/Rooley Lane) with a decrease of 3.6µg/m3. Since 2020 air quality across this area has continued to generally improve but the rate of improvement appears to be slowing down.

Figure A.10 presents NO_2 annual mean concentrations around the Canal Road area betweeen 2020 to 2024. The location of the monitoring sites in this area are shown on Figure D.12. There were no exceedances of the annual average nitrogen dioxide objective in this area in 2024. There has been ongoing improvement in air quality in this area since 2020 with the majority of 2024 values being lower than those recorded in 2023. The exception is site DT74 which had an increase of 1.6µg/m^3 between 2023 and 2024. As with other areas the rate of improvement on Canal Road apears to be slowing down.

Update on other areas

In addition to the AQMAs and other areas of previous concern, City of Bradford MDC also undertakes air pollution monitoring around the city centre and at other locations which are considered likely to be impacted on by planning proposals or major highways works.

Greengates crossroads

Figure A.11 (Appendix A) presents annual mean nitrogen dioxide concentrations around Greengates crossroads. The location of Greengates crossroads is shown in Figure D.3. Monitoring was undertaken in this area between 2016 and 2021 to measure baseline concentrations prior to a major junction improvement scheme. More information about the scheme is available here: Link to information about the Greengates crossroads highways improvement scheme on City of Bradford Council website. A full air quality impact assessment for the scheme was undertaken by consultants to accompany the planning application for the scheme and is available to view here: Link to Greengates crossroads planning application on City of Bradford MDC website

The pre-2019 baseline monitoring in this area identified exceedances of the annual average nitrogen dioxide objective but since the introduction of the scheme air quality has generally imporved. Monitoring was re-established in 2022 following completion of the junction improvement scheme and will be continued throughout 2025. A further update will be provided in the 2026 ASR.

During the junction improvement works at Greengates crossroads traffic was significantly delayed in some locations and some diverted onto other routes. At the request of local residents additional monitoring was established in the area on Apperley Road (DT276) and further down Harrogate Road (DT275) to monitor this impact. Both sites continued to return results well within the objective level during 2024 (14.9µg/m^3 and 28.4µg/m^3 respectively) and were not of concern.

City centre

Figure A.12 presents NO_2 annual mean concentrations at monitoring locations around the city centre between 2020 and 2024. The location of these monitoring sites are shown in Figure D.14.

During 2024 there was a major improvement in air quality at most long term monitoring sites across the city centre. This was due to works to pedestrianise a large proportion of the city centre which were ongoing throughout 2023 and 2024. The greatest improvements were on Market Street which is now completely closed to all traffic.

Monitoring was first established on Market Street during 2021 at the request of local residents concerned about emissons from buses and taxis outside their homes. During the first year of monitoring the annual average nitrogen dioxide air quality objective was exceeded at site DT167 (a roadside location outside the residential building). In 2024 levels at the site reduced by over 17µg/m^3 compared to 2021, bringing it down to 27.6µg/m^3 from an initial level of 45.3 µg/m^3.

There have also been considerable improvements in air quality on Sunbridge Road where access to through traffic has been removed. Here improvements of over 6µg/m^3 have been recorded since the improvement works were undertaken.

During 2019 Godwin Street was identified as being at high risk of exceeding the annual mean objective for nitrogen dioxide during development of the CAZ business case. Four triplicate monitoring sites (DT161, DT162, DT163 and DT164) were therefore estabished on Godwin Street in 2020. An exceedance of the annual average nitrogen dioxide objective was recorded at site DT161 on Godwin Street during 2022.

During autumn 2023 works took place on Godwin Street to reduce it from three lanes to two and the right turn into Sunbridge Road was removed. Details of the scheme are available here Information on Godwin Street changes on CBMDC website. Since completion of these works Godwin Street has shown considerable improvements in air quality during both 2023 and 2024. All monitoring sites on Godwin Street are now well below the annual average objective level.

Due to the amount of change that has taken place to the city centre road network during 2023 and 2024 trend data from the city centre monitoring sites in recent years needs to be treated with caution. Monitoring will be continued where possible to evaluate the impact of these changes and to identify any other areas that have experienced significant changes in traffic levels / types as a result of the works. Additional monitoring has already been establised in some areas where buses have been relocated to.

Figure A.13 (Appendix A) presents annual mean nitrogen dioxide concentrations around the Parry Lane area of the district for the period 2020 to 2024. Baseline monitoring in this area was initially commenced in 2016 in response to plans for a large diesel operated Short Term Operating Reserve (STOR) in the area. The location of Parry Lane is shown in Figure D.3. There have been no exceedances of the annual average objective at these locations since monitoring began and levels have remained fairly stable over the 2020 to 2024 period. To date the STOR has not been developed but other changes are taking

place in this area including the introduction of a new business park / fast food restaurant. The area includes the proposed site of the recently approved hydrogen testbed which will include a hydrogen production and refuelling facility. Current concentrations in this area are well below the 40µg/m^3 objective. Monitoring will continue in this area during 2025 and a further update will be provided in the 2026 ASR report, including progress on the hydrogen testbed facility.

Figure A.14 (Appendix A) presents annual mean nitrogen dioxide concentrations at other planning baseline sites around the district for the period 2020 to 2024. These sites have been established to monitor baseline conditions prior to implementation of new developments. The location of these sites are available in the GIS tool.

Site DT139 is close to a new secondary school on Thornton Road as shown on Figure D.4. The site was fully developed during 2020/2021 with the school opening in November 2021. The baseline monitoring was established in 2016 when the council became aware of proposals for a new school on this site which is adjacent to a busy main road. The monitoring helped to inform the exposure assessment undertaken for the site and influenced the final layout of the site which was redesigned to reduce the children's exposure to air pollution based on advice from the air quality and public health teams.

Further information about the air quality assessment in relation to this school can be found here: Link to Eden School planning application on City of Bradford MDC website. The 2024 concentration measured at this site was 28.7µg/m^3. This is higher than the levels recorded before the development of the school site but is lower than the value recorded in 2023 and remains well within the annual average objective level. The magnitude of change at this site between 2021 and 2024 is higher than that seen at many other sites across the city and may be in part due to the introduction of the school and additional traffic associated with it.

Site DT78 is located on Aireworth Road and is providing base line monitoring close to a site which has planning permission for the development of an Energy from Waste (EfW) facility. There has been limited development on the site to date but monitoring is being continued to inform the CAZ evaluation and to ensure recent data is available should the EfW progress. Concentrations in this location are currently well below the 40 µg/m^3 objective level and have remained fairly stable since the Covid-19 outbreak in 2020.

During 2024 a large amount of other monitoring was collected from around the district to assist with the longer term evaluation of the CAZ. These results have been included in this

report for completeness but have not been subject to a detailed analysis for the purpose of this report as the CAZ evaluation is a separate process to annual LAQM reporting and has to be undertaken against air quality limit values not air quality objectives.

City of Bradford MDC has continued its monitoring activites into 2025 but with a reduction in the number of diffusion tube sites in locations where levels over the last 5 years have been consistently below 30µg/m^3 and a reduction in the number of sites measured with triplicate tubes. Some additonal tubes have been added to the monitoring network, especially around the city centre where there have been recent changes to traffic routes and location of bus stops as a result of the recent pedestrianisation works.

3.2.2 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.

All reported PM10 data has been independently verified and ratified by Air Quality Data Management Services (www.aqdm.co.uk) on behalf of City of Bradford MDC.

There have been no exceedances of the annual mean or 24 hour PM10 objectives in Bradford since 2016.

At the roadside PM10 monitoring site (CM6) there appears to have been an overall slight reduction in PM10 concentration since the introduction of the CAZ in 2022. This reduction is not seen at the other roadside site (CM8) or the urban background site at Keighley (CM2) which are both located outside the CAZ boundary. At these sites PM10 concentrations appear to have remained stable over the 2020 to 2024 period with no clear trend.

In 2024 there were no days when the daily average exceeded 50ug/m^3 at any PM10 monitoring location across the district. There is an annual allowence of 18 daily average exceedences per annum to comply with the PM10 objectives.

PM10 monitoring is on-going at all the continuous monitoring sites CM2 (Keighley), CM6 (Shipley Airedale Road) and CM8 (Tong Street). The Shipley Airedale Road site (CM6)

has recently been affiliated to the AURN network. Further results from all these sites will be provided in the 2025 ASR report.

In October 2021 City of Bradford MDC successfully applied for an Air Quality Grant to develop a Particulate Reduction Strategy. As part of this programme 12 additional low cost analysers (Zephyrs) were procured and deployed around the district from June 2023 onwards. The analysers have been placed mainly in housing areas with some being targeted specifically at areas where significant levels of domestic smoke emissions are known to be occuring. The units have MCERTS certification for PM10 measurements. Results from the units are subject to independent verification by the council's current data management contractor (AQDS) and results are made available here Link to UK airquality.net website .

Figure D.17 in Appendix D shows the current location of the low-cost sensor network. Results for 2024 are given in Table A.9 Appendix A. In 2024 the average PM10 concentrations recorded at the low-cost sensor sites varied between 8.9µg/m^3 at Ilkley and 12.3µg/m^3 at Apperley Bridge. The site at Apperley Bridge is located close to a canal marina and is likely to be influenced by solid fuel burning activities on canal boats.

The Zephyr sensor located at the Keighley air pollution station returned a value of 11.9 µg/m^3 during 2024 compared with the value of 12.3µg/m^3 measured at the co-located real time site PM10 analyser. This indicates a slight under read on the co-located Zephyr sensor during this period, this is considered an acceptable level of variation for an indicative sensor network.

The Zephyr data is indicative monitoring that has not been annualised. It is not suitable for direct comparison with air quality objectives and is provided in this report for information only.

A further 6 Zephyr PM10 sensors were deployed in the Bradford District during the latter part of 2024 as part of a new West Yorkshire regional network of 36 Zephyr sensors. Results from these sensors will shortly be available on the West Yorkshire Particle Information dashboard and will be reported in Bradford's future ASR reports.

3.2.3 Particulate Matter ($PM_{2.5}$)

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

Figure A.17 in Appendix A shows the trends in annual mean PM2.5 concentrations.

All PM2.5 data has been verified and ratified by Air Quality Data Management Services (www.aqdm.co.uk) on behalf of City of Bradford MDC.

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 require that in England by the end of 2040:

- An annual average of 10 µg/m^3 for PM2.5 is not exceeded at relevant monitoring stations.
- Population exposure to PM2.5 is at least 35% less by the end of 31st December 2040 compared with the average population exposure in the baseline three-year period from 1st January 2016 to 31st December 2018.

PM2.5 concentrations measured at Bradford's three real time monitoring sites have remained below 10 µg/m^3 over the last 5 years. There is some evidence of a slight improvement in concentration at site CM6 since the CAZ was introduced in 2022 but at the other monitoring sites outside the CAZ there is no clear improvement trend. Further national and local interventions may be needed to achieve the long-term population exposure target in Bradford.

The Shipley Airedale Road (CM6) site has recently become an affiliated AURN site for PM2.5 and an additional AURN PM2.5 monitoring site is expected to be established at a suburban background site in Bradford in 2025. Results from these sites will be included in future ASR reports.

In October 2021 City of Bradford MDC successfully applied for an Air Quality Grant to develop a Particulate Reduction Strategy. As part of this programme 12 additional low cost analysers (Zephyrs) were procured and deployed around the district from June 2023 onwards. The analysers have been placed mainly in housing areas with some being targeted specifically at areas where significant levels of domestic smoke emissions are known to be occuring. The units have MCERTS certification for PM2.5 measurements. Results from these units are subject to independent verification by the council's current data management contractor (AQDS) and results are made available here Link to UK airquality.net website .

Figure D.17 in Appendix D shows the current location of the low-cost sensor network. Results for 2024 are given in Table A.10 Appendix A.

During 2024 average PM2.5 concentrations recorded by the low-cost sensor sites varied between 5.6µg/m^3 in Ilkley and Silsden, to 8.1ug/m^3 at Low Moor and 8.0µg/m^3 at

Apperley Bridge marina. The site at Low Moor is close to a large industrial site and may be impacted on by industrial emissions. The site at Apperley Bridge is located close to a canal marina and is likely to be influenced by solid fuel burning activities on canal boats. All the Zephyr monitoring sites returned values below the 10µg/m^3 annual average environmental target value during 2024.

The Zephyr monitor at Keighley measured a value of 7.6µg/m^3 during 2024 compared with a value of 7.7µg/m^3 at the co-located reference analyser. This provides a good level of confidence in the Zephyr PM2.5 data for the 2024 period.

The Zephyr data is indicative monitoring that has not been annualised. It is not suitable for direct comparison with air quality objectives and is provided in this report for information only.

A further 6 Zephyr PM2.5 sensors were deployed in the Bradford District during the latter part of 2024 as part of a new West Yorkshire regional network of 36 Zephyr sensors. Results from these sensors will shortly be available on the West Yorkshire Particle Information dashboard and will be reported in Bradford's future ASR reports.

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? (1)	Monitoring Technique	Distance to Relevant Exposure (m) (2)	Distance to kerb of nearest road (m) (1)	Inlet Height (m)
CM2	Keighley	Urban Centre	406058	441273	NO_2, PM10, PM2.5	No	N/A	Chemiluminescent, TEOM	N/A	5.0	2.7
CM3	Manningham Lane	Roadside	415582	434457	NO_2	Yes	AQMA order 2, CAZ	Chemiluminescent	4.0	1.5	1.5
CM4	Manchester Road / Mayo Avenue	Roadside	415933	430569	NO_2	Yes	AQMA order 1, CAZ	Chemiluminescent	2.0	2.0	1.5
CM5	Thornton Road	Roadside	415870	433054	NO_2	Yes	AQMA order 3, CAZ	Chemiluminescent	0.0	2.0	1.5
CM6	Shipley Airedale Road	Roadside	416974	433245	NO_2, PM10, PM2.5	Yes	AQMA orer 4, CAZ	Chemiluminescent, TEOM/FIDAS	2.0	2.0	2.7

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Which AQMA? (1)	Monitoring Technique	Distance to Relevant Exposure (m) (2)	Distance to kerb of nearest road (m) (1)	Inlet Height (m)
CM7	Rook Lane	Roadside	417860	430705	NO_2	No	CAZ	Chemiluminescent	1.0	1.5	1.5
CM8	Tong Street	Roadside	419188	430213	NO_2, PM10, PM2.5	No	CAZ	Chemiluminescent, TEOM	0.0	5.8	2.7

Notes:

(1) N/A if not applicable

(2) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

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)
DT168	LP22 Rockhill Lane front of houses	Suburban	417033	429292	NO_2	no	13.0	17.0	No	2.5
DT198	LP128 Rooley Lane/Gardiner Row	Roadside	417929	430974	NO_2	CAZ	0.4	3.0	No	2.6
DT197	LP116 outside Rooley Medical Centre	Roadside	417845	430739	NO_2	CAZ	6.9	2.5	No	2.7
DT196	LP74 Rooley Lane opposite Toby Carvery	Roadside	417369	430370	NO_2	CAZ	5.9	2.4	No	2.5
DT195	LP60 opposite DT194, Rooley Lane	Roadside	417178	430344	NO_2	CAZ	24.0	2.7	No	2.4
DT194	LP61 Rooley Lane	Roadside	417184	430315	NO_2	CAZ	11.0	4.0	No	2.5
DT76	post 12 junc Rook Ln/Tong St	Kerbside	418268	430732	NO_2	CAZ	5.5	0.6	No	2.5
DT45	Rook Lane lampost 17	Roadside	417877	430717	NO_2	CAZ	5.0	1.5	No	2.5
DT214A, DT214B, DT214C	Post outside 221 Bierley Lane nr junction with Rockhill Lane	Roadside	417715	429299	NO_2	no	11.5	2.5	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)
DT215A, DT215B, DT215C	Post corner of Sheldon Ridge	Roadside	417708	429380	NO_2	no	5.5	1.7	No	2.4
DT216A, DT216B, DT216C	Post 2 Shetcliffe Lane outside house 17	Roadside	418853	430309	NO_2	no	3.6	1.1	No	2.5
DT217A, DT217B, DT217C	Post 3 Shetcliffe Lane outside house 28	Roadside	418829	430288	NO_2	no	4.5	1.7	No	2.5
DT88	Tong Street lamp post no 18	Roadside	418829	430399	NO_2	no	0.6	2.2	No	2.3
DT89A, DT89B, DT89C	Tong St/Broadstone Way Car Park	Roadside	419188	430213	NO_2	no	4.6	2.2	No	2.4
DT199A, DT199B, DT199C	Tong Street LP 202 opposite DT89	Roadside	419178	430193	NO_2	no	25.0	3.5	No	2.8
DT64A, DT64B, DT64C	Tong Street	Roadside	419342	430114	NO_2	no	0.4	2.9	No	2.5
DT200A, DT200B, DT200C	Tong Street opposite DT200 near KFC	Roadside	419328	430099	NO_2	no	21.0	2.1	No	2.5
DT220A, DT220B, DT220C	Broadstone Way LP2 near junction with Tyersal Lane	Roadside	419215	431809	NO_2	no	5.4	3.8	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)
DT221A, DT221B, DT221C	Broadstone Way LP3 near junction with Tyersal Lane	Roadside	419196	431834	NO_2	no	3.4	4.4	No	2.5
DT222A, DT222B, DT222C	LP on Wakefield Road near Busfield	Roadside	417861	431486	NO_2	CAZ	31.4	3.0	No	2.5
DT223A, DT223B, DT223C	LP64 Wakefiled Road outside house no.705	Roadside	417862	431536	NO_2	CAZ	2.8	2.0	No	2.4
DT218A, DT218B, DT218C	Near house 567 Sticker Lane LP 78&067	Roadside	418292	431290	NO_2	CAZ	14.3	2.1	No	2.7
DT219A, DT219B, DT219C	Near house 528 Sticker Lane LP 76&666	Roadside	418303	431328	NO_2	CAZ	12.8	2.8	No	2.3
DT116	Sticker Lane lp41	Roadside	418564	432218	NO_2	CAZ	11.3	1.3	No	2.6
DT118	Fearnville Drive lp1	Roadside	418666	432470	NO_2	no	15.4	1.9	No	2.4
DT201	Bowling Back Lane / Parry Lane LP35 outside house 250	Roadside	418108	432322	NO_2	CAZ	0.3	1.2	No	2.5
DT202	Parry Lane LP2	Roadside	418135	432272	NO_2	CAZ	0.3	1.7	No	2.5
DT203	LP 43 Bowling Back Lane opposite	Roadside	418345	432366	NO_2	CAZ	24.0	2.1	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)
	entrance to recycling centre									
DT160A, DT160B, DT160C	LP8, Laisterdyke, by Battye Street	Roadside	418644	432898	NO_2	CAZ	12.0	2.4	No	2.3
DT204A, DT204B, DT204C	LP9, Laisterdyke, Acros from DT160	Roadside	418640	432870	NO_2	CAZ	16.7	3.5	No	2.4
DT120A, DT120B, DT120C	LP60, Corner of Leeds Rd and Hubert St	Roadside	417991	432926	NO_2	CAZ	2.0	5.5	No	2.6
DT209A, DT209B, DT209C	LP57, Across from corner of Leeds Rd and Cracoe Rd	Roadside	417960	432907	NO_2	CAZ	0.4	2.7	No	2.5
DT205	LP6, Across from 17 Killinghall Rd	Roadside	418597	433111	NO_2	CAZ	12.8	3.4	No	2.2
DT206	LP5, Outside 17 Killinghall Rd	Roadside	418579	433109	NO_2	CAZ	1.8	2.7	No	2.4
DT233	LP23, Outside 105 Killinghall Rd	Roadside	418546	433430	NO_2	CAZ	1.5	3.5	No	2.4
DT232	LP24, Outside 78 Killinghall Rd	Roadside	418563	433432	NO_2	CAZ	16.3	3.1	No	2.4
DT230A, DT230B, DT230C	LP18, Outside 48 Gain Ln	Roadside	418784	434409	NO_2	no	11.1	5.1	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)
DT231A, DT231B, DT231C	LP17, Across from 48 Gain Ln	Roadside	418791	434424	NO_2	no	42.0	3.7	No	2.3
DT5	LP6, Harrogate Rd	Roadside	417982	434886	NO_2	no	5.4	1.2	No	2.6
DT39A, DT39B, DT39C	Post - Outside 'YD Legal Services'	Roadside	417927	434799	NO_2	no	5.9	1.2	No	2.3
DT208A, DT208B, DT208C	LP5, Outside 21 Harrogate Rd	Roadside	417966	434884	NO_2	no	20.0	1.4	No	2.4
DT99	LP8, Corner of Charnwood Drive/Harrogate Rd	Roadside	418033	434970	NO_2	no	17.3	1.7	No	2.6
DT86	LP2, Otley Rd, Near Crossroads	Roadside	417894	434753	NO_2	no	0.4	2.4	No	2.5
DT42A, DT42B, DT42C	Parking sign post, next to fish and chip shop	Roadside	417902	434751	NO_2	no	1.5	1.4	No	2.2
DT207A, DT207B, DT207C	LP92, Across Road from DT42, Outside 'Shabys'	Roadside	417912	434759	NO_2	no	0.2	3.8	No	2.3
DT228A, DT228B, DT228C	LP80, Outside 435 Killinghall Rd	Roadside	418090	434429	NO_2	CAZ	3.7	2.9	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)
DT229A, DT229B, DT229C	LP83, Outside 352 Killinghall Rd	Roadside	418059	434509	NO_2	CAZ	0.3	2.3	No	2.5
DT92	LP125, outside 'Chilli Chicks', Harogate Rd	Roadside	419006	437217	NO_2	no	2.0	2.2	No	2.2
DT93	LP69, Next to 91 New Line	Roadside	419003	437308	NO_2	no	3.0	5.2	No	2.5
DT286	By Greengates Primary, By corner of Stockhill Rd/Harrogate Rd	Roadside	419103	437334	NO_2	no	13.0	2.6	No	2.6
DT94	Outside Greengates Primary, Stockhill Rd	Roadside	419076	437345	NO_2	no	13.6	1.1	No	2.5
DT273	LP167, Across from Asda	Roadside	419138	437213	NO_2	no	10.0	1.6	No	2.5
DT274	LP130B at Greengates crossroads	Roadside	419107	437314	NO_2	no	23.5	1.3	No	2.6
DT275	LP138, across from 1009 Harrogate Rd	Roadside	419317	437551	NO_2	no	2.8	4.7	No	2.7
DT276	LP 29, Outside Apperley Cottage, Apperley Ln	Kerbside	418979	437969	NO_2	no	2.7	0.2	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)
DT305	LP outside cavendish Primary	Suburban	418640	436130	NO_2	no	12.1	1.3	No	2.6
DT306	LP 7 Cavendish Primary 3rd Site	Suburban	418567	436068	NO_2	no	19.5	1.4	No	2.6
DT307	LP 7 outside cavendish Primary, Hall Lane entrance	Suburban	418476	436067	NO_2	no	6.5	1.4	No	2.6
DT272	On traffic light sign, 293 Barkerend Rd	Roadside	417661	433528	NO_2	no	10.0	4.8	No	2.6
DT224A, DT224B, DT224C	LP24, Opposite 'Disccovery House', Barkerend Road	Roadside	417117	433431	NO_2	CAZ	19.0	5.4	No	2.3
DT225A, DT225B, DT225C	LP21, Outside Solicitors, Across from DT224	Kerbside	417087	433444	NO_2	CAZ	2.3	0.4	No	2.3
DT309A, DT309B, DT309C	LP 38, Outside 243 Otley Rd	Kerbside	417165	434401	NO_2	CAZ	6.5	0.6	No	2.5
DT227A, DT227B, DT227C	LP50, Next to 234 Otley Rd	Roadside	417054	434165	NO_2	CAZ	0.0	3.8	No	2.4
DT293	Concrete LP on Cotewall Rd, West Bowling	Urban Background	415950	431453	NO_2	CAZ	6.4	0.7	No	2.7

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)
DT294	LP on Corner of Ryan St/Cotewall Rd	Urban Background	415950	431453	NO_2	CAZ	10.4	3.3	No	2.7
DT308	LP on house - Through Staff smoking area on 11 Ryan Street	Urban Background	415932	431360	NO_2	CAZ	0.0	4.5	No	2.7
DT103A, DT103B, DT103C	Mayo Ave first LP left of AQMS	Roadside	415925	430572	NO_2	Yes, AQMA 1, CAZ	4.8	3.6	No	2.7
DT104A, DT104B, DT104C	LP17, to the right of AQMS	Roadside	415961	430558	NO_2	Yes, AQMA 1, CAZ	7.5	4.0	No	2.5
DT188A, DT188B, DT188C	LP20, Mayo Ave, Outside Morrisons	Roadside	415979	430522	NO_2	Yes, AQMA 1, CAZ	32.0	1.6	No	2.4
DT189A, DT189B, DT189C	LP16 Mayo Avenue outside Matalan car park opp DT103	Roadside	415910	430551	NO_2	Yes, AQMA 1, CAZ	29.0	2.3	No	2.6
DT105	LP outside 793 Manchester Rd	Roadside	415780	430504	NO_2	Yes, AQMA 1, CAZ	3.7	3.0	No	2.8
DT281	LP79B, Outside 805 Manchester Rd	Roadside	415771	430476	NO_2	Yes, AQMA 1, CAZ	3.7	2.5	No	2.6
DT186A, DT186B, DT186C	LP81A, Across road from DT281	Roadside	415743	430482	NO_2	no	7.5	2.9	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)
DT187A, DT187B, DT187C	LP outside 18 Scholed St	Roadside	415715	430669	NO_2	Yes, AQMA 1, CAZ	2.6	2.5	No	2.5
DT106A, DT106B, DT106C	LP, behind brick wall on Smiddles Ln by crossroads	Roadside	415702	430701	NO_2	Yes, AQMA 1, CAZ	17.8	3.5	No	2.3
DT192A, DT192B, DT192C	LP32, Outside 144 Mayo Avenue	Roadside	416218	430420	NO_2	Yes, AQMA 1, CAZ	10.7	2.6	No	2.5
DT310A, DT310B, DT310C	LP opposite DT192, near 145 Mayo Ave	Roadside	416260	430422	NO_2	CAZ	10.5	3.7	No	2.5
DT212A, DT212B, DT212C	LP11, Outside 49 Rooley Avenue	Roadside	416398	430194	NO_2	CAZ	11.0	3.7	No	2.4
DT213A, DT213B, DT213C	LP12, Opposite DT212, Rooley Avenue	Roadside	416390	430214	NO_2	CAZ	11.0	1.3	No	2.4
DT311A, DT311B, DT311C	LP21A, manchester Rd, Near Flats - 18J Heddon Grove	Roadside	416302	432187	NO_2	CAZ	12.3	2.3	No	2.8
DT211A, DT211B, DT211C	LP63B, Manchetser Rd	Roadside	415922	431089	NO_2	CAZ	2.7	2.4	No	2.5
DT123A	LP On corner of Otley Rd/Sunny Bank	Roadside	414766	437113	NO_2	CAZ	26.0	1.4	No	2.5
DT123	LP5, Outside Shipley CoE School	Kerbside	414660	436974	NO_2	CAZ	7.8	0.5	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)
DT124	LP4, Outside 143 Otley Rd	Roadside	414620	436924	NO_2	CAZ	6.3	2.1	No	2.4
DT121	LP40, Corner by Flats, 101 Bradford Rd	Roadside	414546	436933	NO_2	CAZ	7.1	2.6	No	2.4
DT122	LP33, Outside 170 Bradford Rd	Roadside	414567	436811	NO_2	CAZ	8.0	2.3	No	2.2
DT126	LP On pelican crossing outside Muirhead Dental Sugery	Kerbside	414643	436505	NO_2	CAZ	11.0	0.6	No	2.5
DT125	LP20, Outside 165 Bradford Rd	Roadside	414674	436471	NO_2	CAZ	8.3	2.4	No	2.6
DT127	LP36, Outside 228 Keighley Rd	Roadside	415044	435558	NO_2	CAZ	10.4	0.4	No	2.5
DT128	LP11, Outside flats 37 Frizley Gardens	Urban Background	415331	435796	NO_2	CAZ	5.0	2.7	No	2.6
DT130	LP1, Midland Rd	Roadside	415839	434674	NO_2	CAZ	14.6	3.4	No	2.5
DT132	LP36, Outside 'Aro Market' Manningham Ln	Roadside	415717	434265	NO_2	CAZ	3.5	0.9	No	2.3
DT301	LP5, Outside 46 Green Lane	Urban Background	415429	434016	NO_2	CAZ	5.5	2.1	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)
DT302	LP3, Next to 1 Trenton Dr	Urban Background	415483	434048	NO_2	CAZ	11.5	2.7	No	2.5
DT303	LP7, Outside 66 Fraser Street	Urban Background	415337	434016	NO_2	CAZ	7.5	1.8	No	2.6
DT304	LP4, Outside Green Lane Primary	Urban Background	415447	434047	NO_2	CAZ	12.0	2.1	No	2.4
DT71A, DT71B, DT71C	LP45, Near AQ Station	Roadside	415580	434461	NO_2	Yes, AQMA 2,CAZ	8.3	2.5	No	2.6
DT278	LP46, Outside 255 Manningham Ln	Roadside	415570	434477	NO_2	Yes, AQMA 2,CAZ	7.5	2.0	No	2.6
DT172A, DT172B, DT172C	LP47, Across from DT278	Roadside	415590	434478	NO_2	Yes, AQMA 2,CAZ	12.0	2.4	No	2.5
DT72	LP2, Outside 8 Queens Rd	Roadside	415573	434521	NO_2	Yes, AQMA 2,CAZ	0.0	3.3	No	2.5
DT235A, DT235B, DT235C	LP3, Outside 21 Marlborough Ave	Roadside	415474	434456	NO_2	Yes, AQMA 2,CAZ	5.0	2.1	No	2.6
DT156	LP33, Across from Ashwell Medical Centre	Roadside	414781	434126	NO_2	CAZ	0.0	2.3	No	2.5
DT236	LP19, Across from 63 Whetley Ln	Roadside	414498	433935	NO_2	CAZ	8.0	2.3	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)
DT237	LP20, Across from DT236	Roadside	414536	433981	NO_2	CAZ	5.5	2.3	No	2.5
DT288	LP in front of St Phillips School, off Fairbank Rd	Urban Background	414404	434137	NO_2	no	0.0	1.9	No	2.5
DT289	LP7, Outside 78 Fairbank Rd	Roadside	414404	434106	NO_2	no	3.5	2.0	No	2.6
DT290	LP9, Outisde 96 Fairbank Rd	Roadside	414385	434168	NO_2	no	3.5	1.9	No	2.7
DT238A, DT238B, DT238C	LP5, Outside 26 Whetley Ln	Roadside	414290	433759	NO_2	CAZ	6.5	3.7	No	2.4
DT239A, DT239B, DT239C	LP6, Across from DT238	Roadside	414268	433765	NO_2	CAZ	4.0	1.6	No	2.4
DT139A, DT139B, DT139C	Eden School site Thornton Road	Roadside	414396	433648	NO_2	CAZ	20.0	2.6	No	2.3
DT240A, DT240B, DT240C	LP92, Across from DT139	Roadside	414403	433665	NO_2	CAZ	0.5	2.0	No	2.2
DT152	LP119, Outside 620 Thornton Rd	Roadside	413835	433663	NO_2	no	2.5	2.7	No	2.4
DT151A, DT151B, DT151C	LP3, Outside 12 Allerton Rd	Roadside	413700	433687	NO_2	no	2.5	2.3	No	2.6
DT149A, DT149B, DT149C	LP53, Outside 4 Cemetery Rd	Roadside	413750	433573	NO_2	no	5.9	2.5	No	2.8

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)
DT241A, DT241B, DT241C	LP15, Outside 237 Cemetery Rd	Roadside	413840	432676	NO_2	no	8.4	1.5	No	2.6
DT242A, DT242B, DT242C	LP18, Outside 97 Clayton Rd	Roadside	413721	432067	NO_2	no	6.2	2.7	No	2.5
DT243A, DT243B, DT243C	LP17, Outside 110 Clayton Rd	Roadside	413729	432097	NO_2	no	5.8	1.8	No	2.5
DT244	LP16, On corner of Hollingwood Ln and Tanner Hill Rd	Roadside	413225	431373	NO_2	no	13.3	1.6	No	2.4
DT245	LP17, Opposite DT244	Roadside	413243	431386	NO_2	no	8.0	1.5	No	2.4
DT246A, DT246B, DT246C	LP013, Outside 65 Horton Grange Rd	Roadside	414722	432432	NO_2	CAZ	7.0	0.8	No	2.5
DT247A, DT247B, DT247C	LP13A, Outside 66 Gorton Grange Rd, Across Rd from DT246	Roadside	414731	432443	NO_2	CAZ	6.0	1.0	No	2.4
DT144A, DT144B, DT144C	LP26, Horton Gange Rd, Opposite Grange Medical Centre	Kerbside	414908	432312	NO_2	CAZ	6.3	3.3	No	2.7
DT146	LP3, Outside Copthorne	Roadside	415005	432231	NO_2	CAZ	16.0	5.1	No	2.3

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)
	Primary School, All Saints Rd									
DT143A, DT143B, DT143C	LP64, Outside 384A Great Horton Rd Shops, 'Letz Talk Phone Shop'	Kerbside	414902	432251	NO_2	CAZ	1.7	0.4	No	2.4
DT142	LP74, Outside 464 Great Horton Rd	Roadside	414724	432095	NO_2	CAZ	4.0	2.9	No	2.4
DT248	LP34, Outside St Oswalds CofE Primary	Roadside	414499	431676	NO_2	CAZ	8.3	2.0	No	2.4
DT249A, DT249B, DT249C	LP10, Outside 76 Southfield Ln	Roadside	414862	431173	NO_2	CAZ	2.9	1.2	No	2.6
DT250A, DT250B, DT250C	LP12, Across from DT249	Roadside	414788	431184	NO_2	CAZ	16.0	2.2	No	2.6
DT320	LP13, Outside 45 Dawnay Rd	Urban Background	415016	431575	NO_2	CAZ	8.1	1.1	No	2.6
DT321	LP10, Outside 60 Dawnay Rd	Urban Background	415039	431646	NO_2	CAZ	8.2	1.1	No	2.6
DT252A, DT252B, DT252C	LP6, Outside 35 Southfield Rd	Roadside	415228	431031	NO_2	CAZ	13.0	1.9	No	2.3
DT251A, DT251B, DT251C	LP7, Outside 50 Southfield Rd	Roadside	415222	431010	NO_2	CAZ	16.0	1.8	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)
DT253A, DT253B, DT253C	LP6, Near 72 Holdroyd Hill	Kerbside	415320	430090	NO_2	no	1.4	2.6	No	2.6
DT254A, DT254B, DT254C	LP17, Outside 98 Fair Rd	Roadside	414637	430131	NO_2	no	1.4	2.3	No	2.3
DT255A, DT255B, DT255C	LP16, Across from DT254	Roadside	414629	430122	NO_2	no	6.0	1.6	No	2.3
DT257A, DT257B, DT257C	LP17, Outside 60 Moore Ave	Roadside	414260	430531	NO_2	no	13.9	2.1	No	2.6
DT256A, DT256B, DT256C	LP18, Outside 113 Moore Ave, Across from DT257	Roadside	414239	430526	NO_2	no	13.0	2.4	No	2.4
DT283	LP237, On corner of Cardigan St / Sand Beds	Roadside	410565	430351	NO_2	no	2.1	1.5	No	2.8
DT284	LP262, On Corner of Foster St / West End	Roadside	410585	430112	NO_2	no	6.5	1.3	No	2.6
DT285	LP8, Brighouse Rd, Near Tesco	Roadside	410584	430114	NO_2	no	1.0	1.1	No	2.6
DT259A, DT259B, DT259C	LP25, Outside 246 Beacon Rd	Kerbside	413785	430386	NO_2	no	17.9	1.6	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)
DT258A, DT258B, DT258C	LP26, Outside 167 Beacon Rd	Roadside	413749	430389	NO_2	no	12.1	1.5	No	2.6
DT298	LP29, Outside 180 Reevy Ave	Suburban	413814	429468	NO_2	no	9.5	1.7	No	2.7
DT299	LP26, Outside 164 Reevy Ave	Suburban	413832	429561	NO_2	no	9.5	4.3	No	2.5
DT300	LP9, Across from 30 Bilsdale Grange	Suburban	413612	429565	NO_2	no	19.0	1.6	No	2.6
DT261A, DT261B, DT261C	LP7, outside 51 Netherlands Ave	Roadside	415339	429334	NO_2	no	15.5	1.0	No	2.4
DT260A, DT260B, DT260C	LP8, Near Scout hut, Netherlands Ave	Roadside	415368	429297	NO_2	no	18.0	0.7	No	2.4
DT262A, DT262B, DT262C	LP12, Outside 50 Cleckheaton Rd	Roadside	415894	429519	NO_2	no	5.6	1.8	No	2.6
DT318	LP 6 Chelwood Drive, Outside school gates and house 47	Suburban	411552	433368	NO_2	no	7.6	1.6	No	2.9
DT319	LP 14 Chelwood Drive, Near parking spaces	Suburban	411460	433447	NO_2	no	10.2	0.9	No	2.7
DT295	LP on Kennion Street	Urban Background	415691	432039	NO_2	CAZ	39.0	1.6	No	2.3

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)
DT296	LP outside Church on Little Horton Green	Urban Background	415710	432070	NO_2	CAZ	16.3	1.2	No	2.8
DT297	LP Furtnher down from Church on Little Horton Green	Urban Background	415618	432070	NO_2	CAZ	13.7	1.6	No	2.7
DT84	LP1, Wilton St, by corner onto Little Horton Ln	Roadside	416054	432675	NO_2	CAZ	3.2	1.5	No	2.5
DT79	LP in Centre of Centenery Square	Urban Centre	416282	432966	NO_2	CAZ	19.0	50.0	No	2.5
DT161A, DT161B, DT161C	LP6, Bottom of Godwin St	Roadside	416148	433102	NO_2	CAZ	0.1	1.7	No	2.3
DT162A, DT162B, DT162C	LP7, Middle of Godwin St	Roadside	416148	433134	NO_2	CAZ	0.1	1.7	No	2.4
DT163A, DT163B, DT163C	LP8, Top of Godwin St	Roadside	416147	433158	NO_2	CAZ	0.1	1.8	No	2.6
DT164A, DT164B, DT164C	Fall pipe, Middle of Godwin St, Across from DT162	Roadside	416139	433134	NO_2	CAZ	0.1	2.0	No	2.5
DT109A, DT109B, DT109C	LP20, Next to AQMS	Roadside	415858	433061	NO_2	Yes , AQMA 3, CAZ	0.9	2.5	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)
DT108A, DT108B, DT108C	LP18, Near AQMS	Roadside	415891	433045	NO_2	Yes , AQMA 3, CAZ	0.9	2.3	No	2.7
DT279	LP3, Listerhills Rd, near junction with Thornton Rd	Roadside	415591	433141	NO_2	CAZ	n/a	1.8	No	2.5
DT280	LP32, Thornton Rd, Near junstion with Listerhills Rd	Roadside	415665	433175	NO_2	CAZ	11.0	1.7	No	2.5
DT314	LP39, Sunbridge Rd, Across from juntion with paradise st	Roadside	415677	433309	NO_2	CAZ	18.0	3.0	No	2.8
DT315	LP37, Thornton Rd, In front of big advert sign	Roadside	415570	433268	NO_2	CAZ	n/a	1.9	No	2.6
DT183	No right turn sign, Near Tesco Express ATM, Sunbridge Rd	Roadside	416215	433059	NO_2	CAZ	7.1	1.0	No	2.4
DT184	No Right turn sign, Sunbridge rd on Junction w Upper Millergate	Kerbside	416217	433071	NO_2	CAZ	3.1	0.5	No	2.4
DT167A, DT167B, DT167C	LP4, Market St - Ivebridge House	Urban Centre	416392	433046	NO_2	CAZ	2.5	n/a	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)
DT185A, DT185B, DT185C	LP3 Market St, Across from DT167	Urban Centre	416381	433054	NO_2	CAZ	2.4	n/a	No	2.5
DT277	Hot Crazes building - Market St	Urban Centre	416398	433050	NO_2	CAZ	0.1	n/a	No	2.2
DT316	LP2, Well St, outside Park House	Kerbside	416709	433099	NO_2	CAZ	0.2	3.3	No	2.7
DT12A, DT12B, DT12C	Fence behind Treadwell Mills AQMS	Roadside	416970	433259	NO_2	Yes , AQMA 4, CAZ	0.5	3.3	No	2.4
DT133	LP121, Across from Audi Garage	Roadside	416260	434581	NO_2	CAZ	n/a	2.4	No	2.5
DT111A, DT111B, DT111C	LP104, 18 Midland Terrace	Roadside	416015	435028	NO_2	CAZ	3.0	2.3	No	2.3
DT234A, DT234B, DT234C	LP106, Across from 12 Midland Terrace	Roadside	416019	434990	NO_2	CAZ	19.0	2.5	No	2.4
DT73A, DT73B, DT73C	LP61, Canal Road (opp garden centre)	Kerbside	415438	435834	NO_2	CAZ	22.0	0.5	No	2.4
DT173A, DT173B, DT173C	LP 62 Canal Road, Opp DT73.	Roadside	415442	435799	NO_2	CAZ	60.0	1.8	No	2.5
DT74	LP4, Gaisby Ln, Close to junction with Canal rd	Kerbside	415549	435918	NO_2	no	0.0	0.2	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)
DT129	LP24, Valley View, Valley Rd	Roadside	415089	436637	NO_2	CAZ	20.0	2.6	No	2.7
DT112A, DT112B, DT112C	LP19, Across from DT174	Kerbside	415024	436743	NO_2	CAZ	9.2	1.0	No	2.4
DT174A, DT174B, DT174C	LP18, Opposite Carwash, Valley Rd	Roadside	415029	436771	NO_2	CAZ	100.0	2.1	No	2.6
DT131	Fox Corner, Shipley near train station	Kerbside	414856	437605	NO_2	CAZ	19.0	0.8	No	2.7
DT269	LP4, Outside 64 Victoria Rd	Roadside	413900	437738	NO_2	CAZ	3.5	0.6	No	2.3
DT91A, DT91B, DT91C	LP on Corner of Dove Street / Saltaire Rd	Roadside	413697	437723	NO_2	CAZ	0.1	2.2	No	2.5
DT175A, DT175B, DT175C	Green LP, Outside 1 Myrtle Pl, Across from DT91	Roadside	413709	437745	NO_2	CAZ	3.4	2.1	No	2.4
DT30A, DT30B, DT30C	Bus Stop, Outside 29 Saltaire Rd, Across from Methodist Church	Roadside	413861	437772	NO_2	CAZ	1.7	2.1	No	2.3
DT180A, DT180B, DT180C	Traffic Sign, Outside Methodist Church	Roadside	413856	437784	NO_2	CAZ	4.5	1.8	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)
DT49A, DT49B, DT49C	LP2, Outside 9 Moorhead Ln	Roadside	413600	437653	NO_2	CAZ	5.0	1.9	No	2.3
DT176A, DT176B, DT176C	LP3, across from DT49	Roadside	413597	437628	NO_2	CAZ	0.1	1.5	No	2.4
DT50	Small Post, Outside 203 Bradford Rd, on row of Shops	Roadside	413510	437732	NO_2	CAZ	3.4	1.9	No	2.3
DT177A, DT177B, DT177C	LP30, Near Dress Shop	Roadside	413501	437732	NO_2	CAZ	2.7	1.6	No	2.3
DT31	Traffic Light, Outside 80 Bradford Rd	Roadside	413527	437713	NO_2	CAZ	9.6	1.5	No	2.2
DT101A, DT101B, DT101C	LP39, Outside 235 Bingley Rd	Roadside	413418	437725	NO_2	CAZ	8.0	1.0	No	2.3
DT179A, DT179B, DT179C	LP40, Across from DT101	Roadside	413417	437708	NO_2	CAZ	5.5	2.4	No	2.4
DT102A, DT102B, DT102C	LP44, Outside 253 Bingley Rd	Roadside	413338	437720	NO_2	CAZ	7.5	2.9	No	2.5
DT178A, DT178B, DT178C	LP43, Across from DT179	Roadside	413334	437703	NO_2	CAZ	7.2	2.3	No	2.4
DT270	LP21, On main Parade of shops, Bingley Rd	Roadside	413719	437665	NO_2	CAZ	3.7	0.6	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)
DT271	LP22, Across from DT270	Roadside	413723	437678	NO_2	CAZ	2.8	0.8	No	2.6
DT317	LP142, Next to 9 Myrtle Ct Flats, Main St	Suburban	410903	438892	NO_2	no	2.0	2.0	No	2.8
DT312	LP2, Ireland St	Suburban	410492	439334	NO_2	no	0.7	0.3	No	2.9
DT287	LP outside Willow Cottage, Next to Village Institute	Suburban	409851	441883	NO_2	no	2.0	1.4	No	2.6
DT78	LP11, Outside 67 Aireworth Road	Roadside	407380	441811	NO_2	no	6.0	1.9	No	2.7
DT68, DT69, DT70	Keighley AQ Station - Need keys! (Triplicate)	Urban Centre	406060	441274	NO_2	no	4.5	10.7	No	3.4
DT190	LP30, Bradford Rd, Near Steps out of ALDI	Roadside	406495	441280	NO_2	no	n/a	2.8	No	2.5
DT191	LP29, Across from corner of Low Mill Ln/Bradford Rd	Kerbside	406508	441310	NO_2	no	n/a	0.5	No	2.5
DT21	LP1, Outside 12 Prospect St	Urban Background	404719	440613	NO_2	no	0.5	15.0	No	2.6
DT134	LP2, Across from 1 Rylstone St	Roadside	406940	441922	NO_2	no	13.0	2.1	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)
DT135	LP9, Outside 28 Hard Ings Rd	Roadside	406582	442028	NO_2	no	6.8	2.3	No	2.6
DT136	LP13, Outside 6 Hard Ings Rd	Roadside	406540	442038	NO_2	no	0.5	2.7	No	2.6
DT137	LP15, Next to 150 Lawkholme Ln	Roadside	406475	442046	NO_2	no	4.1	2.7	No	2.4
DT138	LP31, Next to round about, Hard Ings Rd	Roadside	406255	442140	NO_2	no	n/a	2.3	No	2.7
DT313	LP34, Outside 34 Keighley Rd	Suburban	404134	446061	NO_2	no	0.6	1.7	No	2.4
DT282	LP9, Outside 75 Bolton Rd	Roadside	404458	446757	NO_2	no	3.5	1.6	No	2.6
DT263	LP12, Outside 31 Skipton Rd	Roadside	411245	447863	NO_2	no	9.5	2.1	No	2.5
DT264	One way sign, Outside 'Crew Clothing'	Roadside	411600	447618	NO_2	no	0.1	2.3	No	2.3
DT265	LP8, Outisde 'Midland Hotel'	Roadside	411782	447598	NO_2	no	0.1	1.4	No	2.5
DT266	LP6, Outside 'Vitello Lounge'	Roadside	411704	447666	NO_2	no	0.1	2.2	No	2.5
DT267	LPTC19, Outside 'Corner House Interiors'	Roadside	411786	447811	NO_2	no	0.5	2.7	No	2.5
DT268	LP TC26, Corner of	Roadside	411873	447807	NO_2	no	22.5	2.5	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)
	Leeds Rd/Victory Rd									

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 2024 (%) (2)	2020	2021	2022	2023	2024
CM2	406058	441273	Urban Centre	full year	96.5	20	22	21	20.0	17.6
CM3	415582	434457	Roadside	full year	97.3	35	32	27	25.4	22.1
CM4	415933	430569	Roadside	full year	99.1	34	38	33	31.8	28.6
CM5	415870	433054	Roadside	full year	94.9	29	34	31	28.3	26.7
CM6	416974	433245	Roadside	full year	95.7	38	**41**	37	35.0	35.1
CM7	417860	430705	Roadside	full year	90.1	29	35	32	30.9	27.3
CM8	419188	430213	Roadside	full year	97.7	23	23	25	23.1	21.5

☒ **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 2024 (%) (2)	2020	2021	2022	2023	2024
DT168	417033	429292	Suburban	100.0	90.6		29.4	27.3	24.5	24.8
DT198	417929	430974	Roadside	100.0	75.0		29.0	30.2	29.4	29.2
DT197	417845	430739	Roadside	100.0	90.6		25.3	27.9	26.4	26.8
DT196	417369	430370	Roadside	100.0	58.5		28.8	28.9	28.7	25.4
DT195	417178	430344	Roadside	100.0	90.6		30.9	30.1	29.9	27.2
DT194	417184	430315	Roadside	100.0	90.6		25.3	24.8	23.6	25.2
DT76	418268	430732	Kerbside	100.0	54.7	23.7	27.0	20.6	23.9	23.0
DT45	417877	430717	Roadside	100.0	66.0	24.0	25.2	24.3	23.5	23.2
DT214A, DT214B, DT214C	417715	429299	Roadside	100.0	90.6		20.9	21.0	19.7	20.2
DT215A, DT215B, DT215C	417708	429380	Roadside	100.0	90.6		15.9	16.7	15.7	15.7
DT216A, DT216B, DT216C	418853	430309	Roadside	100.0	90.6		16.4	17.8	16.5	16.1

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT217A, DT217B, DT217C	418829	430288	Roadside	100.0	90.6		15.6	16.9	14.7	15.8
DT88	418829	430399	Roadside	100.0	75.0	25.5	27.8	24.2	23.8	24.2
DT89A, DT89B, DT89C	419188	430213	Roadside	100.0	90.6	24.8	29.9	28.5	26.5	26.6
DT199A, DT199B, DT199C	419178	430193	Roadside	100.0	90.6		18.7	20.7	19.9	20.0
DT64A, DT64B, DT64C	419342	430114	Roadside	100.0	75.0	31.5	32.7	28.8	28.1	27.0
DT200A, DT200B, DT200C	419328	430099	Roadside	100.0	90.6		20.7	21.0	19.7	20.1
DT220A, DT220B, DT220C	419215	431809	Roadside	100.0	75.0		17.8	18.7	17.3	17.6
DT221A, DT221B, DT221C	419196	431834	Roadside	100.0	90.6		16.3	16.6	15.7	16.4
DT222A, DT222B, DT222C	417861	431486	Roadside	100.0	90.6		21.0	23.8	22.3	23.0
DT223A, DT223B, DT223C	417862	431536	Roadside	100.0	90.6		36.8	38.5	37.3	39.0

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT218A, DT218B, DT218C	418292	431290	Roadside	100.0	75.0		30.1	29.1	28.5	28.0
DT219A, DT219B, DT219C	418303	431328	Roadside	100.0	75.0		25.6	25.9	23.0	24.6
DT116	418564	432218	Roadside	100.0	90.6	18.9	20.6	22.6	19.9	20.3
DT118	418666	432470	Roadside	100.0	90.6	20.5	22.1	24.1	22.1	21.8
DT201	418108	432322	Roadside	100.0	90.6		30.0	28.0	28.2	29.0
DT202	418135	432272	Roadside	100.0	75.0		22.0	21.2	20.6	22.1
DT203	418345	432366	Roadside	100.0	90.6		23.6	25.6	25.5	24.5
DT160A, DT160B, DT160C	418644	432898	Roadside	100.0	83.0	22.9	24.4	23.8	22.5	23.6
DT204A, DT204B, DT204C	418640	432870	Roadside	100.0	90.6		19.2	20.6	20.1	20.2
DT120A, DT120B, DT120C	417991	432926	Roadside	100.0	90.6	27.1	30.6	30.5	30.6	30.1
DT209A, DT209B, DT209C	417960	432907	Roadside	100.0	90.6		33.1	31.3	30.8	33.9

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT205	418597	433111	Roadside	100.0	83.0		24.4	26.0	25.3	26.7
DT206	418579	433109	Roadside	100.0	66.0		29.4	30.9	28.2	29.2
DT233	418546	433430	Roadside	100.0	83.0		25.5	27.6	26.5	27.2
DT232	418563	433432	Roadside	100.0	75.0		23.0	22.8	23.2	22.0
DT230A, DT230B, DT230C	418784	434409	Roadside	100.0	73.6		19.0	20.9	19.8	19.3
DT231A, DT231B, DT231C	418791	434424	Roadside	100.0	75.0		17.7	19.6	18.2	17.6
DT5	417982	434886	Roadside	100.0	83.0	25.7	28.3	29.0	27.0	27.8
DT39A, DT39B, DT39C	417927	434799	Roadside	100.0	90.6	26.2	28.2	26.5	26.1	26.7
DT208A, DT208B, DT208C	417966	434884	Roadside	100.0	90.6		19.4	21.9	20.6	20.5
DT99	418033	434970	Roadside	100.0	83.0	19.3	20.7	22.6	22.7	21.8
DT86	417894	434753	Roadside	100.0	90.6	23.3	28.0	28.9	25.3	27.1
DT42A, DT42B, DT42C	417902	434751	Roadside	100.0	90.6	30.6	33.1	31.3	29.6	30.3

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT207A, DT207B, DT207C	417912	434759	Roadside	100.0	90.6		22.4	24.5	23.3	24.5
DT228A, DT228B, DT228C	418090	434429	Roadside	100.0	90.6		32.3	35.0	32.3	33.4
DT229A, DT229B, DT229C	418059	434509	Roadside	100.0	90.6		22.9	25.2	22.2	23.3
DT92	419006	437217	Roadside	100.0	45.3	24.5		26.0	24.5	22.2
DT93	419003	437308	Roadside	100.0	83.0	25.8		23.7	21.6	21.3
DT286	419103	437334	Roadside	100.0	81.1			24.2	21.2	21.5
DT94	419076	437345	Roadside	100.0	83.0	18.4		17.9	15.5	16.6
DT273	419138	437213	Roadside	100.0	32.1			23.0	20.6	18.9
DT274	419107	437314	Roadside	100.0	90.6			25.9	25.5	24.4
DT275	419317	437551	Roadside	100.0	64.2			27.0	25.7	28.4
DT276	418979	437969	Kerbside	100.0	66.0			16.9	12.9	14.9
DT305	418640	436130	Suburban	100.0	58.5				-	12.5

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT306	418567	436068	Suburban	100.0	56.6				12.7	11.6
DT307	418476	436067	Suburban	100.0	90.6				11.7	11.9
DT272	417661	433528	Roadside	100.0	90.6			25.1	23.7	24.7
DT224A, DT224B, DT224C	417117	433431	Roadside	100.0	90.6		26.4	25.3	23.3	24.7
DT225A, DT225B, DT225C	417087	433444	Kerbside	100.0	90.6		33.3	35.0	32.6	33.4
DT309A, DT309B, DT309C	417165	434401	Kerbside	100.0	75.0					27.2
DT227A, DT227B, DT227C	417054	434165	Roadside	100.0	75.0		20.9	22.4	20.8	21.3
DT293	415950	431453	Urban Background	100.0	66.0				17.4	20.3
DT294	415950	431453	Urban Background	100.0	75.0				23.5	23.9
DT308	415932	431360	Urban Background	100.0	49.1				21.3	17.9
DT103A, DT103B, DT103C	415925	430572	Roadside	100.0	90.6	35.4	37.6	32.2	30.8	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 2024 (%) (2)	2020	2021	2022	2023	2024
DT104A, DT104B, DT104C	415961	430558	Roadside	100.0	90.6	38.5	**41.0**	34.8	32.7	34.1
DT188A, DT188B, DT188C	415979	430522	Roadside	100.0	75.5		25.1	26.1	24.6	25.0
DT189A, DT189B, DT189C	415910	430551	Roadside	100.0	67.9		28.6	26.9	25.0	25.6
DT105	415780	430504	Roadside	100.0	58.5	33.6	37.6	39.9	39.4	**42.5**
DT281	415771	430476	Roadside	100.0	75.0			**41.2**	39.8	38.6
DT186A, DT186B, DT186C	415743	430482	Roadside	100.0	75.0		21.4	23.0	21.3	20.5
DT187A, DT187B, DT187C	415715	430669	Roadside	100.0	75.0		25.9	25.6	24.3	26.7
DT106A, DT106B, DT106C	415702	430701	Roadside	100.0	60.4	23.7	24.0	24.4	22.3	22.5
DT192A, DT192B, DT192C	416218	430420	Roadside	100.0	75.0		22.4	23.4	21.7	21.6
DT310A, DT310B, DT310C	416260	430422	Roadside	100.0	75.0					24.9
DT212A, DT212B, DT212C	416398	430194	Roadside	100.0	75.0		25.6	23.9	23.1	24.0

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT213A, DT213B, DT213C	416390	430214	Roadside	100.0	75.0		22.3	23.0	21.7	22.1
DT311A, DT311B, DT311C	416302	432187	Roadside	100.0	75.0					24.1
DT211A, DT211B, DT211C	415922	431089	Roadside	100.0	75.0		**41.4**	**44.1**	38.2	38.6
DT123A	414766	437113	Roadside	100.0	90.6	33.2	34.3	32.3	28.6	30.1
DT123	414660	436974	Kerbside	100.0	75.0	33.2	34.3	34.0	29.8	29.6
DT124	414620	436924	Roadside	100.0	90.6	34.0	31.6	30.2	27.0	28.0
DT121	414546	436933	Roadside	100.0	90.6	22.0	22.1	21.3	19.2	18.5
DT122	414567	436811	Roadside	100.0	83.0	30.3	30.4	29.0	27.3	26.2
DT126	414643	436505	Kerbside	100.0	83.0	19.4	20.1	19.2	18.0	17.4
DT125	414674	436471	Roadside	100.0	75.0	15.1	18.5	19.2	16.4	16.5
DT127	415044	435558	Roadside	100.0	81.1	36.1	37.5	35.7	33.3	34.4
DT128	415331	435796	Urban Background	100.0	90.6	13.0	12.5	12.6	11.3	11.1

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT130	415839	434674	Roadside	100.0	75.0	29.7	31.3	28.3	28.2	29.0
DT132	415717	434265	Roadside	100.0	41.5	34.9	37.8	37.2	31.9	33.2
DT301	415429	434016	Urban Background	100.0	75.0				18.9	17.4
DT302	415483	434048	Urban Background	100.0	56.6				19.0	18.0
DT303	415337	434016	Urban Background	100.0	83.0				19.4	17.9
DT304	415447	434047	Urban Background	100.0	81.1				18.2	16.8
DT71A, DT71B, DT71C	415580	434461	Roadside	100.0	90.6	30.4	29.7	34.0	29.2	30.1
DT278	415570	434477	Roadside	100.0	83.0			38.8	37.1	39.3
DT172A, DT172B, DT172C	415590	434478	Roadside	100.0	90.6		30.2	30.7	28.0	27.8
DT72	415573	434521	Roadside	100.0	58.5	**47.1**	**48.8**	**44.4**	**44.2**	**47.7**
DT235A, DT235B, DT235C	415474	434456	Roadside	100.0	73.6		32.5	35.3	34.1	34.4
DT156	414781	434126	Roadside	100.0	83.0	33.3	30.0	33.7	32.6	33.6

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT236	414498	433935	Roadside	100.0	90.6		22.2	23.8	23.6	23.3
DT237	414536	433981	Roadside	100.0	81.1		23.9	26.1	25.8	25.0
DT288	414404	434137	Urban Background	100.0	81.1				18.2	18.3
DT289	414404	434106	Roadside	100.0	75.0				21.6	20.2
DT290	414385	434168	Roadside	100.0	90.6				19.5	19.0
DT238A, DT238B, DT238C	414290	433759	Roadside	100.0	90.6		24.4	26.6	25.1	25.4
DT239A, DT239B, DT239C	414268	433765	Roadside	100.0	90.6		30.3	34.5	33.0	31.9
DT139A, DT139B, DT139C	414396	433648	Roadside	100.0	90.6	22.3	25.3	30.7	28.9	28.7
DT240A, DT240B, DT240C	414403	433665	Roadside	100.0	56.6		30.0	33.2	32.0	32.4
DT152	413835	433663	Roadside	100.0	90.6	33.4	30.7	35.4	34.0	36.2
DT151A, DT151B, DT151C	413700	433687	Roadside	100.0	75.0	27.5	25.3	29.1	28.4	29.1

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT149A, DT149B, DT149C	413750	433573	Roadside	100.0	75.0	27.9	28.1	30.9	31.0	30.0
DT241A, DT241B, DT241C	413840	432676	Roadside	100.0	73.6		21.4	24.9	24.2	22.3
DT242A, DT242B, DT242C	413721	432067	Roadside	100.0	90.6		17.3	19.6	18.3	19.2
DT243A, DT243B, DT243C	413729	432097	Roadside	100.0	90.6		21.7	23.4	22.8	22.0
DT244	413225	431373	Roadside	100.0	66.0		15.2	16.6	17.7	16.1
DT245	413243	431386	Roadside	100.0	81.1		16.2	17.3	17.3	17.2
DT246A, DT246B, DT246C	414722	432432	Roadside	100.0	49.1		26.3	27.8	26.1	26.2
DT247A, DT247B, DT247C	414731	432443	Roadside	100.0	75.5		20.9	24.0	23.8	23.5
DT144A, DT144B, DT144C	414908	432312	Kerbside	100.0	49.1	29.9	28.9	31.8	29.5	23.9
DT146	415005	432231	Roadside	100.0	75.0	19.4	20.9	23.1	22.0	19.9
DT143A, DT143B, DT143C	414902	432251	Kerbside	100.0	75.5	34.2	33.3	36.2	36.6	35.9

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT142	414724	432095	Roadside	100.0	90.6	27.8	27.6	30.1	30.2	30.2
DT248	414499	431676	Roadside	100.0	90.6		26.6	28.5	26.5	26.4
DT249A, DT249B, DT249C	414862	431173	Roadside	100.0	25.0		25.9	28.7	26.9	26.4
DT250A, DT250B, DT250C	414788	431184	Roadside	100.0	41.5		20.5	23.8	23.1	23.7
DT320	415016	431575	Urban Background	100.0	75.0					13.2
DT321	415039	431646	Urban Background	100.0	75.0					13.9
DT252A, DT252B, DT252C	415228	431031	Roadside	100.0	75.0		29.5	30.5	29.3	30.0
DT251A, DT251B, DT251C	415222	431010	Roadside	100.0	67.9		22.7	25.4	23.9	22.5
DT253A, DT253B, DT253C	415320	430090	Kerbside	100.0	75.5		23.5	27.6	25.2	23.9
DT254A, DT254B, DT254C	414637	430131	Roadside	100.0	75.0		18.5	20.5	18.6	18.0
DT255A, DT255B, DT255C	414629	430122	Roadside	100.0	75.5		16.4	19.6	19.0	18.2

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT257A, DT257B, DT257C	414260	430531	Roadside	100.0	75.5		14.6	16.0	15.5	14.8
DT256A, DT256B, DT256C	414239	430526	Roadside	100.0	75.0		11.1	13.9	13.3	13.4
DT283	410565	430351	Roadside	100.0	90.6			18.6	18.1	16.5
DT284	410585	430112	Roadside	100.0	81.1			18.1	18.1	16.4
DT285	410584	430114	Roadside	100.0	83.0			14.6	14.0	13.0
DT259A, DT259B, DT259C	413785	430386	Kerbside	100.0	67.9		17.3	20.2	19.4	16.9
DT258A, DT258B, DT258C	413749	430389	Roadside	100.0	67.9		18.5	20.0	19.0	17.5
DT298	413814	429468	Suburban	100.0	75.0				12.2	11.2
DT299	413832	429561	Suburban	100.0	75.0				11.3	10.4
DT300	413612	429565	Suburban	100.0	34.0					12.3
DT261A, DT261B, DT261C	415339	429334	Roadside	100.0	75.0		12.8	14.1	13.5	13.3

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT260A, DT260B, DT260C	415368	429297	Roadside	100.0	66.0		12.0	13.5	13.1	12.2
DT262A, DT262B, DT262C	415894	429519	Roadside	100.0	67.9		26.6	27.6	25.1	25.6
DT318	411552	433368	Suburban	100.0	90.6					9.2
DT319	411460	433447	Suburban	100.0	34.0					9.7
DT295	415691	432039	Urban Background	100.0	75.5				17.5	16.8
DT296	415710	432070	Urban Background	100.0	75.5				19.0	17.5
DT297	415618	432070	Urban Background	100.0	75.5				16.3	15.5
DT84	416054	432675	Roadside	100.0	75.5	24.1	29.0	27.1	25.3	23.9
DT79	416282	432966	Urban Centre	100.0	67.4	20.7	24.6	23.9	23.9	20.8
DT161A, DT161B, DT161C	416148	433102	Roadside	100.0	90.6	36.0	**43.2**	**40.6**	39.2	34.5
DT162A, DT162B, DT162C	416148	433134	Roadside	100.0	90.6	31.5	38.9	37.1	35.4	30.6
DT163A, DT163B, DT163C	416147	433158	Roadside	100.0	90.6	27.6	36.5	36.8	35.1	30.3

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT164A, DT164B, DT164C	416139	433134	Roadside	100.0	90.6	30.8	34.0	34.1	33.6	32.1
DT109A, DT109B, DT109C	415858	433061	Roadside	100.0	90.6	28.9	32.3	29.2	27.3	28.1
DT108A, DT108B, DT108C	415891	433045	Roadside	100.0	90.6	30.6	33.2	30.0	29.3	29.9
DT279	415591	433141	Roadside	100.0	81.1			26.3	28.4	27.9
DT280	415665	433175	Roadside	100.0	83.0			31.6	31.5	25.4
DT314	415677	433309	Roadside	100.0	44.7					21.6
DT315	415570	433268	Roadside	100.0	90.6					24.1
DT183	416215	433059	Roadside	100.0	74.9		38.4	38.8	39.4	30.4
DT184	416217	433071	Kerbside	100.0	81.1		36.5	37.5	37.1	30.4
DT167A, DT167B, DT167C	416392	433046	Urban Centre	100.0	75.5		**45.3**	39.1	36.2	27.6
DT185A, DT185B, DT185C	416381	433054	Urban Centre	100.0	75.5		37.8	35.8	33.0	25.6
DT277	416398	433050	Urban Centre	100.0	83.0			34.0	33.9	26.5

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT316	416709	433099	Kerbside	100.0	90.6					33.5
DT12A, DT12B, DT12C	416970	433259	Roadside	100.0	90.6	**45.8**	**50.6**	**49.3**	**47.8**	**48.0**
DT133	416260	434581	Roadside	100.0	90.6	30.4	32.1	30.9	28.1	29.7
DT111A, DT111B, DT111C	416015	435028	Roadside	100.0	90.6	29.4	33.8	31.5	30.1	29.6
DT234A, DT234B, DT234C	416019	434990	Roadside	100.0	83.0		30.1	31.0	29.5	27.9
DT73A, DT73B, DT73C	415438	435834	Kerbside	100.0	81.7	33.2	38.0	36.0	35.0	33.2
DT173A, DT173B, DT173C	415442	435799	Roadside	100.0	83.0		32.1	29.6	25.9	28.5
DT74	415549	435918	Kerbside	100.0	90.6	17.1	17.2	15.9	14.7	16.3
DT129	415089	436637	Roadside	100.0	90.6	26.8	28.2	26.2	25.2	24.8
DT112A, DT112B, DT112C	415024	436743	Kerbside	100.0	90.6	28.3	28.7	25.7	23.3	22.7
DT174A, DT174B, DT174C	415029	436771	Roadside	100.0	90.6		23.3	23.3	21.0	20.0

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT131	414856	437605	Kerbside	100.0	90.6	37.0	39.1	37.6	34.1	31.2
DT269	413900	437738	Roadside	100.0	83.0			18.5	17.4	15.5
DT91A, DT91B, DT91C	413697	437723	Roadside	100.0	90.6	27.7	30.5	27.1	26.6	25.7
DT175A, DT175B, DT175C	413709	437745	Roadside	100.0	90.6		27.2	27.6	26.9	25.4
DT30A, DT30B, DT30C	413861	437772	Roadside	100.0	81.1	26.9	31.3	28.8	27.1	25.7
DT180A, DT180B, DT180C	413856	437784	Roadside	100.0	90.6		19.7	21.4	20.7	18.1
DT49A, DT49B, DT49C	413600	437653	Roadside	100.0	90.6	22.4	25.9	22.0	21.0	21.4
DT176A, DT176B, DT176C	413597	437628	Roadside	100.0	90.6		19.4	19.8	18.7	18.2
DT50	413510	437732	Roadside	100.0	65.5	**40.7**	**41.8**	39.0	35.2	35.1
DT177A, DT177B, DT177C	413501	437732	Roadside	100.0	90.6		32.3	30.1	29.6	29.1
DT31	413527	437713	Roadside	100.0	83.0	37.9	**41.4**	**40.5**	39.4	37.8

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT101A, DT101B, DT101C	413418	437725	Roadside	100.0	90.6	31.3	37.9	33.2	30.9	31.9
DT179A, DT179B, DT179C	413417	437708	Roadside	100.0	90.6		30.9	30.6	29.2	28.4
DT102A, DT102B, DT102C	413338	437720	Roadside	100.0	90.6	32.5	31.4	26.8	26.2	25.5
DT178A, DT178B, DT178C	413334	437703	Roadside	100.0	90.6		30.6	29.6	27.6	26.4
DT270	413719	437665	Roadside	100.0	83.0			33.4	31.4	29.6
DT271	413723	437678	Roadside	100.0	90.6			35.3	34.2	32.9
DT317	410903	438892	Suburban	100.0	90.6					16.5
DT312	410492	439334	Suburban	100.0	81.1					15.3
DT287	409851	441883	Suburban	100.0	66.6				11.0	11.0
DT78	407380	441811	Roadside	100.0	90.6	14.0	17.0	18.3	16.6	16.8
DT68, DT69, DT70	406060	441274	Urban Centre	100.0	90.6	20.7	22.0	21.1	19.9	18.7
DT190	406495	441280	Roadside	100.0	90.6		26.5	25.3	27.1	26.5

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT191	406508	441310	Kerbside	100.0	90.6		**44.7**	**45.5**	**42.0**	**44.7**
DT21	404719	440613	Urban Background	100.0	90.6	7.7	8.0	8.8	8.1	7.1
DT134	406940	441922	Roadside	100.0	81.1	34.5	35.4	33.7	32.1	31.5
DT135	406582	442028	Roadside	100.0	83.0	29.5	29.7	28.0	26.3	25.0
DT136	406540	442038	Roadside	100.0	83.0	28.3	29.6	30.7	28.8	27.0
DT137	406475	442046	Roadside	100.0	83.0	28.6	34.1	35.3	32.5	31.7
DT138	406255	442140	Roadside	100.0	90.6	30.5	33.5	33.8	32.6	30.1
DT313	404134	446061	Suburban	100.0	83.0					24.3
DT282	404458	446757	Roadside	100.0	81.1			24.4	23.4	22.6
DT263	411245	447863	Roadside	100.0	82.5		13.3	15.1	14.6	13.8
DT264	411600	447618	Roadside	100.0	73.6		12.3	14.5	13.2	12.7
DT265	411782	447598	Roadside	100.0	83.0		20.8	21.1	19.6	19.1
DT266	411704	447666	Roadside	100.0	73.6		17.7	19.2	18.9	17.3

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 2024 (%) (2)	2020	2021	2022	2023	2024
DT267	411786	447811	Roadside	100.0	82.5		20.1	21.5	21.6	19.7
DT268	411873	447807	Roadside	100.0	81.1			19.1	20.3	19.3

☒ **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 concentration at automatic monitoring sites in Bradford

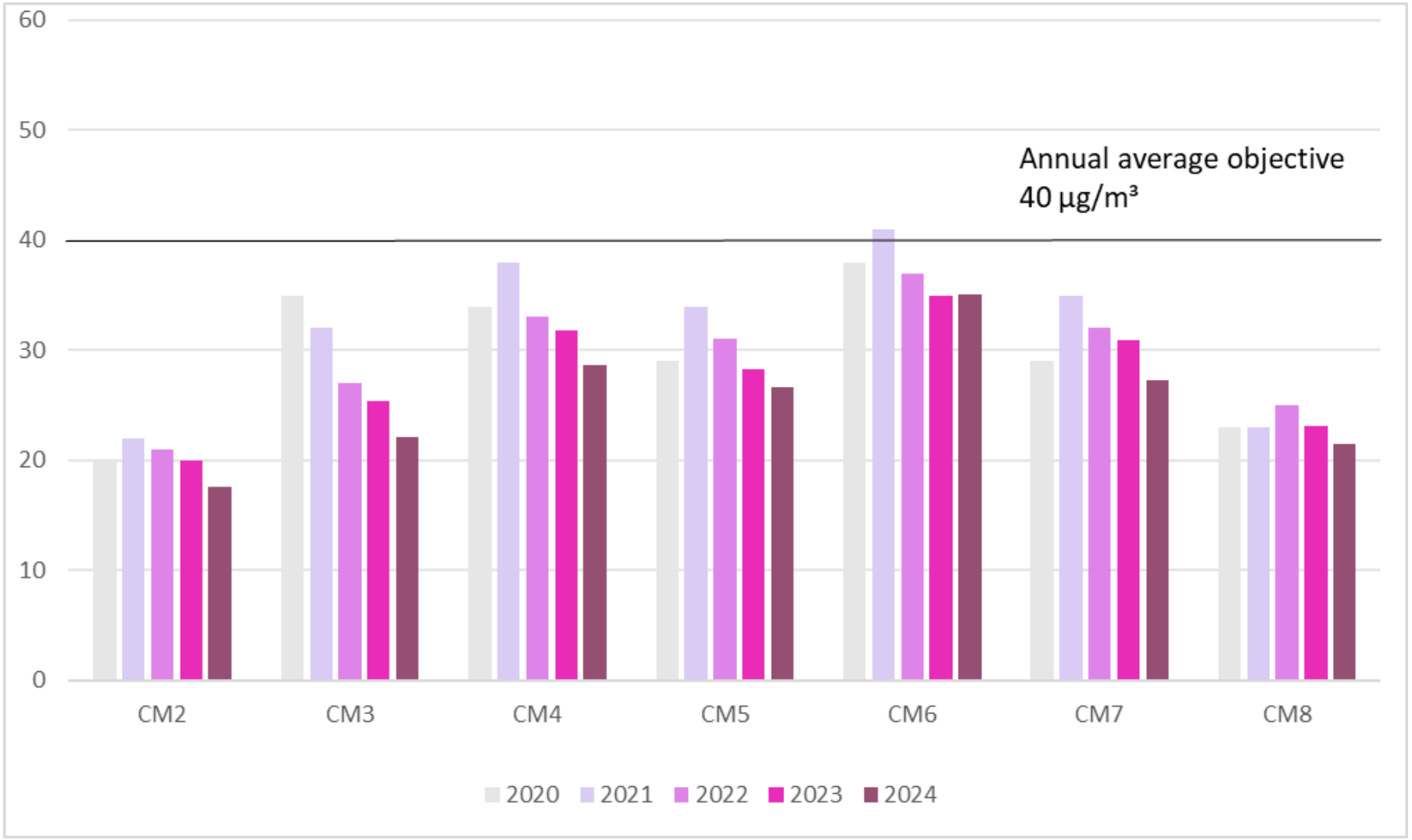


Figure A.2: Trends in Annual Mean NO_2 Concentrations at all background sites

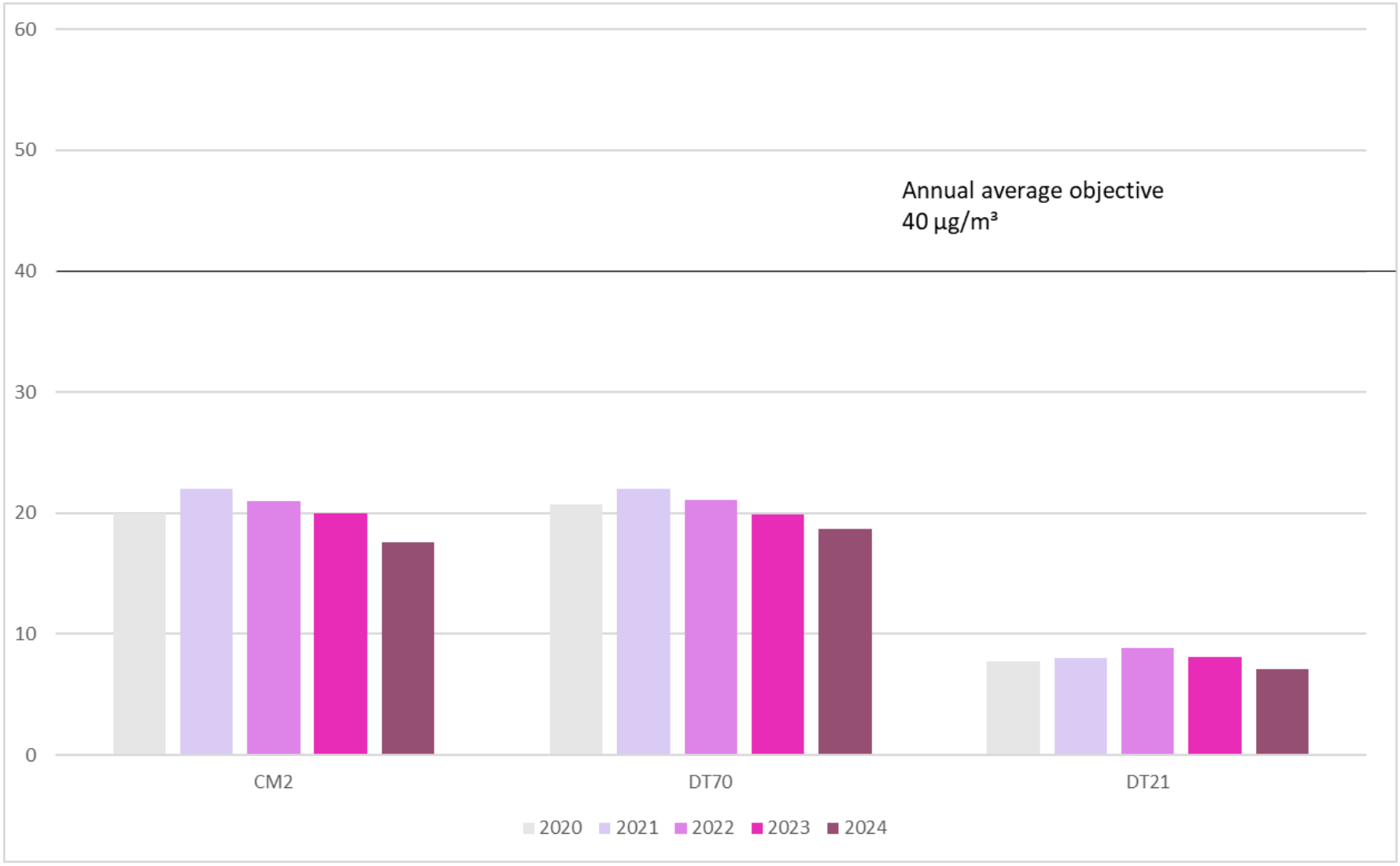


Figure A.3: Trends in Annual Mean NO_2 Concentrations in Mayo Avenue AQMA (order 1)

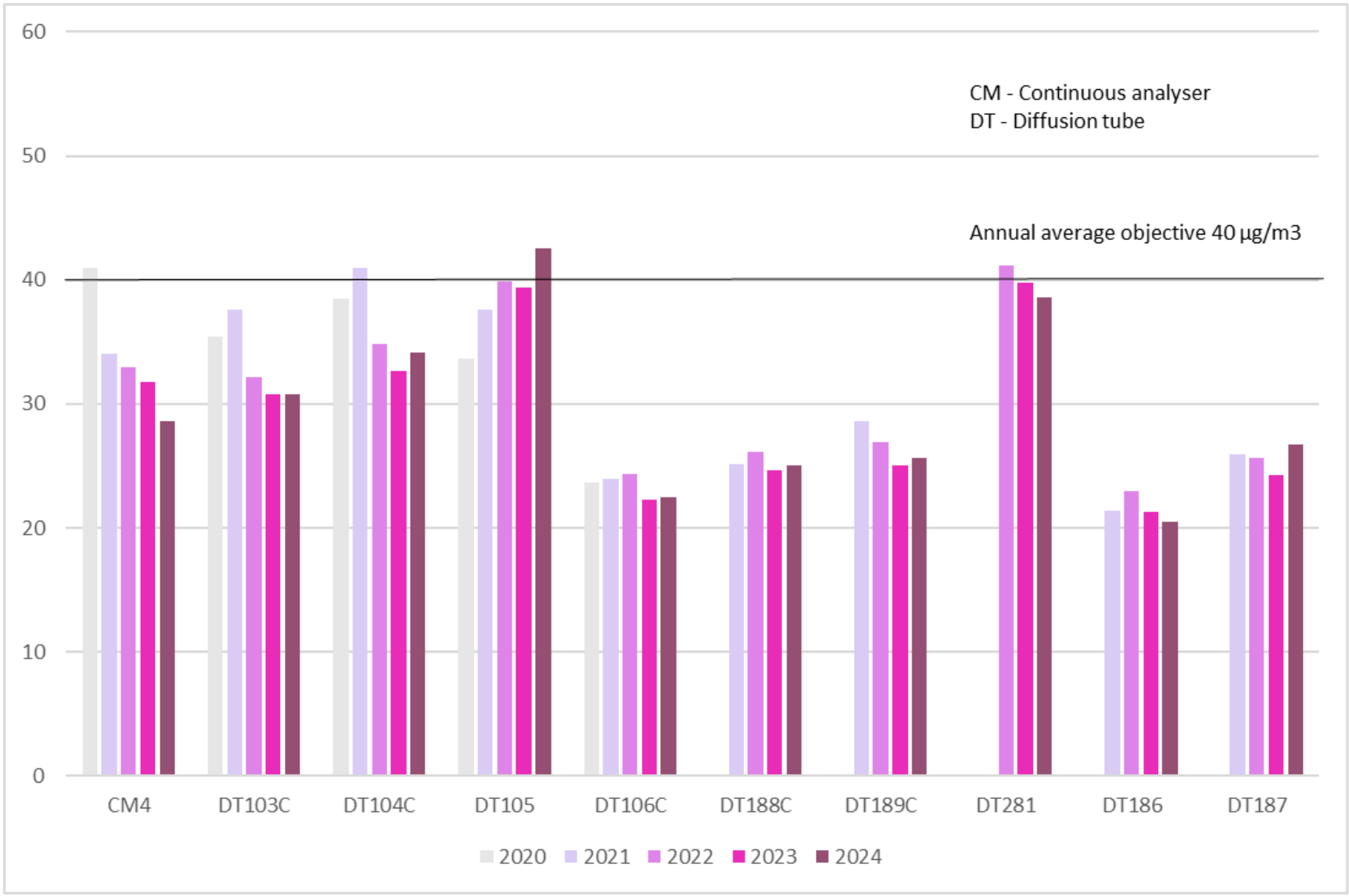


Figure A.4: Trends in Annual Mean NO_2 Concentrations in Manningham Lane AQMA (order 2)

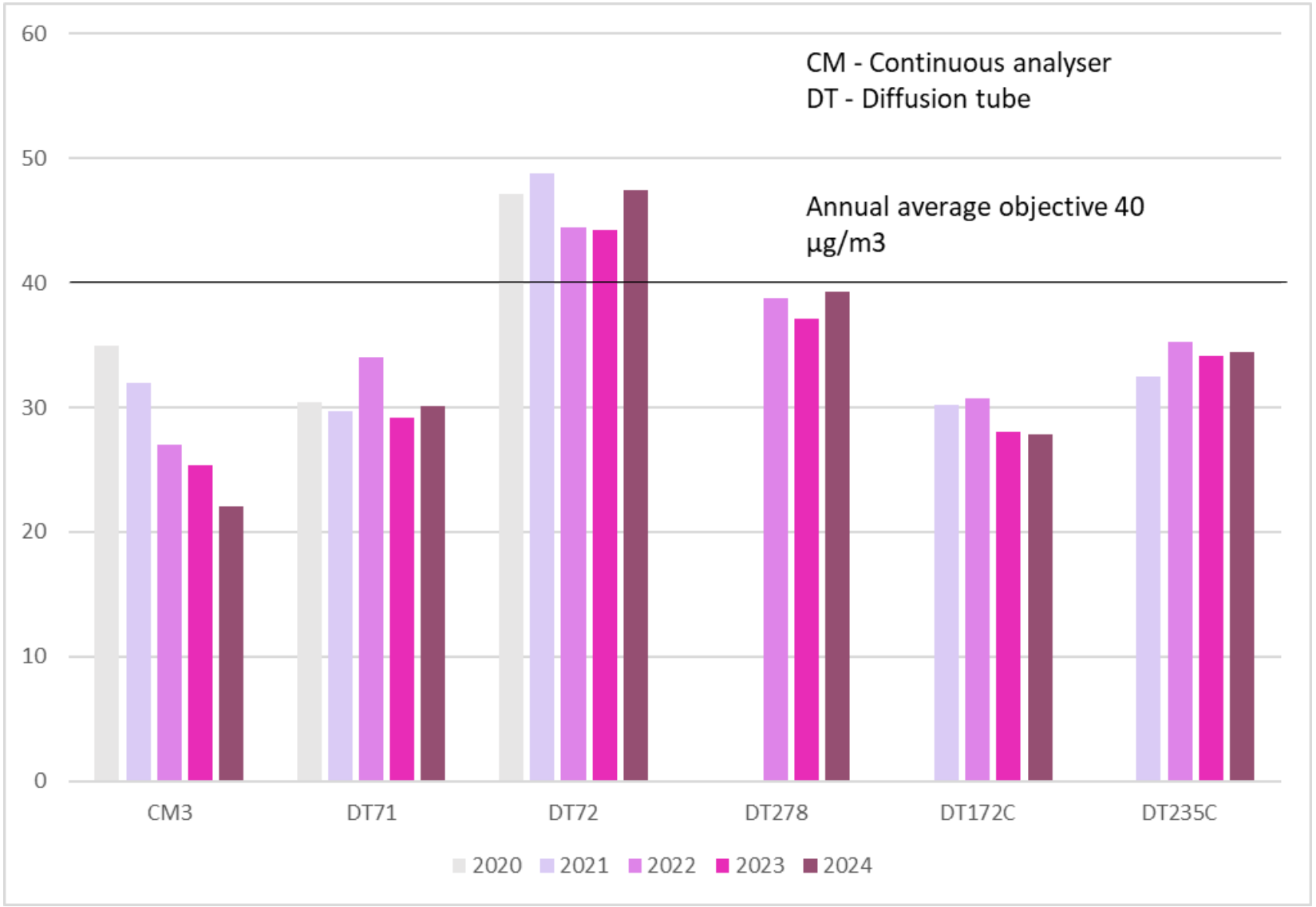


Figure A.5: Trends in Annual Mean NO_2 Concentrations in Thornton Road AQMA (order 3)

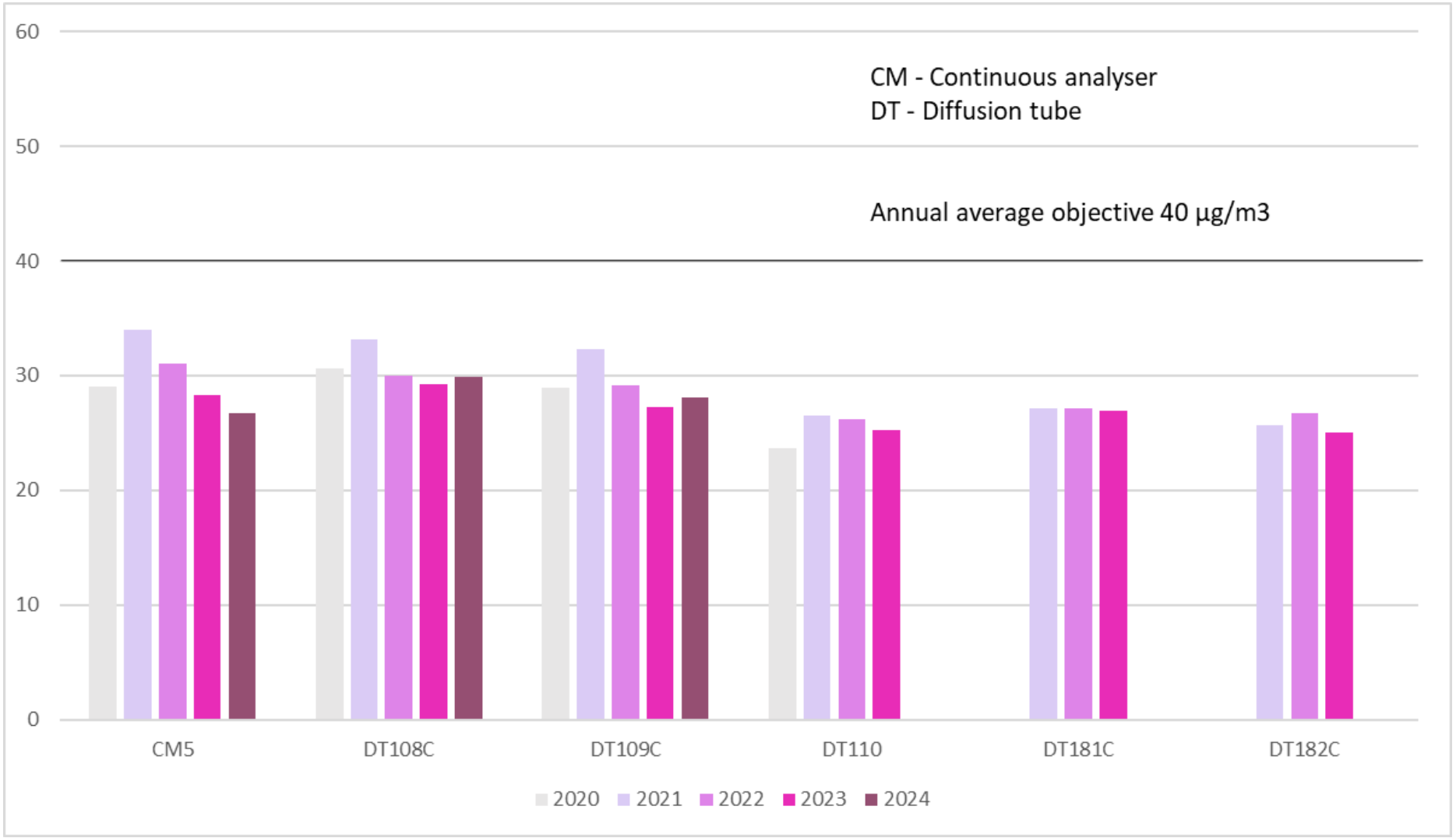


Figure A.6: Trends in Annual Mean NO_2 Concentrations in Shipley Airedale Road AQMA (order 4)

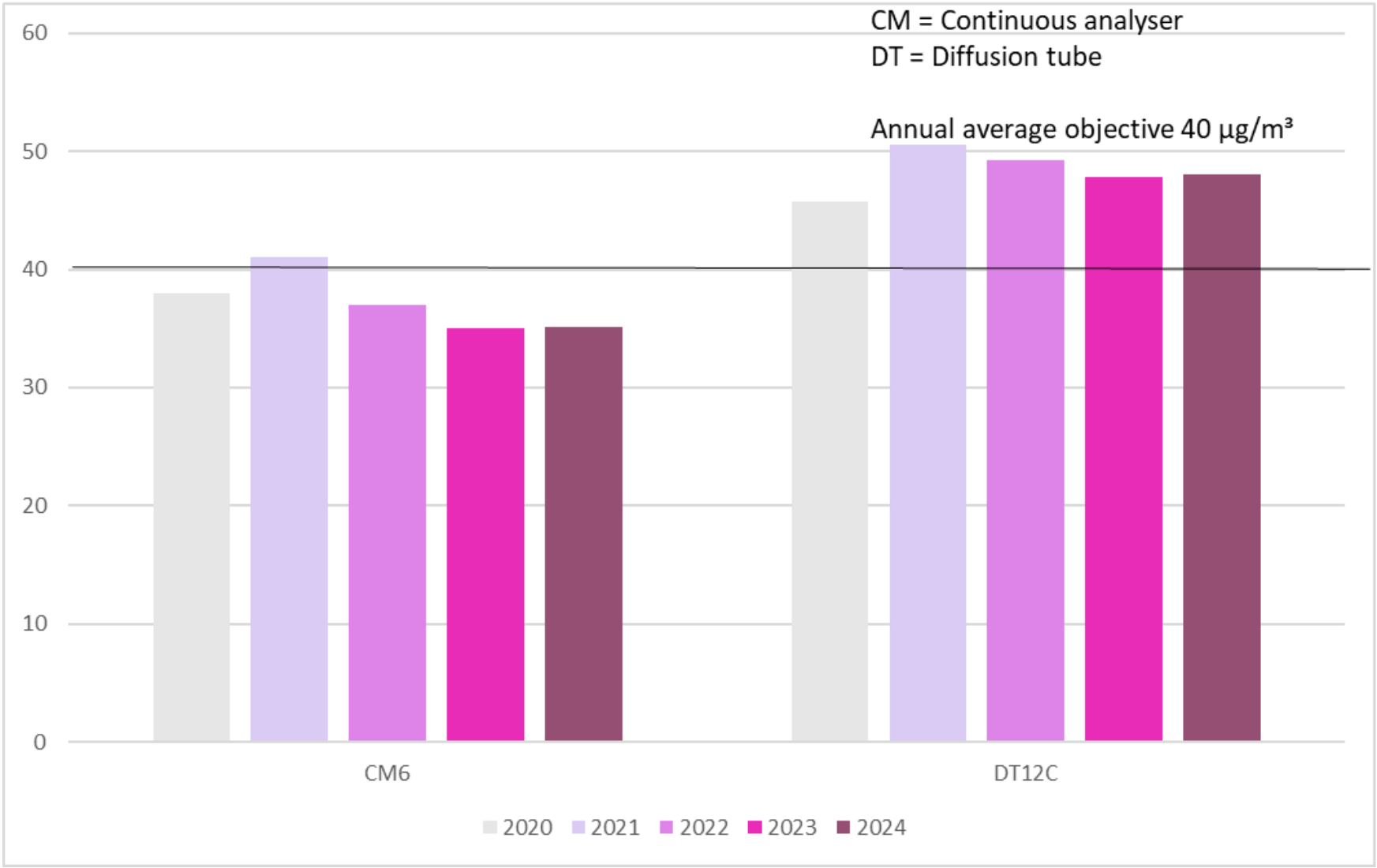


Figure A.7: Trends in Annual Mean NO_2 Concentrations around Harrogate Road / Killinghall junction

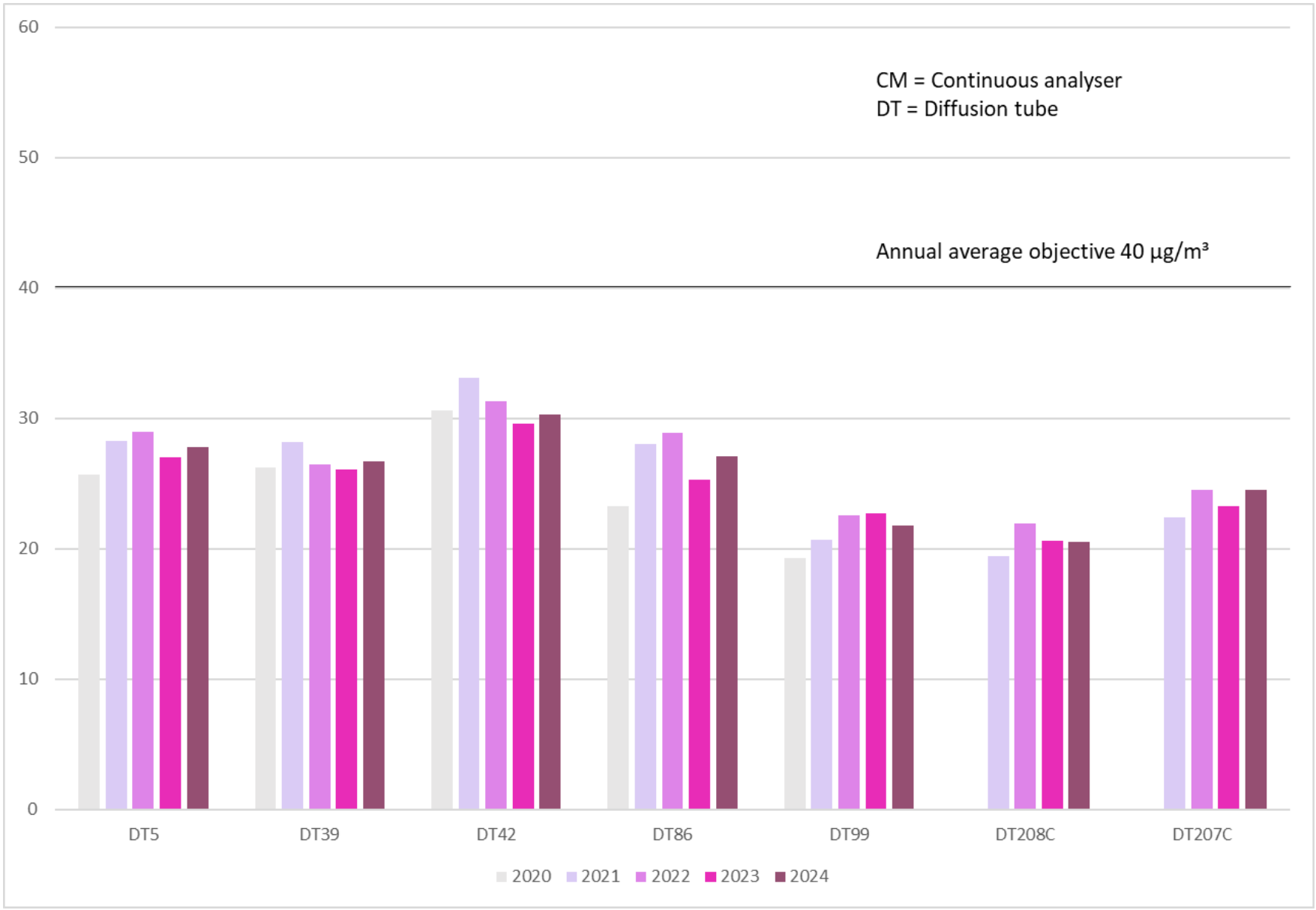


Figure A.8 Trends in Annual Mean NO_2 Concentrations around Saltaire Crossroads

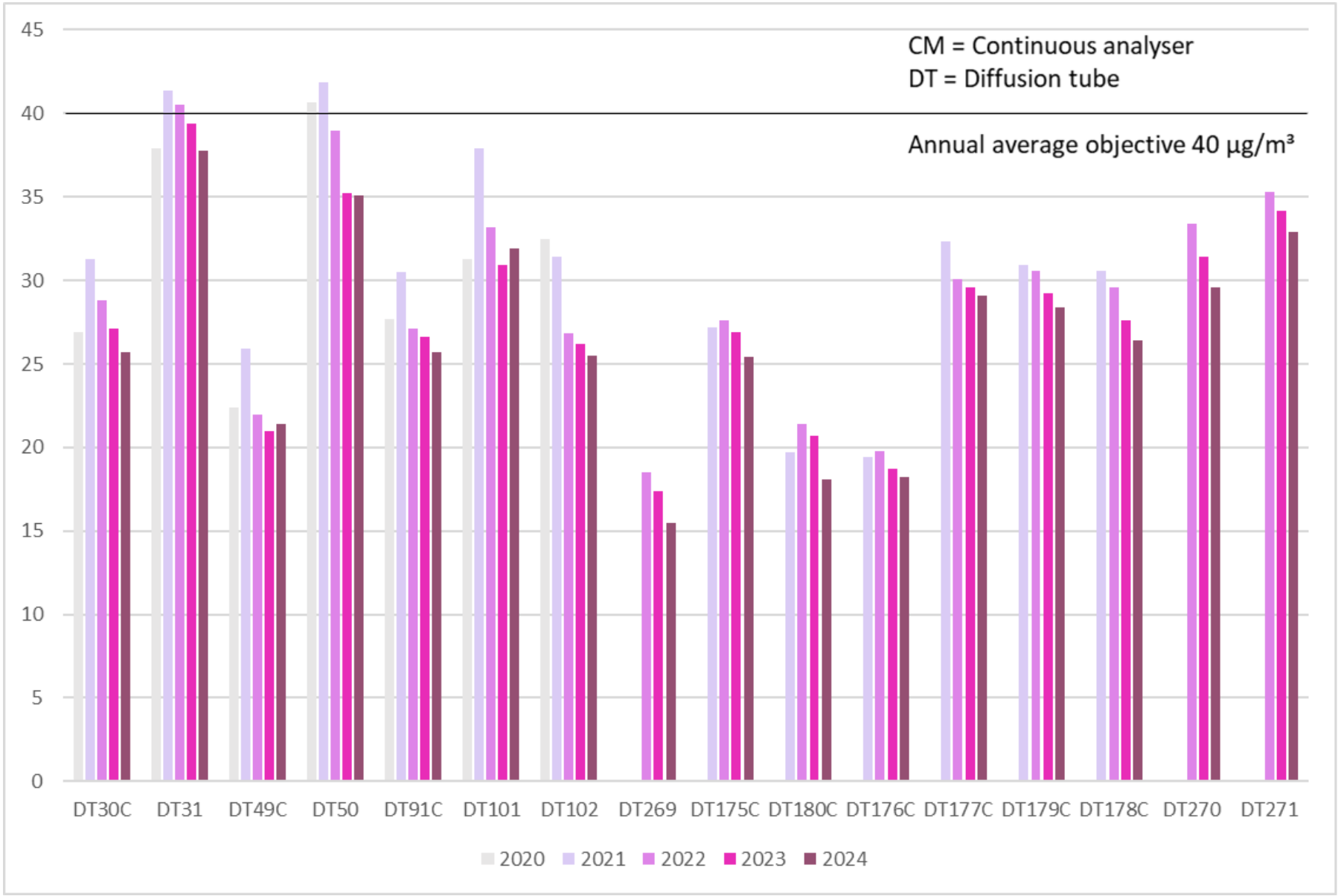


Figure A.9: Trends in Annual Mean NO_2 Concentrations around Rooley Lane and Tong Street

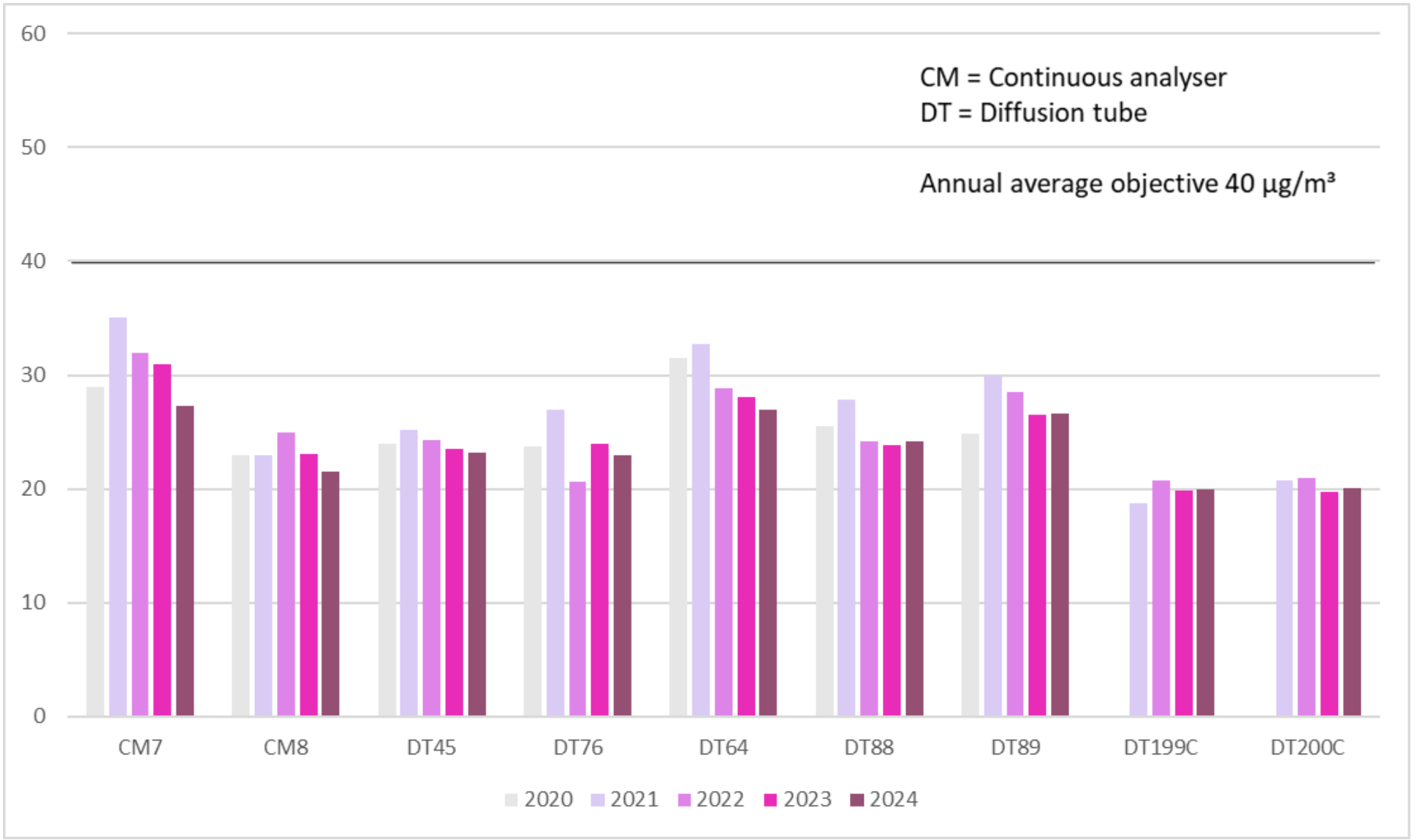


Figure A.10: Trends in Annual Mean NO_2 Concentrations around Canal Road

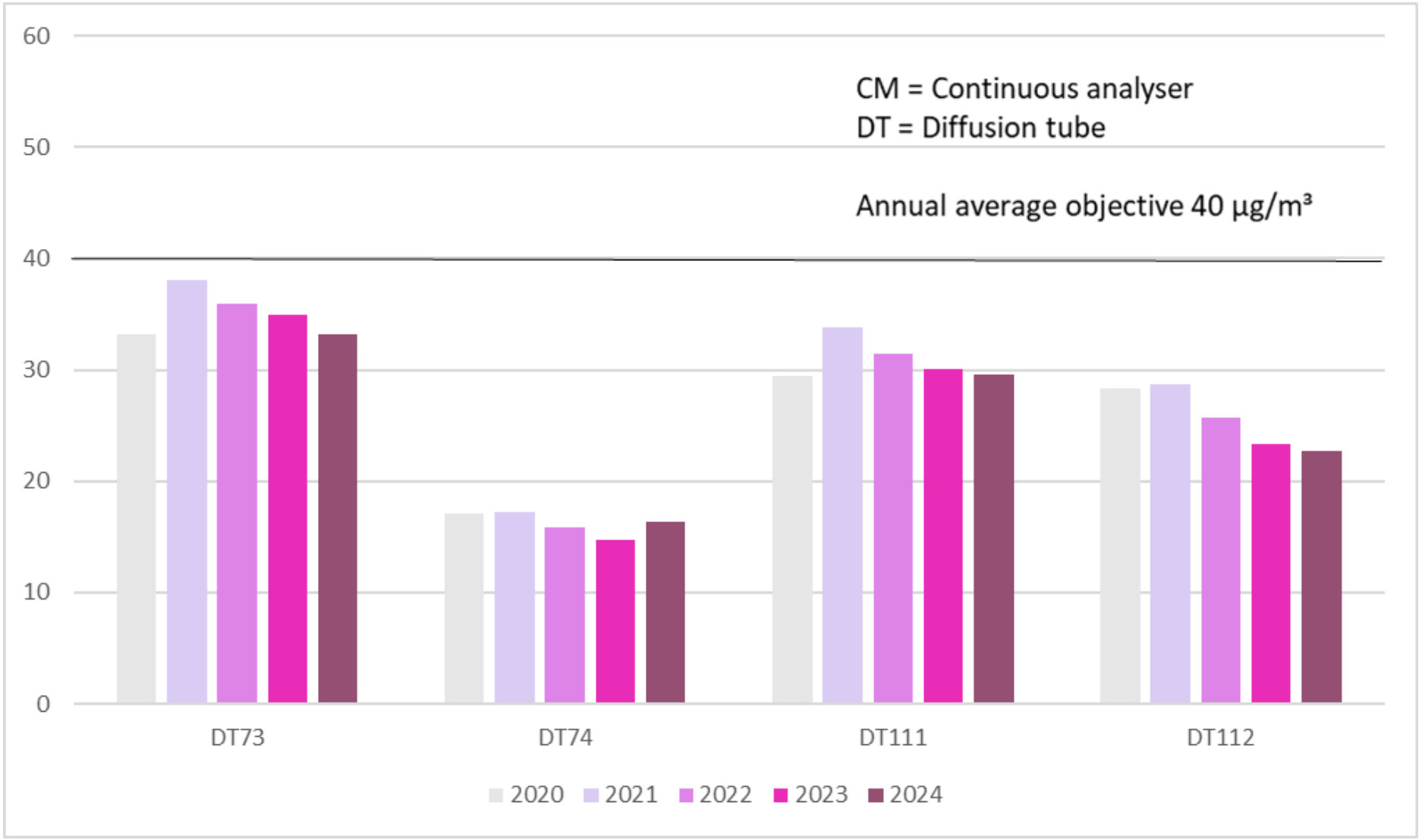


Figure A.11: Trends in Annual Mean NO_2 Concentrations around Greengates Crossroads

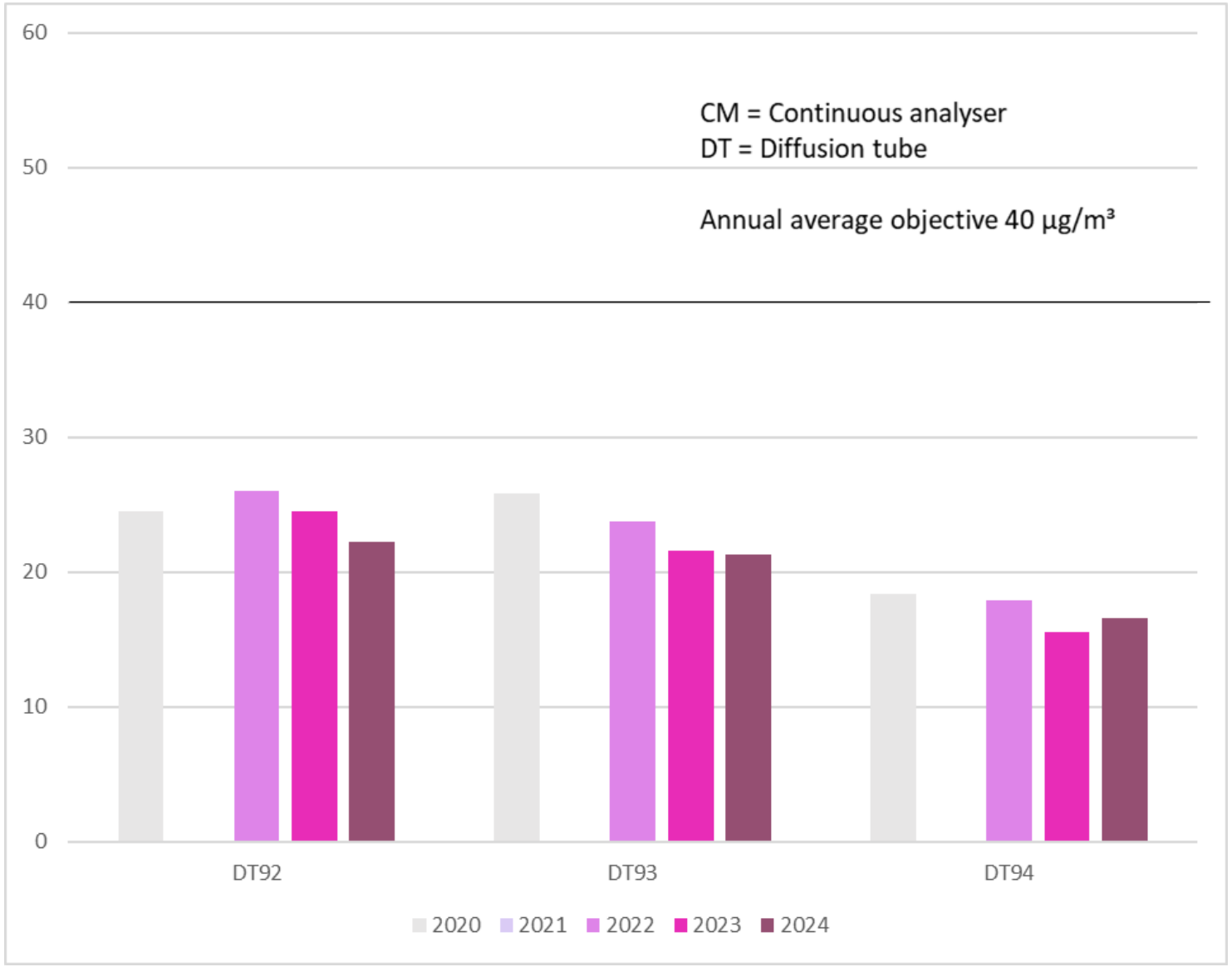


Figure A.12: Trends in Annual Mean NO_2 Concentrations at long term city centre sites

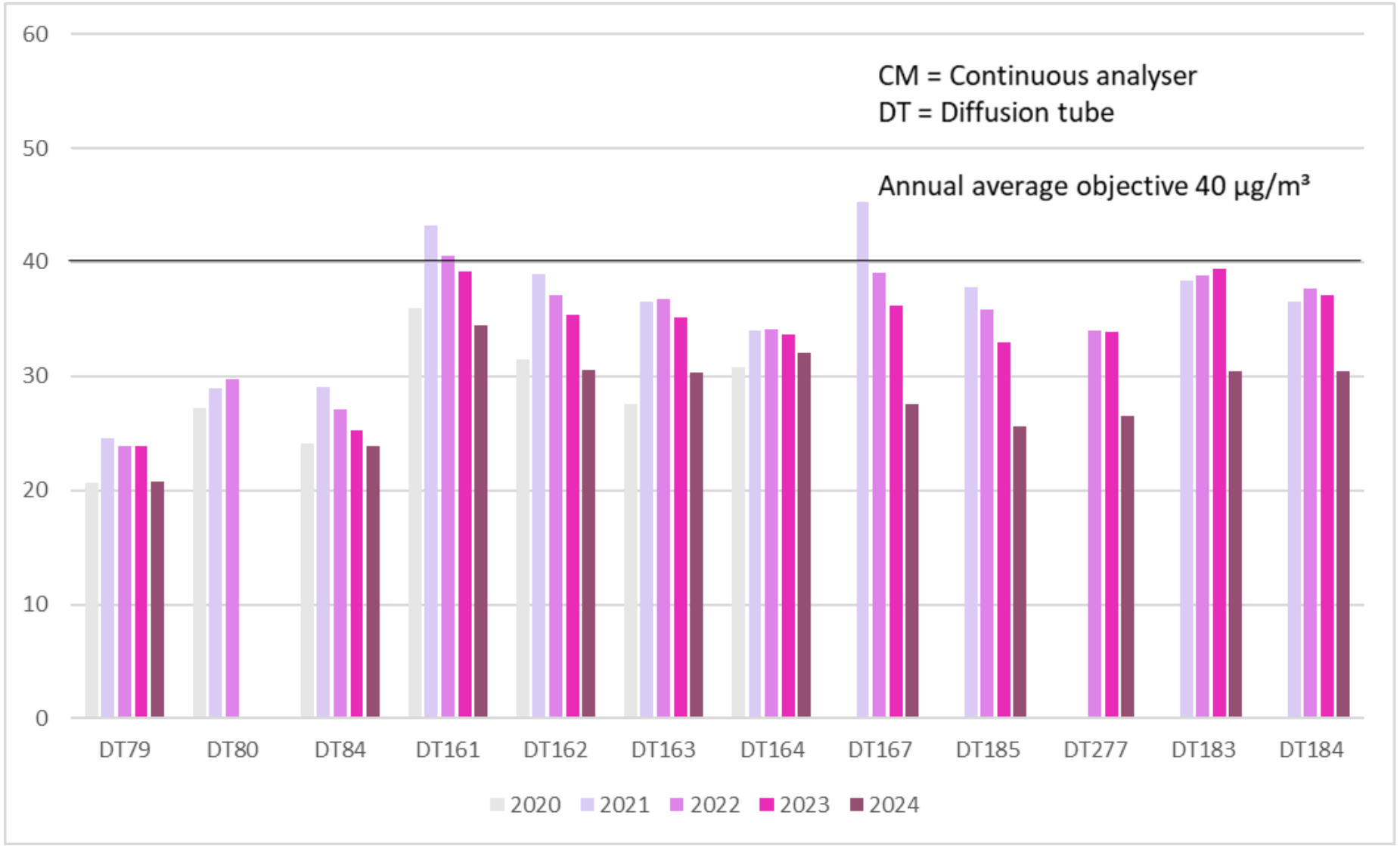


Figure A.13: Trends in Annual Mean NO_2 Concentrations around Parry Lane and Leeds Road

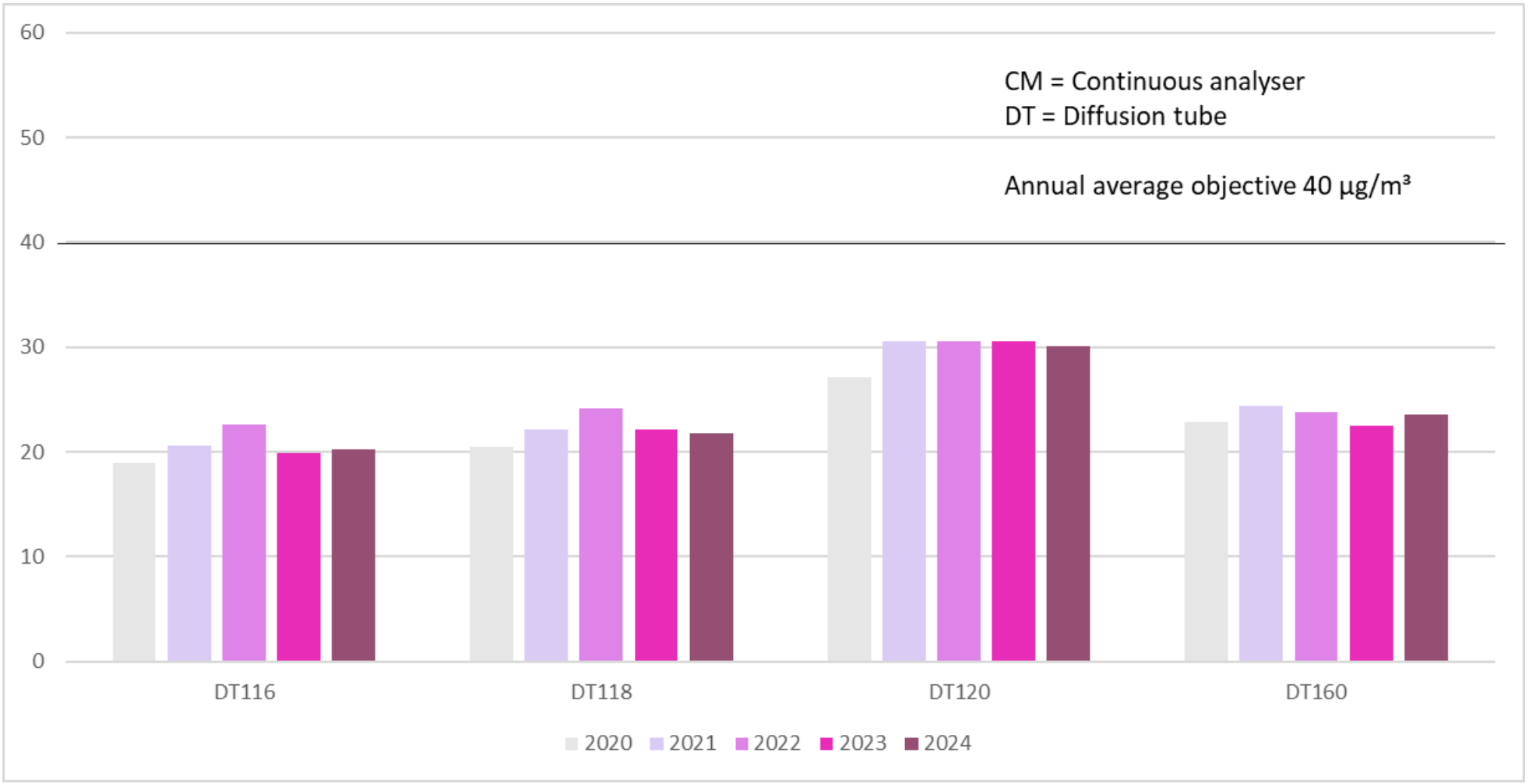


Figure A.14: Trends in Annual Mean NO_2 Concentrations at planning baseline sites

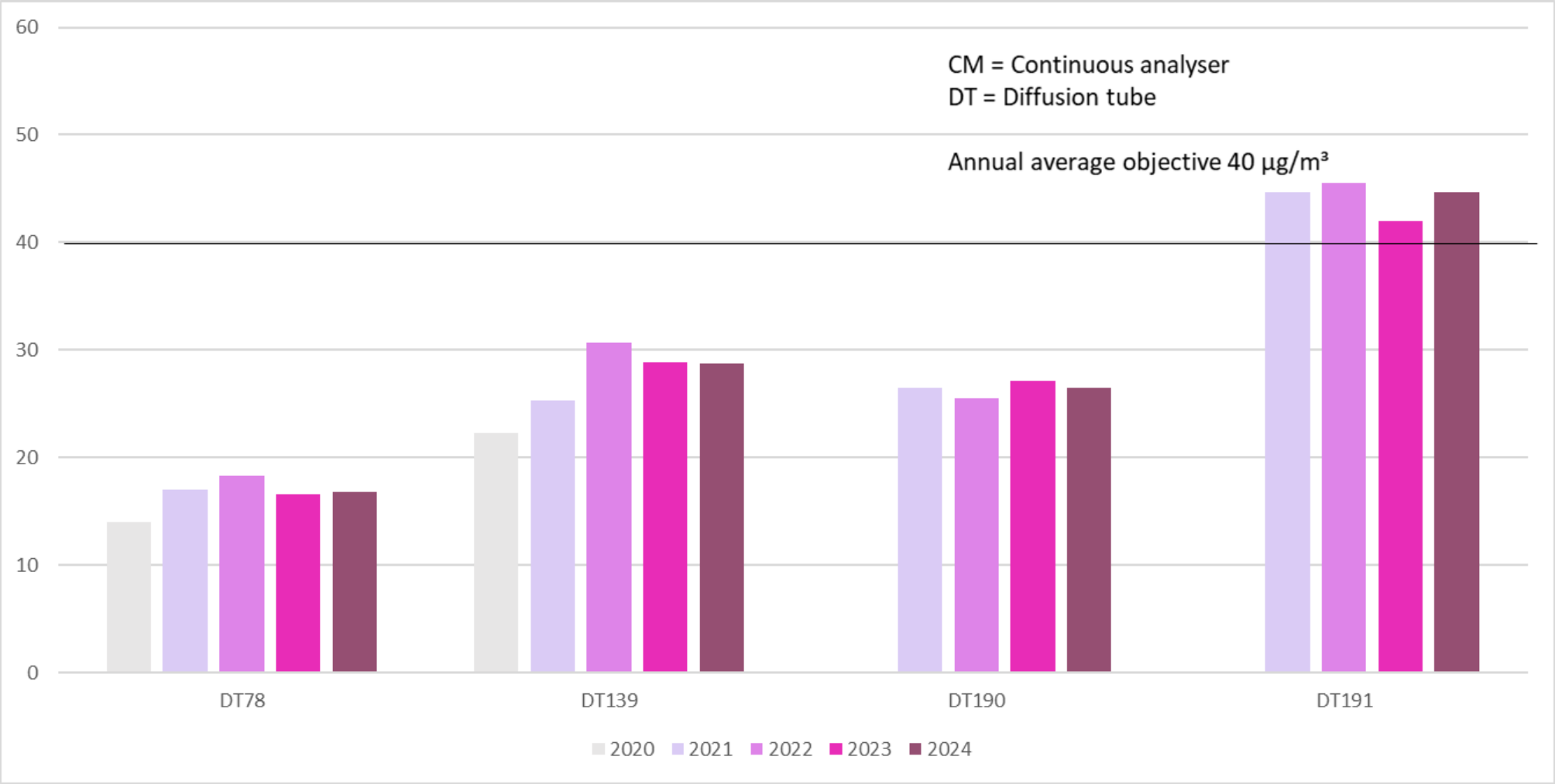


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

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.

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2020	2021	2022	2023	2024
CM2	406058	441273	Urban Centre	full year	96.5	0	0 (61.0)	0	0	0
CM3	415582	434457	Roadside	full year	97.3	0	0	0	0	0
CM4	415933	430569	Roadside	full year	99.1	0 (116.4)	0	0	0	0
CM5	415870	433054	Roadside	full year	94.9	0	0 (93.3)	0	0	0
CM6	416974	433245	Roadside	full year	95.7	0	0 (99.7)	0	0	0
CM7	417860	430705	Roadside	full year	90.1	0	0 (129.4)	0	0	0
CM8	419188	430213	Roadside	full year	97.7	0	0	0	0	0

(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.6 – Annual Mean PM_{10} 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 2023 (%) (2)	2020	2021	2022	2023	2024
CM2	406058	441273	Urban Centre	full year	92.6	12	12	13	12.2	12.3
CM6	416974	433245	Roadside	full year	57.3	17	17	17	16.4	15.2
CM8	419188	430213	Roadside	full year	91.3	14	14	14	14.4	13.7

☒ **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.15 – Trends in Annual Mean PM_{10} Concentrations

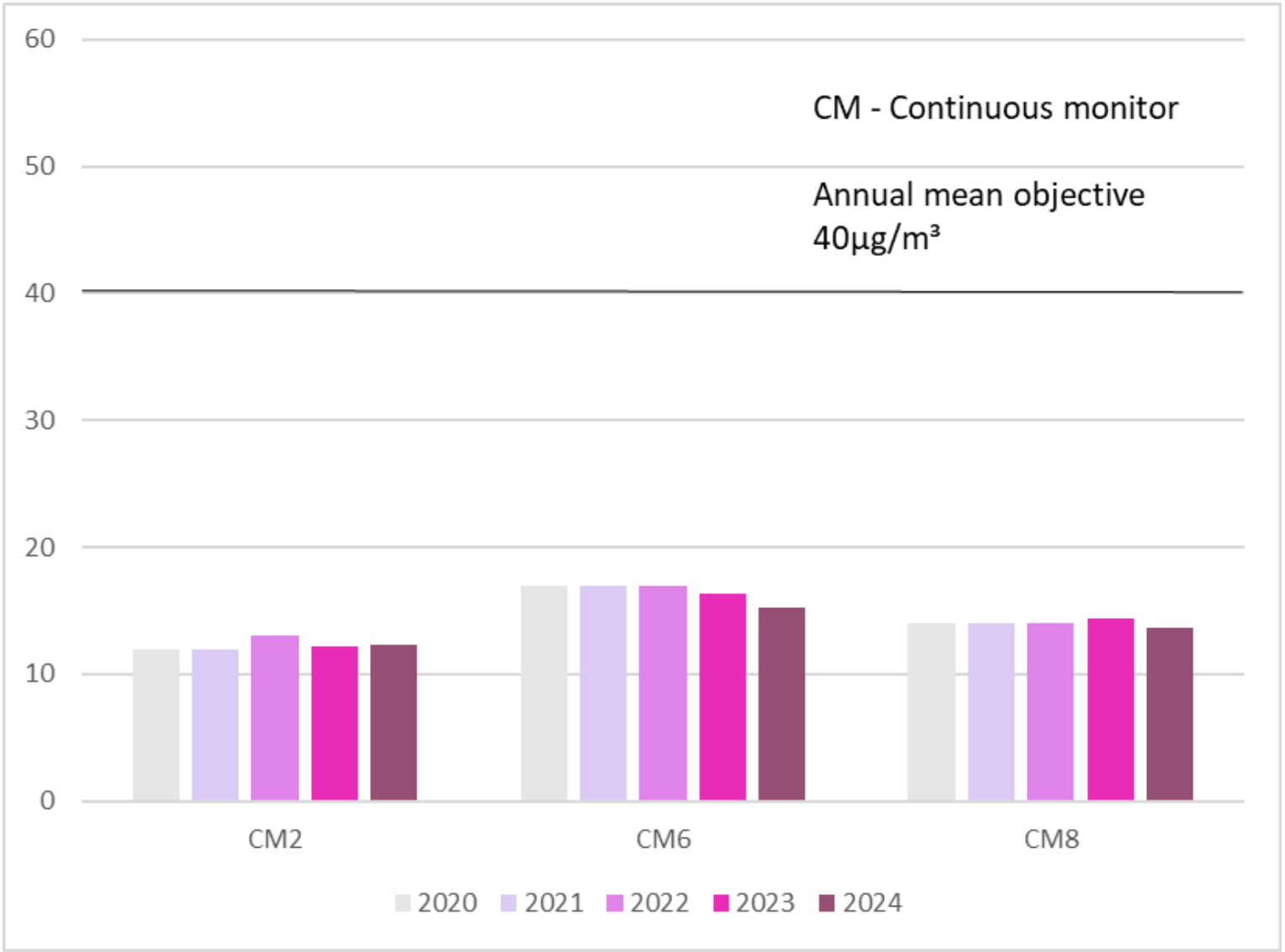


Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2020	2021	2022	2023	2024
CM2	406058	441273	Urban Centre	full year	92.7	1	0	2	2	0
CM6	416974	433245	Roadside	full year	88.5	4	1	6	3	0
CM8	419188	430213	Roadside	full year	89.6	2	0	3	1	0

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.16 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m³

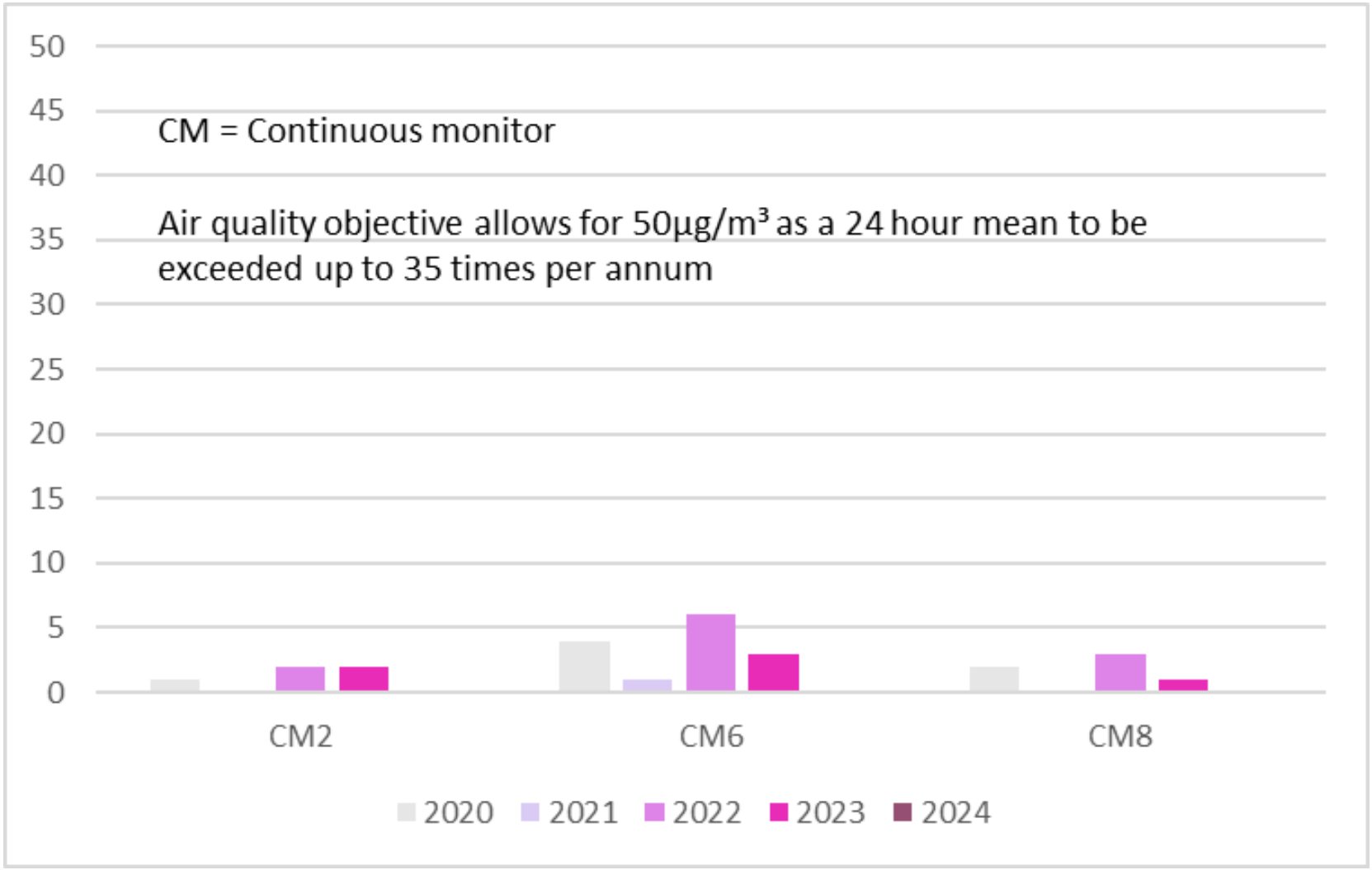


Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2020	2021	2022	2023	2024
CM2	406058	441273	Urban Centre	full year	91.8	5	7	9	7.7	7.7
CM6	416974	433245	Roadside	full year	53.7	9	9	9	8.4	8
CM8	419188	430213	Roadside	full year	86.3	7	8	8	7.1	7.4

☒ **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.17 – Trends in Annual Mean $PM_{2.5}$ Concentrations

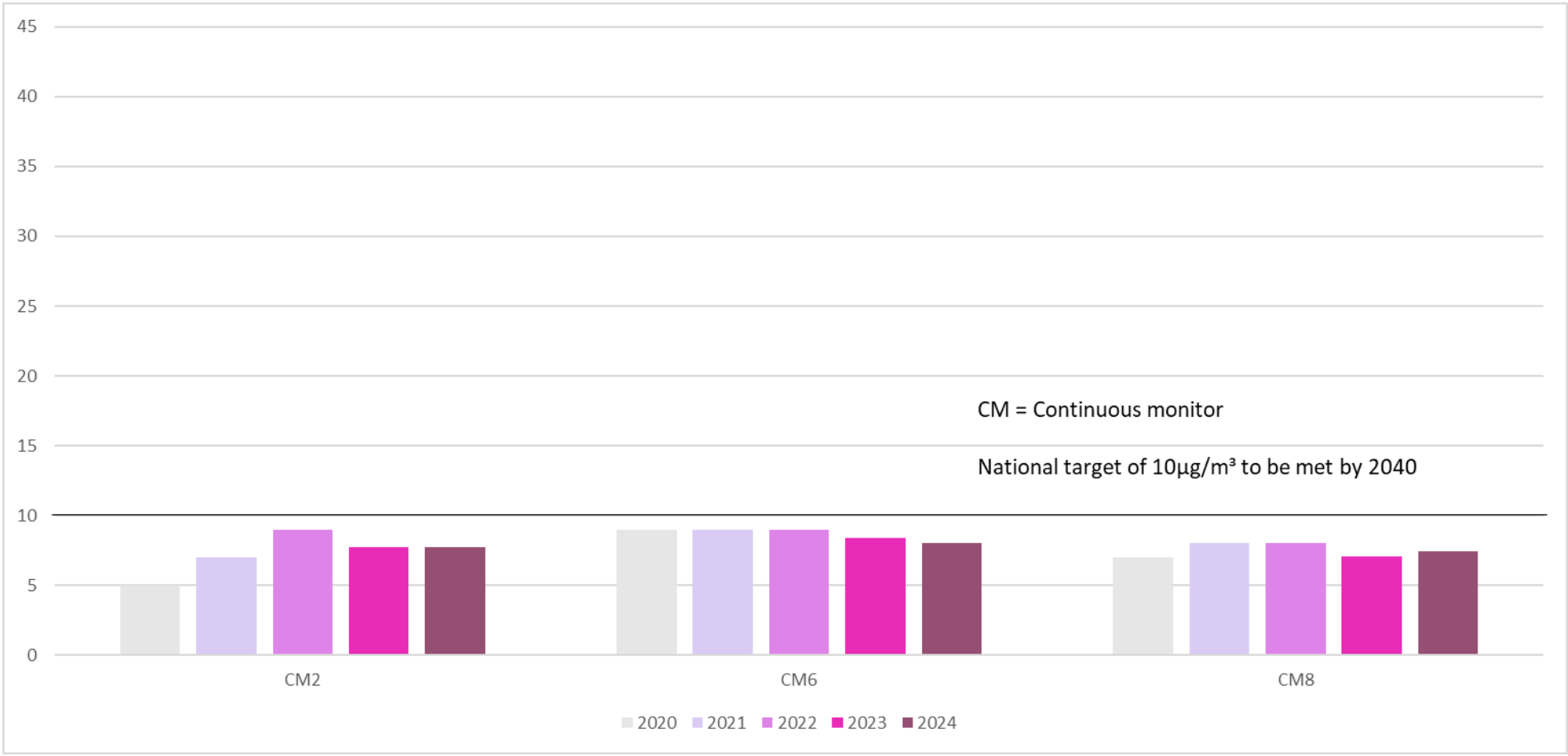


Table A.9 – Average PM10 concentration measured by low cost sensor network for 2024

Site ID	Area	Site Type	Located in a smoke control area?	Valid Data Capture 2024 (%)	Valid Data Capture for monitoring period (2024) (%)	Mean (ug/m3) (2024)
Zephyr 1	Silsden	Background housing area	No	100	100	9.5
Zephyr 2	Saltaire	Suburban housing area	Yes	99.0	99.0	11.5
Zephyr 3	Ilkley	Background housing area	No	100	100	8.9
Zephyr 4	Girlington	Suburban housing area	Yes	100	100	11.2
Zephyr 5	Horton	Suburban housing area	Yes	100	100	10.9
Zephyr 6	East Bowling	Suburban housing area	Yes	100	100	11.6
Zephyr 7	Apperley Bridge	Background housing area (close to canal marina)	No	100	100	12.2
Zephyr 8	Low Moor	Suburban housing area (close to industrial site)	Yes	100	100	12.3
Zephyr 9	Eccleshill	Suburban housing area (outside a primary school)	Yes	100	100	10.9
Zephyr 10	Little Horton	Suburban (outside a nursery school)	Yes	98.8	98.8	11.2
Zephyr 11	Buttershaw	Background (housing estate outside a primary school)	Yes	87.2	87.2	10.8
Zephyr 12	Keighley	Urban Centre (co-located with automatic monitoring site)	Yes	100	100	11.9

Table A.10 – Average PM2.5 concentration measured by low cost sensor network for 2024

Site ID	Area	Site Type	Located in a smoke control area?	Valid Data Capture 2024 (%)	Valid Data Capture for monitoring period (2024) (%)	Mean (ug/m3) (2024)
Zephyr 1	Silsden	Background housing area	No	100	100	5.6
Zephyr 2	Saltaire	Suburban housing area	Yes	99.0	99.0	7.3
Zephyr 3	Ilkley	Background housing area	No	100	100	5.6
Zephyr 4	Girlington	Suburban housing area	Yes	100	100	7.4
Zephyr 5	Horton	Suburban housing area	Yes	100	100	7.3
Zephyr 6	East Bowling	Suburban housing area	Yes	100	100	7.5
Zephyr 7	Apperley Bridge	Background housing area (close to canal marina)	No	100	100	8.0
Zephyr 8	Low Moor	Suburban housing area (close to industrial site)	Yes	100	100	8.1
Zephyr 9	Eccleshill	Suburban housing area (outside a primary school)	Yes	100	100	7.2
Zephyr 10	Little Horton	Suburban (outside a nursery school)	Yes	98.8	98.8	7.4
Zephyr 11	Buttershaw	Background (housing estate outside a primary school)	Yes	87.2	87.2	7.1
Zephyr 12	Keighley	Urban Centre (co-located with automatic monitoring site)	Yes	100	100	7.6

Appendix B: Full Monthly Diffusion Tube Results for 2024

Table B.1 – NO_2 2024 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
DT168	417033	429292	33.6	30.5	25.1	25.7	22.6	28.8	27.5	25.5	25.4	27.0	38.5		28.2	24.8	-	
DT198	417929	430974		38.2	31.4	29.7	34.4	32.1	33.4	26.7		36.8	35.7		33.2	29.2	-	
DT197	417845	430739	32.6	33.4	34.8	30.1	31.1	25.4	27.8	23.9	26.2	33.8	35.4		30.4	26.8	-	
DT196	417369	430370	34.0	41.9	35.2	28.2	27.1					33.2	34.2		33.4	25.4	-	
DT195	417178	430344	31.2	36.1	32.4	30.4	28.9	32.6	28.9	28.8	24.3	31.3	35.5		30.9	27.2	-	
DT194	417184	430315	38.2	28.9	32.0	28.0	27.0	23.3	24.3	24.7	26.2	29.9	32.7		28.7	25.2	-	
DT76	418268	430732	27.2	30.2	30.2	25.1		22.7	25.4				36.2		28.2	23.0	-	
DT45	417877	430717	32.6	33.0	26.3	23.8	23.0	24.1	23.3			28.7			26.9	23.2	-	
DT214A	417715	429299	34.0	28.3	21.1	18.8	18.9	21.5	20.0	18.4	18.2	25.3	27.3		-	-	-	Triplicate Site with DT214A, DT214B and DT214C - Annual data provided for DT214C only
DT214B	417715	429299	24.7	30.1	21.2	21.2	20.0	21.3	21.5	20.7	19.0	24.1	30.8		-	-	-	Triplicate Site with DT214A, DT214B and DT214C - Annual data provided for DT214C only
DT214C	417715	429299	28.1	28.4	23.1	20.0	19.8	19.9	19.2	21.3	20.7	25.3	24.1		22.9	20.2	-	Triplicate Site with DT214A, DT214B and DT214C - Annual data provided for DT214C only
DT215A	417708	429380	25.3	21.5	17.5	17.3	16.6	12.0	14.4	13.0	15.8	21.1	25.8		-	-	-	Triplicate Site with DT215A, DT215B and DT215C - Annual data provided for DT215C only
DT215B	417708	429380	22.9	23.1	19.1	16.0	16.0	10.9	14.1	13.4	15.8	20.9	23.2		-	-	-	Triplicate Site with DT215A, DT215B and DT215C - Annual data provided for DT215C only
DT215C	417708	429380	22.6	22.7	20.4	15.5	15.4	11.6	14.3	13.3	16.3	20.1	22.4		17.9	15.7	-	Triplicate Site with DT215A, DT215B and DT215C - Annual data provided for DT215C only

DT216A	418853	430309	21.9	19.4	18.2	15.6	15.9	11.6	13.0	13.6	14.5	21.8	26.0		-	-	-	Triplicate Site with DT216A, DT216B and DT216C - Annual data provided for DT216C only
DT216B	418853	430309	21.4	25.1	21.5	17.9	16.6	13.4	15.0	12.7	15.2	22.7			-	-	-	Triplicate Site with DT216A, DT216B and DT216C - Annual data provided for DT216C only
DT216C	418853	430309	23.8	25.2	19.9	16.7	16.1	13.2	15.4	12.0	15.0		25.3		18.3	16.1	-	Triplicate Site with DT216A, DT216B and DT216C - Annual data provided for DT216C only
DT217A	418829	430288	25.5	19.2	20.0	15.3	14.5	11.5	13.4	12.7	17.2	21.0	26.5		-	-	-	Triplicate Site with DT217A, DT217B and DT217C - Annual data provided for DT217C only
DT217B	418829	430288		24.1	19.1	17.3	17.1	12.2	14.2	11.1	15.2	20.5	28.1		-	-	-	Triplicate Site with DT217A, DT217B and DT217C - Annual data provided for DT217C only
DT217C	418829	430288	25.4	22.4	19.5	15.3	16.0	11.4	13.3	12.0	15.2	19.3	23.1		18.0	15.8	-	Triplicate Site with DT217A, DT217B and DT217C - Annual data provided for DT217C only
DT88	418829	430399		31.1	28.8		26.8	23.4	24.7	21.9	28.0	27.5	35.6		27.5	24.2	-	
DT89A	419188	430213	32.7	34.2	31.6	26.0	28.3	28.8	30.0	30.0	24.0	37.6	38.9		-	-	-	Triplicate Site with DT89A, DT89B and DT89C - Annual data provided for DT89C only
DT89B	419188	430213	29.5	32.5	30.0	23.1	27.3	29.2	29.0	29.6	26.0	34.4	35.6		-	-	-	Triplicate Site with DT89A, DT89B and DT89C - Annual data provided for DT89C only
DT89C	419188	430213	29.5	35.4	29.5	25.6	27.9	28.9	29.1	27.8	27.5	32.2	36.8		30.3	26.6	-	Triplicate Site with DT89A, DT89B and DT89C - Annual data provided for DT89C only
DT199A	419178	430193	31.9		26.4	23.0	24.4	16.5	18.0	13.1	23.4	20.7	30.6		-	-	-	Triplicate Site with DT199A, DT199B and DT199C - Annual data provided for DT199C only
DT199B	419178	430193	27.6	23.9	24.0	22.3	24.2	15.8	16.2	13.2	28.2	21.4	29.5		-	-	-	Triplicate Site with DT199A, DT199B and DT199C - Annual data provided for DT199C only
DT199C	419178	430193	32.8	24.1	25.4	25.0	24.9	16.5	17.8	13.1	21.6	23.2	26.9		22.7	20.0	-	Triplicate Site with DT199A, DT199B and DT199C - Annual data provided for DT199C only
DT64A	419342	430114	31.0	30.8	32.2	29.5	32.6	28.0	30.0	25.2	33.2		39.7		-	-	-	Triplicate Site with DT64A, DT64B and DT64C - Annual data provided for DT64C only
DT64B	419342	430114	31.9	30.3	32.6	29.7	30.9	28.0	27.8	25.5	31.1		35.6		-	-	-	Triplicate Site with DT64A, DT64B and DT64C - Annual data provided for DT64C only
DT64C	419342	430114	33.3	30.0	27.1		33.4	27.7	26.5	26.2	33.2		39.0		30.7	27.0	-	Triplicate Site with DT64A, DT64B and DT64C - Annual data provided for DT64C only
DT200A	419328	430099		26.6	25.5	19.5	21.4	17.8	18.5	18.9	21.0	25.1	28.7		-	-	-	Triplicate Site with DT200A, DT200B and DT200C - Annual data provided for DT200C only

DT200B	419328	430099	28.6	27.4	25.2	20.1	21.8	15.5	18.4		21.0	25.5	32.1		-	-	-	Triplicate Site with DT200A, DT200B and DT200C - Annual data provided for DT200C only
DT200C	419328	430099	30.6	23.3	25.7	21.0	20.2	17.8	16.6	18.1	18.4	26.0	31.0		22.9	20.1	-	Triplicate Site with DT200A, DT200B and DT200C - Annual data provided for DT200C only
DT220A	419215	431809	28.6	24.8	17.9	14.7			16.6	15.3	16.5	20.9	28.5		-	-	-	Triplicate Site with DT220A, DT220B and DT220C - Annual data provided for DT220C only
DT220B	419215	431809	24.8	21.2	19.5	15.8			15.3	14.6	16.4	22.2	27.4		-	-	-	Triplicate Site with DT220A, DT220B and DT220C - Annual data provided for DT220C only
DT220C	419215	431809	24.9	24.5	20.2	15.8			14.0	14.7	18.9	20.2	25.5		20.0	17.6	-	Triplicate Site with DT220A, DT220B and DT220C - Annual data provided for DT220C only
DT221A	419196	431834	24.5	21.4	19.2	14.9	15.7	14.9		15.5	16.4	19.8	24.6		-	-	-	Triplicate Site with DT221A, DT221B and DT221C - Annual data provided for DT221C only
DT221B	419196	431834	19.1	24.6	19.9	15.5	15.0		14.4	15.2	15.6	22.4	31.0		-	-	-	Triplicate Site with DT221A, DT221B and DT221C - Annual data provided for DT221C only
DT221C	419196	431834	25.2	20.1	20.7	16.0	16.2		16.4	12.6	15.5	19.7	28.9		18.7	16.4	-	Triplicate Site with DT221A, DT221B and DT221C - Annual data provided for DT221C only
DT222A	417861	431486	20.9	28.5	31.3	23.8	27.8	18.7	21.3	17.6	26.7	30.7	29.6		-	-	-	Triplicate Site with DT222A, DT222B and DT222C - Annual data provided for DT222C only
DT222B	417861	431486	29.9	28.6	26.1	26.7	29.2	17.9	22.0	19.4	29.0		34.2		-	-	-	Triplicate Site with DT222A, DT222B and DT222C - Annual data provided for DT222C only
DT222C	417861	431486	29.9		32.4	27.0	27.7	19.3	22.5	18.0	26.2	33.7	25.4		26.1	23.0	-	Triplicate Site with DT222A, DT222B and DT222C - Annual data provided for DT222C only
DT223A	417862	431536	34.4	45.3	46.8	40.2	43.4	42.9	39.7	38.3	41.8	41.7	52.5		-	-	-	Triplicate Site with DT223A, DT223B and DT223C - Annual data provided for DT223C only
DT223B	417862	431536	41.6	45.5	48.3	41.3	49.9	45.7	47.1		50.1	51.0	51.3		-	-	-	Triplicate Site with DT223A, DT223B and DT223C - Annual data provided for DT223C only
DT223C	417862	431536	51.6	45.1	45.5	39.7	44.1	43.5	45.5	35.9	46.2	45.4	45.9		44.4	39.0	34.3	Triplicate Site with DT223A, DT223B and DT223C - Annual data provided for DT223C only
DT218A	418292	431290	48.2	38.3	29.8	28.5			29.5	28.8	29.2	35.7	35.3		-	-	-	Triplicate Site with DT218A, DT218B and DT218C - Annual data provided for DT218C only
DT218B	418292	431290	38.7	11.9		27.1			30.9	29.3	29.1	33.8	38.6		-	-	-	Triplicate Site with DT218A, DT218B and DT218C -

																	Annual data provided for DT218C only
DT218C	418292	431290	41.7	33.9	28.4	31.4			27.5	27.1	29.1	33.7	33.8		31.8	28.0	-	Triplicate Site with DT218A, DT218B and DT218C - Annual data provided for DT218C only
DT219A	418303	431328	32.8	29.8	28.9	24.0			21.9	20.9	21.8	29.5	35.5		-	-	-	Triplicate Site with DT219A, DT219B and DT219C - Annual data provided for DT219C only
DT219B	418303	431328	34.3	31.5	33.5				21.0	22.8	23.4	30.7	34.7		-	-	-	Triplicate Site with DT219A, DT219B and DT219C - Annual data provided for DT219C only
DT219C	418303	431328	34.4	32.7	34.0	25.2			21.3	21.2	20.4	31.1	33.3		28.0	24.6	-	Triplicate Site with DT219A, DT219B and DT219C - Annual data provided for DT219C only
DT116	418564	432218	33.8	26.7	24.9	18.4	19.9	17.4	17.3	18.4	21.9	21.9	33.0		23.1	20.3	-	
DT118	418666	432470	22.5	32.1	20.0	22.6	22.9	23.2	21.6	20.8	24.7	30.0	32.1		24.8	21.8	-	
DT201	418108	432322	32.6	41.4	30.8	28.8	29.4	33.0	32.4	26.4	29.2	35.5	42.8		32.9	29.0	-	
DT202	418135	432272	37.7	27.7	24.2	23.6	22.4	21.8	21.0	20.0		27.4			25.1	22.1	-	
DT203	418345	432366	33.1	31.4	25.4	25.8	27.1	26.9	26.0	21.2	26.6	29.7	32.8		27.8	24.5	-	
DT160A	418644	432898	37.1				24.7	24.8		15.2		28.8	35.5		-	-	-	Triplicate Site with DT160A, DT160B and DT160C - Annual data provided for DT160C only
DT160B	418644	432898		29.2	24.4		26.6		23.7	11.0	27.7	26.5	32.7		-	-	-	Triplicate Site with DT160A, DT160B and DT160C - Annual data provided for DT160C only
DT160C	418644	432898	36.6	33.5	21.8			24.4					35.1		26.8	23.6	-	Triplicate Site with DT160A, DT160B and DT160C - Annual data provided for DT160C only
DT204A	418640	432870	31.8	31.2	25.1	19.8	22.4	17.4	16.8	17.3	23.9	24.3	29.1		-	-	-	Triplicate Site with DT204A, DT204B and DT204C - Annual data provided for DT204C only
DT204B	418640	432870	27.9	26.7	26.0	21.1	21.7	18.7	18.9	15.0	13.7		30.8		-	-	-	Triplicate Site with DT204A, DT204B and DT204C - Annual data provided for DT204C only
DT204C	418640	432870	29.7	30.9	26.2	22.8	22.3	19.3	18.2	17.7	24.3	19.0	27.5		23.0	20.2	-	Triplicate Site with DT204A, DT204B and DT204C - Annual data provided for DT204C only
DT120A	417991	432926	24.2	40.7	34.7	33.6	30.8	34.2	32.8	34.2	25.0	32.7	42.4		-	-	-	Triplicate Site with DT120A, DT120B and DT120C - Annual data provided for DT120C only
DT120B	417991	432926	37.1	45.6	32.0	32.1	30.5	31.8	34.7	36.9	28.2	37.4	43.8		-	-	-	Triplicate Site with DT120A, DT120B and DT120C -

																	Annual data provided for DT120C only
DT120C	417991	432926	41.3	38.9	31.7	31.2	29.8	35.0	32.2	32.9	31.4	35.3	34.7		34.2	30.1	-	Triplicate Site with DT120A, DT120B and DT120C - Annual data provided for DT120C only
DT209A	417960	432907	39.5	40.8	39.7	35.8	34.7	36.3	38.7	39.6	30.1	41.9	44.5		-	-	-	Triplicate Site with DT209A, DT209B and DT209C - Annual data provided for DT209C only
DT209B	417960	432907	33.9		39.0	36.6	36.5	38.5	38.7	42.1	28.3	38.5	47.8		-	-	-	Triplicate Site with DT209A, DT209B and DT209C - Annual data provided for DT209C only
DT209C	417960	432907	40.3		43.0	35.7	36.9	38.4	40.6	37.9	29.8	37.4	48.0		38.5	33.9	-	Triplicate Site with DT209A, DT209B and DT209C - Annual data provided for DT209C only
DT205	418597	433111		33.5	32.1	31.4	31.5	27.4	26.7	25.9	27.5	35.6	31.9		30.4	26.7	-	
DT206	418579	433109			33.3	28.8	29.6		28.6	29.7	23.8	39.8	42.5		32.0	29.2	-	
DT233	418546	433430	38.3	33.9	31.1	20.7	28.6	31.0		27.9	27.8	31.8	38.2		30.9	27.2	-	
DT232	418563	433432	35.3	32.8	5.8	26.6	21.9	23.1	24.3		22.3		32.8		25.0	22.0	-	
DT230A	418784	434409	31.4	28.0	25.5	16.9				16.6	17.5	27.9	28.7		-	-	-	Triplicate Site with DT230A, DT230B and DT230C - Annual data provided for DT230C only
DT230B	418784	434409	24.1	28.7	22.0	19.9				17.3	18.7	25.2	32.0		-	-	-	Triplicate Site with DT230A, DT230B and DT230C - Annual data provided for DT230C only
DT230C	418784	434409	24.9	29.2	23.0	19.6			19.6		19.9	28.9	28.2		23.3	19.3	-	Triplicate Site with DT230A, DT230B and DT230C - Annual data provided for DT230C only
DT231A	418791	434424	27.0		20.6	16.5	15.6	15.7	16.8	18.2	15.8	22.6	29.6		-	-	-	Triplicate Site with DT231A, DT231B and DT231C - Annual data provided for DT231C only
DT231B	418791	434424			23.9	16.7	15.5		18.4	18.4	13.7	27.5	30.5		-	-	-	Triplicate Site with DT231A, DT231B and DT231C - Annual data provided for DT231C only
DT231C	418791	434424			22.3	14.0	15.6	14.5	15.8	17.6	13.7	26.4	27.7		20.0	17.6	-	Triplicate Site with DT231A, DT231B and DT231C - Annual data provided for DT231C only
DT5	417982	434886		38.2	31.6	28.1	29.3	31.5	32.4	30.6	27.1	29.6	37.8		31.6	27.8	-	
DT39A	417927	434799	36.9	33.5	30.3	29.1	30.8	26.1	28.9				30.8		-	-	-	Triplicate Site with DT39A, DT39B and DT39C - Annual data provided for DT39C only
DT39B	417927	434799		34.6		27.9	29.5		31.7	25.9	26.0	27.7	32.4		-	-	-	Triplicate Site with DT39A, DT39B and DT39C - Annual data provided for DT39C only

DT39C	417927	434799		32.7		29.3	31.1		30.3	29.3		34.2	35.2		30.4	26.7	-	Triplicate Site with DT39A, DT39B and DT39C - Annual data provided for DT39C only
DT208A	417966	434884		31.7	29.1	22.3				19.3	21.6	26.6	25.5		-	-	-	Triplicate Site with DT208A, DT208B and DT208C - Annual data provided for DT208C only
DT208B	417966	434884	28.0	29.3	29.8	25.3		12.9	15.7	19.7	20.4	27.6	25.7		-	-	-	Triplicate Site with DT208A, DT208B and DT208C - Annual data provided for DT208C only
DT208C	417966	434884	28.8	29.4	26.3	23.6	21.9	14.3		19.1	19.6	28.4	28.1		23.3	20.5	-	Triplicate Site with DT208A, DT208B and DT208C - Annual data provided for DT208C only
DT99	418033	434970	28.5	33.2	27.3		22.4	21.4	22.1	20.5	12.8	27.4	31.7		24.7	21.8	-	
DT86	417894	434753	31.0	33.6	35.3	29.0	31.4	29.0	30.7	28.3	27.7	31.4	31.1		30.8	27.1	-	
DT42A	417902	434751	30.4	40.1	34.0	29.9	34.8	36.7	35.3	32.4	31.2		36.4		-	-	-	Triplicate Site with DT42A, DT42B and DT42C - Annual data provided for DT42C only
DT42B	417902	434751		35.0	35.5	33.0	34.3	37.7	33.3	32.6	30.8	37.3	42.1		-	-	-	Triplicate Site with DT42A, DT42B and DT42C - Annual data provided for DT42C only
DT42C	417902	434751	32.3	38.3	35.0	33.1	31.8	35.0	33.2	34.8	31.3	33.8	37.7		34.4	30.3	-	Triplicate Site with DT42A, DT42B and DT42C - Annual data provided for DT42C only
DT207A	417912	434759	36.4	29.8	31.2	23.4	30.4	22.3	25.7	24.2	24.7	32.5	30.0		-	-	-	Triplicate Site with DT207A, DT207B and DT207C - Annual data provided for DT207C only
DT207B	417912	434759	26.9	30.1	32.9	27.2	31.4	25.3	24.2	25.8	27.7	31.5	32.6		-	-	-	Triplicate Site with DT207A, DT207B and DT207C - Annual data provided for DT207C only
DT207C	417912	434759	29.6	27.1	27.8	25.7	29.5	22.5	22.4	20.6	28.0	29.6	29.9		27.8	24.5	-	Triplicate Site with DT207A, DT207B and DT207C - Annual data provided for DT207C only
DT228A	418090	434429	29.2	47.7	38.8	23.8	32.5	38.6	39.7	39.4	29.4	41.9	44.8		-	-	-	Triplicate Site with DT228A, DT228B and DT228C - Annual data provided for DT228C only
DT228B	418090	434429	39.3	43.9	39.0	24.8	35.1	44.5	41.6	40.5	30.2	41.8	45.7		-	-	-	Triplicate Site with DT228A, DT228B and DT228C - Annual data provided for DT228C only
DT228C	418090	434429	44.0	44.6	38.4	23.0	32.9	40.6	41.0	40.8	31.9	36.3	47.4		38.0	33.4	-	Triplicate Site with DT228A, DT228B and DT228C - Annual data provided for DT228C only
DT229A	418059	434509	40.6	29.6	29.9	36.3	25.0	20.5	21.0	20.7	21.0	29.7	31.1		-	-	-	Triplicate Site with DT229A, DT229B and DT229C - Annual data provided for DT229C only
DT229B	418059	434509	28.6	28.8		35.0	23.5	20.1	22.2	19.8	23.3	28.5	27.2		-	-	-	Triplicate Site with DT229A, DT229B and DT229C - Annual data provided for DT229C only

DT229C	418059	434509	25.5	27.1	29.2	35.3	26.5	20.2	20.1	18.5	21.1	28.1	29.4		26.4	23.3	-	Triplicate Site with DT229A, DT229B and DT229C - Annual data provided for DT229C only
DT92	419006	437217	25.6		31.0	24.6			22.5		22.4		30.1		26.0	22.2	-	
DT93	419003	437308	27.7	28.4	28.0	24.2	21.5	18.4	19.3	20.4	24.2	30.1			24.2	21.3	-	
DT286	419103	437334	29.6	31.0	26.4	21.2	19.6	20.4	19.9		17.5	27.0	31.8		24.5	21.5	-	
DT94	419076	437345	28.9	23.6	20.3		13.2	11.3	13.6	15.1	10.5	25.0	27.4		18.9	16.6	-	
DT273	419138	437213	22.6								21.5	28.4	30.2		25.7	18.9	-	
DT274	419107	437314	30.9	32.6	31.5	24.6	24.0	24.9	26.0	23.1	25.5	28.7	33.6		27.8	24.4	-	
DT275	419317	437551	37.3		29.1	31.0	28.7		28.0	26.8	29.0		35.1		30.6	28.4	-	
DT276	418979	437969				14.6	14.2	13.6	11.9	14.2	14.1	18.9	22.3		15.5	14.9	-	
DT305	418640	436130	18.7	20.1	17.1		10.0		9.3			17.1	21.9		16.3	12.5	-	
DT306	418567	436068			14.1	10.8		7.7	9.0	9.4		18.0	20.6		12.8	11.6	-	
DT307	418476	436067	15.7	17.7	14.8	11.6	9.9	8.9	9.2	10.3	8.6	19.4	22.1		13.5	11.9	-	
DT272	417661	433528	31.7	30.1	34.7	25.5	28.2	26.5	23.1	23.8	25.1	27.7	32.8		28.1	24.7	-	
DT224A	417117	433431	30.7	32.6	27.6	21.5	25.7	27.1	26.2	24.7	25.4	28.0	32.6		-	-	-	Triplicate Site with DT224A, DT224B and DT224C - Annual data provided for DT224C only
DT224B	417117	433431		30.9	33.0	22.8	25.4	26.4	26.2	24.6	27.0	31.7	35.7		-	-	-	Triplicate Site with DT224A, DT224B and DT224C - Annual data provided for DT224C only
DT224C	417117	433431		28.6	31.7	23.5	27.3	27.7	24.7	24.3	25.4	30.3	34.5		28.0	24.7	-	Triplicate Site with DT224A, DT224B and DT224C - Annual data provided for DT224C only
DT225A	417087	433444	42.6	44.4	40.7		33.2	34.3	35.7	34.7	30.9	40.8	45.4		-	-	-	Triplicate Site with DT225A, DT225B and DT225C - Annual data provided for DT225C only
DT225B	417087	433444	42.9	46.9	43.2		34.9	35.4	36.1	34.8	32.9	40.5	43.3		-	-	-	Triplicate Site with DT225A, DT225B and DT225C - Annual data provided for DT225C only
DT225C	417087	433444	41.6	39.7	38.1	32.4	35.4	36.1	35.3	35.6	34.8	41.4	42.6		37.9	33.4	-	Triplicate Site with DT225A, DT225B and DT225C - Annual data provided for DT225C only
DT309A	417165	434401	36.2	34.6			27.6	30.7	29.0	29.4	27.4	34.4	39.0		-	-	-	Triplicate Site with DT309A, DT309B and DT309C -

																	Annual data provided for DT309C only
DT309B	417165	434401	36.9	36.7			27.9	30.0	27.5	28.1	26.8	32.6	42.1		-	-	-	Triplicate Site with DT309A, DT309B and DT309C - Annual data provided for DT309C only
DT309C	417165	434401	29.0	35.7			28.0	28.3	30.3	28.6	24.0	17.1	37.2		30.9	27.2	-	Triplicate Site with DT309A, DT309B and DT309C - Annual data provided for DT309C only
DT227A	417054	434165	24.7	25.4	29.0		22.2	18.5	21.6	17.9	22.4	28.0	29.9		-	-	-	Triplicate Site with DT227A, DT227B and DT227C - Annual data provided for DT227C only
DT227B	417054	434165	29.6	28.3	32.4	18.0		21.3	21.3	20.9	17.8	27.2	30.5		-	-	-	Triplicate Site with DT227A, DT227B and DT227C - Annual data provided for DT227C only
DT227C	417054	434165	29.7	26.0	31.5		23.8	20.6	21.4	19.8	23.3	28.2			24.3	21.3	-	Triplicate Site with DT227A, DT227B and DT227C - Annual data provided for DT227C only
DT293	415950	431453	28.7				18.6	16.3	18.3	17.7	21.2	24.4	30.9		22.0	20.3	-	
DT294	415950	431453	32.2	34.3			21.4	22.5	22.0	23.7	22.4	30.9	34.9		27.2	23.9	-	
DT308	415932	431360	25.7	28.7				17.4			17.1	26.6	25.5		23.5	17.9	-	
DT103A	415925	430572	33.8	35.8	45.6	21.3	34.9	26.0		28.3	41.7	36.2	37.8		-	-	-	Triplicate Site with DT103A, DT103B and DT103C - Annual data provided for DT103C only
DT103B	415925	430572	38.5	38.0	50.2	21.8	38.2	27.6	23.4	42.3	42.4	39.2			-	-	-	Triplicate Site with DT103A, DT103B and DT103C - Annual data provided for DT103C only
DT103C	415925	430572	37.5	38.1	49.4	20.6	37.0	27.6	28.4	28.9	44.8	37.5	38.8		35.0	30.8	-	Triplicate Site with DT103A, DT103B and DT103C - Annual data provided for DT103C only
DT104A	415961	430558	39.8	37.4	49.6	22.4	42.3	33.5	35.2	31.9	48.0	39.4	47.9		-	-	-	Triplicate Site with DT104A, DT104B and DT104C - Annual data provided for DT104C only
DT104B	415961	430558	40.7	40.6	51.5	25.3	41.5	35.2	34.5	28.1	45.0	40.2	46.1		-	-	-	Triplicate Site with DT104A, DT104B and DT104C - Annual data provided for DT104C only
DT104C	415961	430558	42.0	35.6	49.0	20.7	42.9	34.0	36.1	31.8	48.1	41.6	41.8		38.8	34.1	-	Triplicate Site with DT104A, DT104B and DT104C - Annual data provided for DT104C only
DT188A	415979	430522	31.7	30.6			29.7	21.5	21.0	20.9	35.0	30.3	29.6		-	-	-	Triplicate Site with DT188A, DT188B and DT188C - Annual data provided for DT188C only
DT188B	415979	430522	29.0	31.9			30.5	25.9	26.0	19.4	32.5	28.0	29.0		-	-	-	Triplicate Site with DT188A, DT188B and DT188C - Annual data provided for DT188C only

DT188C	415979	430522	35.2	34.9			32.2	24.2	24.2	21.7	32.5				28.4	25.0	-	Triplicate Site with DT188A, DT188B and DT188C - Annual data provided for DT188C only
DT189A	415910	430551	32.6	30.0			30.2		25.9	23.4		29.9	30.1		-	-	-	Triplicate Site with DT189A, DT189B and DT189C - Annual data provided for DT189C only
DT189B	415910	430551	32.9	32.3			32.4		27.9			30.3	39.5		-	-	-	Triplicate Site with DT189A, DT189B and DT189C - Annual data provided for DT189C only
DT189C	415910	430551	35.6	30.4			29.7	29.8		21.9		28.0	36.3		29.9	25.6	-	Triplicate Site with DT189A, DT189B and DT189C - Annual data provided for DT189C only
DT105	415780	430504					51.2	35.3	38.2	37.5	50.5	47.3	51.4		44.5	**42.5**	36.5	
DT281	415771	430476	43.7	52.7			53.4	40.1	36.8	36.0	54.4	50.7	26.6		43.8	38.6	32.7	
DT186A	415743	430482	25.1	26.5				14.4	16.6	18.8	25.8	28.8	29.8		-	-	-	Triplicate Site with DT186A, DT186B and DT186C - Annual data provided for DT186C only
DT186B	415743	430482	28.0	32.5			26.0	16.4	18.1	18.0	27.2	29.1	30.8		-	-	-	Triplicate Site with DT186A, DT186B and DT186C - Annual data provided for DT186C only
DT186C	415743	430482	25.4	27.6			24.6	15.5	17.6	16.2	23.3	8.6	33.9		23.3	20.5	-	Triplicate Site with DT186A, DT186B and DT186C - Annual data provided for DT186C only
DT187A	415715	430669	28.2	31.5			29.5		25.5	25.5	28.7	35.6	35.4		-	-	-	Triplicate Site with DT187A, DT187B and DT187C - Annual data provided for DT187C only
DT187B	415715	430669	31.7	35.3			30.6		27.2	28.4	26.9	33.9	36.5		-	-	-	Triplicate Site with DT187A, DT187B and DT187C - Annual data provided for DT187C only
DT187C	415715	430669	31.6	33.9			28.0	27.2	30.6	23.7	28.7	37.9	32.2		30.3	26.7	-	Triplicate Site with DT187A, DT187B and DT187C - Annual data provided for DT187C only
DT106A	415702	430701	23.8	32.1			24.0	20.5		24.1	24.2	33.3			-	-	-	Triplicate Site with DT106A, DT106B and DT106C - Annual data provided for DT106C only
DT106B	415702	430701	26.6	28.7			23.0	18.3		21.2	20.0	31.2			-	-	-	Triplicate Site with DT106A, DT106B and DT106C - Annual data provided for DT106C only
DT106C	415702	430701	28.6	28.3			24.1	20.8		21.0	20.3	34.4			25.2	22.5	-	Triplicate Site with DT106A, DT106B and DT106C - Annual data provided for DT106C only
DT192A	416218	430420		26.4			21.9	18.3	18.8	16.8	26.7	29.4	27.7		-	-	-	Triplicate Site with DT192A, DT192B and DT192C - Annual data provided for DT192C only

DT192B	416218	430420	24.9	30.1			26.5	19.5	21.1	18.5	26.2	30.6	34.8		-	-	-	Triplicate Site with DT192A, DT192B and DT192C - Annual data provided for DT192C only
DT192C	416218	430420	28.4	27.2			25.7	18.8	17.9	18.5	23.3	26.7	31.5		24.6	21.6	-	Triplicate Site with DT192A, DT192B and DT192C - Annual data provided for DT192C only
DT310A	416260	430422	25.9	32.6			26.3	24.6	24.3	19.5	23.4	34.7	33.2		-	-	-	Triplicate Site with DT310A, DT310B and DT310C - Annual data provided for DT310C only
DT310B	416260	430422	31.0	36.1			27.0	27.7	27.4	24.3	23.4	38.2	33.7		-	-	-	Triplicate Site with DT310A, DT310B and DT310C - Annual data provided for DT310C only
DT310C	416260	430422	27.5	31.9			26.5	21.8	25.3	23.1	23.0	34.3	37.2		28.3	24.9	-	Triplicate Site with DT310A, DT310B and DT310C - Annual data provided for DT310C only
DT212A	416398	430194	31.1	29.7			25.1	21.1	22.3	19.6	26.0	27.0	34.7		-	-	-	Triplicate Site with DT212A, DT212B and DT212C - Annual data provided for DT212C only
DT212B	416398	430194	30.5	33.9			28.6	23.7	23.4	21.5	32.1	27.7	33.7		-	-	-	Triplicate Site with DT212A, DT212B and DT212C - Annual data provided for DT212C only
DT212C	416398	430194	30.0	32.1			27.4	21.5	23.2	19.8	28.6	29.1	33.6		27.3	24.0	-	Triplicate Site with DT212A, DT212B and DT212C - Annual data provided for DT212C only
DT213A	416390	430214	22.8	26.9			23.4	18.5	19.4	21.6	21.3	31.5	31.5		-	-	-	Triplicate Site with DT213A, DT213B and DT213C - Annual data provided for DT213C only
DT213B	416390	430214	27.4	31.8			26.0	18.4	20.2	21.7	23.2	30.3	35.6		-	-	-	Triplicate Site with DT213A, DT213B and DT213C - Annual data provided for DT213C only
DT213C	416390	430214	23.2	33.3			24.6	19.1	22.0	21.8	23.7	25.2	34.7		25.2	22.1	-	Triplicate Site with DT213A, DT213B and DT213C - Annual data provided for DT213C only
DT311A	416302	432187	29.3	32.3			25.2	16.8	22.1	20.1	28.2	39.0	33.7		-	-	-	Triplicate Site with DT311A, DT311B and DT311C - Annual data provided for DT311C only
DT311B	416302	432187	32.9	28.8			26.0	18.3	21.5	18.9	30.9	30.2	34.7		-	-	-	Triplicate Site with DT311A, DT311B and DT311C - Annual data provided for DT311C only
DT311C	416302	432187	33.1	32.9			23.6	17.7	21.8	19.2	25.7	36.8	39.9		27.4	24.1	-	Triplicate Site with DT311A, DT311B and DT311C - Annual data provided for DT311C only
DT211A	415922	431089	42.5	45.1			42.0	41.0	36.3	34.7	44.8	46.9	54.9		-	-	-	Triplicate Site with DT211A, DT211B and DT211C - Annual data provided for DT211C only
DT211B	415922	431089	50.3	46.2			42.8	41.4	36.9	38.9	46.8	40.8	48.4		-	-	-	Triplicate Site with DT211A, DT211B and DT211C -

																	Annual data provided for DT211C only
DT211C	415922	431089	47.4	45.3			44.1	37.5	42.2	37.4	45.9	47.3	55.7		43.8	38.6	34.1	Triplicate Site with DT211A, DT211B and DT211C - Annual data provided for DT211C only
DT123A	414766	437113	35.4	40.1	37.5	32.2	31.6	31.2	31.6	29.7	34.6	37.0	35.7		34.2	30.1	-	
DT123	414660	436974	38.5	39.0	33.8	32.6	29.9	32.7	32.8		30.1		33.8		33.7	29.6	-	
DT124	414620	436924	34.6	34.2	31.2	29.0	30.0	30.2	28.4	30.2	32.6	34.4	35.6		31.8	28.0	-	
DT121	414546	436933	28.3	22.9	19.1	17.5	18.2	18.6	16.3	18.4	16.9	24.8	30.7		21.1	18.5	-	
DT122	414567	436811		31.5	33.1	28.7	28.1	27.9	26.2	27.5	27.3	32.9	34.1		29.7	26.2	-	
DT126	414643	436505		24.3	21.6	17.6	18.5	15.4	16.2	16.0	19.1	21.7	27.0		19.7	17.4	-	
DT125	414674	436471	20.9	24.4	21.4			11.5	14.6	14.5	15.9	23.8	21.7		18.8	16.5	-	
DT127	415044	435558	43.6	40.6	44.3	38.1	38.8	31.5	33.9		41.0	40.8	38.9		39.1	34.4	-	
DT128	415331	435796	17.9	16.4	13.6	10.1	9.6	7.7	9.7	9.3	10.7	16.0	17.5		12.6	11.1	-	
DT130	415839	434674	39.1	36.2	34.4	28.0	33.0			24.4	33.5	34.7	32.7		32.9	29.0	-	
DT132	415717	434265							36.5	29.5	35.5	39.5	44.9		37.2	33.2	-	
DT301	415429	434016	24.0		22.3	14.8	17.5		17.4	16.0	14.9	23.9	27.1		19.8	17.4	-	
DT302	415483	434048	20.0		23.5	16.0	19.3		15.2	14.4	17.2				17.9	18.0	-	
DT303	415337	434016		30.8	19.8	17.5	15.7	13.4	17.9	16.6	19.5	24.3	28.2		20.4	17.9	-	
DT304	415447	434047	22.5	26.2	18.7	17.0		14.1	14.3	15.3	14.9	23.5	24.9		19.1	16.8	-	
DT71A	415580	434461	39.7	38.7	34.8	31.4	33.8	36.0	32.4	30.2	35.0	32.8	39.7		-	-	-	Triplicate Site with DT71A, DT71B and DT71C - Annual data provided for DT71C only
DT71B	415580	434461	37.4	40.3	29.0	28.2	34.0	34.6	31.9	29.5	34.2	36.6	38.5		-	-	-	Triplicate Site with DT71A, DT71B and DT71C - Annual data provided for DT71C only
DT71C	415580	434461	37.3	36.6	33.1	33.4	32.8	33.5	33.3	28.5	32.9	32.2	36.7		34.2	30.1	-	Triplicate Site with DT71A, DT71B and DT71C - Annual data provided for DT71C only
DT278	415570	434477	48.2	44.4		54.8	40.7	42.3	45.7	42.4	41.7	40.5	45.8		44.7	39.3	30.2	
DT172A	415590	434478	36.8	33.6	26.8	28.1	26.5	30.2	30.8	27.9	26.3	33.4	41.5		-	-	-	Triplicate Site with DT172A, DT172B and DT172C - Annual data provided for DT172C only

DT172B	415590	434478	38.7	37.7	29.5	28.7	28.6	30.0	31.3	30.1	28.9	36.0	39.0		-	-	-	Triplicate Site with DT172A, DT172B and DT172C - Annual data provided for DT172C only
DT172C	415590	434478	33.8	32.4	32.6	26.7	29.1	29.3	30.7	29.0	26.8	33.8	37.1		31.6	27.8	-	Triplicate Site with DT172A, DT172B and DT172C - Annual data provided for DT172C only
DT72	415573	434521	51.7	54.2	55.5		52.6		48.6	49.4	57.1				52.7	**47.7**	-	
DT235A	415474	434456	35.7	46.1	47.2	32.5	37.9	30.7	37.2	36.5			37.3		-	-	-	Triplicate Site with DT235A, DT235B and DT235C - Annual data provided for DT235C only
DT235B	415474	434456	41.2	42.9	48.7	39.8	41.6	33.6	38.9	34.4			40.9		-	-	-	Triplicate Site with DT235A, DT235B and DT235C - Annual data provided for DT235C only
DT235C	415474	434456	40.3	41.9		37.6	35.6	32.4	36.3	35.6			38.2		38.9	34.4	-	Triplicate Site with DT235A, DT235B and DT235C - Annual data provided for DT235C only
DT156	414781	434126		41.9	45.7	33.5	39.5	31.8	36.3	31.3	40.1	41.7	40.4		38.2	33.6	-	
DT236	414498	433935	33.3	29.5	29.0	23.8	25.6	21.3	24.7	24.5	25.0	26.9	27.7		26.5	23.3	-	
DT237	414536	433981	29.2		30.8	24.9	29.1	25.3	26.1	26.7	28.3	32.7	31.0		28.4	25.0	-	
DT288	414404	434137	23.9	25.9	22.4	15.0		15.2	16.2	15.2	19.8	26.8	27.6		20.8	18.3	-	
DT289	414404	434106		24.4	29.0	19.9	19.9	17.4	18.7		20.6	27.9	28.8		23.0	20.2	-	
DT290	414385	434168	24.6	23.7	25.0	20.9	20.6	14.6	16.4	13.6	21.9	24.5	32.1		21.6	19.0	-	
DT238A	414290	433759	32.5	36.6	33.3	22.5	27.4	26.7	28.2	27.4	24.2	30.8	35.0		-	-	-	Triplicate Site with DT238A, DT238B and DT238C - Annual data provided for DT238C only
DT238B	414290	433759	35.4	34.0	28.2		27.9	26.2	30.1	28.8	27.4	30.4	21.0		-	-	-	Triplicate Site with DT238A, DT238B and DT238C - Annual data provided for DT238C only
DT238C	414290	433759		37.8	34.6	23.9	27.5	26.5	26.9	26.0	26.7	32.1	19.7		28.9	25.4	-	Triplicate Site with DT238A, DT238B and DT238C - Annual data provided for DT238C only
DT239A	414268	433765	42.9	42.3	37.2	33.7	33.2	37.2	34.8	34.6	27.1	37.7	39.5		-	-	-	Triplicate Site with DT239A, DT239B and DT239C - Annual data provided for DT239C only
DT239B	414268	433765	38.4	44.1	38.4	35.2	32.8	39.3	36.1	35.0	28.7	36.1	37.9		-	-	-	Triplicate Site with DT239A, DT239B and DT239C - Annual data provided for DT239C only
DT239C	414268	433765	38.7	44.9	31.2	32.7	33.3	37.6	36.5	36.3	29.8	34.9	37.1		36.2	31.9	-	Triplicate Site with DT239A, DT239B and DT239C - Annual data provided for DT239C only

DT139A	414396	433648	34.9	35.9	35.0	27.6	29.0	32.0	29.2	31.0	23.8	35.5	39.8		-	-	-	Triplicate Site with DT139A, DT139B and DT139C - Annual data provided for DT139C only
DT139B	414396	433648	37.4	39.3	35.0	29.6	32.2	34.6	28.9	30.1	25.6	38.7	40.5		-	-	-	Triplicate Site with DT139A, DT139B and DT139C - Annual data provided for DT139C only
DT139C	414396	433648	33.5	34.4	31.5	28.9	28.5	31.5	28.2	27.4	26.5	37.3	42.2		32.6	28.7	-	Triplicate Site with DT139A, DT139B and DT139C - Annual data provided for DT139C only
DT240A	414403	433665	45.0					37.5	35.4	31.4	37.1	38.3	36.6		-	-	-	Triplicate Site with DT240A, DT240B and DT240C - Annual data provided for DT240C only
DT240B	414403	433665	39.5						33.5	27.9	34.8	34.3	38.8		-	-	-	Triplicate Site with DT240A, DT240B and DT240C - Annual data provided for DT240C only
DT240C	414403	433665	40.9					33.4	33.1	29.4	34.3	37.1	39.6		35.9	32.4	-	Triplicate Site with DT240A, DT240B and DT240C - Annual data provided for DT240C only
DT152	413835	433663	42.1	42.5	40.4	40.7	41.7	39.8	39.5	36.4	46.2	39.8	43.0		41.1	36.2	32.5	
DT151A	413700	433687	33.4	30.3		33.5	34.4	26.8	30.0	28.3	38.9	33.6	36.5		-	-	-	Triplicate Site with DT151A, DT151B and DT151C - Annual data provided for DT151C only
DT151B	413700	433687	34.0	35.7	35.7	30.9	36.2	26.5	32.4	27.2	36.7	38.5	41.5		-	-	-	Triplicate Site with DT151A, DT151B and DT151C - Annual data provided for DT151C only
DT151C	413700	433687	34.0	35.1	32.9	32.4			30.6	27.8	32.1	35.2	34.3		33.1	29.1	-	Triplicate Site with DT151A, DT151B and DT151C - Annual data provided for DT151C only
DT149A	413750	433573	34.9	41.3	32.6	28.7	32.8		35.4	30.3	32.3	35.1	39.7		-	-	-	Triplicate Site with DT149A, DT149B and DT149C - Annual data provided for DT149C only
DT149B	413750	433573	34.7	38.0	32.0	32.9	35.5		35.3	36.1	33.9	36.3	35.9		-	-	-	Triplicate Site with DT149A, DT149B and DT149C - Annual data provided for DT149C only
DT149C	413750	433573	36.4	40.1	36.3	25.6	30.9		35.2	30.5		27.6	34.5		34.1	30.0	-	Triplicate Site with DT149A, DT149B and DT149C - Annual data provided for DT149C only
DT241A	413840	432676	24.3	33.3	30.0	23.6			23.9	23.4	23.0	28.7	31.2		-	-	-	Triplicate Site with DT241A, DT241B and DT241C - Annual data provided for DT241C only
DT241B	413840	432676	30.1	29.0	28.4	26.5			22.8	23.8	25.5	29.7	31.8		-	-	-	Triplicate Site with DT241A, DT241B and DT241C - Annual data provided for DT241C only
DT241C	413840	432676	25.3		27.4	25.0			23.5	22.4	23.4	28.2	31.5		26.9	22.3	-	Triplicate Site with DT241A, DT241B and DT241C - Annual data provided for DT241C only

DT242A	413721	432067	19.8	28.0	24.4	23.7	20.8	17.8	14.0	14.8	21.4	24.5	25.0		-	-	-	Triplicate Site with DT242A, DT242B and DT242C - Annual data provided for DT242C only
DT242B	413721	432067	27.6	29.3	25.2	22.2	20.5	17.5	18.7	18.1	23.3	24.6	25.0		-	-	-	Triplicate Site with DT242A, DT242B and DT242C - Annual data provided for DT242C only
DT242C	413721	432067	22.8	29.2	26.5	21.4	19.6	17.4	16.4	16.4	19.3	20.6	24.1		21.8	19.2	-	Triplicate Site with DT242A, DT242B and DT242C - Annual data provided for DT242C only
DT243A	413729	432097	26.3	27.9	25.8	16.9	26.1	20.7	24.9	22.3	29.7	26.1	27.1		-	-	-	Triplicate Site with DT243A, DT243B and DT243C - Annual data provided for DT243C only
DT243B	413729	432097	24.4	29.9	30.5	16.0	25.0	22.2	23.4	20.1	32.3	26.6	32.8		-	-	-	Triplicate Site with DT243A, DT243B and DT243C - Annual data provided for DT243C only
DT243C	413729	432097	23.2	30.0	28.9	10.7	24.6	22.1	23.8	21.3	27.2	28.8	26.9		25.0	22.0	-	Triplicate Site with DT243A, DT243B and DT243C - Annual data provided for DT243C only
DT244	413225	431373	21.3	26.7	22.0		19.8	12.7	14.2			24.0	19.0		20.0	16.1	-	
DT245	413243	431386	18.5	26.8	24.4	20.1		12.1	14.5	15.6	19.6	19.4	24.5		19.6	17.2	-	
DT246A	414722	432432	30.1					28.6	29.0				34.2		-	-	-	Triplicate Site with DT246A, DT246B and DT246C - Annual data provided for DT246C only
DT246B	414722	432432	33.6	36.7			27.7	30.3	30.6				33.8		-	-	-	Triplicate Site with DT246A, DT246B and DT246C - Annual data provided for DT246C only
DT246C	414722	432432	29.8	35.6			27.6	29.5	30.2				34.2		31.4	26.2	-	Triplicate Site with DT246A, DT246B and DT246C - Annual data provided for DT246C only
DT247A	414731	432443	29.9	29.0			28.1		22.6	17.3	30.6	31.7	23.7		-	-	-	Triplicate Site with DT247A, DT247B and DT247C - Annual data provided for DT247C only
DT247B	414731	432443	31.6	31.5			29.0	20.2	21.4	20.7	32.3	32.3	34.3		-	-	-	Triplicate Site with DT247A, DT247B and DT247C - Annual data provided for DT247C only
DT247C	414731	432443	32.9	26.3			28.6	19.6	22.4		27.1	29.0	31.3		26.7	23.5	-	Triplicate Site with DT247A, DT247B and DT247C - Annual data provided for DT247C only
DT144A	414908	432312	31.6						22.2	23.0	24.9	32.8	32.9		-	-	-	Triplicate Site with DT144A, DT144B and DT144C - Annual data provided for DT144C only
DT144B	414908	432312	37.2						23.2	22.1	25.5	36.0	30.3		-	-	-	Triplicate Site with DT144A, DT144B and DT144C - Annual data provided for DT144C only

DT144C	414908	432312	31.5						23.7		25.0	24.4	29.5		27.7	23.9	-	Triplicate Site with DT144A, DT144B and DT144C - Annual data provided for DT144C only
DT146	415005	432231	28.3	31.0			20.3	16.8	17.6	16.8	20.8	25.6	26.6		22.6	19.9	-	
DT143A	414902	432251	40.1	41.3			40.1	39.9	39.5	34.4	44.7	43.2	45.8		-	-	-	Triplicate Site with DT143A, DT143B and DT143C - Annual data provided for DT143C only
DT143B	414902	432251	49.5	45.4			41.1	36.8	37.3	34.2	39.6	44.4	42.1		-	-	-	Triplicate Site with DT143A, DT143B and DT143C - Annual data provided for DT143C only
DT143C	414902	432251	40.1	43.2			41.3	39.6	38.3	33.2	39.6		42.3		40.8	35.9	-	Triplicate Site with DT143A, DT143B and DT143C - Annual data provided for DT143C only
DT142	414724	432095	34.6	36.6	35.7	31.2	38.9	31.0	30.9	28.0	40.8	34.6	35.8		34.4	30.2	-	
DT248	414499	431676	34.3	34.8	33.0	29.1	29.7	31.3	29.7	24.1	28.1	30.4	26.1		30.1	26.4	-	
DT249A	414862	431173	28.6	35.9			33.7	28.6							-	-	-	Triplicate Site with DT249A, DT249B and DT249C - Annual data provided for DT249C only
DT249B	414862	431173	22.8	34.8			35.4	30.7							-	-	-	Triplicate Site with DT249A, DT249B and DT249C - Annual data provided for DT249C only
DT249C	414862	431173	27.5	31.8			33.1								31.0	26.4	-	Triplicate Site with DT249A, DT249B and DT249C - Annual data provided for DT249C only
DT250A	414788	431184	23.0						21.9	18.0	29.6				-	-	-	Triplicate Site with DT250A, DT250B and DT250C - Annual data provided for DT250C only
DT250B	414788	431184	27.4						19.7		31.5				-	-	-	Triplicate Site with DT250A, DT250B and DT250C - Annual data provided for DT250C only
DT250C	414788	431184	28.0						22.0	18.7	30.5	30.0			25.2	23.7	-	Triplicate Site with DT250A, DT250B and DT250C - Annual data provided for DT250C only
DT320	415016	431575	18.1	17.9			11.8	9.0	10.5	9.6	15.2	19.5	23.5		15.0	13.2	-	
DT321	415039	431646	18.4	20.4			14.4	10.0	12.8	11.2	15.7	20.4	19.2		15.8	13.9	-	
DT252A	415228	431031	28.8	37.7				35.2	33.0	33.9	33.9	34.5	36.9		-	-	-	Triplicate Site with DT252A, DT252B and DT252C - Annual data provided for DT252C only
DT252B	415228	431031	38.8	40.8			34.2	36.9	32.6	23.1	32.7	37.1	41.8		-	-	-	Triplicate Site with DT252A, DT252B and DT252C - Annual data provided for DT252C only

DT252C	415228	431031	35.9	37.9			32.6	32.2	31.7	27.8	27.8	33.6	35.1		34.1	30.0	-	Triplicate Site with DT252A, DT252B and DT252C - Annual data provided for DT252C only
DT251A	415222	431010	28.1	26.7			29.2	21.9		23.1	31.3	31.2	32.7		-	-	-	Triplicate Site with DT251A, DT251B and DT251C - Annual data provided for DT251C only
DT251B	415222	431010	28.8	30.1			31.8	23.2		21.4	28.8	27.7	13.8		-	-	-	Triplicate Site with DT251A, DT251B and DT251C - Annual data provided for DT251C only
DT251C	415222	431010	24.1	30.9			27.5	22.3		19.9	25.1	29.8	28.0		26.6	22.5	-	Triplicate Site with DT251A, DT251B and DT251C - Annual data provided for DT251C only
DT253A	415320	430090	34.5	24.9			30.3	23.4	25.1	21.3	32.4	25.1	30.7		-	-	-	Triplicate Site with DT253A, DT253B and DT253C - Annual data provided for DT253C only
DT253B	415320	430090	34.2	28.2				21.0	25.1	21.1	31.9	28.8	24.6		-	-	-	Triplicate Site with DT253A, DT253B and DT253C - Annual data provided for DT253C only
DT253C	415320	430090	33.7	24.4					24.2	20.1	30.8	27.4	26.5		27.1	23.9	-	Triplicate Site with DT253A, DT253B and DT253C - Annual data provided for DT253C only
DT254A	414637	430131	24.0	21.7			19.9	14.9	15.0	17.2	19.8	23.2	26.5		-	-	-	Triplicate Site with DT254A, DT254B and DT254C - Annual data provided for DT254C only
DT254B	414637	430131	26.6	23.2			20.2	14.6			20.6	24.3	24.7		-	-	-	Triplicate Site with DT254A, DT254B and DT254C - Annual data provided for DT254C only
DT254C	414637	430131	25.6	23.9			19.7	16.2	13.3	15.9	20.4	25.0	23.9		20.4	18.0	-	Triplicate Site with DT254A, DT254B and DT254C - Annual data provided for DT254C only
DT255A	414629	430122	25.6	22.8			22.5	14.8	16.0	15.5	19.6	22.9	23.2		-	-	-	Triplicate Site with DT255A, DT255B and DT255C - Annual data provided for DT255C only
DT255B	414629	430122	26.5	22.2			24.2	15.6	17.1	16.0		22.4			-	-	-	Triplicate Site with DT255A, DT255B and DT255C - Annual data provided for DT255C only
DT255C	414629	430122	26.1	24.0			22.9	14.4	15.5	14.8		24.4	25.0		20.6	18.2	-	Triplicate Site with DT255A, DT255B and DT255C - Annual data provided for DT255C only
DT257A	414260	430531	21.6	18.5			14.0	13.3	13.1	13.5	15.4	20.4	20.9		-	-	-	Triplicate Site with DT257A, DT257B and DT257C - Annual data provided for DT257C only
DT257B	414260	430531	19.0	18.6				13.2	12.8		15.7	20.4	20.9		-	-	-	Triplicate Site with DT257A, DT257B and DT257C - Annual data provided for DT257C only
DT257C	414260	430531	19.9	19.0			16.6		13.6	13.5	15.7	20.2	21.6		16.8	14.8	-	Triplicate Site with DT257A, DT257B and DT257C -

																	Annual data provided for DT257C only
DT256A	414239	430526	19.7	17.4			14.8	10.2	11.9	9.7	14.5	18.1	19.2		-	-	-	Triplicate Site with DT256A, DT256B and DT256C - Annual data provided for DT256C only
DT256B	414239	430526	20.4	18.1			14.8	10.0	11.6	10.9	14.5	16.7	19.3		-	-	-	Triplicate Site with DT256A, DT256B and DT256C - Annual data provided for DT256C only
DT256C	414239	430526	16.7	18.6			14.3	9.2	11.4	10.4	15.4	19.9	22.0		15.2	13.4	-	Triplicate Site with DT256A, DT256B and DT256C - Annual data provided for DT256C only
DT283	410565	430351	22.0	23.3	23.5	16.8	16.6	15.3	14.7	16.0	15.0	22.0	21.2		18.8	16.5	-	
DT284	410585	430112	24.5	23.0	20.0	16.6		15.0	16.6	11.9	18.0	22.4	18.8		18.7	16.4	-	
DT285	410584	430114	16.7	16.0	18.8		17.4	10.1	9.7	9.4	16.7	14.7	17.7		14.7	13.0	-	
DT259A	413785	430386					18.8	17.4	17.1	17.1	15.5	22.9	21.8		-	-	-	Triplicate Site with DT259A, DT259B and DT259C - Annual data provided for DT259C only
DT259B	413785	430386		20.3			18.6	17.0	17.6	16.6	17.6	24.3	20.9		-	-	-	Triplicate Site with DT259A, DT259B and DT259C - Annual data provided for DT259C only
DT259C	413785	430386		21.8			20.1	17.4	16.1	16.1	18.5	21.6	19.2		19.0	16.9	-	Triplicate Site with DT259A, DT259B and DT259C - Annual data provided for DT259C only
DT258A	413749	430389		24.0			19.4	17.1	16.5	16.7	19.5	25.4			-	-	-	Triplicate Site with DT258A, DT258B and DT258C - Annual data provided for DT258C only
DT258B	413749	430389		20.4			21.7	16.4	15.5	17.0	19.2	23.8	19.1		-	-	-	Triplicate Site with DT258A, DT258B and DT258C - Annual data provided for DT258C only
DT258C	413749	430389		22.8			21.3	15.9	17.7	16.0	19.7	22.7	22.1		19.6	17.5	-	Triplicate Site with DT258A, DT258B and DT258C - Annual data provided for DT258C only
DT298	413814	429468	15.9	16.6			11.6	7.8	8.5	9.4	11.6	17.6	16.1		12.8	11.2	-	
DT299	413832	429561	12.4	16.7			10.5	6.5	8.2	9.2	10.5	17.5	15.0		11.8	10.4	-	
DT300	413612	429565	17.6					8.4		10.3		17.3			13.4	12.3	-	
DT261A	415339	429334	19.0	17.0			13.1	9.9	11.5	10.7	13.4	18.6	21.6		-	-	-	Triplicate Site with DT261A, DT261B and DT261C - Annual data provided for DT261C only
DT261B	415339	429334	18.9	18.2			14.0	9.6	11.7	11.2	15.5	21.0			-	-	-	Triplicate Site with DT261A, DT261B and DT261C - Annual data provided for DT261C only

DT261C	415339	429334	16.2	19.7			13.2	9.7	12.5	11.1	13.4	18.0	19.3		15.1	13.3	-	Triplicate Site with DT261A, DT261B and DT261C - Annual data provided for DT261C only
DT260A	415368	429297	19.9	17.9			13.5	7.9	10.3		19.6	14.1	17.7		-	-	-	Triplicate Site with DT260A, DT260B and DT260C - Annual data provided for DT260C only
DT260B	415368	429297	16.1	19.2				7.7	9.5		13.8	18.0	15.3		-	-	-	Triplicate Site with DT260A, DT260B and DT260C - Annual data provided for DT260C only
DT260C	415368	429297	19.3	16.6			13.0	7.8	10.3		13.4	15.1	21.3		14.6	12.2	-	Triplicate Site with DT260A, DT260B and DT260C - Annual data provided for DT260C only
DT262A	415894	429519	29.5	31.4			27.8	27.1		27.4	26.1	31.1			-	-	-	Triplicate Site with DT262A, DT262B and DT262C - Annual data provided for DT262C only
DT262B	415894	429519	34.8	34.0			27.3	25.7		26.3	28.9	35.2	32.9		-	-	-	Triplicate Site with DT262A, DT262B and DT262C - Annual data provided for DT262C only
DT262C	415894	429519	34.9	32.7			26.9	26.4		26.7	28.0	35.5	36.0		30.3	25.6	-	Triplicate Site with DT262A, DT262B and DT262C - Annual data provided for DT262C only
DT318	411552	433368	12.5	16.0	13.1	8.3	8.0	6.1	7.1	7.7	10.1	14.2	11.5		10.4	9.2	-	
DT319	411460	433447	9.8	17.7							10.0	15.3			13.2	9.7	-	
DT295	415691	432039	22.0	25.1			17.0	12.3	14.4	13.0	18.5	23.3	26.4		19.1	16.8	-	
DT296	415710	432070	22.8	24.9			17.2	11.9	16.2	14.0	18.9	25.5	27.2		19.8	17.5	-	
DT297	415618	432070	22.6	22.0			14.2	12.5	14.9	12.3	14.8	22.4	22.7		17.6	15.5	-	
DT84	416054	432675	32.9	33.0			23.5	20.3	22.6	20.3	27.8	31.4	32.4		27.1	23.9	-	
DT79	416282	432966	24.9	32.2			20.1	16.0	18.3	19.9	20.4		33.3		23.1	20.8	-	
DT161A	416148	433102	37.5	38.6	41.8	36.9	34.5	31.2	40.9	38.3	41.2	45.7	49.4		-	-	-	Triplicate Site with DT161A, DT161B and DT161C - Annual data provided for DT161C only
DT161B	416148	433102	47.8	44.1	43.3	36.5	35.9	31.3	39.3	38.1	40.1		44.0		-	-	-	Triplicate Site with DT161A, DT161B and DT161C - Annual data provided for DT161C only
DT161C	416148	433102	40.9	43.2	37.3	31.7	32.3	32.4	35.8	36.9	36.4	49.0	32.8		39.2	34.5	-	Triplicate Site with DT161A, DT161B and DT161C - Annual data provided for DT161C only
DT162A	416148	433134	35.2	45.2	32.9	31.4	32.1	29.1	34.1	29.2	37.9	42.5	46.3		-	-	-	Triplicate Site with DT162A, DT162B and DT162C - Annual data provided for DT162C only

DT162B	416148	433134	29.9	35.6	31.9	30.6	32.0	24.1	30.8	28.9	35.0	44.5	40.6		-	-	-	Triplicate Site with DT162A, DT162B and DT162C - Annual data provided for DT162C only
DT162C	416148	433134	36.5	39.4	37.7	35.7	33.5	26.6	33.7	33.1	35.2	39.3	35.4		34.7	30.6	-	Triplicate Site with DT162A, DT162B and DT162C - Annual data provided for DT162C only
DT163A	416147	433158	35.9	39.5	40.8	34.9	31.3	27.5	32.4	33.2	32.1	43.5	43.2		-	-	-	Triplicate Site with DT163A, DT163B and DT163C - Annual data provided for DT163C only
DT163B	416147	433158	38.7	37.1	38.9	36.0	29.6	27.1	28.9	33.3	34.1	44.7	40.7		-	-	-	Triplicate Site with DT163A, DT163B and DT163C - Annual data provided for DT163C only
DT163C	416147	433158	33.0	37.5	35.0	30.1	30.5	25.3	33.4	31.1	31.5	38.2	26.6		34.4	30.3	-	Triplicate Site with DT163A, DT163B and DT163C - Annual data provided for DT163C only
DT164A	416139	433134	41.9	41.7	38.8	31.1	34.5	34.7	30.7	33.7	29.2	38.3	36.6		-	-	-	Triplicate Site with DT164A, DT164B and DT164C - Annual data provided for DT164C only
DT164B	416139	433134	43.3	43.9	39.2	33.8	35.9	35.1	33.9	28.6	29.9	40.5	37.6		-	-	-	Triplicate Site with DT164A, DT164B and DT164C - Annual data provided for DT164C only
DT164C	416139	433134	43.7	47.9	39.8	33.7	35.3	34.5	34.3	30.3	29.6	39.4	41.1		36.4	32.1	-	Triplicate Site with DT164A, DT164B and DT164C - Annual data provided for DT164C only
DT109A	415858	433061	28.3	31.6	33.5	38.8	35.3	27.1	33.6		34.0	31.5	31.4		-	-	-	Triplicate Site with DT109A, DT109B and DT109C - Annual data provided for DT109C only
DT109B	415858	433061	33.7		29.5	36.5	36.4	28.8	31.2	27.4	33.3	36.2	34.1		-	-	-	Triplicate Site with DT109A, DT109B and DT109C - Annual data provided for DT109C only
DT109C	415858	433061	31.2	34.2	28.0	34.2	31.2	28.3	31.5	25.9	28.6	34.6	35.7		32.0	28.1	-	Triplicate Site with DT109A, DT109B and DT109C - Annual data provided for DT109C only
DT108A	415891	433045	30.5	34.0	34.5	39.0	35.5	30.7	32.6	31.1	31.2	36.8	39.7		-	-	-	Triplicate Site with DT108A, DT108B and DT108C - Annual data provided for DT108C only
DT108B	415891	433045	37.8	39.1	31.4	39.1	39.3	32.2	30.9	27.1	34.4	36.2	39.5		-	-	-	Triplicate Site with DT108A, DT108B and DT108C - Annual data provided for DT108C only
DT108C	415891	433045	35.1	34.3	27.0	34.5	35.6	28.3	31.2	29.2	33.6	37.9	32.7		34.0	29.9	-	Triplicate Site with DT108A, DT108B and DT108C - Annual data provided for DT108C only
DT279	415591	433141	31.0		37.0	31.1	30.8	26.3	26.9	28.4	34.2	36.8	35.1		31.8	27.9	-	
DT280	415665	433175	33.4	31.2	30.9	15.0	29.1	23.1	26.3	24.5	34.0	41.6			28.9	25.4	-	

DT314	415677	433309		31.4			19.8		18.0	18.6	23.9				22.3	21.6	-	
DT315	415570	433268	31.5	32.5	24.4	24.1	24.3	20.9	23.5	23.8	29.9	32.9	33.1		27.3	24.1	-	
DT183	416215	433059		53.9	50.4	27.2	25.2	25.2	27.1	24.5	27.2		37.8		33.2	30.4	-	
DT184	416217	433071	52.1	48.3	42.5	27.4	27.5	24.1	26.9		29.8	33.9	33.2		34.6	30.4	-	
DT167A	416392	433046	61.2	65.1			19.1	18.0	26.2	15.1	21.0	27.3	24.3		-	-	-	Triplicate Site with DT167A, DT167B and DT167C - Annual data provided for DT167C only
DT167B	416392	433046	62.4	57.3				19.2	27.1			30.4	31.4		-	-	-	Triplicate Site with DT167A, DT167B and DT167C - Annual data provided for DT167C only
DT167C	416392	433046	57.6	59.5			21.2	17.9	26.7	18.8	22.0	28.2	31.1		31.4	27.6	-	Triplicate Site with DT167A, DT167B and DT167C - Annual data provided for DT167C only
DT185A	416381	433054	49.2	49.9			23.2	18.9	22.5	19.2	23.5		31.4		-	-	-	Triplicate Site with DT185A, DT185B and DT185C - Annual data provided for DT185C only
DT185B	416381	433054	46.6	52.8			22.6	18.0	21.1	20.7	22.2	30.1	32.4		-	-	-	Triplicate Site with DT185A, DT185B and DT185C - Annual data provided for DT185C only
DT185C	416381	433054	48.8	39.9			23.4	17.6	20.2	19.1	22.7	28.6			29.1	25.6	-	Triplicate Site with DT185A, DT185B and DT185C - Annual data provided for DT185C only
DT277	416398	433050	49.8	51.2	52.6		18.6	17.7	20.3	17.4	17.5	25.6	30.0		30.1	26.5	-	
DT316	416709	433099	29.0	36.1	29.2	41.6	47.2	36.5	33.9	32.5	47.3	45.6	39.5		38.0	33.5	-	
DT12A	416970	433259	63.2	52.0		56.3	53.2	51.7	50.0	51.9	48.2	45.1	54.4		-	-	-	Triplicate Site with DT12A, DT12B and DT12C - Annual data provided for DT12C only
DT12B	416970	433259	56.1	62.9	51.1	56.8	56.7	58.1	53.3	55.8	48.3	54.5	61.2		-	-	-	Triplicate Site with DT12A, DT12B and DT12C - Annual data provided for DT12C only
DT12C	416970	433259	61.1	59.1		57.9	53.8	57.2	56.0	52.8	51.2	52.8	55.2		54.5	**48.0**	**46.8**	Triplicate Site with DT12A, DT12B and DT12C - Annual data provided for DT12C only
DT133	416260	434581	38.9	41.8	37.4	27.5	32.1	28.0	29.3	28.2	32.5	37.3	38.0		33.7	29.7	-	
DT111A	416015	435028	40.1	37.9	33.4	33.5	36.5	26.9	30.3	28.4	32.7	33.4	33.6		-	-	-	Triplicate Site with DT111A, DT111B and DT111C - Annual data provided for DT111C only
DT111B	416015	435028	37.7	42.0	31.2	35.6	35.2	28.3	27.9	29.0	31.0	37.4	37.9		-	-	-	Triplicate Site with DT111A, DT111B and DT111C - Annual data provided for DT111C only
DT111C	416015	435028	40.4	40.5	34.3	27.7	35.1	25.2	30.7	29.3	29.5	36.5	41.0		33.6	29.6	-	Triplicate Site with DT111A, DT111B and DT111C -

																	Annual data provided for DT111C only
DT234A	416019	434990	27.2	38.1	37.2	31.0	29.4	29.4		29.1	28.1	36.6	36.1		-	-	-	Triplicate Site with DT234A, DT234B and DT234C - Annual data provided for DT234C only
DT234B	416019	434990	36.4	40.9	33.8	32.5	29.3	30.1		29.6	30.4	39.5	36.3		-	-	-	Triplicate Site with DT234A, DT234B and DT234C - Annual data provided for DT234C only
DT234C	416019	434990	30.9	32.9	31.1	27.9	27.5	27.0		20.2	26.9	32.6	32.8		31.7	27.9	-	Triplicate Site with DT234A, DT234B and DT234C - Annual data provided for DT234C only
DT73A	415438	435834	41.8	43.5	40.4	38.8	39.7	34.7	36.9	33.0		37.6	40.7		-	-	-	Triplicate Site with DT73A, DT73B and DT73C - Annual data provided for DT73C only
DT73B	415438	435834	42.9	40.3	42.8	37.3	36.9	35.5	27.0	31.5		41.9	40.0		-	-	-	Triplicate Site with DT73A, DT73B and DT73C - Annual data provided for DT73C only
DT73C	415438	435834	42.4	42.8	35.2	37.6	37.8	33.6	32.7	32.7		38.1	37.0		37.8	33.2	-	Triplicate Site with DT73A, DT73B and DT73C - Annual data provided for DT73C only
DT173A	415442	435799	35.1	34.9	36.3	30.7	31.8	28.4		31.2	28.6	35.4	32.9		-	-	-	Triplicate Site with DT173A, DT173B and DT173C - Annual data provided for DT173C only
DT173B	415442	435799	37.1	32.3	37.3	29.6	28.9	27.5		30.8	28.4	35.8	38.6		-	-	-	Triplicate Site with DT173A, DT173B and DT173C - Annual data provided for DT173C only
DT173C	415442	435799	34.2	36.2	29.2	29.2	31.9	30.1		32.1	28.4	35.1	32.7		32.3	28.5	-	Triplicate Site with DT173A, DT173B and DT173C - Annual data provided for DT173C only
DT74	415549	435918	17.3	27.5	19.0	12.8	13.5	30.4	12.2	14.8	13.5	20.9	22.1		18.5	16.3	-	
DT129	415089	436637	32.1	19.6	29.6	25.9	31.6	13.0	30.5	29.6	30.4	35.5	32.1		28.2	24.8	-	
DT112A	415024	436743	29.5	32.0	27.8	23.2	22.5	22.2	19.8	22.9	22.2	28.4	30.3		-	-	-	Triplicate Site with DT112A, DT112B and DT112C - Annual data provided for DT112C only
DT112B	415024	436743	27.5	32.6	29.7	19.3	24.1	21.6	23.1	23.7	22.1	32.1	27.7		-	-	-	Triplicate Site with DT112A, DT112B and DT112C - Annual data provided for DT112C only
DT112C	415024	436743	26.6	34.3	28.0	20.7	24.3	23.2	23.5	24.1	22.2	29.8	30.1		25.8	22.7	-	Triplicate Site with DT112A, DT112B and DT112C - Annual data provided for DT112C only
DT174A	415029	436771	24.2	27.9	25.7	19.9	19.8	15.6	15.2	15.9	20.6	26.4	31.0		-	-	-	Triplicate Site with DT174A, DT174B and DT174C - Annual data provided for DT174C only
DT174B	415029	436771	31.5	25.6	28.2	24.7	21.7	15.1	17.1	19.3	23.7	27.1	28.0		-	-	-	Triplicate Site with DT174A, DT174B and DT174C - Annual data provided for DT174C only

DT174C	415029	436771	23.7	28.9	28.2	22.7	20.8	14.4	16.2	18.7	21.2	24.3	26.4		22.7	20.0	-	Triplicate Site with DT174A, DT174B and DT174C - Annual data provided for DT174C only
DT131	414856	437605	40.9	39.9	38.2	28.1	32.8	35.5	30.6	32.3	32.5	36.6	42.4		35.4	31.2	-	
DT269	413900	437738	21.6	22.1	16.9	16.5	18.1	12.9	13.7	13.7	20.1	20.0			17.6	15.5	-	
DT91A	413697	437723	30.2	32.0	31.9	24.4	26.2	24.4	27.1	26.8	25.2	33.8	18.7		-	-	-	Triplicate Site with DT91A, DT91B and DT91C - Annual data provided for DT91C only
DT91B	413697	437723	32.5	38.6	35.3	26.4	29.2	26.2	28.0	26.1	27.9	34.2	35.7		-	-	-	Triplicate Site with DT91A, DT91B and DT91C - Annual data provided for DT91C only
DT91C	413697	437723	34.7	36.7	28.4	26.6	27.1	26.7	26.6	25.9	23.4	34.3	32.0		29.2	25.7	-	Triplicate Site with DT91A, DT91B and DT91C - Annual data provided for DT91C only
DT175A	413709	437745	30.1	31.0	29.7	22.7	24.9	26.4	27.2	26.3		29.7	31.9		-	-	-	Triplicate Site with DT175A, DT175B and DT175C - Annual data provided for DT175C only
DT175B	413709	437745	35.6	35.7	32.0	29.0	26.9	27.6	24.5	25.3	24.9	27.1	31.3		-	-	-	Triplicate Site with DT175A, DT175B and DT175C - Annual data provided for DT175C only
DT175C	413709	437745	35.2	33.5	31.0	27.9	26.6	27.0	25.9	27.0	27.1	28.3	35.4		28.8	25.4	-	Triplicate Site with DT175A, DT175B and DT175C - Annual data provided for DT175C only
DT30A	413861	437772	32.5		35.0	25.8	28.3	24.8	26.8	26.9	29.5	36.5			-	-	-	Triplicate Site with DT30A, DT30B and DT30C - Annual data provided for DT30C only
DT30B	413861	437772				23.3	30.5	23.9	26.7	23.8	28.5	33.4			-	-	-	Triplicate Site with DT30A, DT30B and DT30C - Annual data provided for DT30C only
DT30C	413861	437772	28.4		33.3	26.3	30.7	25.6	26.8	25.9	29.4	32.6	32.1		29.2	25.7	-	Triplicate Site with DT30A, DT30B and DT30C - Annual data provided for DT30C only
DT180A	413856	437784	27.6	29.3	20.8	19.2	17.2	9.7	17.9	17.9		24.8			-	-	-	Triplicate Site with DT180A, DT180B and DT180C - Annual data provided for DT180C only
DT180B	413856	437784	28.3	27.4	27.9	20.3	17.0	14.4	18.0	16.3	15.5	28.6	28.1		-	-	-	Triplicate Site with DT180A, DT180B and DT180C - Annual data provided for DT180C only
DT180C	413856	437784	27.2	31.3	26.3	17.6	18.0	14.9	15.1	15.7	17.2	27.2	9.1		20.6	18.1	-	Triplicate Site with DT180A, DT180B and DT180C - Annual data provided for DT180C only
DT49A	413600	437653	25.7	28.4	25.6	22.2	22.3	23.0	22.1	17.7	24.1	25.6	27.3		-	-	-	Triplicate Site with DT49A, DT49B and DT49C - Annual data provided for DT49C only
DT49B	413600	437653	29.4	26.2	25.3	21.5	26.1	22.5	19.9	19.5	25.6	27.4	30.1		-	-	-	Triplicate Site with DT49A, DT49B and DT49C - Annual data provided for DT49C only
DT49C	413600	437653	27.9	26.9			25.3	21.6	22.0	19.6	22.7	27.6	24.1		24.3	21.4	-	Triplicate Site with DT49A, DT49B and DT49C - Annual data provided for DT49C only

DT176A	413597	437628	19.8	26.1	22.6	17.8	21.4	15.8	16.0	18.5	21.3	23.6	23.6		-	-	-	Triplicate Site with DT176A, DT176B and DT176C - Annual data provided for DT176C only
DT176B	413597	437628	20.4	22.5	23.5	20.3	21.7	15.8	18.5		21.9	22.6	24.7		-	-	-	Triplicate Site with DT176A, DT176B and DT176C - Annual data provided for DT176C only
DT176C	413597	437628	21.4	25.7	20.2	19.5	19.5	15.6	17.6	16.6	20.5	23.1	27.2		20.7	18.2	-	Triplicate Site with DT176A, DT176B and DT176C - Annual data provided for DT176C only
DT50	413510	437732	42.5		32.5	28.8	38.3	40.9		33.0	42.7		44.9		37.9	35.1	-	
DT177A	413501	437732	37.0	34.3	32.2	25.5	33.7	29.3	30.2	26.4	37.7	37.0	39.9		-	-	-	Triplicate Site with DT177A, DT177B and DT177C - Annual data provided for DT177C only
DT177B	413501	437732	38.2	36.8	33.7	29.1	36.1	31.2	31.5	26.8	38.9	36.2	35.0		-	-	-	Triplicate Site with DT177A, DT177B and DT177C - Annual data provided for DT177C only
DT177C	413501	437732	33.5	36.8	30.1	24.2	33.3	28.7	33.4	25.5	38.1	33.5	38.9		33.1	29.1	-	Triplicate Site with DT177A, DT177B and DT177C - Annual data provided for DT177C only
DT31	413527	437713		49.8	42.1	35.6	46.1	45.1	40.5	44.5	40.0	40.4	45.8		43.0	37.8	25.8	
DT101A	413418	437725	44.1	42.9	35.6		36.9	28.8	33.7	32.2	37.6	37.9	43.0		-	-	-	Triplicate Site with DT101A, DT101B and DT101C - Annual data provided for DT101C only
DT101B	413418	437725	42.3	35.2	39.0	34.5	36.4	29.9	31.1	32.5	37.8	37.8	44.7		-	-	-	Triplicate Site with DT101A, DT101B and DT101C - Annual data provided for DT101C only
DT101C	413418	437725	38.2	34.4	34.5	32.6	37.0	29.3	32.7	33.4	40.0	38.0	40.0		36.3	31.9	-	Triplicate Site with DT101A, DT101B and DT101C - Annual data provided for DT101C only
DT179A	413417	437708		36.1	32.6	29.4	31.6	28.9		29.2	28.1	31.4	38.0		-	-	-	Triplicate Site with DT179A, DT179B and DT179C - Annual data provided for DT179C only
DT179B	413417	437708	32.9	39.5	33.8		31.6	29.3		26.3	28.4	38.8	35.9		-	-	-	Triplicate Site with DT179A, DT179B and DT179C - Annual data provided for DT179C only
DT179C	413417	437708		38.8	38.4	30.8	32.6	28.1	30.3	26.1	29.2	37.7	34.5		32.3	28.4	-	Triplicate Site with DT179A, DT179B and DT179C - Annual data provided for DT179C only
DT102A	413338	437720	33.7	33.1	13.1	27.2	29.1	25.1		23.6	32.0		33.9		-	-	-	Triplicate Site with DT102A, DT102B and DT102C - Annual data provided for DT102C only
DT102B	413338	437720	34.5	33.8	24.8	32.4	27.0	22.4	26.1	24.8	30.7	32.7			-	-	-	Triplicate Site with DT102A, DT102B and DT102C - Annual data provided for DT102C only

DT102C	413338	437720	31.3	32.7	30.0	32.7	28.6	24.0		21.9	32.5	33.7	32.2		29.0	25.5	-	Triplicate Site with DT102A, DT102B and DT102C - Annual data provided for DT102C only
DT178A	413334	437703	31.8	36.6	37.5	21.0	29.4	21.5	26.0	22.2	33.9	34.7	36.1		-	-	-	Triplicate Site with DT178A, DT178B and DT178C - Annual data provided for DT178C only
DT178B	413334	437703	35.1	37.3	32.6		32.0	21.4	25.3	23.5	33.7	33.1	32.4		-	-	-	Triplicate Site with DT178A, DT178B and DT178C - Annual data provided for DT178C only
DT178C	413334	437703	33.0	37.4	34.0	26.8	29.7	22.1	22.9	23.3	34.3	37.2	26.7		30.0	26.4	-	Triplicate Site with DT178A, DT178B and DT178C - Annual data provided for DT178C only
DT270	413719	437665		35.6	33.8	26.4	33.6	34.0	33.1	33.5	29.5	38.5	38.2		33.6	29.6	-	
DT271	413723	437678	43.6	40.2	38.8	35.8	41.9	30.3	34.1	24.8	41.5	37.9	41.7		37.3	32.9	-	
DT317	410903	438892	23.9	21.3	18.1	16.3	15.8	14.9	15.9	14.6	17.5	23.2	24.2		18.7	16.5	-	
DT312	410492	439334	20.6		18.1	13.4	18.0	15.7	15.0	15.9	16.0	21.7	19.5		17.4	15.3	-	
DT287	409851	441883	15.7	15.8	12.9	10.9	11.3			10.5		16.1	15.4		13.6	11.0	-	
DT78	407380	441811	23.3	22.9	19.7	18.5	13.8	14.9	13.7	18.3	16.1	24.3	24.3		19.1	16.8	-	
DT68	406060	441274	28.1	26.7	20.5	17.7	18.9	14.3	16.8	17.1	19.8	23.4	30.5		-	-	-	Triplicate Site with DT68, DT69 and DT70 - Annual data provided for DT70 only
DT69	406060	441274	25.3	24.9	21.5	18.2	19.0	15.4	15.5	17.0	19.7	26.5	25.0		-	-	-	Triplicate Site with DT68, DT69 and DT70 - Annual data provided for DT70 only
DT70	406060	441274	27.9	24.5	24.8	18.3	19.1	13.9	16.9	16.1	20.7	25.9	32.3		21.3	18.7	-	Triplicate Site with DT68, DT69 and DT70 - Annual data provided for DT70 only
DT190	406495	441280	37.8	29.4	23.9	45.7	28.7	26.4	25.8	23.6	26.4	32.3	31.5		30.1	26.5	-	
DT191	406508	441310	60.2	60.4	54.0	28.1	54.4	49.0	46.2	46.5	50.8	51.0	58.1		50.8	**44.7**	-	
DT21	404719	440613	9.3	10.8	10.6	6.8	6.5	4.4	5.5	6.0	8.1	10.7	10.3		8.1	7.1	-	
DT134	406940	441922	43.9	40.0	33.3	33.7	34.0	36.3	35.8		32.3	32.8	35.9		35.8	31.5	-	
DT135	406582	442028	34.7	31.0	26.6	25.0	26.6	27.8	27.1	24.0	28.7	32.9			28.4	25.0	-	
DT136	406540	442038	30.2	34.5	34.5	22.5	31.4	27.9	25.6	26.2	34.8	39.2			30.7	27.0	-	
DT137	406475	442046	37.6	41.7	38.2	30.0	35.9	34.4	33.3	31.8	33.8	43.5			36.0	31.7	-	
DT138	406255	442140	38.3	33.6	27.8	28.0	37.1	38.1	34.4	32.1	35.8	35.3	35.7		34.2	30.1	-	

DT313	404134	446061	26.2	31.6	26.2	23.1	25.9	22.7		22.3	30.9	34.9	32.0		27.6	24.3	-	
DT282	404458	446757	30.6	30.6	22.7	22.4	23.6	25.0	23.6		24.8	25.9	27.9		25.7	22.6	-	
DT263	411245	447863	17.3	18.0	17.7	17.2	18.3	10.5	10.9	10.7	16.7		20.1		15.7	13.8	-	
DT264	411600	447618	16.4	17.0		14.1	14.1	9.9	9.9		15.7	16.2	21.0		14.9	12.7	-	
DT265	411782	447598	25.3	27.8	24.1	19.5	18.6	17.7	19.1	17.3	20.2	27.8			21.7	19.1	-	
DT266	411704	447666	20.8	20.2	23.9	17.0	20.3	16.5	15.5		21.5	21.0			19.6	17.3	-	
DT267	411786	447811	22.3	25.5	23.8	22.5	25.3	21.5	19.9	18.2	19.9		24.5		22.3	19.7	-	
DT268	411873	447807	25.3	26.8	23.0	18.8	24.0	14.6	14.8		24.3	25.0	22.7		22.0	19.3	-	

☒ **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.**

☒ **National bias adjustment factor used.**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒ **City of Bradford MDC confirm that all 2024 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 City of Bradford MDC During 2024

City of Bradford MDC routinely screens planning applications against the West Yorkshire Low Emission Planning Guidance to determine if they are likely to have a minor, medium or major impact on local air quality. Link to West Yorkshire Low Emission Planning Guidance

Until recently all planning applications with new parking spaces were required to provide type 1 mitigation in the form of EV charging points but this requirement has now been updated to reflect the new EV charging Building Regulations (Approved Document S). Under the new requirements all housing applications are required to provide 1 EV charging point per dwelling (unless they can demonstrate a valid exemption under the Building Regulations) and only commercial premises with more than 10 parking spaces need to provide an EV charging strategy.

Applications with the potential to impact on relevant receptor points during the construction and demolition phases are required to provide construction dust risk assessments and management plans.

Major impact developments additionally require a full air quality impact assessment and damage cost calculation. Some major developments are required to provide additional site-specific type 3 emission mitigation strategies.

Where a new development has potential to introduce new relevant receptor points into an area considered at risk of exceeding air quality objectives an exposure assessment is also required.

Table C.1 shows medium and major applications for which mitigation was achieved in 2024. Additional mitigation in the form of EV charging and CEMPs was obtained on many other minor applications not detailed in this table. A total of 45 full planning applications, 101 pre-planning applications and 22 condition discharge consents were considered by the CAP team during 2024.

Table C1: Planning mitigation 2024

Planning reference	Proposal	Current status	Mitigation	Further comments
23/04578/MAF	Construction and operation of a hydrogen production facility and hydrogen refuelling station and associated development.	Granted	CEMP, Travel Plan	Detailed AQ impact assessment reviewed. No issues arising.
23/04608/MAF	Formation of sport centre [Use Class E(d)] and hot food take away [Use Class E(b)] with landscaping and associated parking	Refused	Not required due to refusal	CAP team raised lack of CEMP and EV Charging. CAP team raised AQ and health issues with planned inclusion of biomass CHP plant. Detailed further consideration of onsite energy provision required.
23/04579/MAF	Construction of mixed-use scheme comprising 65 one-bed apartments with two retail units on ground floor in six-storey block and drive-thru coffee shop (Class E)	Granted	EV Charging, CEMP, Anti-idling signage	AQ impact assessment from previous larger scale application with same receptor points reviewed. No issues arising
24/01230/MAF	Construction of 104 bed Apart Hotel building along with associated car	Granted	EV Charging, CEMP, Travel Plan, Anti-idling Signage	AQ screening assessment reviewed. No issues arising.

	parking, amenity space and highways works			
24/03103/MCF	Re-open former quarry to provide a source of building, roofing and paving stone	Pending Consideration	CEMP, Vehicle movements in/out limited to max 20/day	
24/03203/MCF	Demolition of existing industrial building and construction of an anaerobic digestion facility with the installation of nine tanks, one gas holder, one CHP unit including one stack	Granted	Replacement of current on-site fossil fuel energy production	AQ impact assessment presenting worse-case scenario reviewed. No issues arising, subject to current and proposed NOx mitigation and offsetting measures, alongside replacement of current fossil fuel energy production on-site.
24/00218/MAF	Construction of 52 houses; two bedroom and three bedrooms.	Pending Consideration	EV Charging, CEMP, Travel Plan	AQ impact assessment reviewed. No issues arising.
24/01717/MAF	Construction of care home (Use Class C2) together with associated car parking, landscaping and ancillary works	Granted	EV Charging, CEMP, Travel Plan	AQ impact assessment reviewed. No issues arising.
24/02887/MAF	Demolition of 3 No agricultural barns and the	Pending Consideration	EV Charging, CEMP, Travel Plan	AQ impact assessment

	construction of 173 No dwellings, including details of access and associated landscaping			reviewed. No issues arising
24/04257/MAF	Development of 55 No dwellings and new access from Northside Road	Pending Consideration	EV Charging, CEMP, Travel Plan	AQ impact assessment reviewed. No issues arising.

City of Bradford MDC has also considered the air quality impact assessment of the following major improvement schemes.

Table C2: Improvement schemes under air quality consideration

Highways Scheme	Scheme overview	Status	Air quality work undertaken
Hard Ings Road improvement scheme	Increased road capacity to reduce congestion and provision of enhanced cycling and walking provision	Completed	Before scheme monitoring completed Post scheme monitoring now in place for 5 years Air quality impact assessments completed by third party and reviewed by CAP team
West Bradford Junctions Improvement Scheme	Upgrades planned at the junctions of Great Horton Road and Horton Grange Road, Thornton Road and Cemetery Road, and Toller Lane and Whetley Hill to reduce congestion	Great Horton Road and Horton Grange works completed 2023.	Baseline air quality monitoring completed Air quality impact assessments completed by third party and reviewed by CAP team Post scheme monitoring by CAP team agreed
Harrogate Road and New Line Junction Improvement Scheme	Substantial widening of all four arms of Greengates junction and new P-Loop junction to facilitate movements from Harrogate Road. Improved signalling and facilities for walking and cycling.	Completed	Before scheme monitoring completed Post scheme monitoring now in place for 5 years Air quality impact assessments completed by third party and reviewed by CAP team
Bradford Interchange Access scheme	New pedestrian access into Bradford Interchange to improve access to the	Scheme in progress	CAP team advising on exposure reduction issues and provision of EV infrastructure. Some long

(Transforming Cities Fund)	interchange from key development sites in the city centre enhancing the experience and journey times for bus and rail users		term air quality monitoring already ongoing in the area.
South Bradford Park & Ride and Expressway (Transforming Cities Fund)	Provision of a bus based Park and Ride facility in south Bradford adjacent to M606 motorway	Public consultation completed in 2023. Detailed scheme planning in progress	CAP team advising on air quality impact assessment requirements and provision of EV infrastructure / low emission buses. Air quality monitoring already in place along proposed bus route which will pass through Mayo Avenue AQMA.
West Bradford Supercycle highway extension (Transforming Cities Fund)	Access, safety and amenity improvements for cyclists and pedestrians between Bradford city centre and the West of the city, including the education quarter via creation of a 7km of dedicated cycleway along Thornton Road.	Phase 1 under construction	CAP team advising on air quality impact assessment requirements. Some air quality monitoring already in place along the route. Scheme passes through Thornton Road AQMA

Additional Air Quality Works Undertaken by City of Bradford MDC During 2024

During 2024 City of Bradford MDC continued to monitor and evaluate the impact of the CAZ in conjunction with the Joint Air Quality Unit (JAQU).

JAQU completed the first state 1 assessment for the Bradford CAZ in autumn 2023. This identified 5 locations where the air quality standard for nitrogen dioxide wasn't met during the period January to June 2023. During 20204 City of Bradford MDC undertook a detailed source apportionment study for each of these sites to inform the development of any additional measures needed to further improve air quality at these locations.

QA/QC of Diffusion Tube Monitoring

City of Bradford MDC undertakes diffusion tube monitoring across the district. As far as possible this is normally undertaken in line with the diffusion tube monitoring calendar provided by DEFRA with collections taking place within 2 days of the suggested collection date. The calendar is available on the LAQM helpdesk website. Due to the number of

diffusion tubes deployed by City of Bradford MDC tubes are normally collected over four days within the recommended tube collection week.

During January 2025 all diffusion tube collections were made after the 5-week cut off period due to extreme weather conditions and long periods of snow and ice between the 6th January – 10th January 2025. It was recommended by the LAQM Helpdesk that all data for December 2024 was omitted from the data set. On one occasion during October 2024 some tube collections had to run into the Monday of the following week due to staff availability. This occasion is detailed in Table C3 below.

Table C3: Diffusion tube collection dates in Bradford in 2024

Target collection date	Actual collection dates	Maximum deviation from target period
3rd January 2024	2nd January - 5th January 2024	0
31st January 2024	29th January 2024 - 2nd February 2024	0
6th March 2024	5th March - 8th March 2024	0
3rd April 2024	2nd April - 5th April 2024	0
1st May 2024	1st May - 3rd May 2024	0
5th June 2024	5th June - 7th June 2024	0
3rd July 2024	2nd July - 4th July 2024	0
31st July 2024	29th July - 31st July 2024	0
4th September 2024	2nd September - 5th September 2024	0
2nd October 2024	30th September - 7th October 2024	+3days
6th November 2024	5th November - 7th November 2024	0
4th December 2024	2nd December - 5th December 2024	0

During the 2024 period all diffusion tubes deployed by City of Bradford MDC were supplied and analysed by Gradko using the 50% TEA in acetone method.

Gradko participate in the Inter-Laboratory comparison scheme AIR PT. This is an independent analytical proficiency-testing (PT) scheme, operated by LGC Standards and

supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL WASP PT scheme. AIR PT offers a number of test samples designed to test the proficiency of laboratories undertaking analysis of chemical pollutants in ambient indoor, stack and workplace air. One such sample is the AIR NO_2 test sample type that is distributed to participants in a quarterly basis. The results of this scheme are published annually.

The latest available AIR PT NO_2 diffusion tube results for Gradko are shown in Table C.4. Gradko have consistently achieved good precision results over the past 3 years providing a good level of confidence in their results.

Table C.4: Diffusion tube precision testing results for Gradko 2024

	2022 Good	2022 Bad	2023 Good	2023 Bad	2024 Good	2024 Bad
Precision testing results by year (50% TEA in acetone method)	16	0	16	0	11	0

Diffusion Tube Annualisation

Defra has developed a diffusion tube data processing tool to assist local authorities in processing their NO_2 diffusion tube monitoring data. More information about the tool is available here Link to LAQM website.

Annualisation of the City of Bradford MDC data (where necessary) for 2024 has been undertaken using this tool. Annualisation is required for any site with data capture less than 75% but greater than 25%.

Annualisation was undertaken using data from the following national monitoring network sites which meet the criteria for annualisation calculations as set out in Box 7.9 of LAQM.TG(22). All these sites lie within 50 miles of the City of Bradford MDC district.

- Leeds Centre
- Barnsley Gawber
- Bradford Keighley

Details of all the City of Bradford MDC diffusion tubes that required annualisation for the 2024 period (along with the annualisation factors calculated using the diffusion tube data processing tool) are shown in Table C.5.

Table C.5 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Barnsley Gawber	Annualisation Factor Keighley	Annualisation Factor Leeds Centre	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
DT79	1.0209	1.0098	1.0299	1.0202	23.1	23.6
DT314	1.1212	1.0608	1.1111	1.0977	22.3	24.5
DT183	1.0448	1.0213	1.0567	1.0409	33.2	34.5
DT50	1.0536	1.0060	1.0946	1.0514	37.9	39.9
DT287	0.9082	0.9273	0.9206	0.9187	13.6	12.5
DT264	0.9728	0.9654	0.9717	0.9700	14.9	14.5
DT266	1.0214	0.9739	1.0056	1.0003	19.6	19.7
DT196	0.8528	0.8771	0.8586	0.8628	33.4	28.8
DT76	0.9299	0.9290	0.9239	0.9276	28.2	26.1
DT45	1.0067	0.9683	0.9665	0.9805	26.9	26.3
DT218B	0.9343	0.9347	0.9520	0.9403	-	-
DT219B	0.9343	0.9347	0.9520	0.9403	-	-
DT206	1.0245	1.0236	1.0622	1.0368	32.0	33.2
DT230A	0.9343	0.9347	0.9520	0.9403	-	-
DT230B	0.9343	0.9347	0.9520	0.9403	-	-
DT230C	0.9343	0.9347	0.9520	0.9403	23.3	21.9
DT92	0.9500	0.9305	1.0239	0.9681	26.0	25.2
DT273	0.8041	0.8555	0.8532	0.8376	25.7	21.5
DT275	1.0421	1.0092	1.1072	1.0528	30.6	32.2
DT276	1.1034	1.0832	1.1073	1.0980	15.5	17.0
DT305	0.8540	0.9035	0.8574	0.8716	16.3	14.2
DT306	1.0319	1.0385	1.0226	1.0310	12.8	13.2
DT293	1.0438	1.0459	1.0593	1.0496	22.0	23.1

DT308	0.8543	0.8907	0.8557	0.8669	23.5	20.4
DT189A	0.9707	0.9952	0.9503	0.9721	-	-
DT189B	0.9707	0.9952	0.9503	0.9721	-	-
DT189C	0.9707	0.9952	0.9503	0.9721	29.9	29.1
DT105	1.0741	1.0969	1.0856	1.0855	44.5	48.3
DT106A	1.0321	0.9984	1.0110	1.0139	-	-
DT106B	1.0321	0.9984	1.0110	1.0139	-	-
DT106C	1.0321	0.9984	1.0110	1.0139	25.2	25.5
DT132	0.9813	1.0366	1.0239	1.0139	37.2	37.7
DT302	1.1576	1.0463	1.2056	1.1365	17.9	20.4
DT72	1.0335	0.9929	1.0580	1.0281	52.7	54.2
DT235C	1.0113	0.9952	1.0121	1.0062	38.9	39.1
DT240A	1.0181	1.0269	1.0313	1.0255	-	-
DT240B	1.0181	1.0269	1.0313	1.0255	-	-
DT240C	1.0181	1.0269	1.0313	1.0255	35.9	36.8
DT241C	0.9343	0.9347	0.9520	0.9403	26.9	25.3
DT244	0.9051	0.9429	0.8956	0.9146	20.0	18.3
DT246A	0.9432	0.9705	0.9325	0.9487	-	-
DT246B	0.9432	0.9705	0.9325	0.9487	-	-
DT246C	0.9432	0.9705	0.9325	0.9487	31.4	29.8
DT144A	0.9599	0.9834	0.9966	0.9800	-	-
DT144B	0.9599	0.9834	0.9966	0.9800	-	-
DT144C	0.9599	0.9834	0.9966	0.9800	27.7	27.1
DT249A	0.9949	0.9583	0.9426	0.9653	-	-
DT249B	0.9949	0.9583	0.9426	0.9653	-	-
DT249C	0.9949	0.9583	0.9426	0.9653	31.0	30.0
DT250A	1.0842	1.0278	1.0864	1.0661	-	-
DT250B	1.0842	1.0278	1.0864	1.0661	-	-
DT250C	1.0842	1.0278	1.0864	1.0661	25.2	26.9

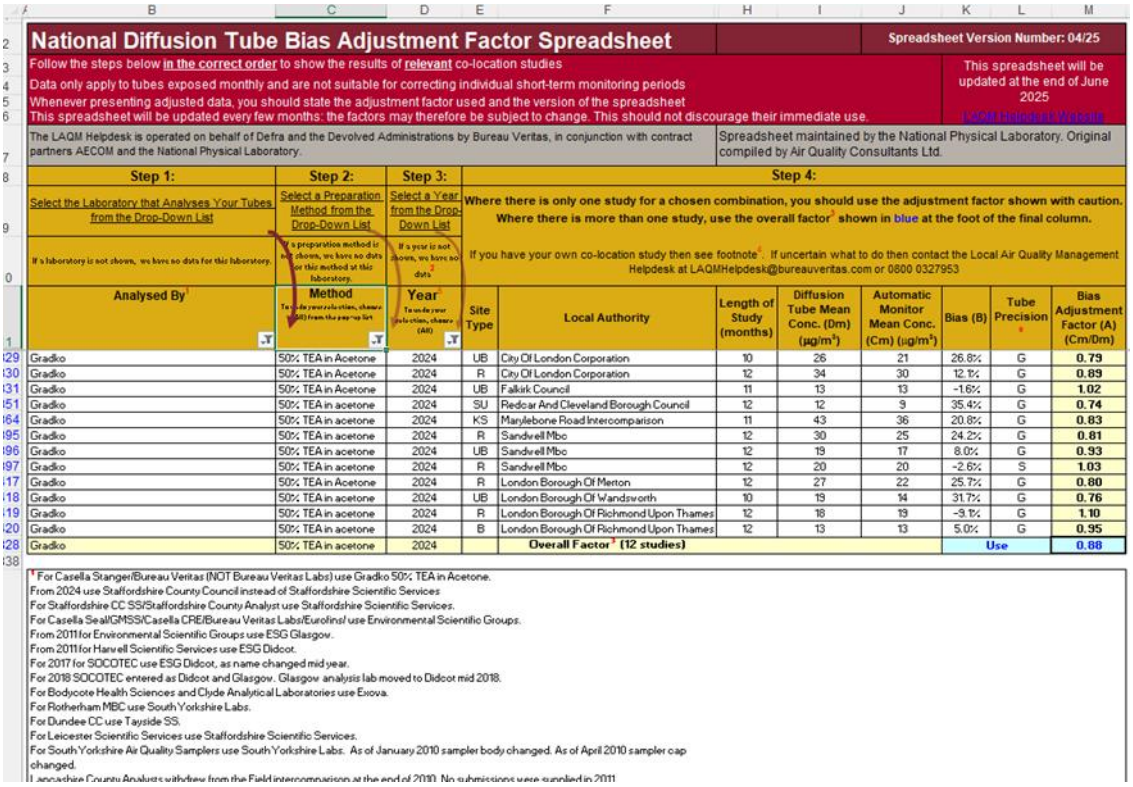
DT251A	0.9539	0.9710	0.9611	0.9620	-	-
DT251B	0.9539	0.9710	0.9611	0.9620	-	-
DT251C	0.9539	0.9710	0.9611	0.9620	26.6	25.5
DT259A	1.0043	1.0327	1.0049	1.0140	-	-
DT259B	1.0043	1.0327	1.0049	1.0140	-	-
DT259C	1.0043	1.0327	1.0049	1.0140	19.0	19.2
DT258A	1.0043	1.0327	1.0049	1.0140	-	-
DT258B	1.0043	1.0327	1.0049	1.0140	-	-
DT258C	1.0043	1.0327	1.0049	1.0140	19.6	19.9
DT300	1.0890	1.0365	1.0176	1.0477	13.4	14.0
DT260A	0.9397	0.9623	0.9414	0.9478	-	-
DT260B	0.9397	0.9623	0.9414	0.9478	-	-
DT260C	0.9397	0.9623	0.9414	0.9478	14.6	13.8
DT262A	0.9539	0.9710	0.9611	0.9620	-	-
DT262B	0.9539	0.9710	0.9611	0.9620	-	-
DT262C	0.9539	0.9710	0.9611	0.9620	30.3	29.1
DT319	0.8436	0.8409	0.8279	0.8375	13.2	11.1

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 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.

City of Bradford MDC have applied a national bias adjustment factor of 0.88 to the 2024 monitoring data obtained from the National Diffusion Tube Bias Adjustment Factor

Spreadsheet version 04/25 which was the latest version available at the time of writing. This factor has been derived from studies at 12 separate locations.



National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 04/25

Follow the steps below in the correct order to show the results of relevant co-location studies

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods

Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet

This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2025

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

Step 2: Select a Preparation Method from the Drop-Down List

Step 3: Select a Year from the Drop-Down List

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If your laboratory is not shown, we have no data for this laboratory.

If a preparation method is not shown, we have no data for this method at this laboratory.

If a year is not shown, we have no data[2]

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To select your selection, choose (All) from the pop-up list)	Year (To select your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in Acetone	2024	UB	City Of London Corporation	10	26	21	26.8%	G	0.79
Gradko	50% TEA in Acetone	2024	R	City Of London Corporation	12	34	30	12.1%	G	0.89
Gradko	50% TEA in Acetone	2024	UB	Falkirk Council	11	13	13	-1.6%	G	1.02
Gradko	50% TEA in Acetone	2024	SU	Redcar And Cleveland Borough Council	12	12	9	35.4%	G	0.74
Gradko	50% TEA in acetone	2024	KS	Marylebone Road Intercomparison	11	43	36	20.8%	G	0.83
Gradko	50% TEA in acetone	2024	R	Sandwell Mbc	12	30	25	24.2%	G	0.81
Gradko	50% TEA in acetone	2024	UB	Sandwell Mbc	12	19	17	8.0%	G	0.93
Gradko	50% TEA in acetone	2024	R	Sandwell Mbc	12	20	20	-2.6%	S	1.03
Gradko	50% TEA in acetone	2024	R	London Borough Of Merton	12	27	22	25.7%	G	0.80
Gradko	50% TEA in acetone	2024	UB	London Borough Of Wandsworth	10	19	14	31.7%	G	0.76
Gradko	50% TEA in acetone	2024	R	London Borough Of Richmond Upon Thames	12	18	19	-9.1%	G	1.10
Gradko	50% TEA in acetone	2024	B	London Borough Of Richmond Upon Thames	12	13	13	5.0%	G	0.95
Gradko	50% TEA in acetone	2024		Overall Factor[3] (12 studies)				Use		0.88

[1] For Casella Stanger/Bureau Veritas (NOT Bureau Veritas Labs) use Gradko 50% TEA in Acetone.
From 2024 use Staffordshire County Council instead of Staffordshire Scientific Services
For Staffordshire CC SS/Staffordshire County Analyst use Staffordshire Scientific Services.
For Casella Seal/GMSS/Casella CRE/Bureau Veritas Labs/Eurofins/ use Environmental Scientific Groups.
From 2011 for Environmental Scientific Groups use ESG Glasgow.
From 2011 for Harwell Scientific Services use ESG Didcot.
For 2017 for SOCOTEC use ESG Didcot, as name changed mid year.
For 2018 SOCOTEC entered as Didcot and Glasgow. Glasgow analysis lab moved to Didcot mid 2018.
For Bodycote Health Sciences and Clyde Analytical Laboratories use Exova.
For Rotherham MBC use South Yorkshire Labs.
For Dundee CC use Tayside SS.
For Leicester Scientific Services use Staffordshire Scientific Services.
For South Yorkshire Air Quality Samplers use South Yorkshire Labs. As of January 2010 sampler body changed. As of April 2010 sampler cap changed.
Lancashire County Analysts withdrew from the Field intercomparison at the end of 2010. No submissions were supplied in 2011

A summary of bias adjustment factors used by City of Bradford MDC over the past five years is presented in Table C..

Table C.6 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2024	National	04/25	0.88
2023	National	03/24	0.83
2022	National	03/23	0.82
2021	National	03/22	0.83
2020	Local	-	0.92

Notes:

Although the national bias correction factor of 0.88 has been used throughout this report a local bias adjustment factor was also calculated for the Bradford Keighley automatic station, This returned a value of 0.84. As the national bias factor was higher and has historically been used to adjust for bias in Bradford it was used in preference to the local bias factor and represents the worst case scenario.

Table C.7 shows the impact of using the local bias factor of 0.84 on the results for sites deemed within the main report to be still over the air quality objective and/or air quality limit value standard.

The choice of bias factor makes no difference to the reported number of non-compliant sites but the levels of exceedance are slightly lower.

Table C.7: Impact of local versus national bias factor on non-compliant sites

Site number	Site location	National bias corrected annualised mean at measurement point	Local bias corrected annualised mean at measurement point	Distance corrected national bias annualised mean	Distance corrected local bias annualised mean
DT12	Shipley Airedale Road	48.0	45.8	46.8	45.7
DT72	Queen's Road	47.7	45.5	n/a	n/a
DT191	Low Mill, Keighley	44.7	42.7	n/a	n/a
DT105	Manchester Road	42.5	40.6	36.5	30.9

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.

The information used in the Diffusion Tube Data Processing Tool to calculate the fall off with distance values for diffusion tubes with annual results greater than 36µg/m^3 during 2024 are summarised in Table C.8 below.

During 2024 site DT191 returned values greater than 36µg/m^3 but could not be distance corrected as the distance from a relevant receptor point lies outside the limits of the distance correction tools. This tube is not included in Table C.8.

Table C.8 – Non-Automatic NO_2 Fall off With Distance Calculations (concentrations presented in µg/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
DT223A, DT223B, DT223C	2.0	4.8	39.0	16.1	34.3	
DT105	3.0	6.7	42.5	13.4	36.5	*Predicted concentration at Receptor within 10% the AQS objective.*
DT281	2.5	6.2	38.6	12.6	32.7	
DT211A, DT211B, DT211C	2.4	5.1	38.6	14.2	34.1	
DT278	2.0	9.5	39.3	14.4	30.2	
DT152	2.7	5.2	36.2	13.9	32.5	
DT12A, DT12B, DT12C	3.3	3.8	48.0	17.0	46.8	*Predicted concentration at Receptor above AQS objective.*
DT31	1.5	11.1	37.8	10.4	25.8	

QA/QC of Automatic Monitoring

City of Bradford MDC's air quality analysers are type approved as recommended in LAQM.TG1 (00) *Review and Assessment: Monitoring air quality* and LAQM.TG4 (00) *Review and assessment: Pollutant specific guidance.* All the real time data provided in this report is independently ratified data from council operated analysers except for the Mayo Avenue site (CM4) which is affiliated to the Defra AURN network.

City of Bradford MDC is currently contracted to provide Local Site Operator (LSO) support for the Mayo Avenue site which normally includes the undertaking of fortnightly manual calibrations. In late 2024 City of BMDC acquired further LSO duties for a newly installed AURN PM2.5 analyser at Shipley Airedale Road. More information about the operation and management of AURN sites is available here Link to Defra AURN website.

The day-to-day operation of the Council's own automatic network is managed by the Sustainability Department. The monitoring officer located within this team undertakes trouble shooting activities associated with the equipment operation (e.g. initial investigation of site malfunctions, communication resets, filter changes etc.) and is also responsible for the maintenance and upkeep of the sites to ensure the inlets remain free from obstacles and any damage to the sites or pest infestations are dealt with promptly. The monitoring officer liaises directly with the data management contractor and is generally able to provide a same day response to any concerns raised with the data or lack of communications during the working week. Where necessary the monitoring officer places a call out to the service and maintenance provider (currently Signal group) and ensures that repairs are carried out promptly and to the council's satisfaction.

Regular manual calibration of the monitoring equipment is essential to ensure the quality of the data collected is of a high standard. Routine calibration of the City of Bradford MDC sites is usually undertaken twice per month. Calibrations are undertaken by members of the Sustainability Department. Additional calibrations are undertaken by the Signal group engineers following any interruption to the systems such as a breakdown or routine service.

During calibration visits a manual zero and span calibration check is performed. The methodology used is essentially that found in the AURN Local Site Operators and the manufacturer's instruction manual.

The basic steps are:

- Pre-calibration check of the general site condition and status of the analyser, before the zero and span checks are performed.
- Zero check to verify the performance of the analyser in the absence of the gas being monitored.
- Span check to verify the response of the analyser to gas of a known concentration.
- Post calibration check of the general site condition and status of the analyser on completion of all calibration routines.

A record of each analyser zero and span check is fully documented and sent to the data management contractor. Records of a calibrations are kept for up to 5 years.

The gases used for onsite span calibration checks at the Bradford owned air pollution stations are supplied by Air Liquide Ltd. Calibration gases for the Mayo Avenue AURN site are supplied by BOC Ltd. Calibration gases are traceable via European Accreditation DIN EN 45001 and DIN EN ISO 900. The tolerance of the nitrogen dioxide and nitric oxide in air mixes is typically ±5%. Zero air is generated internally in the Ambirak, and the scrubbers are changed when necessary in accordance with manufacturer's recommendations and the LSO Site Manual for the Ambirak.

Signal Group (the equipment supplier) provide six monthly routine service and maintenance visits and provide an emergency repair and breakdown service for the Bradford monitoring network. They normally respond to any call outs within 24 to 48 hours of the call being placed. Having a high quality service and maintenance contract in place is essential to maintain high levels of good quality data capture across the Bradford monitoring network.

All data generated by the Bradford automatic analysers is independently collected and ratified by an external contractor. The current data management service provider is Air Quality Data Management (AQDM), a well-established and respected air quality data management supplier. More information about AQDS can be found here: Link to Air Quality Data Management website AQDM remotely checks the operational status of all the Bradford monitoring sites on a daily basis (apart from the Mayo Avenue AURN site and AURN PM2.5 analyser at Shipley Airedale Road which are checked by the AURN data management team) and provide regular updates to the council on air quality conditions around the district. At the end of each year, they provide a fully verified and ratified data set for every site to be used as the basis for ASR reporting. Having an

independent data management contractor in place ensures the Bradford air quality data is of a high standard and any problems with the equipment are identified early thereby minimising data loss and ensuring high percentage data capture at all sites.

Daily air quality data from the Bradford Council operated network can be viewed daily on the Air Quality Net website operated by AQDS here: Link to Air Quality Net website

Daily and summary air quality data from the Mayo Avenue and Shipley Airedale Road AURN sites can be viewed daily on the Air Quality England website here: Link to Mayo Avenue data on Air Quality England website

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

The type of PM10/PM2.5 monitor(s) utilised within City of Bradford MDC do not require the application of a correction factor. The data has been subject to independent ratification and verification checks by Air Quality Data Management.

Automatic Monitoring Annualisation

Table C.9 – Automatic PM_{10} Annualisation Summary (concentrations presented in $\mu g/m^3$)

Background Site	Annual Data Capture (%)	Annual Mean (A_m)	CM6	
			Period Mean (P_m)	Ratio (A_m / P_m)
Leeds Centre	100.0	12.4	12.1	1.033
Keighley	92.6	12.3	11.7	1.057
Blackburn Audley Park	100.0	11.0	10.6	1.041
Average (R_a)			1.044	
Raw Data Annual Mean (M)			14.6	
Annualised Annual Mean (M x R_a)			15.2	

Table C.10 – Automatic $PM_{2.5}$ Annualisation Summary (concentrations presented in $\mu g/m^3$)

Background Site	Annual Data Capture (%)	Annual Mean (A_m)	CM6	
			Period Mean (P_m)	Ratio (A_m / P_m)
Leeds Centre	100.0	7.7	7.4	1.042
Keighley	91.8	7.7	7.2	1.070
Blackburn Audley Road	100.0	7.0	6.7	1.054
Average (R_a)			1.055	
Raw Data Annual Mean (M)			7.6	
Annualised Annual Mean (M x R_a)			8.0	

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within City of Bradford MDC required distance correction during 2024.

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

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

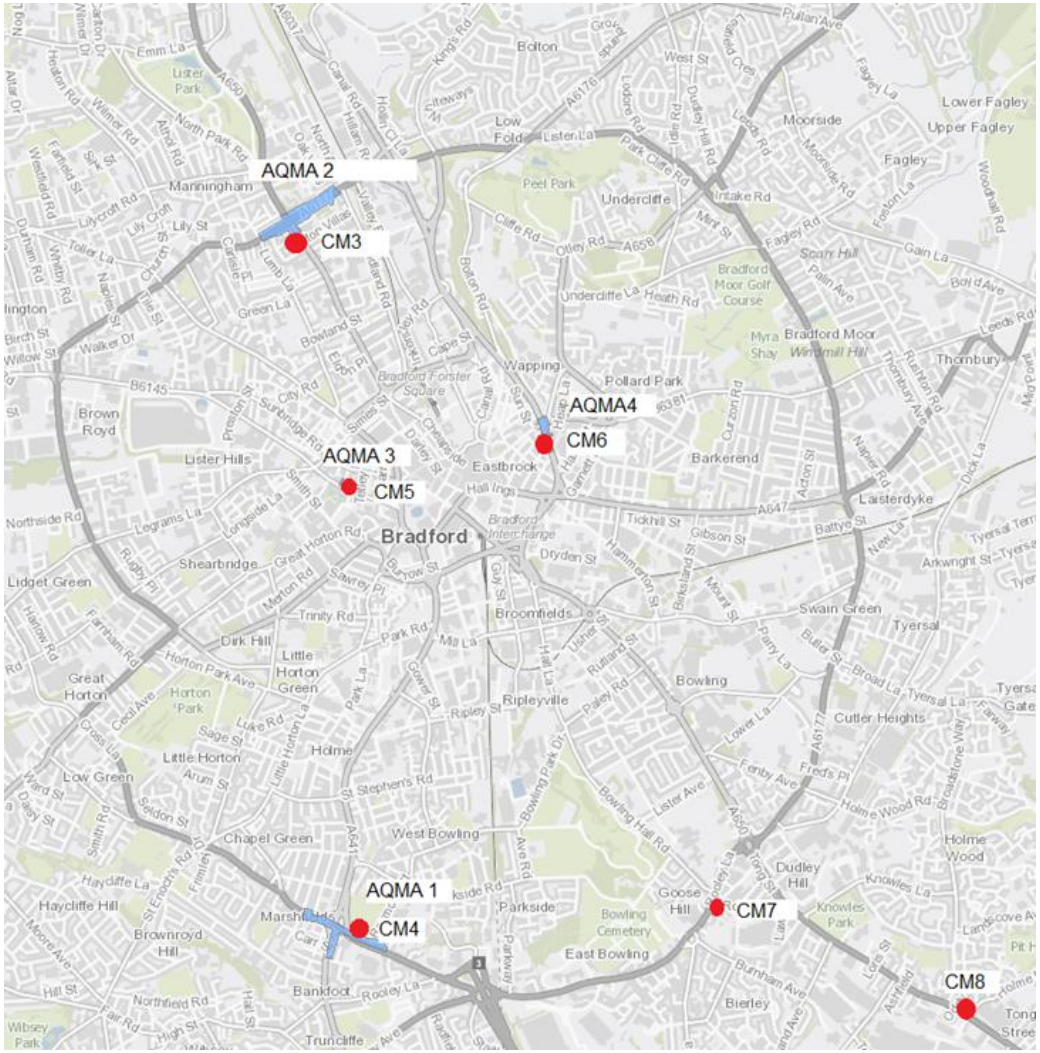


Figure D.2 – Map of AQMAs and Keighley automatic monitoring site

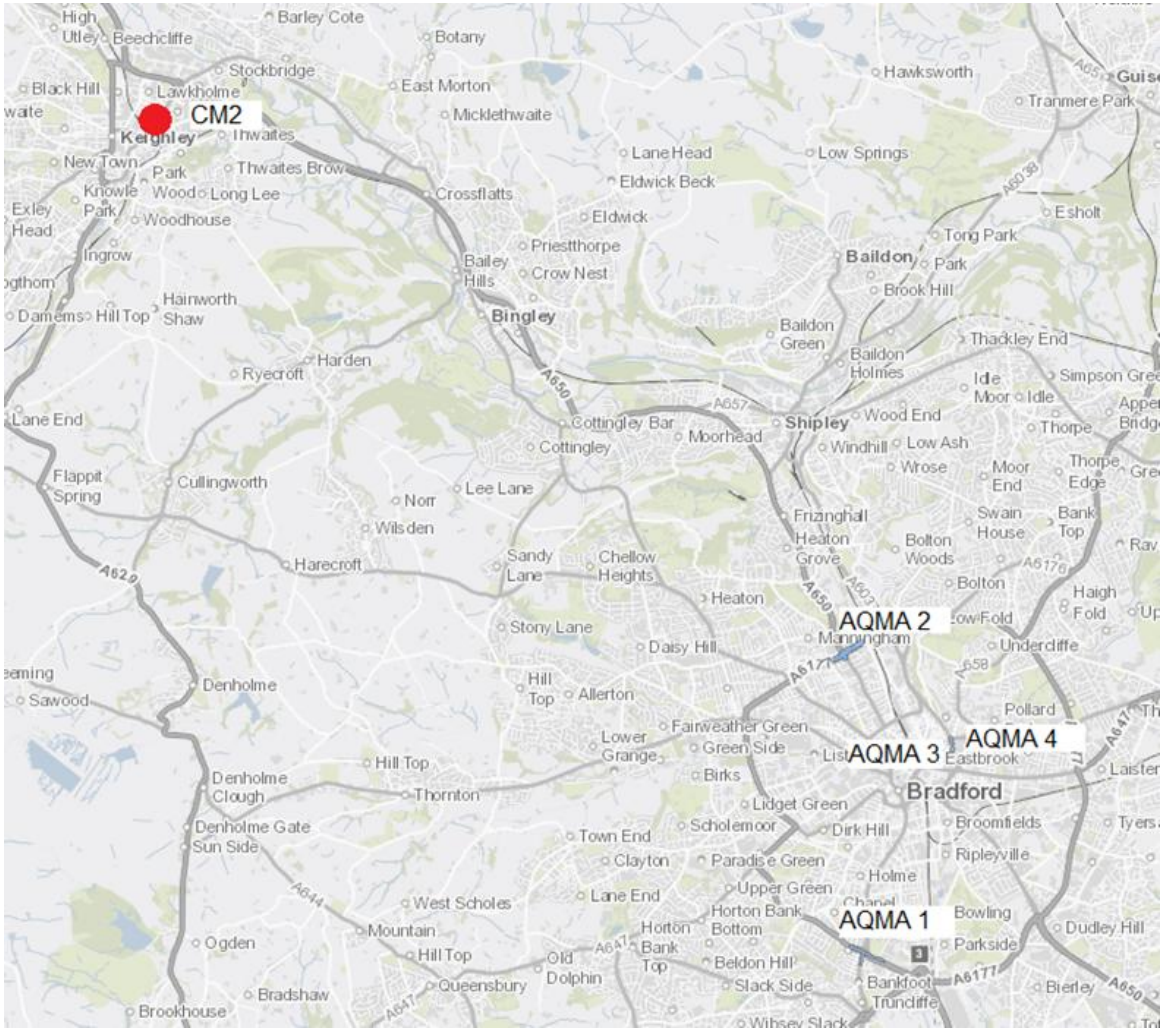


Figure D.3 – Map of previous areas of air quality concern

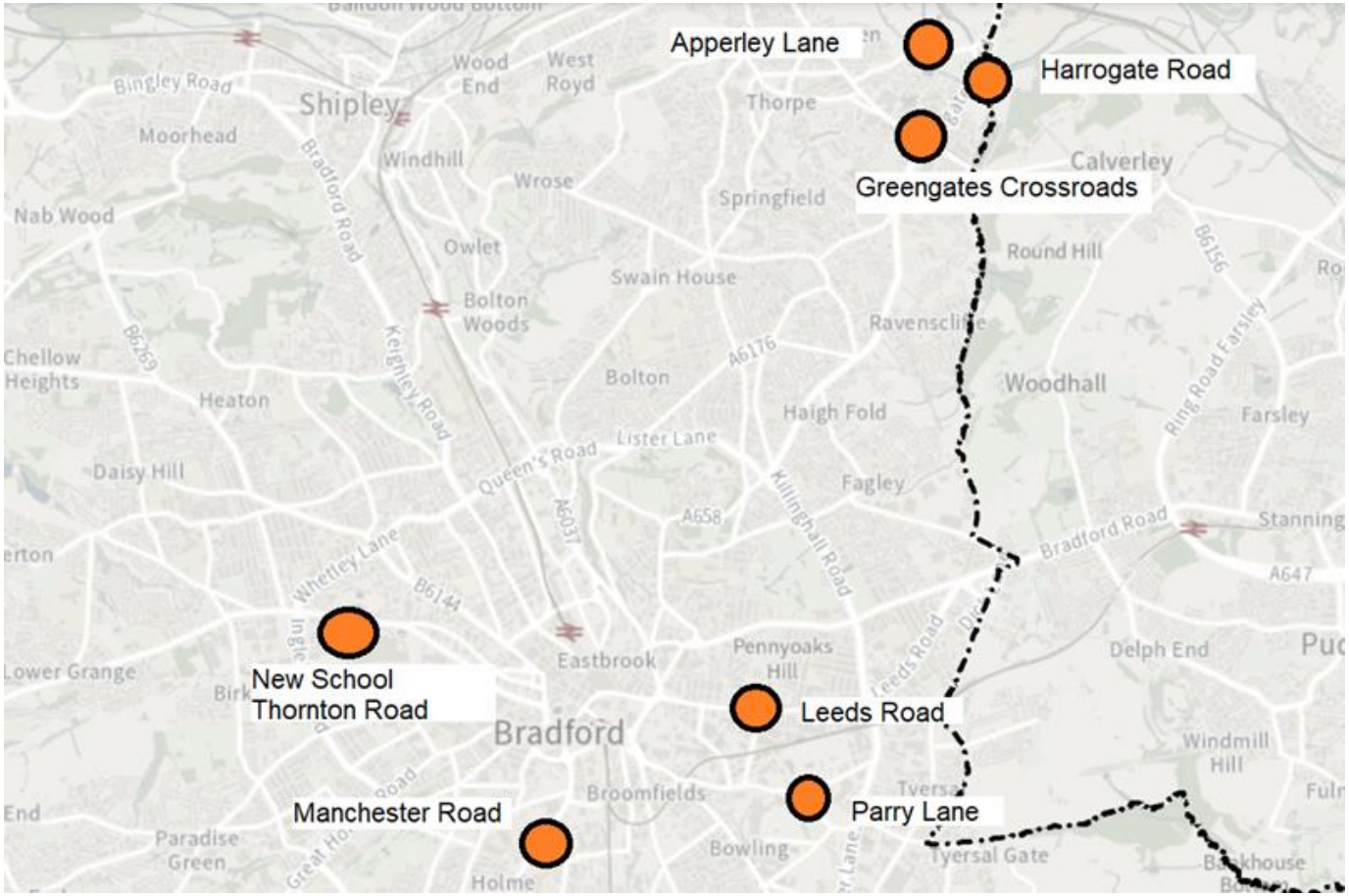
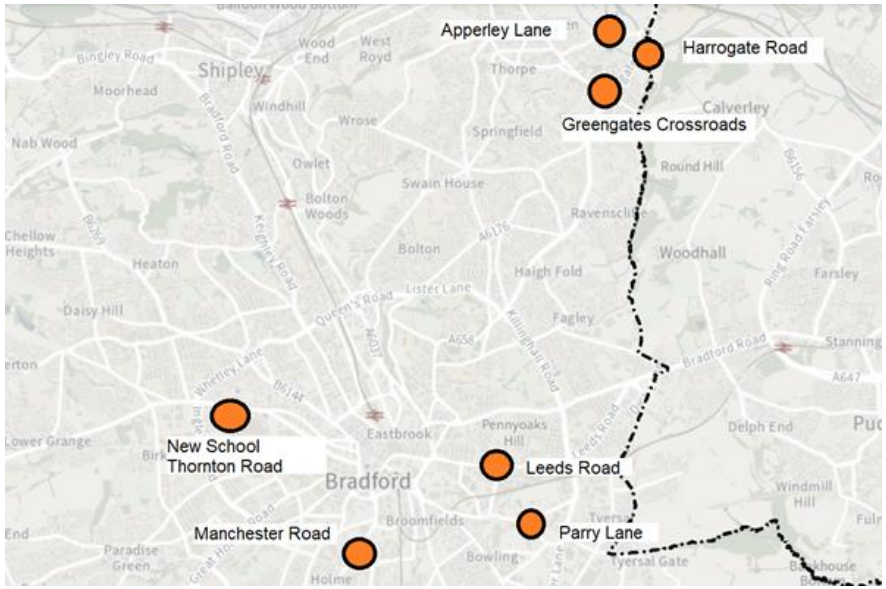
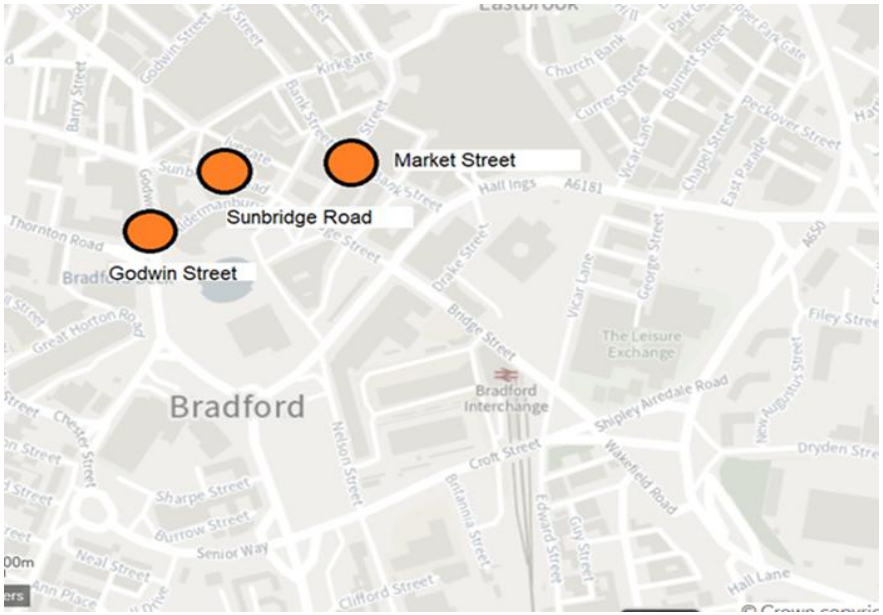


Figure D.4 – Map of other locations discussed in the report





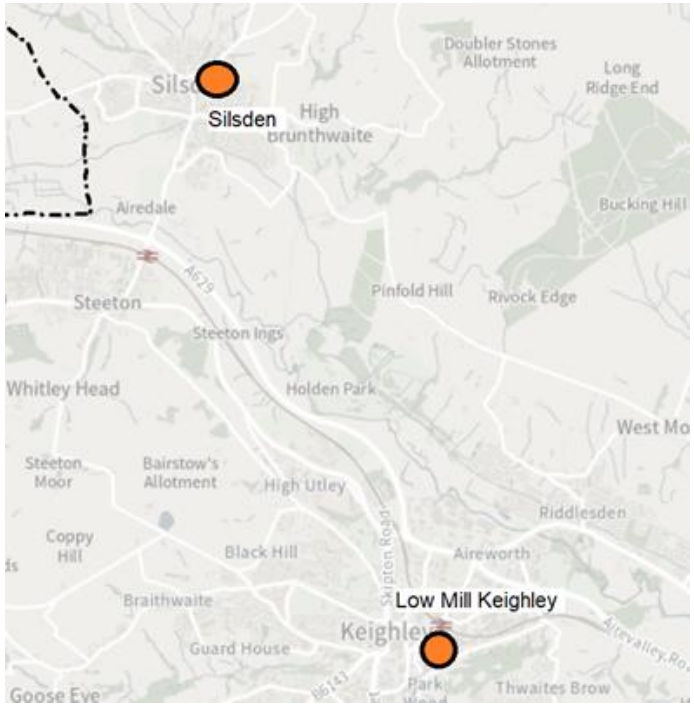
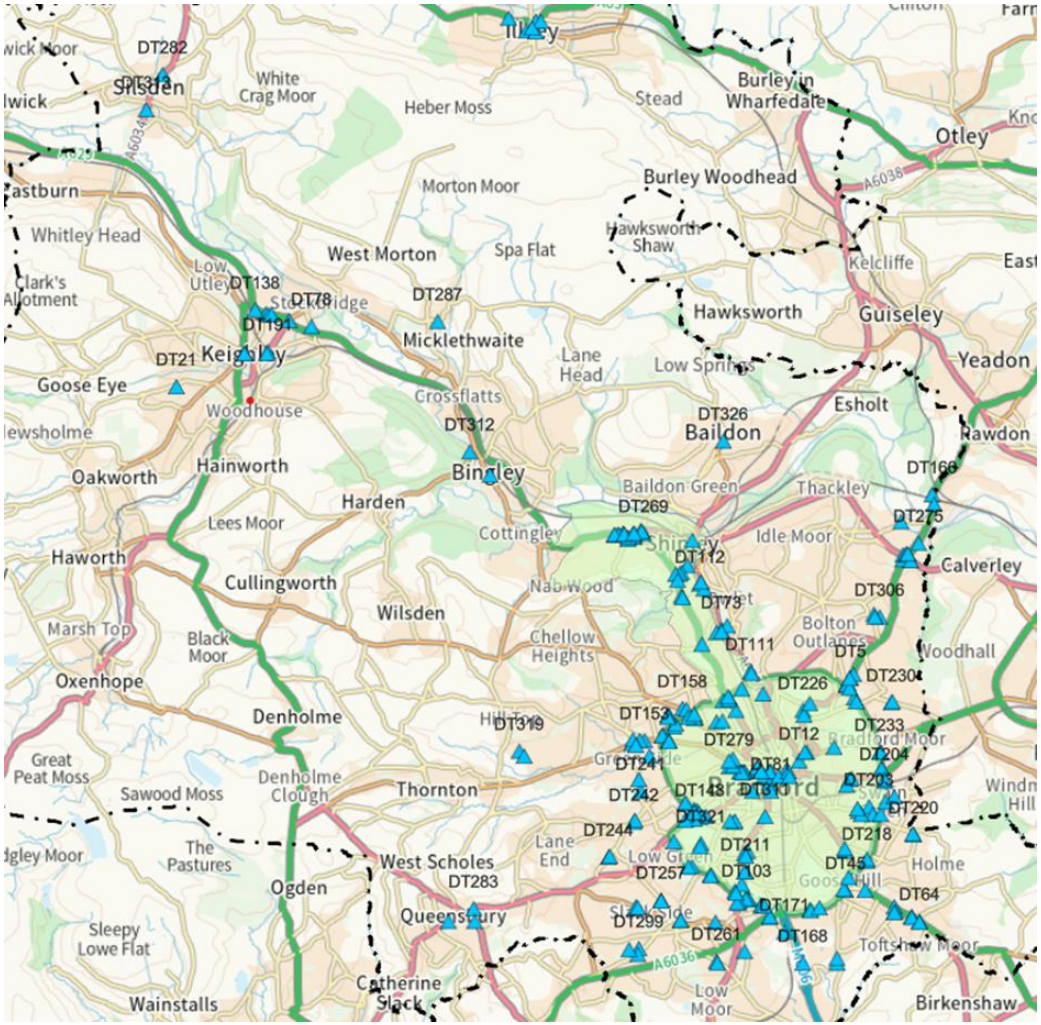


Figure D.5 – Map of all non-automatic monitoring sites in Bradford District



Exact locations available to view here:

[GIS map of Bradford Diffusion Tube data]

Figure D.6 – Map of Non-Automatic Monitoring Sites in Mayo Avenue AQMA (order 1)

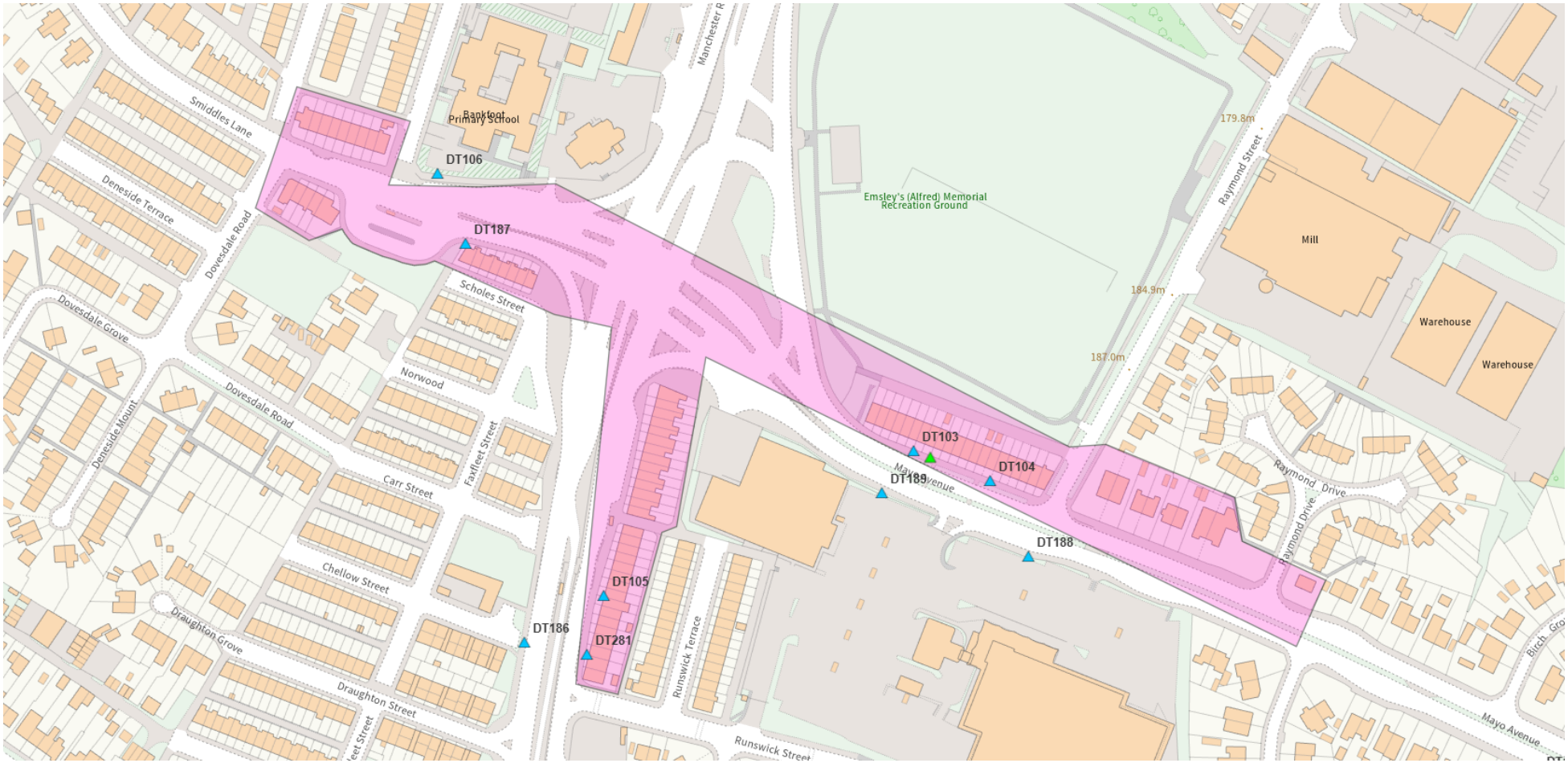


Figure D.7 – Map of Non-Automatic Monitoring Sites in Manningham Lane AQMA (order 2)

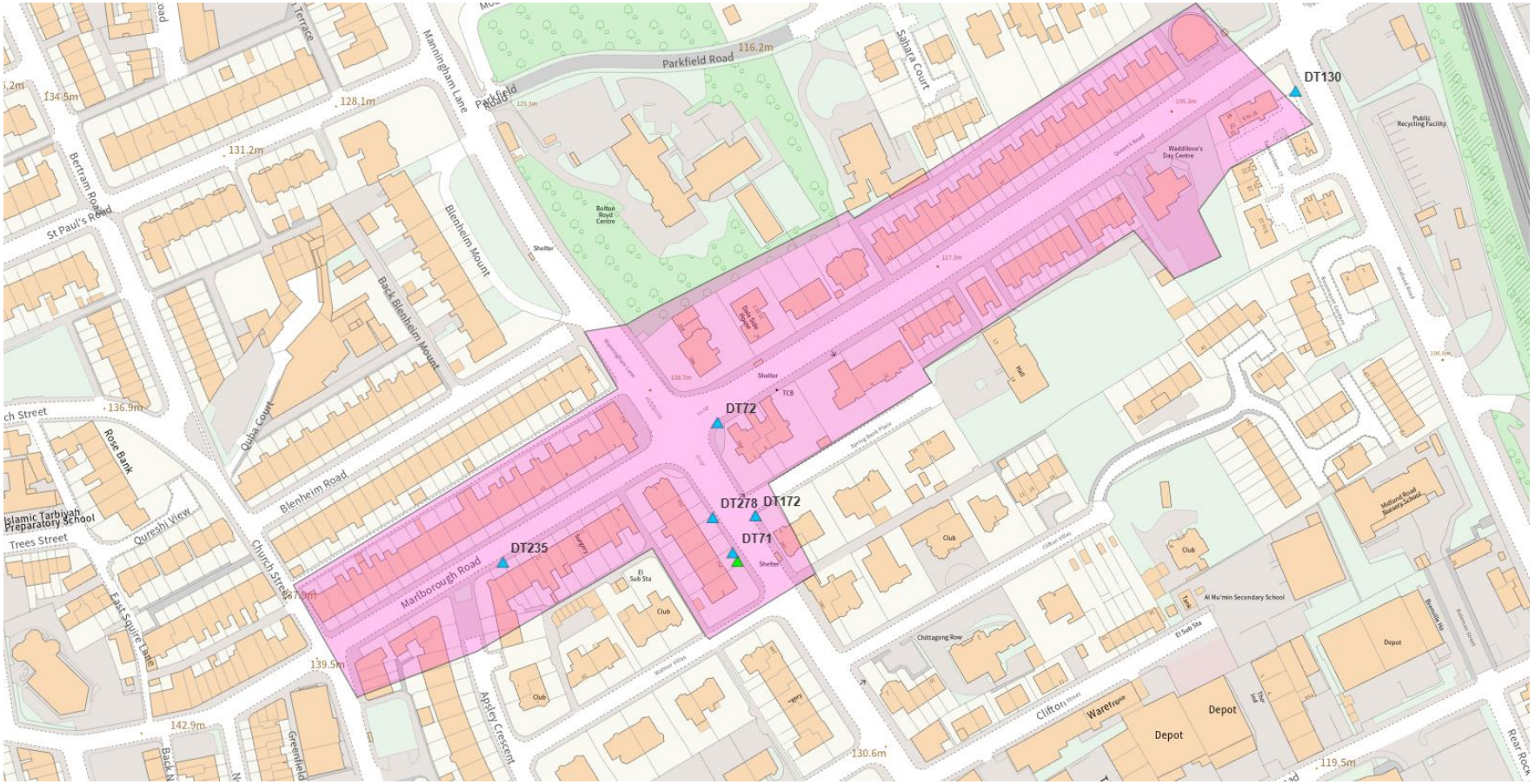


Figure D.8 – Map of Non-Automatic Monitoring Sites in and near Thornton Road AQMA (order 3)

Figure D.9 – Map of Non-Automatic Monitoring Sites in and near Shipley Airedale Road AQMA (order 4)

Figure D.10 – Map of Non-Automatic Monitoring Sites near Harrogate Road / Killinghall Road

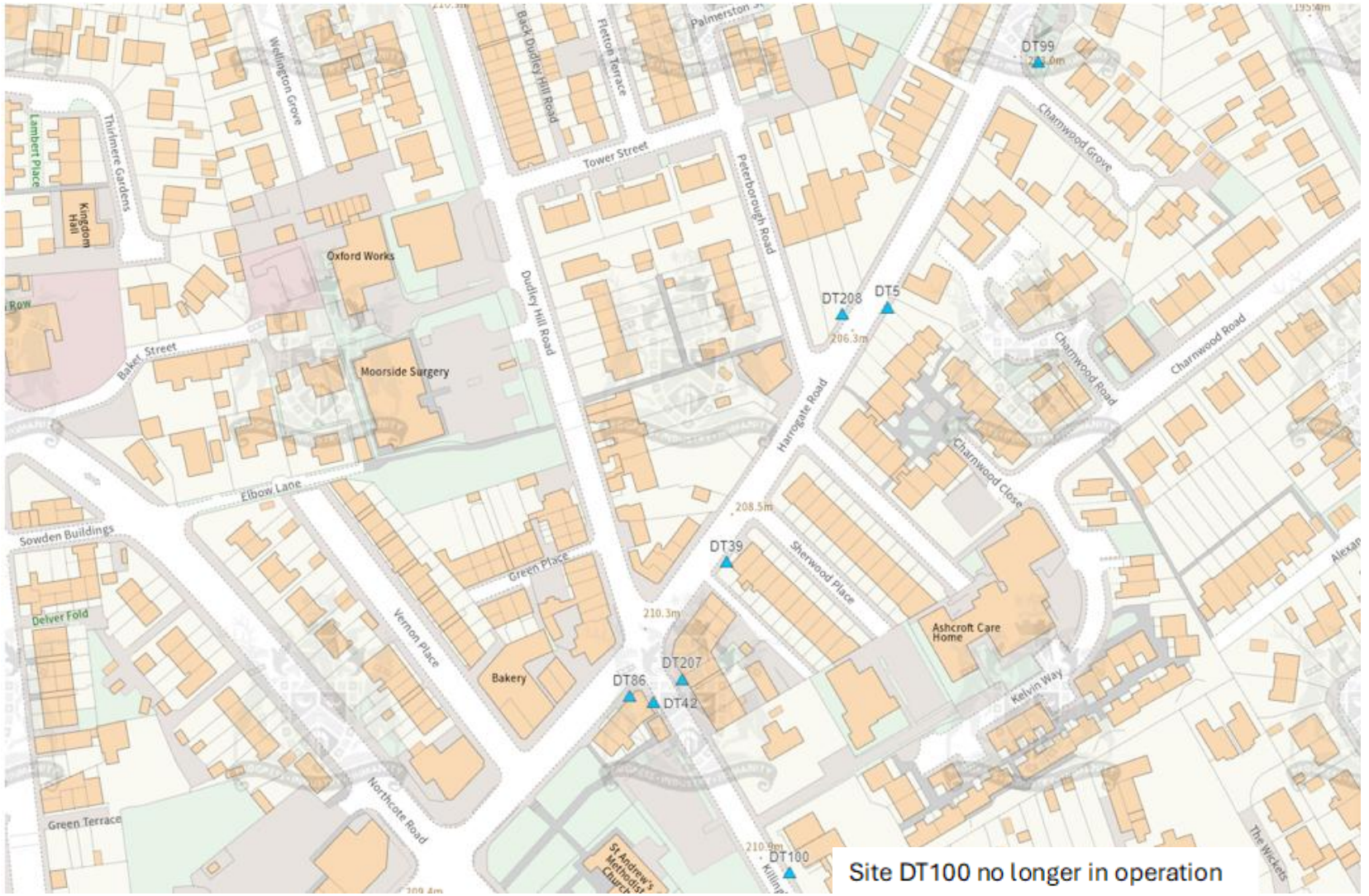


Figure D.11 – Map of Non-Automatic Monitoring Sites near Saltaire crossroads

Figure D.12 – Map of Non-Automatic Monitoring Sites on Canal Road

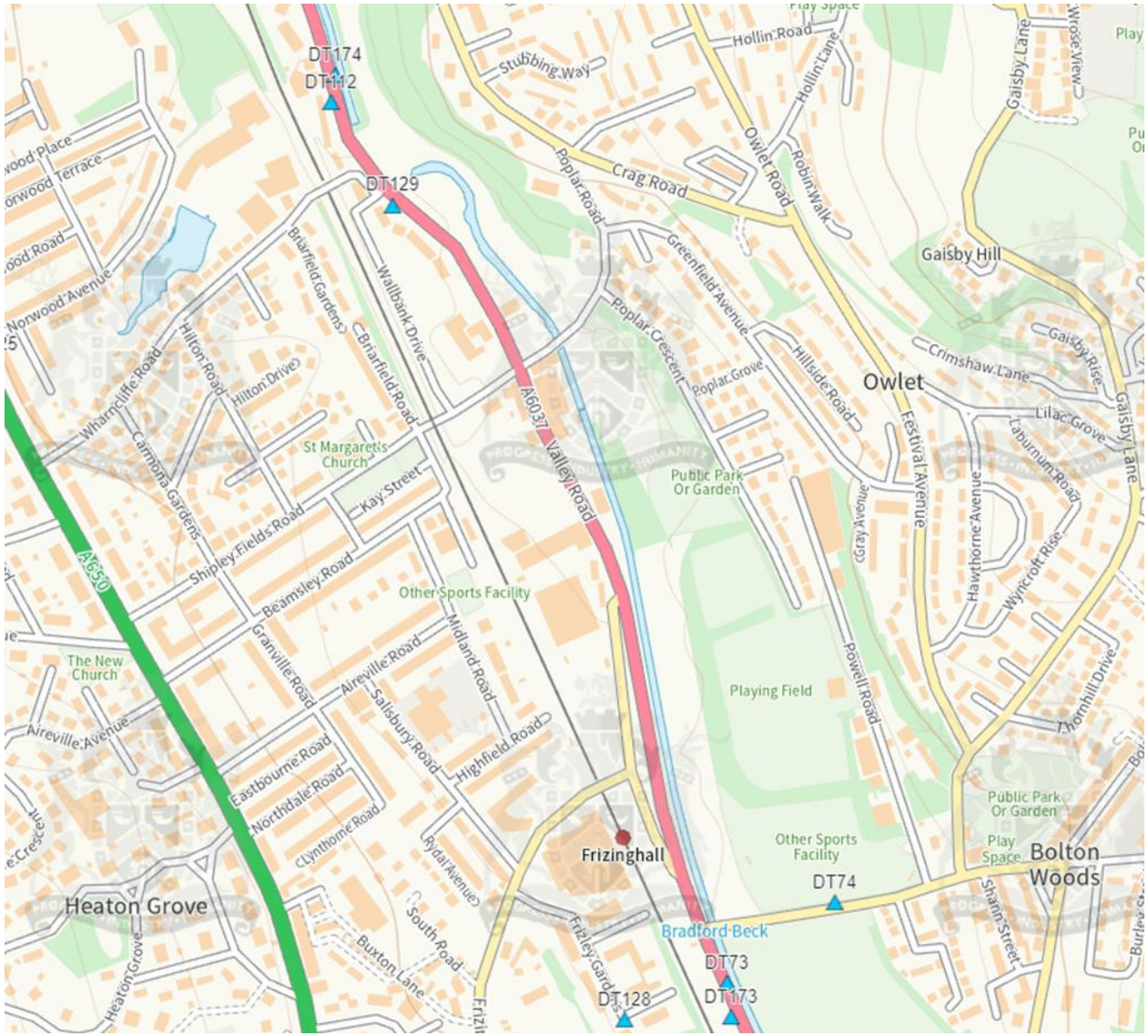


Figure D.13 – Map of Non-Automatic Monitoring Sites on Rooley Lane / Tong Street

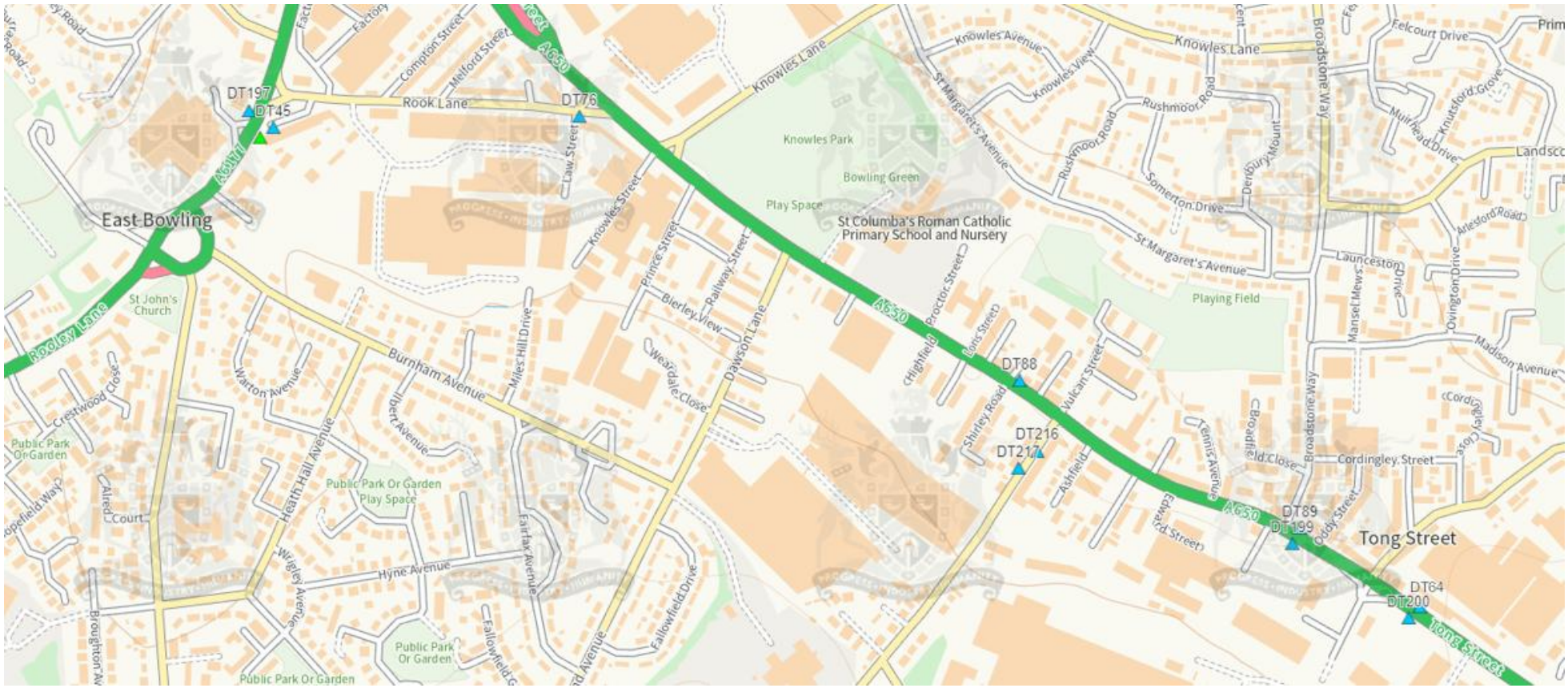


Figure D.14 – Map of Non-Automatic Monitoring Sites in the city centre

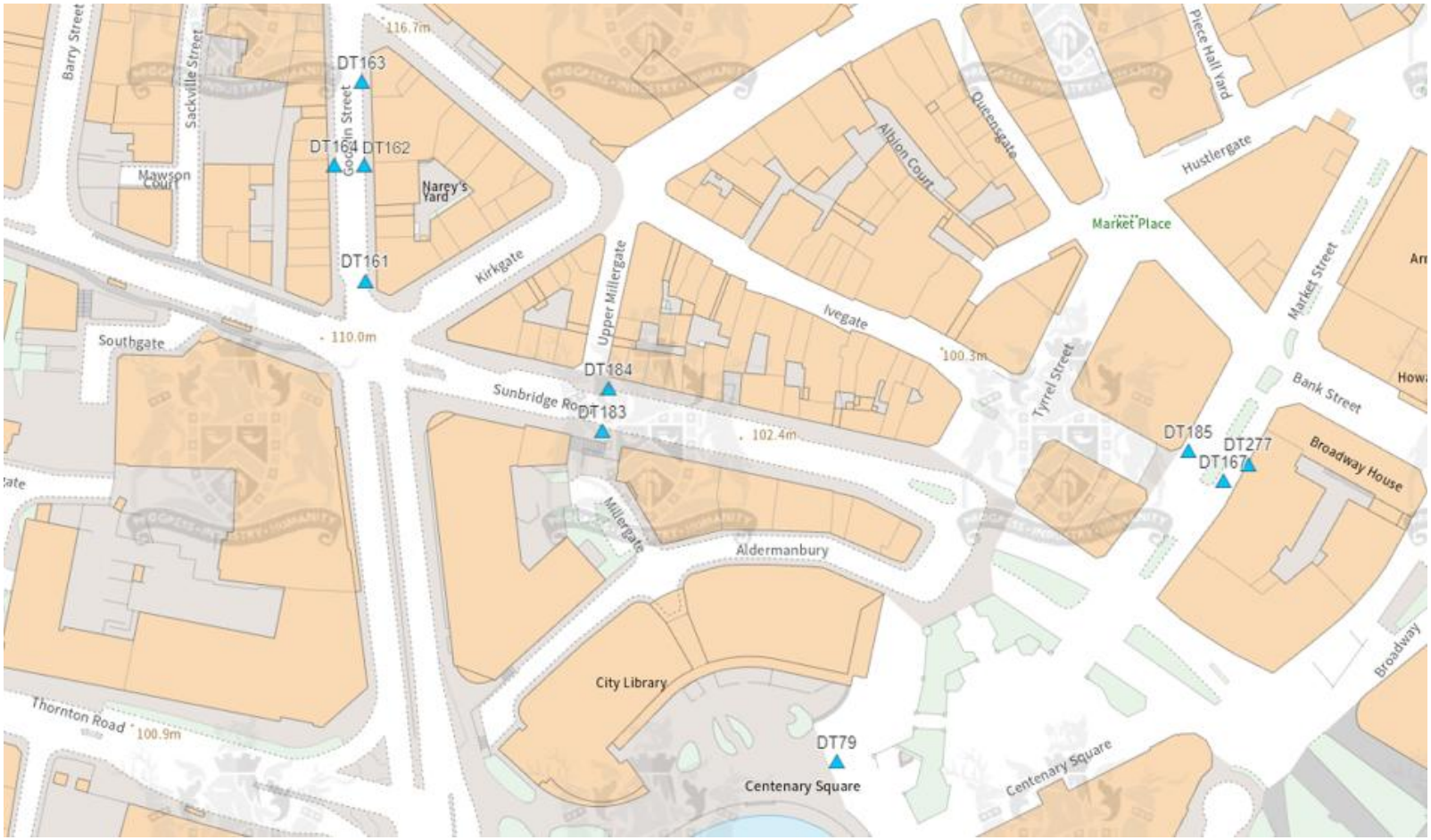


Figure D.15 – Map of Non-Automatic Monitoring Sites in Ilkley

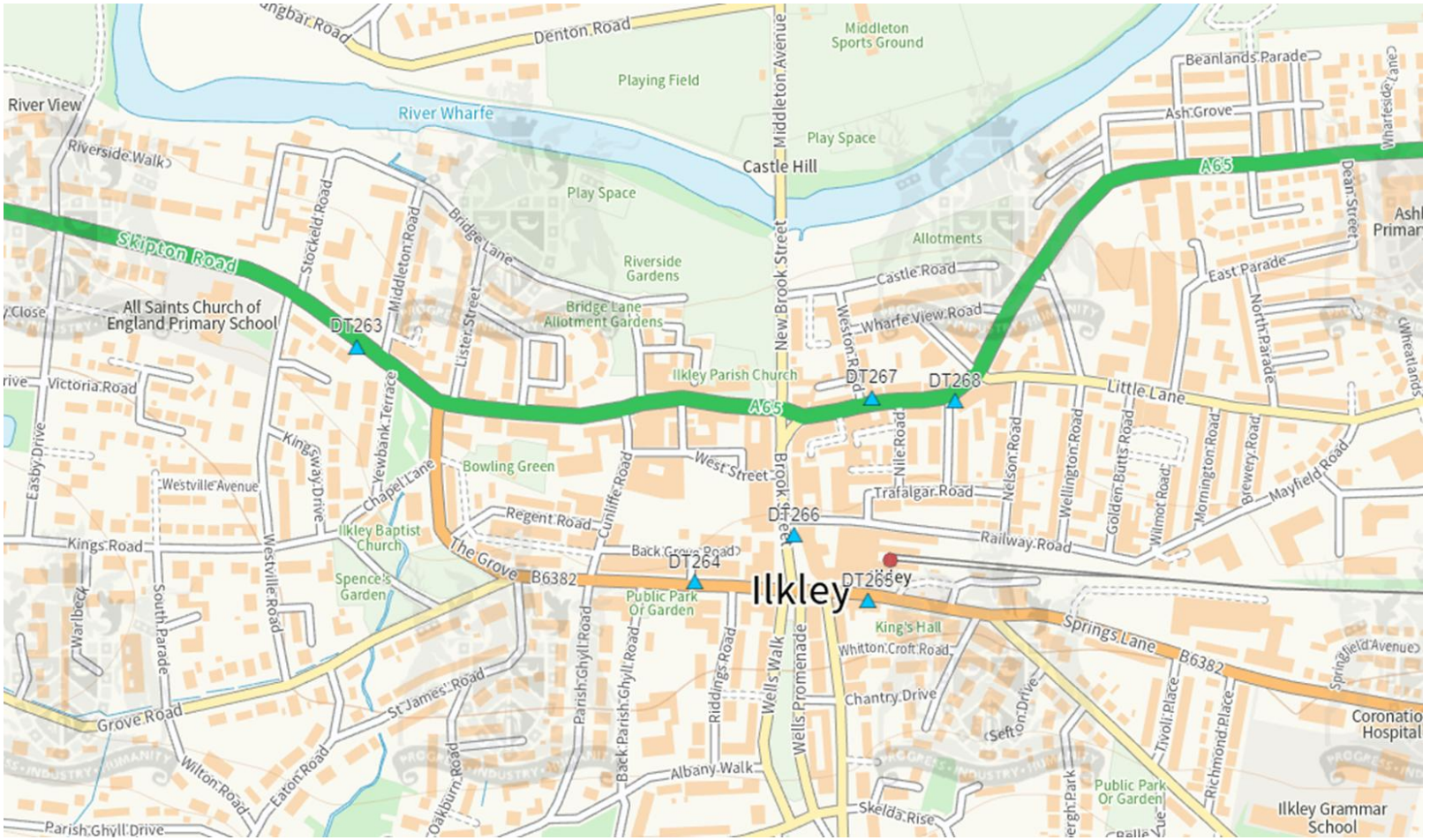


Figure D.16 – Map of Non-Automatic Monitoring Sites around Keighley

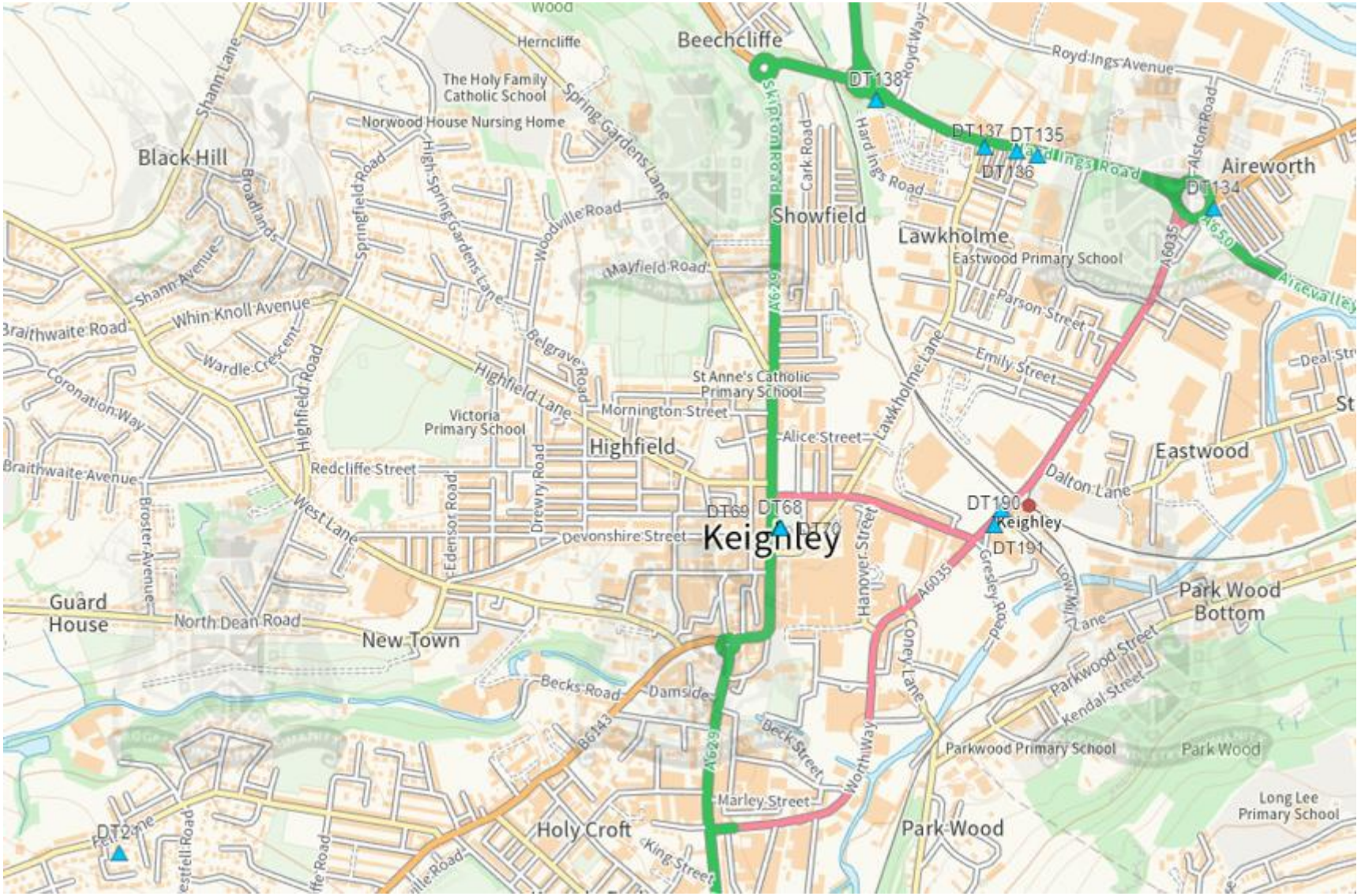
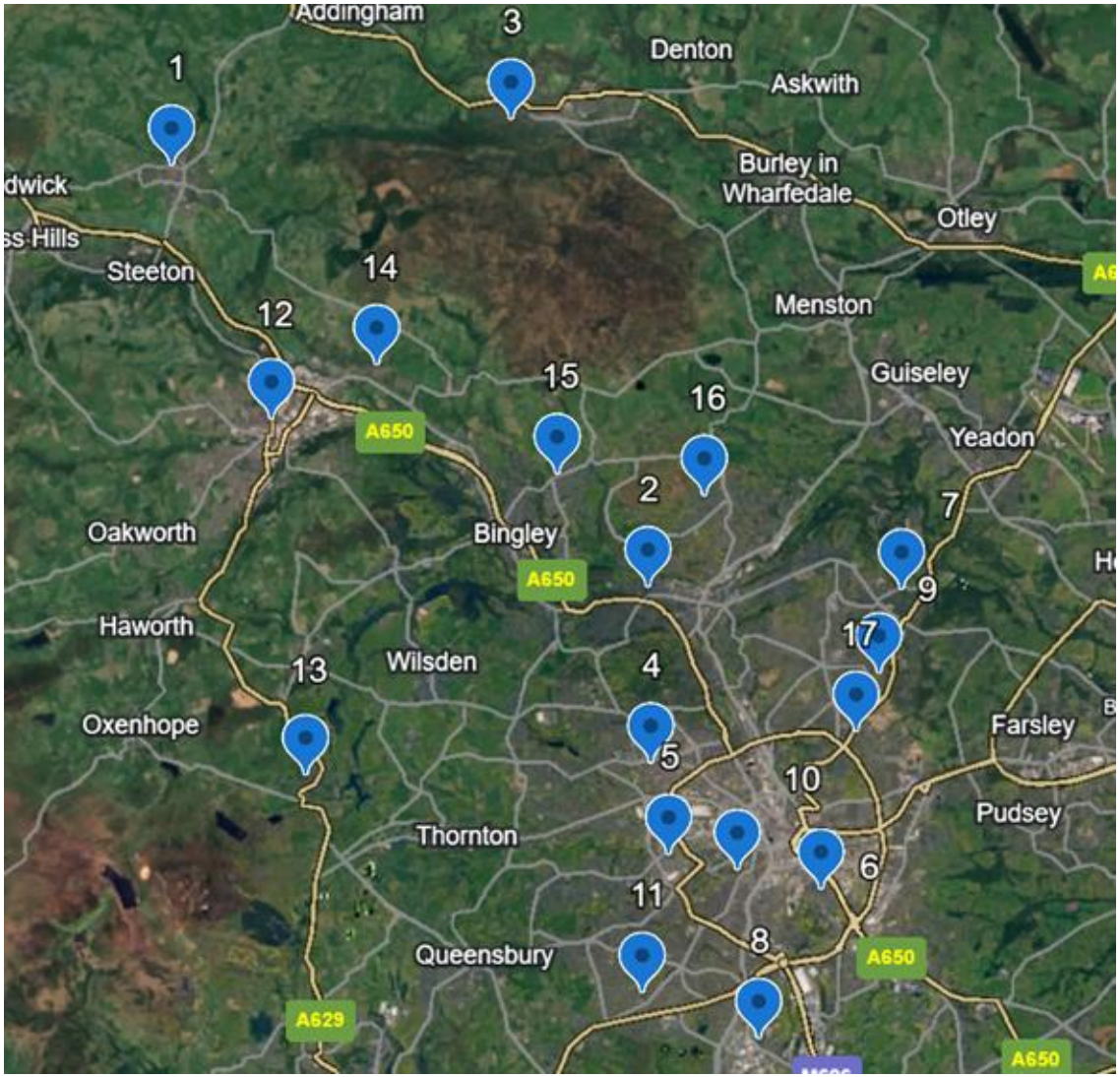


Figure D.17 – Map of Bradford low-cost sensor network



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[9]

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

Appendix F – Summary of domestic solid fuel research questionnaire undertaken by Sheffield University

Understanding Solid Fuel Burning in Bradford Homes

Particulate matter is made up of small pieces of solid materials or droplets of liquids that are in the air. These particles are harmful to human health such as increasing the chance of developing respiratory and heart diseases and lung cancer. In the UK, burning solid fuels (e.g. wood, briquettes, smokeless coal) in the home is the largest source of fine particulate matter (called PM2.5). It is estimated that over 3.8 million deaths worldwide are due to air pollution caused by burning solid fuels (World Health Organization, 2021). In the current research, we interviewed 30 people living in Bradford who burn solid fuel in their homes, to explore the ways in which they burn solid fuels, whether they are aware of and follow government regulations on solid fuel burning, the reasons they burn solid fuels and what might help or make it difficult to reduce or stop burning solid fuels.

[9] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Summary of Recommendations

Based on our findings, which are described in more detail on the next page, we recommend that local councils provide their residents with:

- Information on the impact of burning solid fuels on health. However, care should be taken to mitigate the impact of such recommendations on households who do not have an affordable alternative to heat their home.

- Easier to find and more personalised guidance to help them to follow government regulations on solid fuel burning.

Who we spoke to

- The majority of people we interviewed were White and educated to university undergraduate degree level or higher, and just over half identified as female.
- Around half lived in a smoke control area (an area where you can only use certain types of solid fuel, unless you have an 'exempt' solid fuel burning appliance)
- Most people had only one solid fuel burning appliance (e.g., wood or coal burning stove) in their home, and most had the appliances installed after they moved to their home
- Most people had received training or other information on burning solid fuels. Most commonly, the appliance was demonstrated in person (e.g., by the installer) or they had read written instructions.
- Most people burned solid fuels daily during winter and less frequently during autumn/spring, most commonly in the evening, in the room where they relax.
- Most people reported worrying about money either never or only sometimes, and all felt warm enough in their home on a typical winter day either some or all of the time.

What we found

People had positive emotions and attitudes towards burning solid fuels. Overall, burning solid fuels was associated with positive emotions (comforting, cosy, relaxing, inviting) and fond memories (spending time with family and friends). Around a third of people we talked to thought that burning solid fuels was seen as positive by the general public.

People viewed solid fuel burning as an environmentally sustainable heating method that was unlikely to affect their health. Most people thought that solid fuel burning was a sustainable method for heating their home. A majority of people described that environmental considerations and the look of the appliance were important when buying their solid fuel burning appliance. Air pollution appeared less of a concern, as fewer than a third considered the appliance's emission rate when purchasing. Most people believed that solid fuel burning had little impact on their health.

People thought they were unlikely to stop burning solid fuels in the future because of the cost and environmental impact of other heating methods. Most people reported that they were unlikely to change their solid fuel burning behaviours in the future. The cost of using alternative heating methods and their impact on the planet were the most frequently reported barriers to stopping burning solid fuel.

People did not always have good knowledge of government regulations on solid fuel burning. Most people knew what a smoke control area was, but almost half did not know what 'authorised fuels' and 'exempt appliances' were. A similar number did not know that giving off smoke from a chimney can result in a Fixed Penalty Notice or Nuisance Abatement Notice. While half the people we spoke to reported that they used DEFRA-approved and/or Eco Design Ready solid fuel appliances, just under a third didn't know whether they had one of these appliances. However, most people stored solid fuels correctly in a dry covered space.

Government regulations on solid fuel burning were seen as confusing and hard to find. Some people actively searched for information about solid fuel burning regulations, but found it difficult to work out whether they lived in a smoke control area based on existing maps and information, and which fuels were ok to use in which areas and which appliances.

People thought that current solid fuel burning regulations were ineffective. Some people believed that solid fuel burning regulations were needed to reduce pollution, but there was also a lot of scepticism. Some people felt that regulations were based on untruths or ulterior motives, while others felt that it was difficult to check whether people were following current regulations, and that ignoring the regulations was unlikely to result in enforcement.

Government regulations influenced which solid fuel burning appliances people bought, but people did not always follow regulations when using their appliance. Some people checked the regulations to help them decide what appliance to buy. However, of those people who knew whether they lived in a smoke control area and what type of appliance they had, fewer than half burned the correct fuels for their particular area and appliance.

Recommendations for Local Councils

We recommend that local councils focus on providing:

More information to the public about the health dangers of burning solid fuels: This may include advice that people reduce their use of solid fuel burning appliances if they have another affordable source of heating. It is important to note that the results from the current report came mainly from people who felt relatively financially secure. Households who do not have an affordable alternative to heating their home by burning solid fuels may instead be supported to burn solid fuels as safely as possible, by following government regulations.

Easy to access and more personalised guidance on how government regulations apply to individual households, including:

- Whether their home is in a smoke control area
- What DEFRA-approved/ Eco Design Ready stoves are, and how to tell if they have one
- What types of solid fuels can be burnt in their specific appliance in their location
- How the Council monitors and enforces solid fuel burning regulations

As most people had their solid fuel burning appliance installed after they moved into their home, local councils may explore whether solid fuel retailers and installers can be

supported to provide personalised guidance to people on what solid fuels they can burn in their appliance and area.

Report authors and acknowledgements

Research report conducted by:

Dr Chantelle Wood, University of Sheffield; Dr Denisa Genes, University of Sheffield; Elizabeth Bates, City of Bradford Metropolitan District Council; Professor Jacqui Hamilton, University of York; Professor Rosie McEachan, Born in Bradford, Bradford Teaching Hospitals NHS Foundation Trust; Dr Erika Ikeda, Born in Bradford, Bradford Teaching Hospitals NHS Foundation Trust

Thanks to funding from:

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
DHN	District Heat Network – a scheme where many buildings are connected by pipework and provided with heat from a single locally based energy plant, increasingly from low emission energy centres
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
WY PIIP	West Yorkshire Particulate Information Improvement Project - a project taking place across West Yorkshire to monitor PM2.5 and provide public information
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
CASP	Clean Air Schools Programme
WYCA	West Yorkshire Combined Authority

References

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