2024 Air Quality Annual Status Report (ASR)

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

Date: July, 2024

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Executive Summary: Air Quality in Our Area

Air Quality in Dacorum

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year[1].

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution[2].

Since 1997 English local authorities have been charged with the duty of undertaking regular review and assessment of local air quality. This involves comparing local air quality against nationally set objectives for a range of pollutants. These objectives exist to protect health and the environment. As part of their review and assessment local authorities should identify areas of concern where the objective limits are unlikely to be met and, where there is relevant exposure, e.g. housing, schools, health centres / hospitals.

Assessment can be based on prediction techniques such as air quality modelling and / or other methods such as air quality monitoring. Where objectives are unlikely to be met, the local authority must declare an air quality management area and put together a plan to improve local air quality. Collectively this process in known as local air quality management (LAQM).

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

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

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

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.

The Council made declarations in 2012 for three Air Quality Management Areas (AQMA) covering 3 distinct areas of the district, since then one was revoked in 2023. It was revoked following continuous improvements well below the annual mean objectives. The two AQMA sites remaining are:

- AQMA 1: Lawn Lane, Hemel Hempstead
- AQMA 2: London Road, Apsley

All AQMAs had been declared due to an exceedance of the annual mean objective of 40µg/m^3 for nitrogen dioxide (NO_2) due to contributions from road transportation sources; furthermore the increase of use of solid fuel burning within residential area is also contributing to this due to the recent popularity of wood burners in the home and the use of formerly unused fireplaces and wood burners due to rising energy prices as people look for alternatives to reduce costs.

While air quality levels in the Lawn Lane and London Road AQMA remained at less than 40µg/m^3 which is below the objective limits aside from one sole location (discussed later) as they did in the 2023 Annual Status Report (ASR), these are yet to meet the required levels for revocation in DEFRA Guidance TG22. This states ‘, it is recommended that revocation of an AQMA should be considered following three consecutive years of annual mean NO2

concentrations being lower than 36µg/m3 (i.e. within 10% of the annual mean NO2 objective)'[3].

However, consistent improvements to Northchurch and compliance with the relevant objectives for 5 consecutive years led to the revocation of AQMA 3 which came into effect on 4th April 2023.

In the 2022 and 2023 ASR, only one site had shown to exceed the AQ objective levels and this is the Diffusion Tube location DB1 (Formerly DC5), a roadside location at Queensway, near to Old Town High St, Hemel Hempstead (505528 Easting, 207651 Northing). As a result, the Diffusion Tube Network had been amended to redeploy tubes from low risk areas and extend the monitoring in the surrounding area of Queensway and Old Town High Street from January 2023. This was done in order to identify the extent of the exceedance as none of the 3 other tubes in the surrounding area were showing exceedances. This has provided an unexpected result in the first year, in that while DB1 has remained in exceedance (by 2.5µg/m3); not one other tube within the vicinity (now totalling 5 tubes within a 50m radius of the exceeding tube, shown on a map in the below figure) show levels anywhere near exceedance, with DB1 showing levels 20µg/m3 higher than any other location.

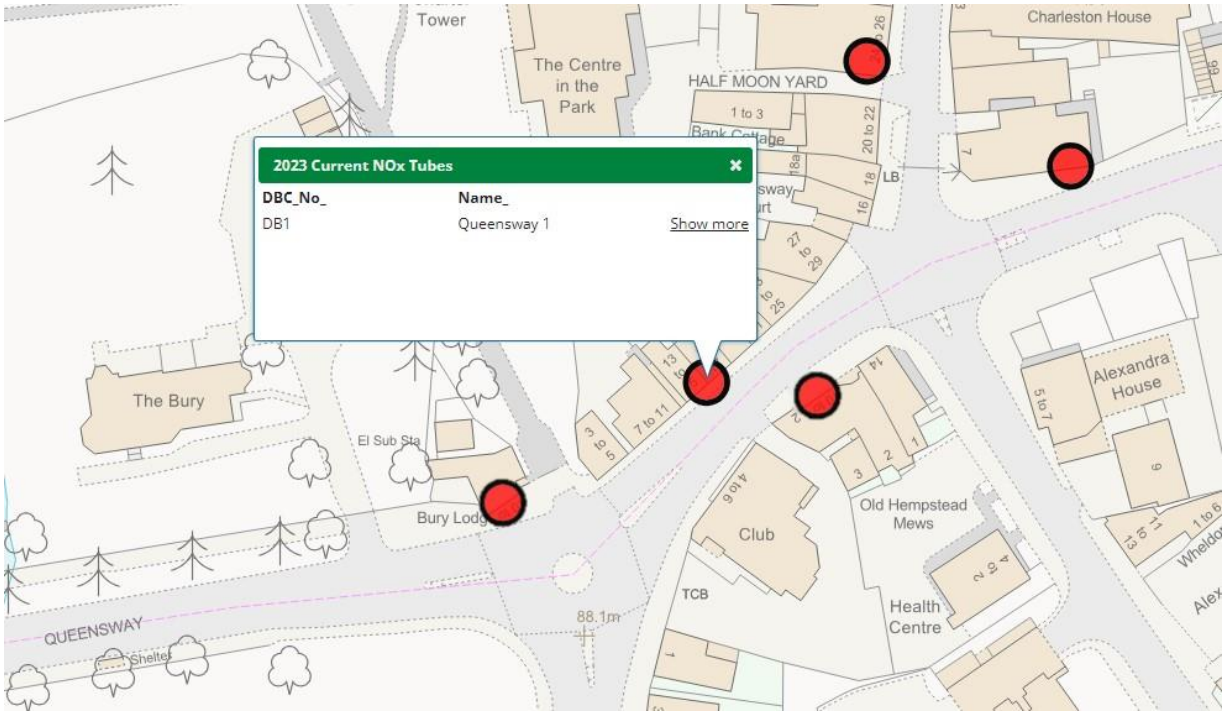

Figure 1 DB1 Location with surrounding tubes marked.

[3] DEFRA, LAQM Technical Guidance (TG22) August 2022

This suggests strongly that these highly localised levels cannot be reasonably attributed to the general road emissions and must be another source directly impacting these readings. Given the vicinity of the tube to a takeaway business (shown in the below figure) either emissions from the premises, staff smoking/vaping under the tube during breaks, or idling delivery driver vehicles on the kerb or pavement directly under the tube being potentially attributed to this rise, initially.

Figure 2. Image of DB1 location with vicinity to takeaway windows visible.

However, upon instigating an investigation with the premises, the use of a charcoal tandoor/tandoori oven within the premises itself appears to be the most likely cause the exceedance and the results being double any of the nearby tubes and therefore not reasonably attributable to roadside emissions. Due to the highly localised nature of these results, this tube will be relocated nearby but away from the food premises from January 2025. The business has been provided with advice on ventilation management and maintenance, advice has been provided to the occupants of the premises above in the interim (staffing accommodation) in relation to the air quality at street level and Hertfordshire County Council have been contacted to provide and indoor Air Quality monitor for the

premises. While this is being addressed, the declaration of an AQAP based on a sole tube in a highly localised area is not being considered.

A Zephyr monitoring unit is intended to be deployed in the location on a CCTV column for the avoidance of doubt, the readings/times of these readings will be combined with the CCTV unit in order to assess activity in the area.

All diffusion tube data has been uploaded to DTDES (Diffusion Tube Data Entry System) for Defra as part of this submission. In addition to diffusion tube monitoring the Council continues to utilise one real-time analyser (RTA) this has been relocated fromNorthchurch (location of the since revoked AQMA) and and moved to AQMA 2 (London Road, Apsley) in November 2024 and annualised results will be reported from the 2026 ASR. No exceedances were measured against either of the objectives relevant to Particulate Matter at the Northchurch location.

Due to logistics and available space, relocation to the Lawn Lane AQMA could not be considered, given the size of the analyser.

In 2023 officers successfully obtained three additional monitors provided by Hertfordshire County Council (HCC) which have been deployed to Swing Gate School, Lawn Lane and Bennett's End Rd. These are stationary HCC assets, however the data and results is being made available to the Council (as well as Swing Gate School) in order to assess levels at those locations. These were installed in June 2023 and the first annualised readings will be included in the 2025 ASR.

Officers also secured a Capital Bid to not only fund the relocation of the RTA from Northchurch to Apsley, but also to update and replace the failed 25 year old NOx analyser and acquire three Zephyr Air Quality Monitoring devices. These will be deployed initially at three fixed locations however have the ability to be redeployed and/or used as mobile monitoring stations (in a backpack, mounted to a vehicle etc.). The deployment of these will coincide with the relocation of the RTA, one of these will be stationed within the enclosure of the former Northchurch Analyser in order to continue to monitor the area as a precaution; one will be co-located at the new RTA location to prove the data's accuracy against the RTA readings, the other will be located initially at Queensway (Junction with Alexandra Rd and Old Town High Street) as mentioned above to investigate the sole exceedance location, which appears to be an anomaly due to cooking emissions.

These devices monitor Nitrogen Dioxide, Nitric Oxide, Ozone, PM1, PM2.5 and PM10 in real time. While they are not as accurate as the Real Time Analyser they are mobile and

more cost effective allowing us to monitor further locations for Particulate Matter despite this not currently being a statutory obligation.

Hertfordshire County Council have acquired licenses for RapidAIR, a modelling software for countywide assessments of the potential impacts of new or expanded developments on air quality using existing traffic, air quality and emissions datasets. This has been made available for use to DBC and Lead Officers for Science and Pollution teams, have undertaken training on the use of this software. The council's planning department have also been briefed on the modelling software's use and application to help inform local plans.

Actions to Improve Air Quality

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

The DEFRA Environmental Improvement Plan[4] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ($PM_{2.5}$), the pollutant of most harmful to human health. The Air Quality Strategy[5] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[6] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by road transport emissions.

Following feedback from the Air Quality Steering Group, the Council was able to make some updates to its draft Air Quality Action Plan (AQAP) for 2024-2029 which is awaiting political consultation locally, prior to public consultation and then submission to DEFRA.

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

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

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

The AQAP ensures holistic working with HCC Public Health and Air Quality teams, Dacorum Borough Council's Climate Change and Sustainability, Planning and Strategic Planning Teams and HCC Highways.

The latest appraisal from DEFRA shows a move in the right direction in terms of monitoring, management and reporting but has referred to the expiry of the 2019-2024 AQAP and the requirement for the latest AQAP to be expedited. The AQAP is currently in draft form, pending an updated source apportionment study by Ricardo and then review by the Senior Leadership team and Overview and Scrutiny Committee prior to consultation with public and stakeholders.

Conclusions and Priorities

Within the region of South West Herts, notable growth is still planned in Dacorum as well as neighbouring authorities of Luton, St Albans and Watford and therefore important that new development has a role to play in sustainability and improvement of local air quality. The Council continues to participate in the Herts and Beds air quality group that meets to discuss air quality matters affecting the County as a whole.

The Environmental and Community Protection (ECP) team will also continue to support and provide input into development of the local plan. As part of its consultation response ECP recommended a sustainability design guide noting that various obligations of national planning policy as regards healthy communities, transport and climate change require similar outcomes and exploiting these obligations to promote the co-benefits. For example travel plans produced under a transport obligation can support cycle schemes and which can promote health, and emissions reduction both in respect of climate and air quality.

The single receptor point of exceedance (DB1) on Queensway close to the Old Town. Has been the only location for data reported in recent years which had exceeded the Air Quality Objectives. The 2023 data shows that while this has reduced in levels from the previous year, is still slightly above the objective levels and remains a location of interest as a result, especially due to no other tubes in the area, including the 3 additional tubes deployed in January 2023 the local area showing anywhere near the exceedance levels. This now appears to be an anomaly and has ruled out the potential for this to be caused by roadside emissions and the use of charcoal as part of the nearby takeaways cooking process appears to be the cause of this exceedance. This is one of 7 tubes in a 50m radius, including one

directly over the road, with no other tube coming within 20µg/m3 of the annual average levels shown at DB1.

In regards to particulate matter PM10, 2.5 and 1 the trend and impact of solid fuel use namely wood burning stoves within domestic properties has led to a doubling of solid fuel use since 2005, which now means that as of 2018, residents burning in their home contributes to 38% of airborne particulates. The societal trend of wood burning appliances being installed, particularly following the cost of energy crisis has likely led to an exponential increase in this impact.

As such, the focus of DBC & HCC has been directed to focus on solid fuel burning in regards to management of particulates, HCC are spearheading a communications campaign with the support of the borough councils throughout the county regarding this. The ECP team have been allocated funds from Defra of £11,170 per year for 3 years initially, of which 1 has been received, to hopefully boost resources to focus on potentially expanding and enforcing Smoke Control Areas (SCA), with consideration being given to expand the current SCA to include all towns and villages within the Borough, likely discounting areas of agriculture. This will likely also be utilised initially in education campaigns around solid fuel burning at moorings and marinas along the canal.

There was the intention to apply for Defra's proposed 'Waterways' Air Quality funding, but conversations around this appear to have ceased nationally since the former Parliamentary Under Secretary of State for Defra, advised local authorities that this funding would now cease. As a result DBC may be reliant on utilising the general air quality funding application process as a result or alternative budgets related to Climate Change in order to achieve this on a wider scale; along with communication with the Canal and River Trust.

In addition to this, officers are becoming aware of increasing study and research into accumulative levels of non-exhaust particulate emissions from road transport which is due to the impact of tyre, brake and road wear caused by heavier electric vehicles, which is likely to surpass the particulates from combustion engines in the near future. The balance between the reduction of carbon and nitrogen based emissions and particulates continues to be an ongoing discussion at a national and international level, in addition to being a local concern. As such, requests are being made by the Pollution team to slow down proposed changes in fleet and licensing policy internally, proposed by political members, to convert the fleet to EVs and to include an outright ban on non-EVs as part of future licensing policies. These changes risk an offset of carbon for more problematic pollutants, in terms of human health, as we saw in the late 90s move to Diesel vehicles to offset carbon emissions.

Instead, we are minded to encourage a 'do no harm' (known as primum non nocere in medicine) approach to solutions. In doing so, taking a step back from an intervention, to look at the broader context and mitigate potential negative effects on the social fabric, the economy and the environment. Currently the trade off from carbon reduction to particulate increase in fully electric vehicles is a reduction of carbon of 12%[7] but a Particulate Matter increase of 26% compared to hybrid vehicles. This should improve with emerging battery production, tyre capability and mining technologies, however, in the interim the department suggests a steady conservative approach to making decisions, while so much research remains in terms of long term impacts of emerging technologies.

Local Engagement and How to get Involved

As part of the delivery and design of the latest AQAP, the Council intends to consult when appropriate on the strategy as a whole, as per DEFRA guidance also on individual measures and amendments if they occur. This will include actively consulting with key partners, the public and businesses.

In regard to maintaining contact with the public the Council will continue to ensure that reports and monitoring results are made publically available through the Council's web pages. Furthermore, Social Media engagement through the Councils Comms team will be utilized in advising the public on various incentives and actions through the year including Clean Air Day and seasonal air quality considerations like garden clearance (appropriate waste management) wood burning stove use and so on.

Working with HCC, Dacorum are feeding into an Air Quality Alert system which will provide advice and guidance to those vulnerable and at high risk of being physically impaired by the effects of incidents of poor air quality. The aim of influencing and advertising subscription, take up and use of the system locally intends to be monitored as part of the latest AQAP.

[7] Emissions Analytic (2023) Do No Harm — Emissions Analytics

Local Responsibilities and Commitment

This ASR was prepared by the Environmental and Community Protection Team of Dacorum Borough Council with the support and agreement of the following officers and departments:

Ciarán Corkerry – Lead Environmental Health Officer (Pollution)

Sarah Stefano – Head of Service (Interim) – Regulatory Services

This ASR has been approved by:

Cllr Robin Bromham – Portfolio Holder, Neighbourhood Operations, DBC

Stefania Horn – Strategic Director, Neighbourhood Operations, DBC

Matthew Clark – Air Strategy Lead, Herts County Council

This ASR has been signed off by Sarah Perlman, Director of Public Health, Hertfordshire County Council.

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

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1 Local Air Quality Management

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

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

The statutory air quality objectives applicable to LAQM in England are presented in 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 Dacorum can be found in Table 2.1. The table presents a description of the two AQMAs that are currently designated within Dacorum. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO_2 annual mean

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication
AQMA 1 - Lawn Lane	01/06/2012	NO2 Annual Mean	An area encompassing a number of properties overlooking to Lawn Lane, and the boundary declared between Belswains Lane and Seaton Road	NO	57	N/A	3 (But within 10%)	DRAFT UNDER REVIEW - 2024-2029
AQMA 2 - London Road	01/06/2012	NO2 Annual Mean	An area encompassing a number of properties overlooking London Road, and the boundary declared between Featherbed Lane and Weymouth Street	NO	55.9	N/A	3 (But within 10%)	DRAFT UNDER REVIEW - 2024-2029

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

☐ **Dacorum confirm that all current AQAPs have been submitted to Defra. N.B. AQAP currently at draft and under consultation**

2.2 Progress and Impact of Measures to address Air Quality in Dacorum

The Air Quality Action Plan (AQAP) for the next 5 years (2025-2030) is currently being processed and will be at public consultation by Spring 2025. Tasks and measures delivered by the previous AQAP (2019-2024) include:

- **Standardised planning conditions implemented relating to air quality considerations, low NOx boilers, EV charging infrastructure and bans on waste burning.**
- **Revocation of Northchurch AQMA (AQMA 3) in April 2023, following 5 years of levels below the UK health limits reducing year on year.**
- **A feasibility study for the implementation of a Clean Air Zone was carried out.**
- **A countywide Private Hire and Taxi Vehicle Emissions Policy has now been implemented and adopted.**
- **An additional 104 charging points have been provided across 18 car parks. Dacorum have become the district with the highest number of EV charge points throughout Hertfordshire and Dacorum have also moved into the top 20 per cent nationally.**

The proposed measures of the 2025-2030 AQAP include:

AQAP 1: Responsibilities and Commitment

Confirms responsibilities as an authority to address AQ issues.

AQAP 2: Maintaining links with key stakeholders

Commitment to AQAP Steering Group and development of relationships with partners

AQAP 3: Influencing emission reduction from new developments

Continuation of previous aims, with consideration being given to introducing pollution offset/S106 payments per ‘major development’ property to contribute to monitoring, management and education in regards to local AQ.

AQAP 4: Workplace Parking Levy

Consider feasibility study for WPL and its implementation in collaboration with HCC

AQAP 5: Private Hire and Taxi Vehicle Emissions Policy

Continue to engage with Licensing and HCCSP in relation to countywide licensing policy.

AQAP 6: Advanced Quality Bus Partnership (AQBP) & HertsLynx

Continue to engage with HCC and HCCSP in relation to AQBP & HertsLynx provision.

AQAP 7: Reducing Council emissions

Influencing reductions of emissions measures while ensuring AQ is consulted and considered as part of any potential changes to fleet, housing stock etc.

AQAP 8: Electric Vehicle Charging Infrastructure

Continue to engage with Sustainability in relation to EV Policy.

AQAP 9: Promoting sustainable travel and discouraging the use of single car journeys.

Support of Healthy Streets, LCWIP and Sustainable travel policies

AQAP 10: Smoke Control Area/Zone Revisions

Revise current SCA (Hemel North) to include satellite villages, waterways or residential areas beyond the town centre.

AQAP 11: Education and Awareness

Anti-idling campaigns, Marina/Mooring signage, General Comms

AQAP 12: Emerging Technologies and Physical Constraint

Consider emerging technologies in regards to emissions treatment on road networks, monitors connected to light timings etc. to improve air quality. Utilising recent Source Apportionment to consider potential changes or infrastructure to decrease emissions through Highways engagement.

AQAP 13: Feasibility for revision of resource allocated to Air Quality

Current staffing allocation to AQ from the Council (0.2 FTE) is stretched and partnership working will be key in implementing the plan.

ASR 2023

Defra’s appraisal of last year’s ASR concluded that the 2023 report was well structured, detailed, and provided the information specified in the Guidance.

*'On the basis of the evidence provided by the local authority the conclusions reached are **accepted** for all sources and pollutants. Following the completion of this report, Dacorum Borough Council should continue with the analysis presented in this submission and then submit an Annual Status Report in 2024. '*

The feedback or suggestions were as follows:

- Include a table outlining the AQAP measures and provide evidence of progress being made against all action plan measures. This has done for the EV AQAP measures in this submission but it would be useful to see the progress of other AQAP measures.
  DBC Comment: **Will be included once 2030-2030 AQAP has gone through consultation and submission. Proposals listed above**

- Mention in text that the diffusion tube data has been uploaded to DTDES (Diffusion Tube Data Entry System).
  DBC Comment: **Included in Executive Summary and Section 3.1.2.**

- Continue with Reference to the Public Health Outcomes Framework, following the positive work made in this submission.
  DBC Comment: **Noted**

- Continue analysis of trends in the air quality data in comparison to the Air Quality Objectives.
  DBC Comment: **Noted**

- Continue maintaining high standards of QA/QC procedures with sufficient supporting evidence provided. With robust analysis shown in this submission.
  DBC Comment: **Noted**

- Provide updates on the new AQAP for 2024.
  DBC Comment: **AQAP pending internal consultation and approval from Public Health at County Council at which time public and stakeholder consultation will be undertaken prior to submission. Proposed measures listed above**

- Ensure subscripts and superscripts are used appropriately throughout the report e.g., for NO2 and PM10.
  DBC Comment: **Noted**

- Provide details of the average mean concentrations obtained from the proposed Zephyr monitor in the former AQMA of Northchurch. This could be as an annual mean if sufficient data capture permits.
  DBC Comment: **Awaiting deployment, will be included along with Iknaia data, once full annual data available.**

- Aim to get Director for Public Health sign-off for future ASRs and make a reference in text to who from the Director for Public Health signed off a particular ASR.
  DBC Comment: **New Director for Public Health now in place following vacant and interim positions, now signed.**

- Specify which Socotec lab was used for diffusion tube analysis e.g. Socotec Glasgow or Socotec Didcot. In this case it appears to be Socotec Didcot based on the national bias factors presented in this submission.
  DBC Comment: **Done**

- For Table A.1, provide details which AQMA the automatic monitoring site CM1 is in. This can be inferred from the site name but for clarity this information should be in the ‘In AQMA? Which AQMA?’ column.
  DBC Comment: **Noted**

Dacorum has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out below.

These are revised in the draft form of the 2025-2030 AQAP, which is currently being consulted on and work has being undertaken by the Air Quality Steering Group to review the validity of some points due to changes in departmental structures, roles and responsibilities at local and county council level; these are summarised below. As the AQAP is due to be reviewed this year, these amendments will be reflected in the next ASR.

Following the Climate Emergency declaration, in 2020, a sixth priority was added to the Council's Corporate Plan - The Climate and Ecological Emergency (CEE) which encompasses four core targets:

- To achieve net zero emissions (scopes 1 and 2) as an organisation by 2030
- To achieve net zero emissions for our council housing stock (approximately 10,500 homes) by 2050 at the latest
- To support the borough in becoming net zero by 2050 at the latest
- To support an increase in biodiversity within the borough as much as possible

A Climate Emergency and Sustainability Programme Lead Officer was appointed in July 2020. The role of this officer is to develop and support the delivery of the CEE strategy and action plan in order to achieve these targets. The four key focuses for this CEE work are sustainable transport, energy use in buildings, sustainable communities and biodiversity. The officer has been invited to, and has been actively involved in, the Air Quality Steering Group since June 2022.

Some of the early work of the AQAP has been transposed in the CEE Action Plan and through the work of the lead officer progress has begun on the development of an Electric Vehicle Strategy for the borough. Currently we are unable develop this EV strategy further as we are waiting for the Government to release its Transport Decarbonisation Plan and Hertfordshire County Council to release its own Electric Vehicle Strategy as both of these documents from higher governing bodies affect the work that we will be able to do locally. However, we have been able to make progress in some areas. Most notably:

- An internal Sustainable Transport - Climate Emergency group has been established, with an Electric Vehicle sub-group.
- An Electric Vehicle Charging Infrastructure study has been carried out with a sustainability consultant. The key highlights from this work to are:
    - Within Dacorum it is anticipated we will have at least 30,000 EVs by 2030
    - At least one third of households in the district are unable to charge at home
    - Between 600-700 on-street EV charge points will be required to meet demand
- An ongoing Electric Vehicle Residents Survey has been launched on our website which has already had nearly 2000 responses.

In the last ASR it was reported that the Council has taken forward the proposal for an electric vehicle (EV) charging infrastructure study to determine future EV demand and identity which areas EV charge points would be best served to support wider public adoption of EV. A total of £415,360 of grant funding has been award by the Office for Zero Emission Vehicles (OZEV), with support of the Energy Saving Trust, for additional charging points for our residents who have plug-in electric vehicles. The project will provide 104 charging points across 18 car parks. The funding covers 60%, with the remaining 40 per cent being provided by Connected Kerb (who will be working with their rapid charging partner Osprey Charging Network).

These points are in the process of being deployed and installed.

One of our internal high level actions will be to decarbonise the Council's fleet by 2030 (recognising that waste collection vehicles may take longer than this depending on technologies). However, we are minded to ensure that this minimises the creation of other air pollutants (paying particular attention to particulate generation of proposed new vehicles)

We will also be working on a variety of behavioural change initiatives within the borough to encourage more sustainable transport.

Aside from transport, additional studies are also taking place into the current tree stock and external consultant support being provided to shape future tree planting strategies for around the borough.

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[8], 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.

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

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

- Deployment of Zephyr Air Quality Analysers in 3 locations in the borough capable of monitoring PM.
- Potential expansion of SCZ within borough to cover all urbanised areas and waterways in vicinity of pedestrianised or residential areas.
- Inclusion of PM education as part of the upcoming AQAP.

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

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Dacorum undertook automatic (continuous) monitoring at one sites during 2023. 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 Dacorum Northchurch High Street Latest Data - Air Quality monitoring service (airqualityengland.co.uk) page presents automatic monitoring results for Dacorum, with automatic monitoring results also available through the UK-Air website .

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

3.1.2 Non-Automatic Monitoring Sites

Dacorum undertook non- automatic (i.e. passive) monitoring of NO_2 at 68 sites during 2023. Table A.2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided via our GIS pages at Dacorum WebMap - Corporate. 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.

Diffusion tube data has been uploaded to DTDES (Diffusion Tube Data Entry System) in addition to this report.

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

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

Again there is one sole exceedance across the entire network, as there has been in the last 2 years. Diffusion Tube location DB1 (Formerly DC5), a roadside location at Queensway, near to Old Town High St, Hemel Hempstead (505528 Easting, 207651 Northing). As a result, the Diffusion Tube Network had been amended to redeploy tubes from low risk areas and extend the monitoring in the surrounding area of Queensway and Old Town High Street in January 2023, in order to identify the extent of the exceedance as none of the existing tubes in the surrounding area were showing exceedances.

This has provided an unexpected result in the first year, in that while DB1 has remained in exceedance (by 2.5µg/m3); not one other tube within the vicinity (now totalling 6 tubes within a 50m radius of the exceeding tube) show levels anywhere near exceedance, with DB1 showing average levels across the year of 20µg/m3 higher than any other location. This suggests strongly that these levels cannot be attributed to the general road emissions and must be another source directly impacting these readings.

Given the vicinity of the tube to a takeaway business either emissions from the premises, staff smoking/vaping under the tube during breaks, or idling delivery driver vehicles on the kerb or pavement directly under the tube being potentially attributed to this rise. A Zephyr unit is intended to be deployed in the location on a CCTV column, the readings/times of these readings will be combined with the CCTV unit in order to assess activity in the area.

However, following discussions with the business it transpires it is the addition in recent years and use of a charcoal tandoor/tandoori oven within the premises itself which appears to be the most likely cause of these results being double any of the nearby tubes and therefore not reasonably attributable to roadside emissions. While this cannot be proven beyond doubt, the difference compared to other readings in the nearby locality can only suggest that something specific to the immediate vicinity of the tube is impacting the results and therefore this tube will be relocated nearby but away from the premises from January 2025

No exceedances existed in 2023 within the 2 AQMAs, however, they are yet to fall below the percentile required by Defra to consider revocation across the entire AQMA. Triplicate monitoring positions at Lawn Lane HH1 (Lawn Lane AQMA) and Durrants Hill Rd (London Rd Apsley AQMA) do however continue to fall below the 10% to consider revocation, as such, consideration may be given soon to amending the AQMA to cover a smaller area, the resource required for this however, does not currently exist with only 0.2 FTE officer resource allocated to Air Quality within the Council. These trends are shown in Figs A.1-4.

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.

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.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM1	High Street, Northchurch	Roadside	497295	208901	NO2; PM10; PM2.5	YES	Chemiluminescent; FIDAS	10	3	2

Notes:

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

(2) N/A if not applicable

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
DB1 (formerly DC5)	Queensway 1	Roadside	505528	207651	NO2		1.0	2.0		2.0
DB2 (formerly DC6)	Queensway 2	Roadside	505545	207649	NO2		0.0	3.0		2.0
DB3 (formerly DC7)	Queensway 3	Roadside	505587	207686	NO2		0.0	3.0		2.0
DB4	Queensway 4	Roadside	505587	207685	NO2		1.0	3.0		2.0
DB5	Queensway 5	Roadside	505683	207699	NO2		1.0	3.0		2.0
DB6	Old Town High Street	Roadside	505562	207715	NO2		1.0	2.0		2.0
DB7 (formerly DC8)	Old Town Background	Background	505533	207842	NO2		0.0	15.0		2.0
DB8 (formerly DC9)	Kylna Court	Roadside	507848	208000	NO2		6.0	2.0		2.0
DB9 (formerly DC10)	New Park Drive	Urban Background	507774	207313	NO2		8.0	1.0		2.0
DB10 (formerly DC13)	St Albans Rd 1 (formerly St Albans 2)	Roadside	507880	207170	NO2		5.5	2.5		2.0

DB11 (formerly DC14)	St Albans Rd 2 (formerly St Albans 3)	Roadside	507716	207047	NO2		8.5	1.5		2.0
DB12 (formerly DC11)	Green Dell Way	Urban Background	508013	207155	NO2		8.0	2.0		2.0
DB13 (formerly DC17)	Gravel Path	Roadside	499703	207838	NO2		0.0	1.0		2.0
DB14 (formerly DC18)	Chapel Street, Berkhamsted	Roadside	499448	207870	NO2		2.0	2.0		2.0
DB15 (formerly DC19)	Princes Edward Street, Berkhamsted	Urban Background	499207	207754	NO2		43.0	2.0		2.0
DB16 (formerly DC20)	High Street 1, Berkhamsted	Roadside	498990	207924	NO2		3.0	3.0		2.0
DB17 (formerly DC21)	High Street 2, Berkhamsted	Roadside	499095	207874	NO2					2.0
DB18 (formerly DC22)	High Street 3, Berkhamsted	Roadside	499131	207838	NO2		1.0	4.0		2.0
DB19 (formerly DC23)	Lower Kings Rd 1	Roadside	499129	207942	NO2		1.5	2.5		2.0
DB20 (formerly DC24)	Lower Kings Rd 2	Roadside	499125	207900	NO2		1.5	0.8		2.0
DB21 (formerly DC25)	Kings Rd 1	Roadside	499108	207835	NO2		0.0	2.0		2.0
DB22 (formerly DC26)	Kings Rd 2	Roadside	499095	207838	NO2		0.0	1.0		2.0
DB23 (formerly DC27)	BFI, Shooters Way	Roadside	498323	206948	NO2		3.0	2.0		2.0

DB24 (formerly DC30)	The Meads	Roadside	497472	208730	NO2		8.0	2.0		2.0
DB25 (formerly DC31)	High Street 1A, Northchurch	Roadside	497346	208835	NO2		1.5	1.0		2.0
DB26 (formerly DC32)	High Street 1B, Northchurch	Roadside	497346	208835	NO2		1.5	1.0		2.0
DB27 (formerly DC33)	High Street 1C, Northchurch	Roadside	497346	208835	NO2		1.5	1.0		2.0
DB28 (formerly DC34)	New Road	Roadside	497355	208852	NO2		0.0	1.5		2.0
DB29 (formerly DC35)	High Street 2A, Northchurch	Roadside	497335	208860	NO2		0.0	3.0		2.0
DB30 (formerly DC36)	High Street 2B, Northchurch	Roadside	497335	208860	NO2		0.0	3.0		2.0
DB31 (formerly DC37)	High Street 2C, Northchurch	Roadside	497335	208860	NO2		0.0	3.0		2.0
DB32 (formerly DC38)	Northchurch Analyser A	Roadside	497295	208901	NO2		4.0	3.0	Yes	2.0
DB33 (formerly DC39)	Northchurch Analyser B	Roadside	497295	208901	NO2		4.0	3.0	Yes	2.0
DB34 (formerly DC40)	Northchurch Analyser C	Roadside	497295	208901	NO2		4.0	3.0	Yes	2.0
DB35 (formerly DC41)	High Street 3, Northchurch	Roadside	497306	208874	NO2		0.0	2.0		2.0
DB36 (formerly DC42)	Brook Street 1, Tring	Roadside	492611	212006	NO2		0.0	2.5		2.0

DB37 (formerly DC43)	New Mill Terrace (Formerly Recorded as Brook Street 2) Tring	Roadside	492680	212663	NO2		1.0	1.0		2.0
DB38 (formerly DC44)	Watford Rd, Kings Langley	Roadside	507611	201620	NO2		23.0	2.0		2.0
DB39 (formerly DC45)	High Street, Kings Langley	Roadside	507168	202802	NO2		1.0	3.0		2.0
DB40 (formerly DC46)	Belswains Lane, HH	Roadside	507005	204677	NO2		3.0	1.0		2.0
DB41 (formerly DC47)	London Rd, Aplsey 1A	Roadside	505677	205513	NO2	Yes, London Rd Apsley	0.0	1.5		2.0
DB42 (formerly DC48)	London Rd, Aplsey 1B	Roadside	505677	205513	NO2	Yes, London Rd Apsley	0.0	1.5		2.0
DB43 (formerly DC49)	London Rd, Aplsey 1C	Roadside	505677	205513	NO2	Yes, London Rd Apsley	0.0	1.5		2.0
DB44 (formerly DC50)	London Road, Apsley 2A	Roadside	505737	205443	NO2	Yes, London Rd Apsley	1.0	2.0		2.0
DB45 (formerly DC51)	London Road, Aplsey 2B	Roadside	505737	205443	NO2	Yes, London Rd Apsley	1.0	2.0		2.0
DB46 (formerly DC52)	London Road, Apsley 2C	Roadside	505737	205443	NO2	Yes, London Rd Apsley	1.0	2.0		2.0
DB47 (formerly DC53)	London Road, Aplsey 3	Roadside	505770	205430	NO2	Yes, London Rd Apsley	1.5	3.5		2.0
DB48 (formerly DC54)	London Road, Apsley 4	Roadside	505696	205509	NO2	Yes, London Rd Apsley	0.0	4.0		2.0
DB49 (formerly DC55)	London Road, Aspley 5	Roadside	505797	205436	NO2	Yes, London Rd Apsley	0.0	2.0		2.0

DB50 (formerly DC56)	Durrants Hill Rd1A	Roadside	505734	205519	NO2		1.0	2.0		2.0
DB51 (formerly DC57)	Durrants Hill Rd 1B	Roadside	505734	205519	NO2		1.0	2.0		2.0
DB52 (formerly DC58)	Durrants Hill Rd 1C	Roadside	505734	205519	NO2		1.0	2.0		2.0
DB53 (formerly DC59)	Lawn Lane, HH 1A	Roadside	505969	205726	NO2	Yes, Lawn Lane	1.0	1.0		2.0
DB54 (formerly DC60)	Lawn Lane, HH 1B	Roadside	505969	205726	NO2	Yes, Lawn Lane	1.0	1.0		2.0
DB55 (formerly DC61)	Lawn Lane, HH 1C	Roadside	505969	205726	NO2	Yes, Lawn Lane	1.0	1.0		2.0
DB56 (formerly DC62)	Lawn Lane, HH 2A	Roadside	505930	205740	NO2	Yes, Lawn Lane	0.0	1.0		2.0
DB57 (formerly DC63)	Lawn Lane, HH 2B	Roadside	505930	205740	NO2	Yes, Lawn Lane	0.0	1.0		2.0
DB58 (formerly DC64)	Lawn Lane, HH 2C	Roadside	505930	205740	NO2	Yes, Lawn Lane	0.0	1.0		2.0
DB59 (formerly DC65)	Lawn Lane, HH 3A	Roadside	505901	205788	NO2	Yes, Lawn Lane	5.5	1.5		2.0
DB60 (formerly DC66)	Lawn Lane, HH 3B	Roadside	505901	205788	NO2	Yes, Lawn Lane	5.5	1.5		2.0
DB61 (formerly DC67)	Lawn Lane, HH 3C	Roadside	505901	205788	NO2	Yes, Lawn Lane	5.5	1.5		2.0
DB62	Lawn Lane, HH 3D	Roadside	505856	205823	NO2	Yes, Lawn Lane	5.0	1.0		2.0
DB63	Durrants Hill Road	Roadside	505870	205715	NO2		3.0	2.0		2.0

DB64 (formerly DC68)	Lawn Lane, HH 4	Urban Background	506053	205664	NO2		0.0	29.0		2.0
DB65 (formerly DC1)	Cotterrells	Roadside	505355	206504	NO2		5.0	1.0		2.0
DB66 (formerly DC2)	Southhill Road BG	Background	505251	206960	NO2		4.0	0.5		2.0
DB67 (formerly DC3)	Leighton Buzzard Road	Roadside	505339	207238	NO2		6.5	2.5		2.0
DB68 (formerly DC4)	LB Road / Coombe Street	Roadside	505340	207207	NO2		8.0	2.0		2.0

Notes:

(1) Triplicate sites are highlighted in **BOLD**, in future years these will be presented as averaged data.

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

(3) 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 2023 (%) (2)	**2019**	**2020**	2021	2022	**2023**
CM1	497295	208901	Roadside	Automatic	96	24.0	19.0	18.0	18.0	18

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

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

☒ **Where exceedances of the NO_2 annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2023.**

Notes:

The annual mean concentrations are presented as µg/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	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
DB1 (formerly DC5)	Roadside	505528	207651	100	100.0			**49.4**	**45.6**	**45.8**
DB2 (formerly DC6)	Roadside	505545	207649	100	100.0			24.9	23.1	22.5
DB3 (formerly DC7)	Roadside	505587	207686	100	100.0			28.7	28.5	25.6
DB4	Roadside	505587	207685	100	100.0					17.2
DB5	Roadside	505683	207699	100	100.0					22.6
DB6	Roadside	505562	207715	92.3	92.3					19.1
DB7 (formerly DC8)	Background	505533	207842	92.3	92.3			12.9	13.7	11.9
DB8 (formerly DC9)	Roadside	507848	208000	100	100.0			27.3	26.4	22.6
DB9 (formerly DC10)	Urban Background	507774	207313	100	100.0			15.4	16.0	13.5
DB10 (formerly DC13)	Roadside	507880	207170	100	100.0			29.2	26.8	26.2

DB11 (formerly DC14)	Roadside	507716	207047	100	100.0			25.7	25.1	22.3
DB12 (formerly DC11)	Urban Background	508013	207155	92.3	92.3			17.3	16.3	15.8
DB13 (formerly DC17)	Roadside	499703	207838	100	100.0	25.1	25.3	19.4	18.2	18.1
DB14 (formerly DC18)	Roadside	499448	207870	100	100.0	16.1	16.9	12.9	12.1	11.0
DB15 (formerly DC19)	Urban Background	499207	207754	100	100.0	17.9	17.5	13.6	13.3	12.0
DB16 (formerly DC20)	Roadside	498990	207924	100	100.0			21.3	19.2	18.6
DB17 (formerly DC21)	Roadside	499095	207874	100	100.0			24.9	23.4	23.2
DB18 (formerly DC22)	Roadside	499131	207838	100	100.0			24.4	22.9	21.1
DB19 (formerly DC23)	Roadside	499129	207942	100	100.0	29.2	30.7	21.6	22.7	21.6
DB20 (formerly DC24)	Roadside	499125	207900	100	100.0			20.8	22.5	20.3

DB21 (formerly DC25)	Roadside	499108	207835	100	100.0			21.2	21.4	19.0
DB22 (formerly DC26)	Roadside	499095	207838	100	100.0			26.6	25.6	25.7
DB23 (formerly DC27)	Roadside	498323	206948	100	100.0	33.3	29.0	22.1	21.0	20.0
DB24 (formerly DC30)	Roadside	497472	208730	100	100.0	24.7	24.7	20.5	20.2	19.9
DB25 (formerly DC31)	Roadside	497346	208835	100	100.0	33.0	32.7	30.1	29.1	26.8
DB26 (formerly DC32)	Roadside	497346	208835	100	100.0	34.2	32.9	31.2	30.7	30.0
DB27 (formerly DC33)	Roadside	497346	208835	100	100.0	33.6	33.9	31.2	30.9	28.4
DB28 (formerly DC34)	Roadside	497355	208852	100	100.0			19.5	18.6	18.7
DB29 (formerly DC35)	Roadside	497335	208860	100	100.0	36.2	38.6	27.1	23.4	25.2
DB30 (formerly DC36)	Roadside	497335	208860	100	100.0	35.5	37.6	26.9	25.0	26.4

DB31 (formerly DC37)	Roadside	497335	208860	100	100.0	37.8	37.2	27.9	25.7	24.8
DB32 (formerly DC38)	Roadside	497295	208901	100	100.0	25.4	23.8	18.1	17.6	16.9
DB33 (formerly DC39)	Roadside	497295	208901	89.8	89.8	25.9	24.3	18.9	17.8	16.9
DB34 (formerly DC40)	Roadside	497295	208901	100	100.0	24.8	24.9	18.7	18.2	15.8
DB35 (formerly DC41)	Roadside	497306	208874	100	100.0			22.8	22.2	22.9
DB36 (formerly DC42)	Roadside	492611	212006	100	100.0			20.3	19.0	17.1
DB37 (formerly DC43)	Roadside	492680	212663	100	100.0			17.5	17.0	16.4
DB38 (formerly DC44)	Roadside	507611	201620	100	100.0			31.9	28.2	26.3
DB39 (formerly DC45)	Roadside	507168	202802	100	100.0			20.8	20.0	17.9
DB40 (formerly DC46)	Roadside	507005	204677	100	100.0	32.9	30.4	23.2	22.5	22.3

DB41 (formerly DC47)	Roadside	505677	205513	92.3	92.3	**48.6**	**48.6**	37.6	36.8	33.9
DB42 (formerly DC48)	Roadside	505677	205513	85.4	85.4	**48.3**	**47.1**	38.5	37.9	35.3
DB43 (formerly DC49)	Roadside	505677	205513	100	100.0	**48.3**	**49.9**	36.1	35.8	33.2
DB44 (formerly DC50)	Roadside	505737	205443	100	100.0			30.0	30.3	27.7
DB45 (formerly DC51)	Roadside	505737	205443	100	100.0			30.7	31.7	25.7
DB46 (formerly DC52)	Roadside	505737	205443	100	100.0			30.1	30.3	27.3
DB47 (formerly DC53)	Roadside	505770	205430	100	100.0			26.1	24.8	21.5
DB48 (formerly DC54)	Roadside	505696	205509	100	100.0			28.7	27.6	24.4
DB49 (formerly DC55)	Roadside	505797	205436	100	100.0			29.6	29.4	25.8
DB50 (formerly DC56)	Roadside	505734	205519	100	100.0	26.2	27.6	22.3	21.8	22.3

DB51 (formerly DC57)	Roadside	505734	205519	100	100.0	27.5	26.6	22.0	23.5	20.0
DB52 (formerly DC58)	Roadside	505734	205519	100	100.0	28.0	28.8	22.9	21.0	20.4
DB53 (formerly DC59)	Roadside	505969	205726	100	100.0	28.5	30.6	24.1	23.2	20.9
DB54 (formerly DC60)	Roadside	505969	205726	89.8	89.8	29.2	29.8	24.9	22.4	19.7
DB55 (formerly DC61)	Roadside	505969	205726	100	100.0	29.4	29.4	26.5	22.1	21.6
DB56 (formerly DC62)	Roadside	505930	205740	100	100.0	**48.7**	**52.1**	35.8	32.7	33.4
DB57 (formerly DC63)	Roadside	505930	205740	100	100.0	**48.6**	**51.0**	36.0	34.7	33.2
DB58 (formerly DC64)	Roadside	505930	205740	89.8	89.8	**48.3**	**49.3**	35.1	36.2	32.1
DB59 (formerly DC65)	Roadside	505901	205788	100	100.0			28.2	26.3	26.5
DB60 (formerly DC66)	Roadside	505901	205788	93.1	93.1			27.3	28.1	26.2

DB61 (formerly DC67)	Roadside	505901	205788	100	100.0			27.1	28.8	26.5
DB62	Roadside	505856	205823	100	100.0					22.1
DB63	Roadside	505870	205715	100	100.0					18.5
DB64 (formerly DC68)	Urban Background	506053	205664	100	100.0	20.6	20.2	15.3	16.3	13.9
DB65 (formerly DC1)	Roadside	505355	206504	100	100.0					25.6
DB66 (formerly DC2)	Background	505251	206960	100	100.0					13.2
DC68	Roadside	505339	207238	100	100.0					31.1

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16**

☒ **Diffusion tube data has been bias adjusted**

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

Notes:

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

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

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

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

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

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

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

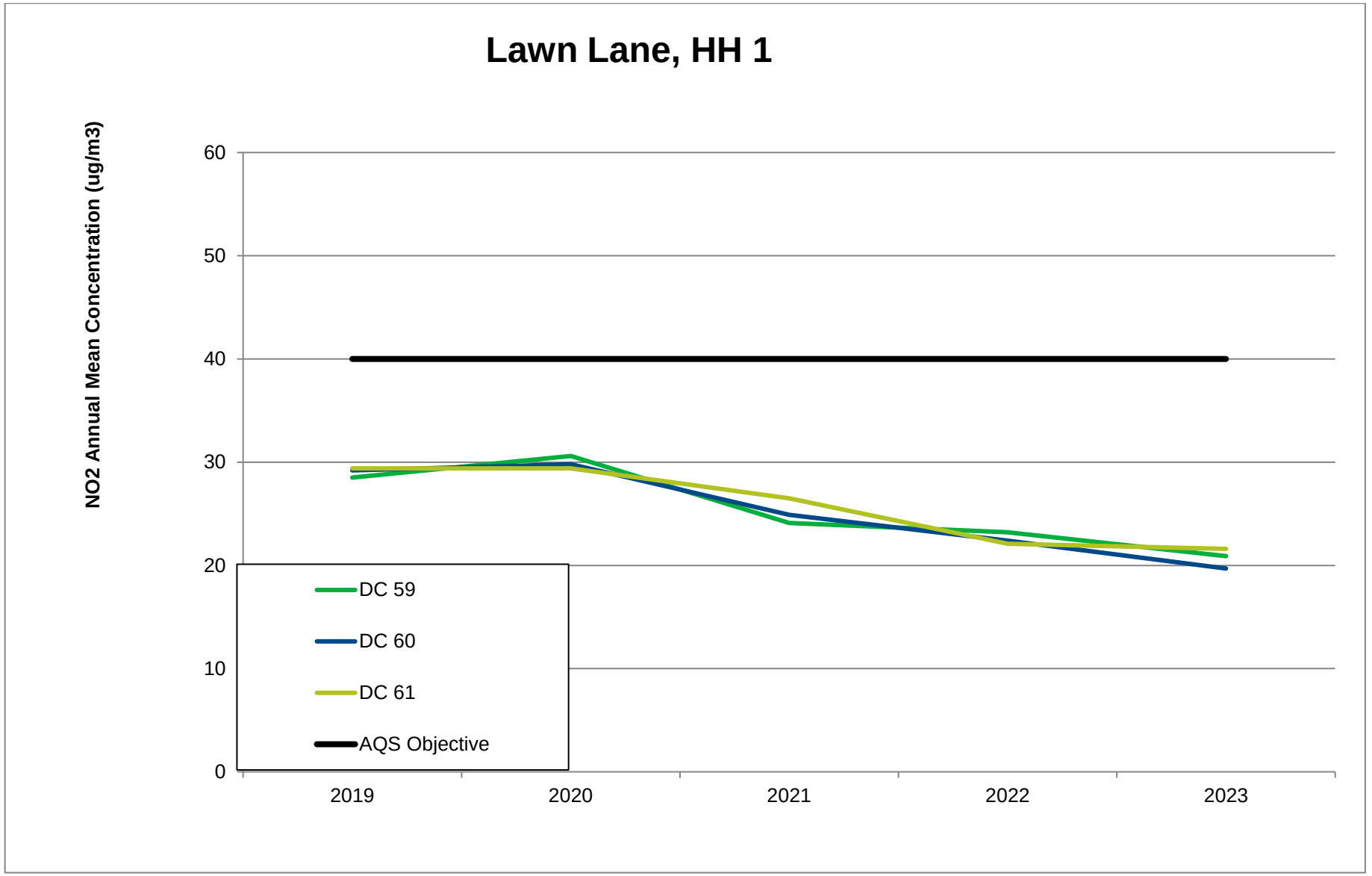


Figure A.1 – Trends in Annual Mean NO_2 Concentrations AQMA 1 Lawn Lane HH1

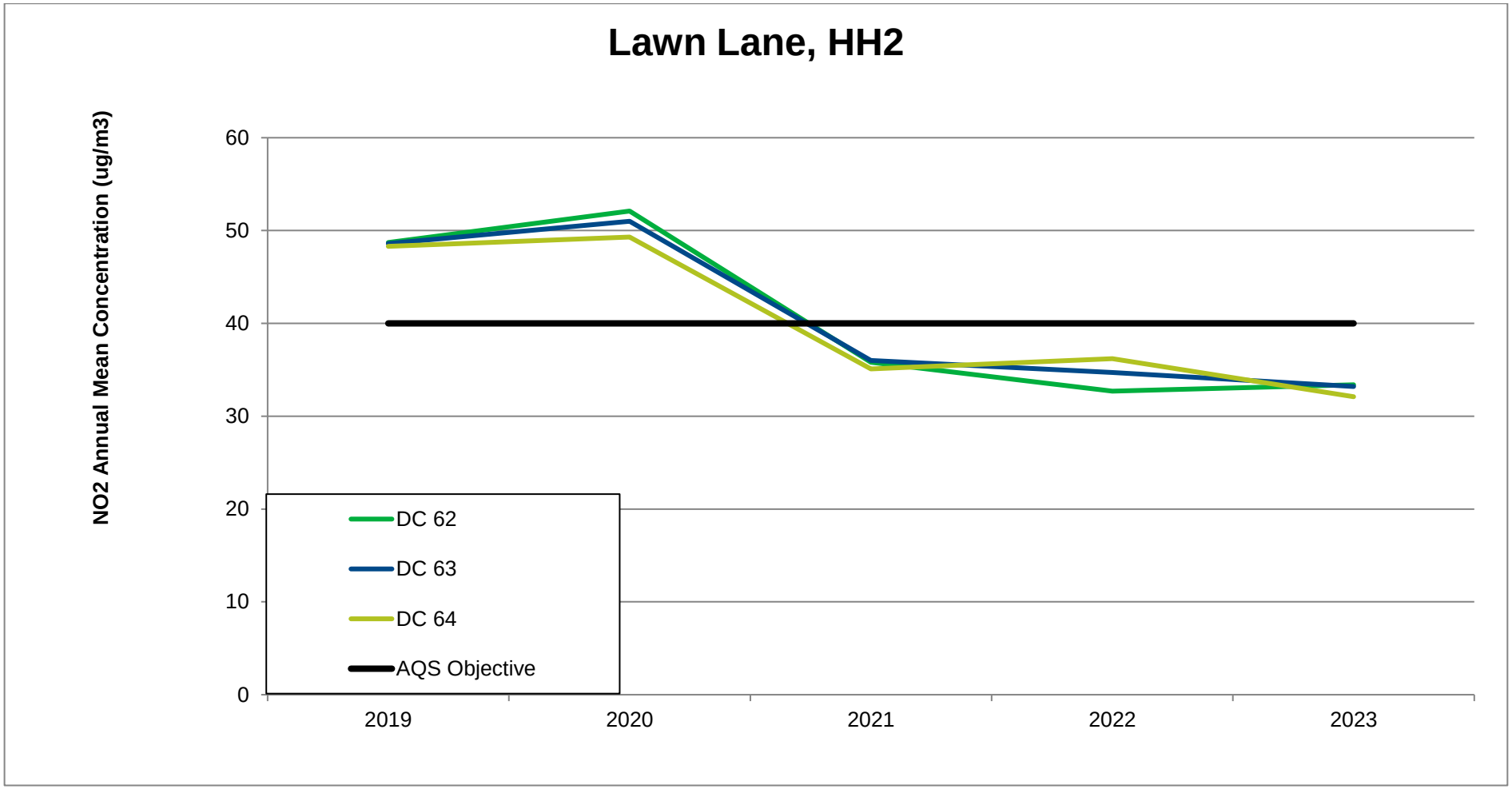


Figure A.2 – Trends in Annual Mean NO_2 Concentrations AQMA 1 Lawn Lane HH2

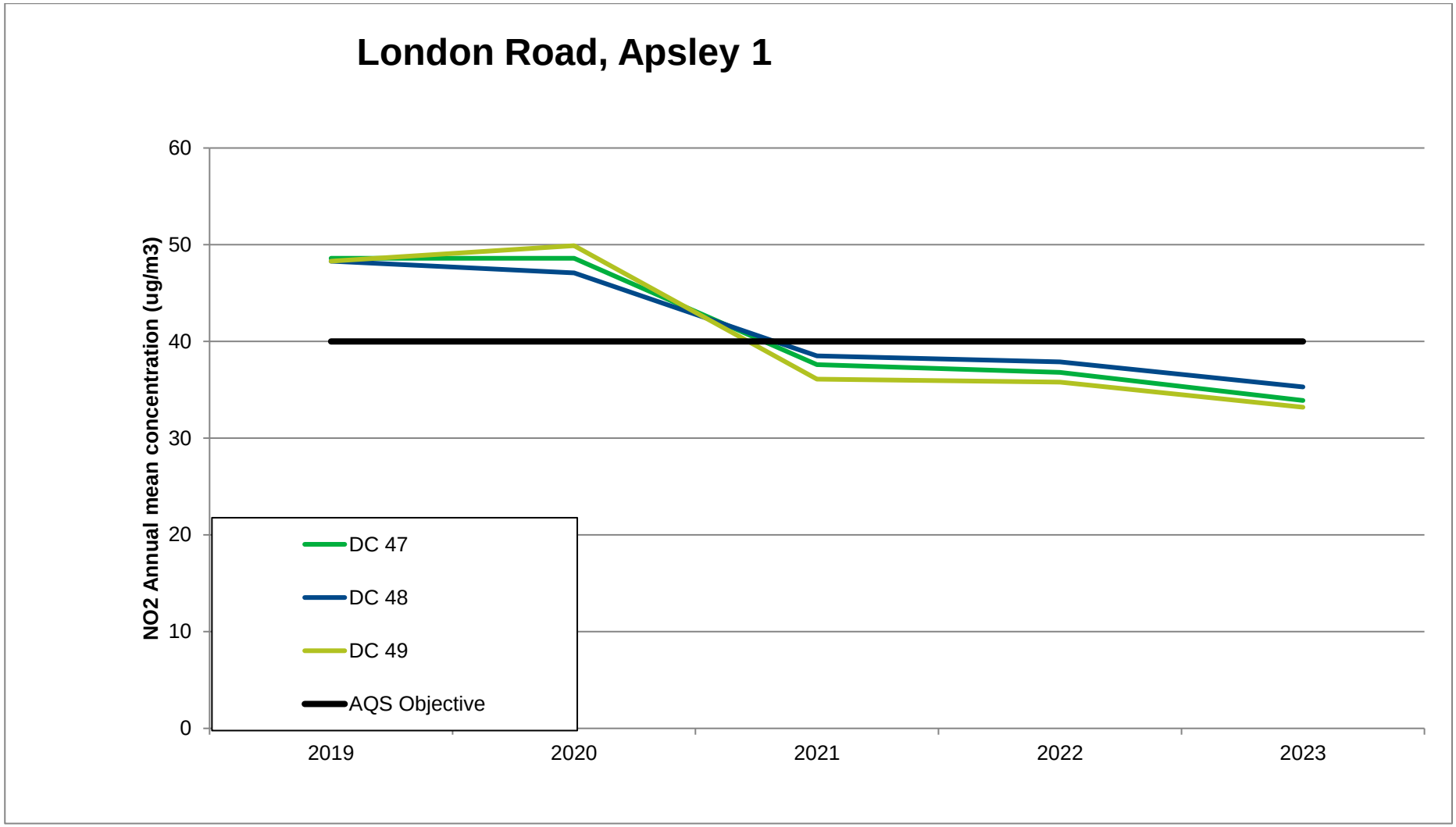


Figure A.3 – Trends in Annual Mean NO_2 Concentrations AQMA 2 London Rd Apsley 1

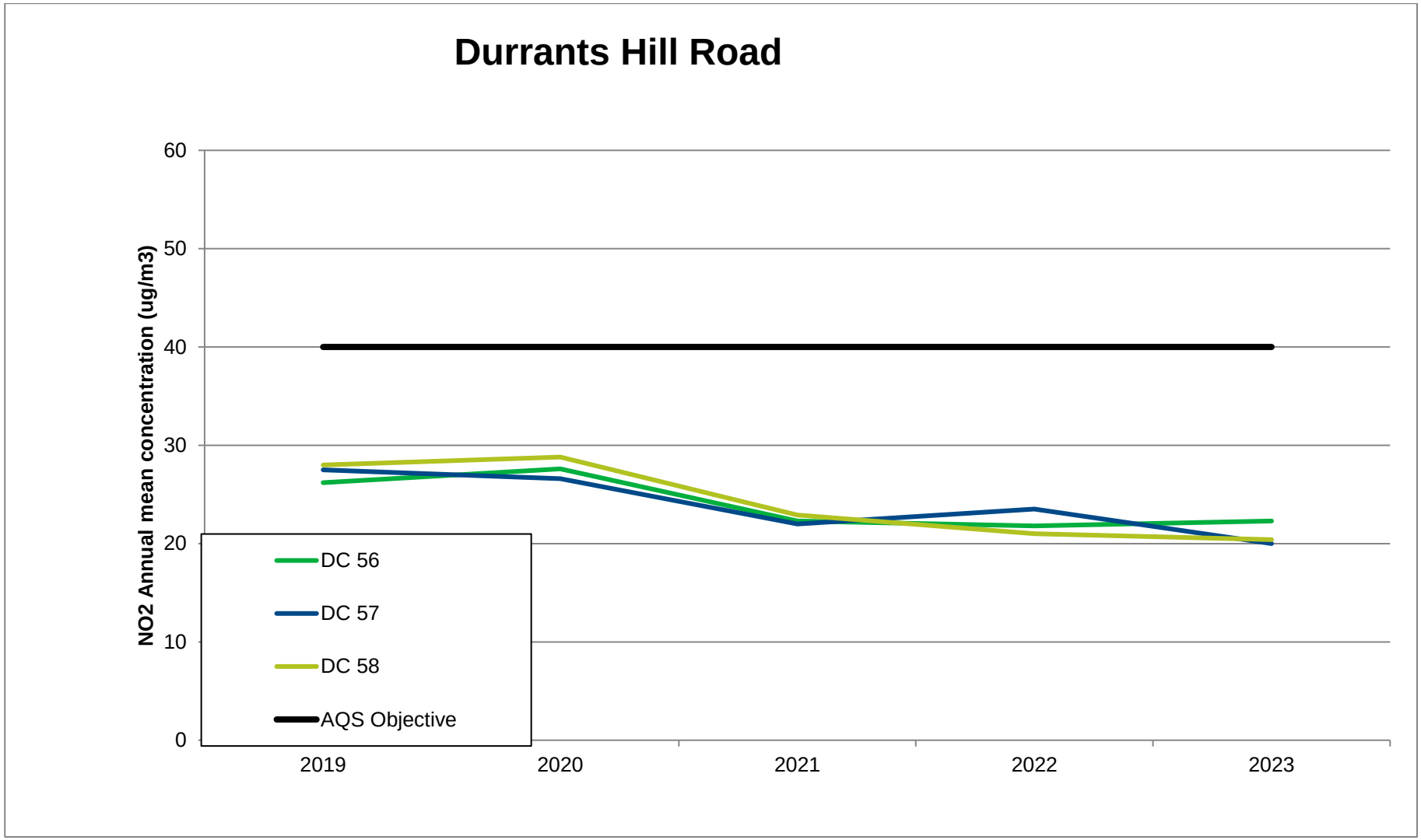


Figure A.4 – Trends in Annual Mean NO_2 Concentrations AQMA 2 London Rd Apsley, Durrants Hill Rd

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

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2019	2020	2021	2022	2023
CM1	497295	208901	Roadside	92	92	0	0	0	0	0

Notes:

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

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

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

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

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

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)	2019	2020	2021	2022	2023
CM1	497295	208901	Roadside	96	91	18	15	15	16	16

☒ **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%).

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)	2019	2020	2021	2022	2023
CM1	497295	208901	Roadside	96	91	8	1	1	5	5

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%).

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)	2019	2020	2021	2022	2023
CM1	497295	208901	Roadside	96	91	10	9	9	10	10

☒ **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%).

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 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 <(x.x)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DB1 (formerly DC5)	505528	207651	39.6	64.0	57.9	74.2	85.6	65.1	39.5	43.7	54.1	53.3	57.4	43.6	56.5	**45.8**	**42.5**	**Sole Exceedance, External factor identified, non-roadside impact**
DB2 (formerly DC6)	505545	207649	31.4	35.7	32.5	32.6	25.2	25.2	22.5		<0.6	33.5	21.4	18.0	27.8	22.5	-	
DB3 (formerly DC7)	505587	207686	38.0	45.1	31.7	31.4		27.9	21.9	26.5	34.2	34.5	33.0	23.4	31.6	25.6	-	
DB4	505587	207685		29.3	26.2	20.0	18.3	17.8	18.3	18.3	22.0	21.6	20.4	21.9	21.3	17.2	-	
DB5	505683	207699		38.7	31.3	21.0	25.4	26.4	23.5	23.8	30.4	30.4	34.4	21.7	27.9	22.6	-	
DB6	505562	207715		32.1	25.4	17.9	21.0	20.6	19.5	20.0	27.2	28.1	26.0	22.1	23.6	19.1	-	
DB7 (formerly DC8)	505533	207842	18.0	Missing	18.1	12.8	9.5	10.8	8.7	12.8	16.4	21.6	17.6	14.7	14.6	11.9	-	
DB8 (formerly DC9)	507848	208000	33.3	38.3	33.5	27.4	23.6	22.4	18.9	24.8	27.4	34.5	26.5	24.1	27.9	22.6	-	
DB9 (formerly DC10)	507774	207313	4.7	27.5	19.3	16.9	15.1		10.2	13.3	18.1	22.7	21.0	15.0	16.7	13.5	-	
DB10 (formerly DC13)	507880	207170	35.0	40.9	27.5	36.5	26.5		28.5	31.9	44.9	34.0	24.4	25.6	32.3	26.2	-	
DB11 (formerly DC14)	507716	207047	35.2	41.6	16.0	25.8	25.6	26.3	18.9	25.0	31.1		33.0	23.7	27.5	22.3	-	
DB12 (formerly DC11)	508013	207155	26.2	32.8	17.5	17.7	18.9	15.7	12.8	14.5	18.6	20.2	21.6	17.0	19.5	15.8	-	
DB13 (formerly DC17)	499703	207838	25.2	30.1	24.7	15.1	21.8	22.9	16.8	21.0	23.6	26.1	21.5	19.1	22.3	18.1	-	
DB14 (formerly DC18)	499448	207870	18.1	20.9	14.2	8.0	10.1	9.2	9.8	11.6	14.6	17.9	15.0	14.1	13.6	11.0	-	
DB15 (formerly DC19)	499207	207754	19.1	21.7	16.6	11.9	14.0		7.8	12.1	13.9	13.9	18.0	13.5	14.8	12.0	-	

DB16 (formerly DC20)	498990	207924	27.4	30.7	25.3	16.2	24.5	23.5	14.5	22.4	24.9	25.0	22.6	17.9	22.9	18.6	-
DB17 (formerly DC21)	499095	207874	36.6	34.7		27.8	26.5	26.0	21.1	26.3	29.8	32.9	31.6	21.8	28.6	23.2	-
DB18 (formerly DC22)	499131	207838	32.5	33.5	29.6	15.4	19.0	22.2	22.8	24.7	32.2	31.0	24.4	25.3	26.1	21.1	-
DB19 (formerly DC23)	499129	207942	29.1	32.6	29.3	30.2	22.5	22.7	23.8	22.6		27.4	29.5	24.3	26.7	21.6	-
DB20 (formerly DC24)	499125	207900	16.0	30.7	25.3	30.1	24.9	24.4	19.3	24.3	31.1	28.1	25.9	21.2	25.1	20.3	-
DB21 (formerly DC25)	499108	207835	27.0	28.8	21.9	30.1	20.9	21.6	15.3	24.1	29.9	22.5	20.6	18.6	23.4	19.0	-
DB22 (formerly DC26)	499095	207838	40.2	40.6	24.5	33.3	27.9	24.4	27.3	31.6	38.5	31.5	34.7	26.2	31.7	25.7	-
DB23 (formerly DC27)	498323	206948	33.6	36.8	24.9	19.5	27.2	28.2	17.8	18.0	21.2	25.2	27.8	16.0	24.7	20.0	-
DB24 (formerly DC30)	497472	208730	34.6	36.4		17.7	20.7	18.1	18.3	22.9	24.8	29.2	27.8	19.8	24.6	19.9	-
DB25 (formerly DC31)	497346	208835	41.6	47.5	39.8	22.4	30.0	27.6	32.7	29.2	29.4	39.3	37.8	20.0	33.1	26.8	-
DB26 (formerly DC32)	497346	208835	43.7	48.1	41.5	29.2	30.8	33.5	34.7	31.7	39.9	42.0	35.9	32.9	37.0	30.0	-
DB27 (formerly DC33)	497346	208835	41.4	45.8	36.2	29.9	30.6	33.3	30.9	31.7	42.5	41.2	28.6	27.9	35.0	28.4	-
DB28 (formerly DC34)	497355	208852	27.7	32.6	23.3	20.4	23.1	20.9	15.9	18.4	22.6	24.5	31.0	16.5	23.1	18.7	-
DB29 (formerly DC35)	497335	208860	31.8	43.5	34.1	35.6	35.8	32.8	19.7	26.2	31.9	37.4	21.6	22.5	31.1	25.2	-
DB30 (formerly DC36)	497335	208860	37.9	44.3	33.7	29.7	37.8	32.7	24.1	28.1	33.8	35.0	29.8	24.1	32.6	26.4	-
DB31 (formerly DC37)	497335	208860	34.6	43.6	31.0	25.1	36.4	33.6	22.6	27.4	31.5	39.4	25.4	16.6	30.6	24.8	-
DB32 (formerly DC38)	497295	208901	26.9	30.3	23.8	23.3	19.8	18.8	15.0	16.9	20.8	24.9	18.7	11.3	20.9	16.9	-
DB33 (formerly DC39)	497295	208901	25.9	30.5	19.6	17.4	21.2	18.5	14.9	17.1	20.4	23.0	22.1	19.7	20.9	16.9	-
DB34 (formerly DC40)	497295	208901	27.4	29.5	26.0	21.2	19.6	18.7	14.6	20.1	17.6	21.9	8.1	9.1	19.5	15.8	-
DB35 (formerly DC41)	497306	208874	30.7	38.3	30.3	21.9	24.2	24.6	25.7	22.8	29.1	33.3	30.6		28.3	22.9	-

DB36 (formerly DC42)	492611	212006	26.1	33.9	20.3	12.4	19.6	18.1	18.3	17.6	23.9	20.3	21.7	20.6	21.1	17.1	-
DB37 (formerly DC43)	492680	212663	22.1	29.7	21.8	15.1	19.5	18.6	14.0	17.4	23.1	23.8	22.9	15.7	20.3	16.4	-
DB38 (formerly DC44)	507611	201620	37.7	42.7	36.9	26.6	27.3	27.1	27.0	30.4	38.4	35.8	32.8	27.2	32.5	26.3	-
DB39 (formerly DC45)	507168	202802	24.3	30.7	22.0	26.0	21.6	18.9	14.5	17.0	21.1	23.3	26.2	19.0	22.1	17.9	-
DB40 (formerly DC46)	507005	204677	30.0	37.2	18.8	24.2	21.2	22.8	23.8	25.8	30.2	30.6	33.3	32.8	27.6	22.3	-
DB41 (formerly DC47)	505677	205513	42.2	54.0	42.2	36.0	37.2	34.1	35.8	38.8	51.4	43.0	46.3	41.1	41.8	33.9	-
DB42 (formerly DC48)	505677	205513	50.9	55.2	49.1	38.2	39.2	32.8	37.5	41.1	52.4	47.8	41.7	36.7	43.6	35.3	-
DB43 (formerly DC49)	505677	205513	47.1	54.4	44.5	19.9	37.3	36.1	37.1	36.2	52.5	48.6	46.1	32.7	41.0	33.2	-
DB44 (formerly DC50)	505737	205443	42.0	46.8	38.6	26.5	27.5	28.1	27.0	29.9	40.8	35.1	33.4	34.5	34.2	27.7	-
DB45 (formerly DC51)	505737	205443	13.0	48.2	39.8	16.9	29.9	27.8	28.7	32.7	42.6	40.5	28.4	32.7	31.8	25.7	-
DB46 (formerly DC52)	505737	205443	41.5	46.5	18.7	29.7	25.6	28.1	28.8	32.9	40.0	36.6	41.0	34.7	33.7	27.3	-
DB47 (formerly DC53)	505770	205430	34.0	39.5	23.6	11.1	23.4	24.1	24.0	26.8		30.8	29.3	24.8	26.5	21.5	-
DB48 (formerly DC54)	505696	205509	32.1	43.9	29.9	27.9	33.1	30.2	18.0	26.3	34.6	32.8	27.4	25.5	30.1	24.4	-
DB49 (formerly DC55)	505797	205436	36.7	47.6	20.7	32.5	29.6	32.0	23.3	28.4		37.1	33.5	28.3	31.8	25.8	-
DB50 (formerly DC56)	505734	205519	61.3	34.6	26.0	20.6	22.1	22.1	18.0	23.3	30.7	25.6	26.5	20.3	27.6	22.3	-
DB51 (formerly DC57)	505734	205519	25.9	32.2	22.9	20.5	22.5	24.4	18.0	21.5	30.1	30.6	24.9	22.1	24.6	20.0	-
DB52 (formerly DC58)	505734	205519	29.1	33.6	25.8	25.9	22.4	21.8		22.0	28.5	27.0	23.5	16.9	25.1	20.4	-
DB53 (formerly DC59)	505969	205726	34.9	36.6	19.5	22.3	25.9	21.1	20.2	22.6	30.2	26.7	32.3	17.8	25.8	20.9	-
DB54 (formerly DC60)	505969	205726	32.8	37.3	26.9	16.3	24.4	19.9	17.7	23.2	26.8	30.4	27.1	8.4	24.3	19.7	-
DB55 (formerly DC61)	505969	205726	32.6	38.3	29.0	22.4	23.2	21.4	17.0	22.8	28.6	28.9	31.3	24.3	26.7	21.6	-

DB56 (formerly DC62)	505930	205740	56.2	55.4	41.5	35.2	33.5	36.0	39.4	39.3	48.9	44.3	48.6	16.2	41.2	33.4	-
DB57 (formerly DC63)	505930	205740	45.4	56.2	37.2	24.9	35.4	35.0	41.0	39.7	46.6	42.0	49.1	38.8	40.9	33.2	-
DB58 (formerly DC64)	505930	205740	29.9	54.2	39.9	31.3	35.2	35.2	38.0	39.8	48.8	44.7	40.6	37.5	39.6	32.1	-
DB59 (formerly DC65)	505901	205788	36.3	45.3		26.1	34.2	33.5	21.5	28.0	37.9	39.3	34.2	23.4	32.7	26.5	-
DB60 (formerly DC66)	505901	205788	38.9	39.1		29.3	34.3	33.9	20.1	28.8	34.4	35.2	36.0	26.1	32.4	26.2	-
DB61 (formerly DC67)	505901	205788	29.5	47.2		38.0	33.8	33.9	21.5	27.9	37.0	36.7	30.2	24.4	32.7	26.5	-
DB62	505856	205823		37.9	32.2	20.3	23.5	21.9	18.0	24.1	32.0	32.3	34.2	23.9	27.3	22.1	-
DB63	505870	205715		31.9	22.9	18.3	22.4	23.6	16.7	18.8	24.5	26.1	26.8	19.1	22.8	18.5	-
DB64 (formerly DC68)	506053	205664	23.6	28.0	13.5	14.6	15.8	13.1	11.9	13.6	15.1	20.3	21.7	14.4	17.1	13.9	-
DB65 (formerly DC1)	505355	206504	37.3	43.0	35.4	28.9	25.3	25.9	26.5	25.8	37.3	37.4	29.0	28.0	31.7	25.6	-
DB66 (formerly DC2)	505251	206960	17.7	21.7	15.7	37.0	10.7		7.9	10.8	11.6	18.8	15.4	11.5	16.3	13.2	-
DB67 (formerly DC3)	505339	207238	Missing	52.8	47.3	13.7	34.3	39.2	39.2	35.5	48.1	45.8	35.0	32.0	38.4	31.1	-
DB68 (formerly DC4)	505340	207207	Missing	55.4	47.9	28.1	37.0	36.7	36.4	38.4	48.6	48.4	30.3	39.9	40.6	32.9	-

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1**

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

☒ **Local bias adjustment factor used**

☐ **National bias adjustment factor used**

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

☒ **Dacorum confirm that all 2023 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 Dacorum During 2023

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

Additional Air Quality Works Undertaken by Dacorum During 2023

Dacorum Borough Council has increased its monitoring capacity with the relocation of diffusion tubes, the relocation of the Real Time Continuous Monitoring Analyser should be completed by Autumn 2024 and will include the deployment of 3x Zephyr Air Quality Monitors purchased in 2023.

QA/QC of Diffusion Tube Monitoring

Details relating to the following aspects of non-automatic (i.e. passive) monitoring using diffusion tubes:

- The supplier used for diffusion tubes within 2023 was SOCOTEC, Didcotand the method of preparation was 50:50 acetone:triethanolamine. The tubes were desorbed with distilled water and the extract analysed using a segmented flow auto analyser with ultraviolet detection.
- SOCOTOEC confirms that the methods and procedures they follow meet the guidelines set out in Defra's "Diffusion Tubes for Ambient Monitoring: Practical Guidance". SOCOTEC also takes part in the Air PT scheme, continuing the format used in the previous WASP Proficiency Scheme..
- Monitoring has been completed in adherence with the 2023 Diffusion Tube Monitoring Calendar.

Diffusion Tube Annualisation

Annualisation was required for a sole non-automatic monitoring site, the site requiring annualisation clearly defined along with details of the calculation method undertaken provided in **Error! Reference source not found.**. Annualisation was required for any site with data c apture less than 75% but greater than 25%.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 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.

Dacorum have applied a local bias adjustment factor of 0.81 to the 2023 monitoring data. A summary of bias adjustment factors used by Dacorum over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	Local	-	0.81
2022	National	March 2023	0.76
2021	National	July 2021	0.77
2020	Local	-	0.80
2019	Local	-	0.77

Table C.2 – Local Bias Adjustment Calculation

	Local Bias Adjustment Input
Periods used to calculate bias	9
Bias Adjustment Factor A	0.81 (0.71 - 0.96)
Diffusion Tube Bias B	23% (4% - 41%)
	23
Diffusion Tube Mean (µg/m3)	21.8
Mean CV (Precision)	7.1%
Automatic Mean (µg/m3)	17.8
Data Capture	98%
Adjusted Tube Mean (µg/m3)	18 (16 - 21)

Notes:

A single local bias adjustment factor has been used to bias adjust the 2023 diffusion tube results.

NO_2 Fall-off with Distance from the Road

Wherever possible, local authorities should ensure that monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure should be 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.

Fall-off-with-distance calculations were required at 1 non-automatic monitoring sites, DB1 (Queensway, Old Town). The output from the Diffusion Tube Data Processing Tool is presented in **Error! Reference source not found.**. Distance correction has been considered at any monitoring site w here the annual mean concentration is greater than 36µg/m^3 and the monitoring site is not located at a point of relevant exposure.

Table C.3 – Non-Automatic NO_2 Fall off With Distance Calculations (concentrations presented in µg/m^3)

DT ID	Distance (m)		NO_2 Annual Mean Concentration (µg/m^3)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Bias Adjusted	Background	Predicted at Receptor	
DB1 (formerly DC5)	2.0	3.0	45.8	11.9	**42.5**	*Predicted concentration at Receptor above AQS objective.*

QA/QC of Automatic Monitoring

This section provides details in relation to the following:

- Data management is completed by Ricardo on behalf of the Council with Local Site Operator (LSO) duties for the automatic monitoring sites undertaken by the Council.
- Calibration is undertaken once a month, with audit/servicing undertaken bi-annually
- Monitoring data presented within the ASR is ratified;
- Live/historic data is available as part of the Herts and Beds Air Quality Network. This is available from: https://www.airqualityengland.co.uk/local-authority/?la_id=408

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

The type of PM_{10}/$PM_{2.5}$ monitor(s) utilised within Dacorum do not require the application of a correction factor.

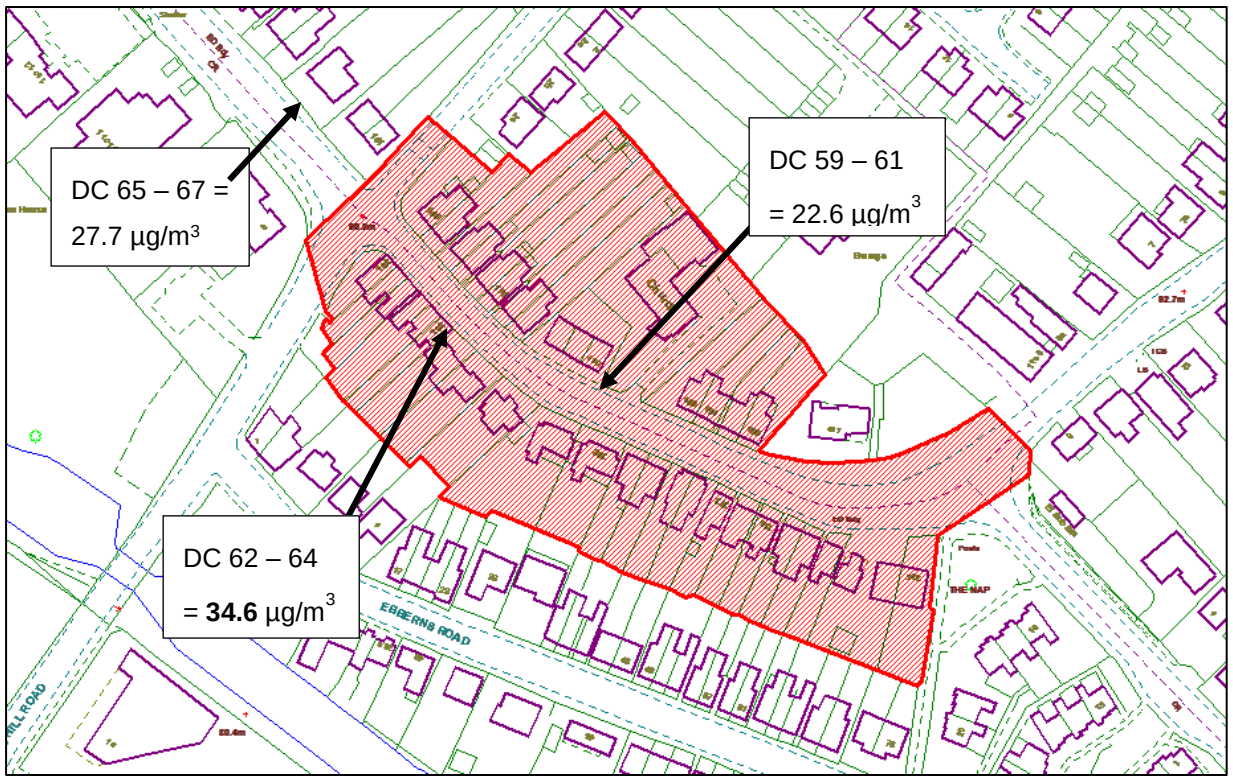
Automatic Monitoring Annualisation

Annualisation was required for to correct automatic monitoring data for PM_{10}/$PM_{2.5}$. The annualisation data is be presented in **Error! Reference s ource not found.**. Annualisation is required for any site with data capture less than 75% but greater than 25%.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within Dacorum required distance correction during 2022.

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



Legend

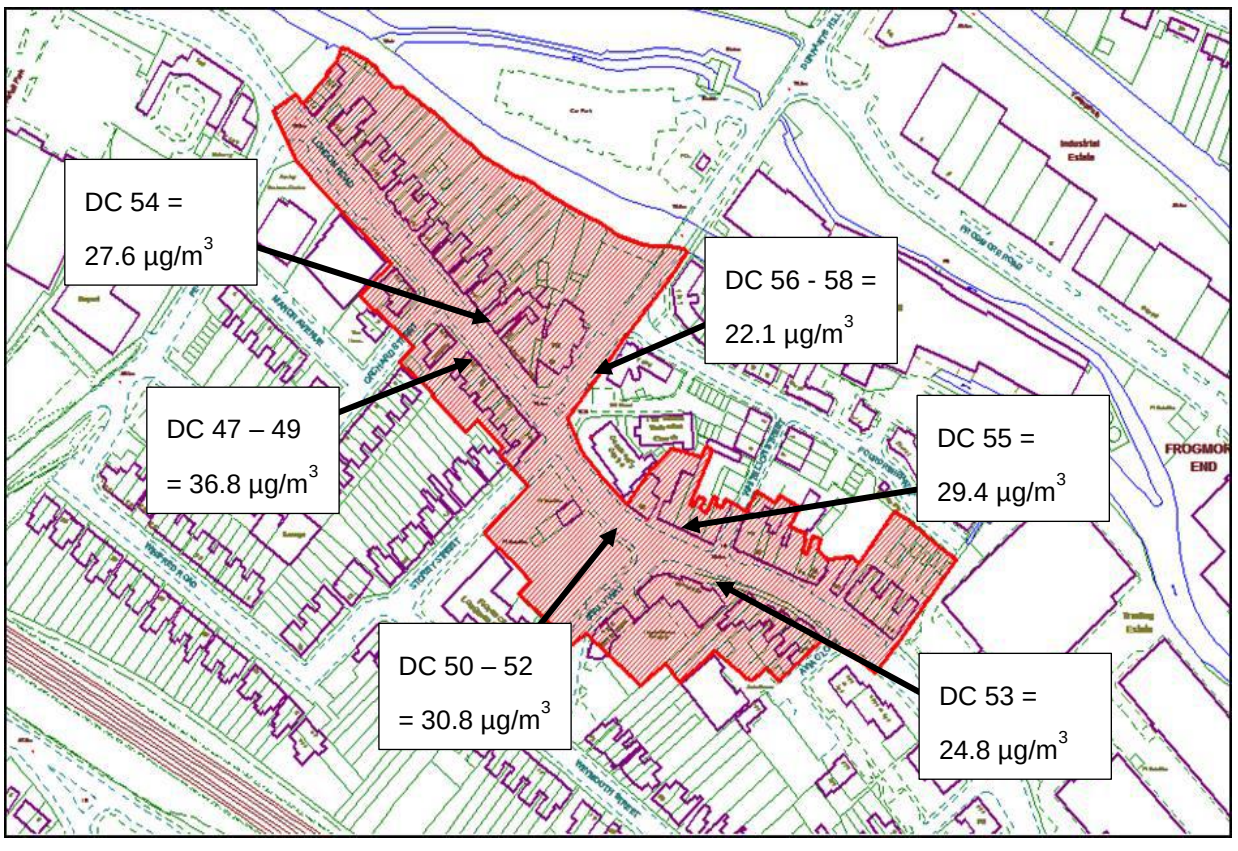
AQMA Boundary

Contains Ordnance Survey Data Crown Copyright and Database Right [2020]

Location: Lawn Lane, Hemel Hempstead

AQMA Order No. 1 – Lawn Lane, Hemel Hempstead incorporating local monitoring locations

Declared June 2012	**Figure No. 1**



Legend

AQMA Boundary

Contains Ordnance Survey Data Crown Copyright and Database Right [2020]

Location: London Road, Apsley

AQMA Order No. 2 – London Road, Apsley incorporating local monitoring locations

Declared June 2012	**Figure No. 1**

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

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

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
CEE	Climate and Ecological Emergency
Defra	Department for Environment, Food and Rural Affairs
DBC	Dacorum Borough Council
DT	Diffusion Tube
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
ECP	Environmental and Community Protection
EU	European Union
HCC	Hertfordshire County Council
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

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