



2020 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

July 2020

Local Authority Officer	Karl Suschitzky
Department	Environmental Protection Team
Address	Communities, Environment and Regulatory Services Department Communities and Place Directorate Derby City Council Council House Corporation Street Derby, DE1 2FS
Telephone	01332 642020
E-mail	Karl.Suschitzky@derby.gov.uk
Report Reference number	200728 DCCASR2020
Date	July 2020

Executive Summary: Air Quality in Our Area

Air Quality in Derby

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³.

Derby City Council have declared two Air Quality Management Areas (AQMAs) as a result of exceedances in the annual mean nitrogen dioxide (NO₂) objective, predominantly due to road traffic emissions. Derby was previously identified as one of several Local Authorities that needed air quality measures to be put in place, due to the outcome of the National air quality model (PCM) which predicted exceedances of the EU Limit Value for NO₂.

A review of air quality monitoring locations is undertaken annually. While the majority of historical sites continue to be monitored, at the beginning of each calendar year a review of monitoring sites is undertaken with some sites removed, some moved to a more appropriate location and/or some new sites added. The primary reasons for removing sites will be:

- Site exhibits concentrations well below AQ Objectives;
- Site has experienced unmanageable levels of tampering;
- Site not relevant to AQ Objectives e.g. not representative of relevant receptor.

Full details of monitoring locations are included in the monitoring data section of this report.

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

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

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Following the submission of Derby City Council's NO₂ Plan Full Business Case (FBC) to DEFRA in March 2019, work has been continuing to progress the implementation of the proposed traffic management scheme around Stafford Street.

In addition, several tranches of extensive funding have now been approved to allow the Council to implement a large range of sustainable transport and active travel schemes.

As for previous years, under the Local Air Quality Management (LAQM) regime, the main air pollutants of concern in Derby continue to be nitrogen dioxide (NO₂) and fine particulate matter (PM_{2.5}). According to local monitoring and assessment, exceedances of the National Air Quality Objectives only occur in relation to annual average NO₂. As a result, two Air Quality Management Areas (AQMA) have been declared in Derby, covering the inner and outer ring roads and a section of the A52 around Spondon. The extent of the AQMA can be viewed at <http://derby.maps.gov.uk>.

As acknowledged in previous reports, the boundary of the inner/outer ring road AQMA is out of date and no longer reflective of current circumstances and subsequently, work has been undertaken during 2019/20 in order to re-design the boundaries of this AQMA. The new boundaries are currently being finalised and the AQMA is due to be formally amended sometime in 2020, subject to local consultation and approval.

Actions to Improve Air Quality

Over the last few years, air quality improvement has been managed by the Council in a variety of ways.

A Draft Low Emission Strategy (LES) was developed in 2017 which included some overarching AQ improvement measures. Detailed traffic and AQ modelling, funded under the Clean Air Zone Feasibility Study Fund, assisted in the design of a package of measures presented under the Local Roadside NO₂ Plan FBC, submitted to DEFRA in March 2019 and subsequently approved.

In addition to the Local Roadside NO₂ Plan, Derby City Council has also been developing an updated Air Quality Action Plan (AQAP), following further modelling and source-apportionment work and stakeholder engagement. A draft of the AQAP was approved by Council Cabinet in early 2020 and then formally published for a 12

week consultation on 26th March 2020. The results of the consultation are now being collated, with a view to finalising and formalising the AQAP in mid-2020. A link to the draft AQAP can be found here:

https://www.derby.gov.uk/media/derbycitycouncil/contentassets/documents/environmentalprotection/ED11928_Derby%202019%20AQAP_Draft_Issue%208%20Final.pdf

The AQAP focusses on three key priority areas:

Priority 1: Tackling Nitrogen Dioxide (NO₂) hotspots

Priority 2: Improving the overall air quality across Derby

Priority 3: Managing airborne fine particulate matter (PM_{2.5}) exposure

Aside from the specific air quality improvement measures developed under the LES, Local Roadside NO₂ Plan and AQAP, the Council is also involved in a large range of other schemes which will help to improve local air quality.

Extensive funding (£161 million) was confirmed in March 2020 jointly with Nottingham under the Transforming Cities Fund designed to improve connections between major employment sites and promote active travel and public transport. The funding will be delivered under three main themes:

- City centre connectivity;
- Better connecting Derby, Nottingham and East Midlands Airport; and
- Derby growth corridors.

A summary of associated projects can be found here:

<https://news.derby.gov.uk/derby-and-nottingham-receive-161m-for-transport-improvements/>

The Government also announced in February 2020 that Derby, in partnership with Nottingham City Council, is to receive £912,000 from the Department for Transport's (DfT) Access Fund, to continue a package of successful travel projects across Nottingham and Derby aimed at boosting levels of cycling and walking and improving access to jobs, training and education. Derby will receive around £397,000 that will enable the Council and delivery partners to offer local people sustainable transport advice and support until April 2021: <https://news.derby.gov.uk/city-council-secures-national-funding-to-continue-successful-travel-initiative/>

More recently, Derby City Council has been allocated £228,000 to introduce Covid-19 emergency transport measures across the city. The '*Moving Derby Forward*' programme, includes proposals to help support cycling and walking, whilst creating more space for social distancing, involving large scale segregated cycle lanes on London Road and Uttoxeter Road, changes to traffic flows in the city centre, and the re-direction of traffic in Darley Abbey and Spondon to give cyclists priority.

Sadly, the highly popular local eBikes hire scheme was forced to close operations in late 2019 due to unsustainable levels of vandalism, however the Council has begun research on improved procedures and technology to try and bring back a similar, but more vandalism-proof, scheme in the future.

The *Cleaner Taxis* Project continues to be developed in order to increase the uptake of electric and low emission taxis. For electric vehicles more generally, the Council have also now successfully installed 21 Electric Vehicle charge points across some of the Council-operated city centre car parks and we continue development of an electric vehicle charging planning policy.

With respect to improving bus emissions, the *Clean Bus Technology Fund* has now delivered engine emission upgrades to more than 50 buses and in conjunction with fleet renewal programmes, the current estimate for Euro 6 bus emission standards compliance is 72% of the total bus fleet based on the main two bus operators in the City and this is expected to be closer to 80% by the end of the 2020 calendar year.

Finally, plans have also been drawn-up for Cabinet consideration on the development of anti-idling zones and associated enforcement in the City which is hoped to be brought in to effect some time in 2020/21 subject to political and public approval.

Conclusions and Priorities

Overall, ambient NO₂ concentrations within the Ring Roads AQMA have either decrease or remained at a level similar to previous years. Ambient NO₂ concentrations within the Spondon AQMA have decreased since last year, which supports the potential revocation of this AQMA. Exceedances of the annual mean NO₂ objective limit outside of AQMAs occurred at two locations; Bass Recreation Ground/The Holmes (BR1) and Eastgate (Pentagon) (EG1), both of which were just outside of the Ring Roads AQMA. It is noted however that these two locations are

roadside monitoring points and neither are representative of a relevant exposure when considering the National AQ Objective for annual average NO₂.

The main legal priority for the council is to comply with the EU NO₂ Limit Value as quickly as practicable. The full business case for the Local Roadside NO₂ Plan to combat exceedances in ambient NO₂ concentrations was submitted to DEFRA in March 2019. Work has been continuing to progress the implementation of the proposed traffic management scheme around Stafford Street. Derby will continue to work towards the revocation of AQMAs within its administrative area by bringing them into compliance.

Derby City Council's draft Air Quality Action Plan (AQAP) was recently out for public consultation, with the final consultation day being 29th May 2020. This AQAP replaces the previous AQAP published within the 2018 Annual Status Report. The draft AQAP lists all direct measures that will be implemented to address air quality and is available [here](#).

Local Engagement and How to get Involved

Derby City Council continues to engage closely with stakeholders in Derby on air quality matters through a number of organisations, groups and forums. The draft AQAP was developed through a public stakeholder group in 2019 which included representatives from business, public transport providers, the taxi trade, local politics, fleet management, the NHS, cycling groups and green campaign initiative representatives.

The Council is also actively involved in the *Derby and Derbyshire Air Quality Working Group*, the *East Midlands Air Quality Network* and the local *Active Travel and Green Forums*. Two public consultations have taken place in the last 12 months specifically on air quality improvement projects (the Local Roadside NO₂, both of which were well-represented in terms of consultation responses and it is therefore considered that the public of Derby are actively involved and engaged in air quality matters in the City.

The Derby City Council website includes further details of how to get involved in Air Quality here: <https://www.derby.gov.uk/transport-and-streets/air-quality-in-derby/>

Active public consultations can be found here: <https://www.derby.gov.uk/council-and-democracy/consultations/your-city-your-say-latest-consultations/>.

Table of Contents

Executive Summary: Air Quality in Our Area	i
Air Quality in Derby	i
Actions to Improve Air Quality	ii
Conclusions and Priorities	iv
Local Engagement and How to get Involved	v
1 Local Air Quality Management	8
2 Actions to Improve Air Quality	9
2.1 Air Quality Management Areas	9
2.2 Progress and Impact of Measures to address Air Quality in Derby	13
2.3 PM _{2.5} – Local Authority Approach to Reducing Emissions and/or Concentrations	20
3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance	23
3.1 Summary of Monitoring Undertaken	23
3.1.1 Automatic Monitoring Sites	23
3.1.2 Non-Automatic Monitoring Sites	23
3.2 Individual Pollutants	24
3.2.1 Nitrogen Dioxide (NO ₂)	24
3.2.2 Particulate Matter (PM ₁₀)	25
3.2.3 Particulate Matter (PM _{2.5})	25
3.2.4 Sulphur Dioxide (SO ₂)	25
Appendix A: Monitoring Results	26
Appendix B: Full Monthly Diffusion Tube Results for 2019	43
Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC	48
Appendix D: Map(s) of Monitoring Locations and AQMAs	52
Appendix E: Summary of Air Quality Objectives in England	53
Glossary of Terms	54
References	55

List of Tables

Table 2.1 – Declared Air Quality Management Areas.....	12
Table 2.2 – Progress on Measures to Improve Air Quality	14
Table 2.3 – Responses to DEFRA Comments on Derby City Council’s ASR (2019).....	18
Table A.1 – Details of Automatic Monitoring Sites.....	26
Table A.2 – Details of Non-Automatic Monitoring Sites	27
Table A.3 – Annual Mean NO ₂ Monitoring Results.....	33
Table A.4 – 1-Hour Mean NO ₂ Monitoring Results	42
Table B.1 – NO ₂ Monthly Diffusion Tube Results - 2019.....	43
Table E.1 – Air Quality Objectives in England	53

List of Figures

Figure 1 – Derby City Council AQMA’s	11
Figure A.1 – Trends in Annual Mean NO ₂ Concentrations Measured in the Spondon AQMA	38
Figure A.2 – Trends in Annual Mean NO ₂ Concentrations Measured in the Derby AQMA	39
Figure A.3 – Trends in Annual Mean NO ₂ Concentrations Measured in the Derby AQMA	40
Figure A.4 – Trends in Annual Mean NO ₂ Concentrations Measured outside of an AQMA	41

1 Local Air Quality Management

This report provides an overview of air quality in Derby during 2019. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) 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 pursuit of the objectives. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by Derby City Council to improve air quality and any progress that has been made.

The statutory air quality objectives applicable to LAQM in England can be found in Table E.1 in Appendix E.

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

A summary of AQMAs declared by Derby City Council can be found in Figure 1 – Derby City Council AQMAs

Table 2.1. Figures 1 and 2 show the AQMAs within Derby City Council. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=77. Alternatively, see Appendix D: Map(s) of Monitoring Locations and AQMAs, which provides for a map of air quality monitoring locations in relation to the AQMA(s).

Derby City Council are in the process of developing a new boundary for the No.1 Ring Roads AQMA.

Figure 1 – Derby City Council AQMAs

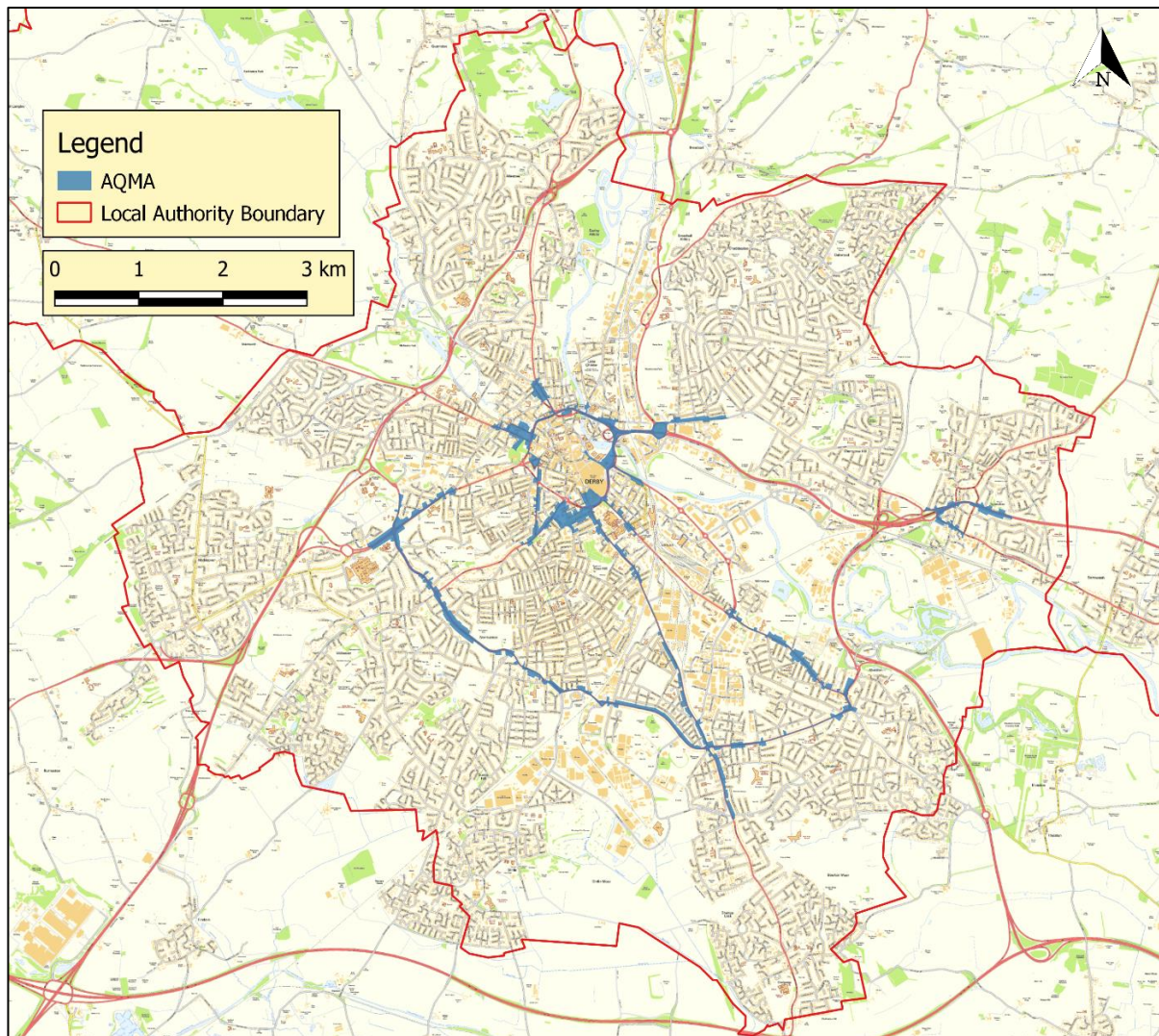


Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
No.1 Ring Roads	Declared 01/08/2001, Amended 01/09/2002 and 23/10/2006	NO ₂ Annual Mean	Derby	An AQMA encompassing the Inner and Outer Ring-Roads in the city, as well as some sections radial roads and the entire length of Osmaston Road.	NO	63.6	µg/m ³	44.6	µg/m ³	Air Quality Action Plan	2020	The current draft AQAP is available here .
No.2 A52	Declared 01/08/2001, Amended 01/09/2002 and 23/10/2006	NO ₂ Annual Mean	Spondon	Sections of the A52, Derby Road and Nottingham Road in Spondon.	YES	40.6	µg/m ³	37.3	µg/m ³	Air Quality Action Plan	2020	The current draft AQAP is available here .

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

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

Defra's appraisal of last year's ASR concluded that "the report is well structured, detailed, and provides all the information specified in the Guidance". DEFRA's comments, as well as Derby City Council's responses, are on Pages 8 and 9 of this report.

Derby City Council has taken forward several direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Key measures include:

- The Draft Low Emission Strategy (LES), developed in 2017, was submitted to DEFRA in March 2019 and subsequently approved.
- An updated Air Quality Action Plan (AQAP). A draft of the AQAP was approved by Council Cabinet in early 2020 and then formally published for a 12 week consultation on 26th March 2020.
- Extensive funding (£161 million), confirmed in March 2020 jointly with Nottingham under the Transforming Cities Fund, designed to improve connections between major employment sites and promote active travel and public transport. The funding will be delivered under city centre connectivity, better connecting Derby, Nottingham and the East Midlands Airport and Derby growth corridors.

Derby City Council is working alongside Defra's Joint Air Quality Unit, Public Health England, the East Midlands Air Quality Network, Derbyshire County Council, Derbyshire Air Quality Working Group, local bus operators and businesses, and developers to implement and deliver proposed measures.

Derby City Council's draft Air Quality Action Plan (AQAP) was recently out for public consultation, with the final consultation day being 29th May. This AQAP replaces the previous action plan published within the 2018 Annual Status Report. The AQAP lists all direct measures that will be implemented to address air quality, and is available [here](#).

There are many other supporting projects likely to be delivered under the Transforming Cities Fund and the Access Fund.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Local Cycling and Walking Infrastructure Plan (LCWIP)	Transport Planning and Infrastructure	Cycle network	Ongoing	DCiC, NCiC, DfT	D2N2 Funding (to create Plan)	Completion of Plan	Reduced vehicle emissions from mode shift.	Near completion	Now complete subject to Cabinet approval	Plan fully funded and near completion, however the numerous schemes in the Plan are currently aspirational and not programmed or funded.
2	Updated Council Staff and Fleet Travel Plans and updated Cleaner Fleet Policy	Promoting Travel Alternatives	Workplace Travel Planning	TBC	DCiC	LA - existing budget	# of low emission vehicles in Council grey fleet and # business mode shift journeys	Reduced vehicle emissions	Development Phase initiated in June 2019 and Cleaner Fleet Strategy now approved by Cabinet	Cleaner Fleet Strategy complete	Main barrier is turning Policy into urgent action across the Council.
3	Cleaner Taxis Project	Promoting Low Emission Transport	Taxi Licensing conditions	TBC	DCiC, Derby Taxi Trade and Unions	Clean Air Fund bid unsuccessful. Possible use of Transforming Cities Fund and/or Future Transport Zones funding to progress.	# of taxis meeting minimum Nox emissions standards	Reduced vehicle emissions	Taxi Licensing proposals out for consultation (Incl. new minimum age Policy). Taxi fleet emission study complete. Investment in Taxi E-Hubs and EV Taxi-only stands.	Ongoing. No completion date. Electric Taxis Project funding refused under CAF, however intention to use TCF and FTZ to progress.	First phase successful, however further funding refused under Clean Air Fund bid. Approval of less stringent Taxi Strategy likely to delay compliance unless further support provided.
4	Travel Behaviour Change Programme	Promoting Travel Alternatives	Other	Ongoing	DCiC	LA and Partners through Access Fund and Local Growth Fund. Access Fund now funded until March 2021.	AF data analysis	Reduced vehicle emissions	Implementation ongoing	Now funded until 31st March 2021.	No funding beyond March 2021.
5	EV Charging Infrastructure	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	OLEV Scheme complete. Further phases ongoing.	DCiC, NCC, OLEV, EV Charging Providers	OLEV (Go Ultra Low Cities) Funded. Also now TCF and FTZ. Also potential procurement through D2N2 scheme.	# New EV Charge Points	Reduced vehicle emissions	21 Charge points installed in DCC-owned car parks under OLEV now complete. Commitment to incorporate EV charging into TCF and FTZ mobility hubs. Cabinet Report being produced on possible re-entry into D2N2 scheme.	OLEV points complete. No completion date for FTZ project.	Needs to be Supported by EV Charging Planning Policy (local and government). Concerns over future costs of maintaining publicly owned EV infrastructure, especially in light of Covid-19 financial recovery.

6	Bus Retrofit Programme (CBTF)	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	Imminent	DCiC, Arriva	CBTF Funding with LA support	# completed retrofitted buses	Reduced bus emissions	Funding now not being taken forward by all operators. 51 buses now retrofitted (Arriva)	Partial take-up now complete. 72% of City bus fleet now Euro 6 compliant. Predicted to be 80% by end of 2020 following further planned fleet renewal.	In the absence of a charging CAZ, the main barrier has been that the Council can only play a supporting role with private bus operators (no publicly owned buses in Derby). A preference with main operators for vehicle replacement programmes over retrofitting.
7	Council HGV Retrofit Programme	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	Cancelled	DCiC	DEFRA AQ Grant	N/A	N/A	Project Cancelled	N/A	Project cancelled due to lack of retrofit technology accreditation and perceived unworkable additional maintenance costs.
8	Anti-idling Enforcement	Traffic Management	Anti-idling enforcement	Summer 2019	DCiC, Schools	DEFRA funding for comms campaign?	New expanded PPO enforcement service operational, then # of Notices served	Reduced vehicle emissions	Report complete and awaiting Cabinet consideration. PPO service now expanded.	Following cabinet approval, next phase is to complete publicity/awareness on anti-idling policy.	Question over whether remit of PPO Service can include anti-idling. Funding and resource not yet allocated for publicity campaign and designation of anti-idling zones.
9	Area and Regional Co-ordination of AQ Measures through AQWG and EMAQN	Other	Other	Ongoing	Derbyshire and other East Midlands Authorities	DCC funding	AQWG Work Plan Implementation and annual reporting to Health Protection Board and Health and Well-being Boards	Wide range of measures proposed under Work Plan	Operational since 2016	Ongoing	Continued officer resource allocation possible barrier. Less Public Health resource available for AQ since Covid-19.
10	AQ and Planning	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	DCiC, EMAQN	LA resourced	Completion of Local Plan AQ Policy and subsequently, completion of Supplementary Planning Guidance (or Developer's Guide) on AQ and EV Charging Policy. Also developing specific Planning Guidance on Derby Local	Ensuring AQ is the heart of planning decisions. To assist EV charging implementation under EV schemes being taken forward under TCF/FTZ.	EMAQN template produced for use in DCC Policy.	Completion date not known – work ongoing.	Policy being taken forward, however resource-constrained due to other Local Plan commitments.

							Roadside NO2 Plan TMS.				
11	Derby Roadside NO2 Local Air Quality Plan - Traffic Management Scheme	Traffic Management	UTC, Congestion management, traffic reduction	2019/20 - Measures to being forward compliance to 2020	DCiC and JAQU	Subject to DEFRA funding	Compliance with EU Limit Values	Reduction in annual average NO2 along Stafford Street to below 40µgm-3 by 2020 (reduction of 9.4µgm-3 NO2 based on 2020 baseline)	Procurement process being undertaken for the various elements for delivery	As soon as possible. Measures for compliance -by 2020. Measures to maintain compliance - continued until 2025.	Implementation going ahead, subject to ongoing government advice.
12	Derby Roadside NO2 Local Air Quality Plan - EV Charging	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Cancelled	DCiC and JAQU	Bid under Clean Air Fund	# EV Charge points in City	Modelled decrease of 21.2 tonnes NOx and 1.25 tonnes of PM2.5 by 2025	No funding awarded to take project forward. EV measures taken forward under other schemes (TCF/FTZ).	N/A	No grant funding awarded.
13	Derby Roadside NO2 Local Air Quality Plan - Clean Air Mobility Scheme (CAMS)	Promoting Travel Alternatives	Other	Cancelled – moved to alternative scheme	DCiC	Bid under Clean Air Fund (CAF) and Future Mobility Zones	# people exchanging high emission vehicle for mobility credits	NOx savings 8.83 and 2.2 tonnes per year, under Phase 1 and 2 respectively	No CAF funding awarded to take project forward.	N/A	No grant funding awarded. Exploring other sources of funding and ways to implement a MaaS Scheme, but unlikely to take form of original CAMS proposals.
14	Updated Air Quality Action Plan (AQAP)	Other	Other	Ongoing	DCiC	LA funded	Completion of AQAP	Variety of measures proposed following source apportionment modelling across AQMAs	Complete	Complete subject to Cabinet approval in November 2020	Resource constraints and ownership of measures following completion of Plan
15	Air Quality Awareness-Raising	Public Information	Via other mechanisms	Ongoing	DCiC Comms	LA Delivery using DEFRA Implementation Funding (£450k)	# stakeholders actively engaged, assessed via click-through rates and average view length time on social media and web pages and # mailshots/letters	Indirect reductions in pollutant concentrations due to behavioural change resulting from information. Hard to quantify.	Taxi-engagement workshop and Clean Air Day events complete. Ongoing updating of website and connecting Derby site including useful info and signposting.	Ongoing (funding to 2025)	Currently insufficient staff to deliver funding. Funding includes revenue, so hoping to appoint new comms/marketing officer/s?
16	Investigate the potential for promoting low emission freight initiatives in Derby	Promoting Low Emission Transport	Other	Ongoing	DCiC, DCC	Derby City Council / Derbyshire County Council	Unknown	Unknown	Council to consider options for supporting a freight consolidation centre and promoting Eco Stars	No specific project detail therefore no completion date.	Resource-constrained. Possibly not deemed a priority. Departmental ownership and resource allocation required.

17	Review Derby Bonfire Enforcement Policy	Public Information	Air Quality Planning and Policy Guidance	Ongoing	DCiC	Derby City Council / PHE	Completion of Policy	NO2 and PM2.5 emissions reduction. Hard to quantify.	Political discussion initiated. Next stage is to draft a new policy and undertake public engagement.	N/A currently	Some equalities issues to consider and conflicts with Bonfire Night celebrations. Political/public pressure needs to be considered fully.
18	Transforming Cities Fund (TCF) implementation	Alternatives to private vehicle use	Other	Ongoing	DCiC jointly with NCiC	£161m awarded under TCF	No. of people using new cycling/walking infrastructure and converting car trips to sustainable modes.	Emission reductions to be modelled. Hard to quantify in some cases.	Work programme being developed	March 2023	
19	Future Transport Zones (FTZ) Programme	Transport Planning and Infrastructure	Other	Ongoing	DCiC jointly with NCiC	£20m awarded under FTZ Fund	No of people using data platform, MaaS app and mobility hubs.	Emission reductions to be modelled. Hard to quantify in some cases.	Work programme being developed	March 2024	
20	Moving Derby Forward Programme (Covid-19 emergency transport measures)	Transport Planning and Infrastructure	Other	Ongoing	DCiC, DfT	DfT Emergency Active Travel Fund - £238k from tranche 1.	Completion of programme. No. of people using new cycle lanes and No. of converted trips to cycling/walking from car. Amount of reallocated road space.	Emergency measures, so focus is on implementation rather than theoretical measurement.	Design and planning stage in progress.	March 2021	
21	Creation of Air Quality Project Board	Policy Guidance and Development Control	Other policy	Ongoing	DCiC	Derby CC	Creation of Board and board meeting programme completed. First meeting taken place.	Not possible to calculate.	Board member selection process initiated.	Aim to set up first board meeting before of December 2020.	Challenge to get buy-in and commitment from relevant senior officers.
22	Local Growth Fund (LGF)	Alternatives to private vehicle use	Other	Ongoing until March 2023	DCiC, NCiC, DCC and NCC	Local Growth Fund (LGF) £50k per year until March 2023	No. of businesses provided with support – No. of installed cycle storage bays, shower facilities etc	Emission reductions from mode change trips	Ongoing for next 3 years	March 2023	Main barrier is business engagement

Table 2.3 – Responses to DEFRA Comments on Derby City Council's ASR (2019)

No.	Comments from DEFRA on Derby City Council's ASR (2019)	Response (if required)
1	The report is thorough, comprehensive and follows the most recent template.	No comment required.
2	Annual mean concentrations of NO ₂ within the Spondon AQMA have been below the objective since 2011, however due to ongoing road improvements within the AQMA, the decision to revoke has been postponed pending results of further monitoring and completion of the scheme. This decision is supported.	No comment required.
3	The Council note within their report "that there are 6 locations where there are potential exceedances of the annual mean objective", three within AQMA boundaries, and three outside. Upon review of monitoring data, there appears to be seven exceedances. Exceedances have been identified at the following passive monitoring sites: DT10, DT15, DT31, DT59, DT11, DT34 and DT60. The Council are advised to update and clarify this within the text to ensure correct reporting of exceedances.	No comment required.
4	The exceedances identified outside of the AQMA boundaries (sites DT11, DT34 and DT60) are not considered representative of relevant exposure and therefore the Council do not deem it necessary to declare an additional AQMA. It is however advised that the Council monitor annual mean NO ₂ concentrations at the nearest sites of relevant exposure to these exceedances, if appropriate, rather than using the NO ₂ fall off with distance tool to derive concentrations at relevant exposure.	DT11 and DT60 (now EG1 and AR1 respectively) remained in the same location in 2019. EG1 is located on the A52 in a commercial area, and there are therefore no nearby relevant residential receptors. The nearest sensitive receptor to EG1 is the commercial building approximately 25m south; EG1 could be moved here in the future. AR1 is located on the façade of a residential dwelling, and therefore does not need to be relocated or have fall off calculated. Monitoring locations are continuously reviewed. DT34 was removed ahead of monitoring in 2019 and has not been relocated.
5	The Council are reminded to show exceedances of the annual mean objective for NO ₂ in bold in Table B.1 in order to provide a clear comparison.	This has been actioned in this ASR.
6	The Council undertook a review of their monitoring regime and relocated several passive monitoring sites to better represent areas of exposure. The Council anticipate that this will support the implementation of a Clean Air Zone.	No comment required.
7	QA/QC of monitoring data has been discussed in detail. Distance correction and annualisation have been carried out correctly, and example calculations provided. Supporting evidence to support derivation of the national bias adjustment factor is required in all future reports.	This has been actioned in this ASR.

8	In future, the Council could consider reviewing their monitoring regime to include a co-location site. Derivation of a local bias adjustment factor is encouraged, however use of the national factor is appropriate.	A co-location site was not included during monitoring in 2019, and the national bias adjustment factor has been used.
9	The Council are currently in the process of updating and consolidating their Air Quality Action Plans. Several barriers to the implementation of the Council's current proposed measures, namely funding and resources, has led to the decision to cancel or postpone many actions. Therefore, it is expected, and strongly advised, that the Council propose more realistic, achievable measures in their new plan. The Council note that they have undertaken detailed modelling and source apportionment to better understand the contribution of different sources to elevated pollutant concentrations within the City, which is commended and will prove useful in the development of targeted actions.	The current draft AQAP is available here .
10	The Council provide good discussion of PM _{2.5} and details their measures to reduce emissions. The report does not however draw links to the fraction of mortality attributable to PM _{2.5} emissions. The Council are encouraged to include this in future reports, in addition to a discussion of historical trends, a comparison between Derby City and England as a whole, and a comparison to neighbouring authorities. For further guidance, please refer to LAQM Technical Guidance TG16.	The attributable fraction of mortality due to particulate pollution has been calculated for 2019, and this has been compared to the figure for South Derbyshire and England in Section 2.2.
11	The Council are commended on their excellent and incredibly detailed interactive map of monitoring locations. The inclusion of modelled future concentrations, in addition to historic concentrations, is extremely beneficial. It would however be a useful addition to the report to include an 'overview map' of the Council's jurisdiction, showing AQMA boundaries and monitoring locations, for completeness.	Images showing the Derby City Council administrative area and its AQMAs are in Section 2.1. A link to the interactive map is in Appendix D.
12	It is encouraging to see the council responding to the comments raised in the previous reporting year. This is indicative of good practice.	No comment required.
13	The Council has listed a number of priorities for the next year including the publication of their new AQAP and a review of their AQMA boundaries. These priorities are appropriate and the council should provide an update on the progress of these in the next reporting year.	A draft of the new AQAP finished the consultation period on 29/05/2020. Derby City Council is still currently reviewing AQMA boundaries.

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

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of PM_{2.5} (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM_{2.5} has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Whilst Derby City Council continues to focus on the need to meet the EU Limit Value for NO₂, many of the proposed measures e.g. the new Local Air Quality Plan, are expected to aid the reduction of fine particulate matter concentrations.

Derby City Council already implements the following measures that are designed to address the emission of PM_{2.5}, such as:

- The enforcement of a city-wide smoke control area, a zero-tolerance approach to the burning of trade waste and a general policy to discourage bonfires;
- Attempt to ensure the submission and agreement of Construction Management Plans with detailed dust management measures, by planning condition/s for all significant developments in the City;
- Development of an air quality focussed policy on the installation and use of domestic and all other non-permit threshold biomass boilers.

Vehicle brake and tyre wear is a well-known source of PM_{2.5} emissions, therefore, it is acknowledged that schemes and projects, such as Cycle Derby, personal and employee Personalised Travel Planning (PTP), eBikes Derby (now ended), and other work to encourage the shift from road traffic to walking/cycling is an important part of local action to reduce PM_{2.5}. The Council advocate that centrally-led work to encourage the manufacturing industry to implement significant improvements in tyre and brake materials to minimise, or even avoid, wear, is a vital part of the programme to reduce PM_{2.5}.

Derby City Council works closely with Derbyshire County Council via the Air Quality Working Group (AQWG) to develop measures aimed at reducing PM_{2.5} across the County. This Group has now committed to reporting on air quality to the Health Protection Board and the City's Health and Well Being Board and has developed an

Action Plan in order to address the PM_{2.5} targets under the Public Health Outcomes Framework.

Derby City Council outline several measures for managing PM_{2.5} in their draft AQAP, including regulating emission from small combustion sources, Derby being a smoke control area, expanding the remit of Public Protection team to include smoke enforcement.

Derby City Council are also considering the development of an up-to-date Bonfire Policy aimed at discouraging bonfires more widely, possibly through greater enforcement.

Public Health England's *Estimating Local Mortality Burdens associated with Particulate Air Pollution*¹ provides guidance on calculating the number of deaths attributable to particulate matter pollution.

Relative risk (RR) is calculated as:

$RR = 1 + (0.06 * \frac{x}{10})$, where x equals PM_{2.5} concentration. As Derby City Council do not monitor PM_{2.5}, the average DEFRA background concentration for Derby in 2019 will be used.

$$1 + \left(0.06 * \frac{9.93}{10}\right) = 1.06$$

The attributable fraction (AF) of mortality is calculated using the RR:

$$AF = \frac{RR-1}{RR}$$

Using the calculated RR value of 1.06:

$$\frac{1.06-1}{1.06} = 5.7\%$$

It is therefore calculated that 5.7% of deaths in Derby City Council are caused by particulate pollution.

South Derbyshire's 2020 ASR² states that South Derbyshire's fraction of mortality attributable to PM_{2.5} was 5.4% in 2019, which is lower than the calculated 5.7% for Derby City Council in 2019. South Derbyshire's figure is also based on DEFRA background data, and it may be that the average background PM_{2.5} concentration is lower in South Derbyshire's administrative area as it is more rural than Derby City

Council's administrative area. No other neighbouring authority has information on their fraction of mortality attributable to PM_{2.5}.

Public Health England's *Estimating Local Mortality Burdens associated with Particulate Air Pollution* states that England's average fraction of mortality attributable to PM_{2.5} is 5.6%, which is slightly lower than the calculated 5.7% for Derby City Council in 2019.

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

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how it compares with objectives.

Automatic (continuous) monitoring is now carried out under the AURN Network (managed by Bureau Veritas on behalf of DEFRA) at the Derby St Alkmund's Way site with data available for 2019. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at https://uk-air.defra.gov.uk/networks/site-info?uka_id=UKA00630.

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. The site is part of the AURN and has been calibrated by DEFRA to national standards.

3.1.2 Non-Automatic Monitoring Sites

Derby City Council undertook non- automatic (passive) monitoring of NO₂ at 71 sites during 2019. Table A.2 in Appendix A shows the details of the sites. Several new diffusion tube locations have been implemented since 2018 (AS2, FG1, FG2, SS2, SS3, ST1, UNR6, UOR1, UOR2, UOR3, UOR4, WH1 and WR1) following the proposed traffic management scheme that will see traffic rerouting away from Stafford Street.

Maps showing the location of the monitoring sites are provided in Appendix D. 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 bias⁴, “annualisation” (where the data capture falls below 75%), and distance correction⁵. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2019 dataset of monthly mean values is provided in Appendix B.

Figure A.3 – Trends in Annual Mean NO₂ Concentrations Measured in the Derby AQMA

Figure A.4 – Trends in Annual Mean NO₂ Concentrations Measured in the Derby AQMA

Figure A.5 – Trends in Annual Mean NO₂ Concentrations Measured outside of an AQMA

Table A.4 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m³, not to be exceeded more than 18 times per year.

The fully adjusted data show that there are 5 locations where there are potential exceedances of the annual mean objective, which is one less than last year. 3 of these locations are within the existing Ring Roads AQMA. The remaining 2 locations (BR1 and EG1) are just outside of the Ring Roads AQMA.

BR1 is a roadside monitoring location just outside of the Ring Roads AQMA on the A601, and was established in 2018. The measured NO₂ concentration in 2018 was 36.7µg/m³, and has increased to 38.8µg/m³ in 2019. Although this does not exceed the annual mean objective of 40µg/m³, this measured concentration is very close and therefore requires observation/consideration to ensure continued compliance with the EU limit value. There is no relevant exposure for the annual mean objective near to this site, and therefore no further action is required for LAQM purposes.

⁴ <https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html>

⁵ Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

EG1 is a roadside monitoring location established in 2016, just outside of the AQMA boundary on Eastgate. The NO₂ concentration measured in 2016 was 46.5µg/m³. This has reduced steadily in the following years, to 44.75µg/m³ in 2017, 43.45µg/m³ in 2018 and 40.4µg/m³ in 2019. There is no relevant exposure for the annual mean objective near to this site, and therefore no further action is required for LAQM purposes. This monitoring site has been established to inform compliance with the EU Limit Value, which apply at all locations (except where members of the public do not have access and there is no fixed habitation; on factory premises or at industrial processes; and on the carriageway of roads / central reservations of roads, except where there is normally pedestrian access).

3.2.2 Particulate Matter (PM₁₀)

Derby City Council have not undertaken any PM₁₀ monitoring since 2013. These data have been presented in previous reports and are not repeated here; measured concentrations were well below the relevant objectives.

3.2.3 Particulate Matter (PM_{2.5})

Derby City Council does not currently monitor PM_{2.5} concentrations and currently have no plans to do so in the future.

3.2.4 Sulphur Dioxide (SO₂)

Derby City Council does not currently monitor SO₂ concentrations and currently have no plans to do so in the future.

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?	Monitoring Technique	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Inlet Height (m)
AURN	St Alkmund's Way AURN	Roadside	435763	336306	NO2	YES	Chemiluminescent	N/A	3.7	1.2

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

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
AB1	201 Abbey Street	Roadside	434846	335657	NO ₂	Y	0	2	NO	1.8
AR1	189/191 Ashbourne Road	Roadside	433633	336850	NO ₂	N	0	4	NO	1.8
AR2	259 Ashbourne Road	Roadside	433459	336918	NO ₂	N	N/A	14.5	NO	1.8
AR3	148 Ashbourne Road	Roadside	433796	336786	NO ₂	N	0	3	NO	1.8
AR4	Millgate, Ashbourne Road	Roadside	434307	336565	NO ₂	Y	0	4	NO	1.8
AS1	Kenneth House, Agard Street	Roadside	434545	336570	NO ₂	Y	0	2.5	NO	1.8
AS2	Centro West, Agard Street	Roadside	434579	336571	NO ₂	N	0	4.2	NO	1.8
AS3	8/10 Agard Street	Roadside	434712	336490	NO ₂	Y	0	2	NO	1.8
BR1	Bass Recreation Ground/The Holmes	Urban Background	435764	336306	NO ₂	N	N/A	4	NO	1.8
BUR1	220 Burton Road	Roadside	434785	335241	NO ₂	Y	0	3	NO	1.8
BUR2	114a Burton Road	Roadside	435025	335508	NO ₂	Y	0	2	NO	1.8
CAV1	171/182 Cavendish Court	Roadside	434820	336505	NO ₂	N	0	15	NO	1.8

Derby City Council

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
CC1	Casteward Court, Traffic Street	Kerbside	435725	335802	NO ₂	Y	0	35	NO	1.8
CH1	Council House	Urban Centre	435496	336294	NO ₂	N	N/A	>50	NO	1.8
CM1	Victoria Street/Corn Market	Roadside	435262	336157	NO ₂	N	N/A	5	NO	1.8
DER1	198 Derby Road	Roadside	438942	335864	NO ₂	N	0	2	NO	1.8
DR1	Duffield Road/North Street	Roadside	434814	337041	NO ₂	Y	2	4	NO	1.8
DR2	5 Duffield Road	Roadside	434937	336916	NO ₂	Y	0	4	NO	1.8
EG1	Eastgate (Pentagon)	Roadside	436064	336487	NO ₂	N	N/A	3	NO	1.8
FG1	100A Friar Gate	Roadside	434718	336375	NO ₂	Y	0	11.5	NO	1.8
FG2	63 Friar Gate	Roadside	434450	336523	NO ₂	Y	0	4.9	NO	1.8
FG3	Friargate / Bridge street corner	Roadside	434497	336510	NO ₂	Y	0	7	NO	1.8
GC1	23 Gilbert Close	Roadside	439776	335696	NO ₂	Y	0	10	NO	1.8
HL1	109 Highfield Lane	Roadside	437382	336044	NO ₂	N	2	19	NO	1.8
HS1	16/18 Harrow Street	Roadside	437196	334410	NO ₂	Y	0	8	NO	1.8
KL1	10 Kirkleys Ave North	Roadside	440206	335650	NO ₂	Y	0	10	NO	1.8

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
KL2	27 Kirkleys Ave South	Roadside	440198	335611	NO ₂	Y	0	12	NO	1.8
KR1	8 Kedleston Road (Chiropodist)	Roadside	434775	337086	NO ₂	Y	0	8	NO	1.8
LR1	938 London Road	Roadside	437676	334090	NO ₂	Y	0	3	NO	1.8
LR2	1178 (1170) London Road	Roadside	438162	333654	NO ₂	Y	0	5	NO	1.8
LW1	18 Leeway	Roadside	439647	335575	NO ₂	Y	0	9.8	NO	1.8
ML1	25 Morledge	Roadside	435477	336176	NO ₂	N	N/A	11	NO	1.8
MR1	14 Mansfield Road	Roadside	435439	336817	NO ₂	Y	0	3	NO	1.8
NOR1	57 Normanton Road	Roadside	435198	335537	NO ₂	Y	0.2	2	NO	1.8
NR1	24 Nottingham Road	Roadside	439899	335348	NO ₂	Y	0	5.7	NO	1.8
NR2	203/201 Nottingham Road	Roadside	436700	336637	NO ₂	Y	0	2	NO	1.8
NR3	123 Nottingham Road	Roadside	435795	336625	NO ₂	Y	0	3	NO	1.8
NR4	63 Nottingham Road	Roadside	435586	336642	NO ₂	Y	0	3	NO	1.8
NS1	32 Newdigate Street	Roadside	435091	333526	NO ₂	Y	0	2	NO	1.8
NS2	80 Newdigate Street	Roadside	435022	333581	NO ₂	Y	0	2	NO	1.8

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
OPR1	523 Osmaston Park Road	Roadside	436809	332826	NO ₂	Y	0	3	NO	1.8
OPR2	104 Osmaston Park Road	Roadside	435716	333327	NO ₂	Y	0	4.5	NO	1.8
OR1	831 Osmaston Road	Roadside	436992	332713	NO ₂	Y	0	10	NO	1.8
OR2	29 Ivy Square off Osmaston Road	Roadside	436046	334857	NO ₂	Y	0	6	NO	1.8
OR3	114 Osmaston road	Roadside	435534	335467	NO ₂	Y	0	2	NO	1.8
OR4	59 Osmaston Road	Roadside	435440	335717	NO ₂	Y	0.1	2	NO	1.8
PL1	26 / 24a Penny Long Lane	Urban Background	434364	337881	NO ₂	N	10	N/A	NO	1.8
RS1	150 Radbourne Street	Roadside	433118	336650	NO ₂	N	0	4	NO	1.8
RT1	Royal Telegraph Pub	Roadside	435653	335706	NO ₂	Y	0	2	NO	1.8
RW1	7 Raynesway	Roadside	438535	333508	NO ₂	Y	0	8	NO	1.8
SMC1	St Marys Court 1	Roadside	435203	336779	NO ₂	Y	0	3	NO	1.8
SMC2	St Marys Court 2	Roadside	435249	336785	NO ₂	N	0	12.8	NO	1.8
SR1	1 Station Road	Roadside	439789	335412	NO ₂	Y	0	8	NO	1.8

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
SS1	Stafford Street Burleigh Mews Flats	Roadside	434748	336352	NO ₂	Y	0	4	NO	1.8
SS2	Roman House, Stafford Street	Roadside	434766	336329	NO ₂	N	0	7.1	NO	1.8
SS3	46 Stafford Street	Roadside	434703	336213	NO ₂	N	0	5.2	NO	1.8
SS4	59a Stafford Street	Roadside	434688	336155	NO ₂	N	0	2	NO	1.8
ST1	64 St Thomas Road	Roadside	435294	334202	NO ₂	N	0	3.9	NO	1.8
UNR1	430 Uttoxeter New Road	Roadside	433076	335299	NO ₂	Y	0	7	NO	1.8
UNR2	414 Uttoxeter New Road	Roadside	433190	335380	NO ₂	Y	0	7.7	NO	1.8
UNR3	431 Uttoxeter New Road	Roadside	433186	335327	NO ₂	Y	0	9	NO	1.8
UNR4	266 Uttoxeter New Road	Roadside	433786	335778	NO ₂	Y	0	2	NO	1.8
UNR5	199 Uttoxeter New road	Roadside	433887	335804	NO ₂	N	0	2	NO	1.8
UNR6	126 Uttoxeter New Road	Roadside	434227	335958	NO ₂	N	0	10	NO	1.8
UNR7	Rowleys Mill Flats, Uttoxeter New Road	Roadside	434461	336041	NO ₂	Y	0	4.9	NO	1.8

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
UOR1	208 Uttoxeter Old Road	Roadside	433877	335850	NO ₂	N	0	4	NO	1.8
UOR2	Corner of Uttoxeter Old Rd/James Close	Roadside	434182	336329	NO ₂	N	0	4.3	NO	1.8
UOR3	122/124 Uttoxeter Old Road	Roadside	434109	336255	NO ₂	N	0	1.8	NO	1.8
UOR4	Ashbourne Court, Uttoxeter Old Road	Roadside	434310	336533	NO ₂	Y	0	2.5	NO	1.8
WH1	115 Windmill Hill Lane	Roadside	433161	336692	NO ₂	N	0	8.2	NO	1.8
WR1	124 Walbrook Road	Roadside	434852	334055	NO ₂	N	0	3.9	NO	1.8

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ^{(3) (4)}				
							2015	2016	2017	2018	2019
AURN	435763	336306	Roadside	Automatic	100	100			37	36	35
AB1	434846	335657	Roadside	Diffusion Tube	100	100		33	29	29	29
AR1	433633	336850	Roadside	Diffusion Tube	100	100			42	43	38
AR2	433459	336918	Roadside	Diffusion Tube	92	92				31	29
AR3	433796	336786	Roadside	Diffusion Tube	100	100	32	31	29	29	27
AR4	434307	336565	Roadside	Diffusion Tube	100	67		35	33	32	29
AS1	434545	336570	Roadside	Diffusion Tube	83	83				32	32
AS2	434579	336571	Roadside	Diffusion Tube	100	100					28
AS3	434712	336490	Roadside	Diffusion Tube	83	83		35	35	31	32
BR1	435764	336306	Roadside	Diffusion Tube	92	92				37	39
BUR1	434785	335241	Roadside	Diffusion Tube	100	100		31	33	31	32
BUR2	435025	335508	Roadside	Diffusion Tube	83	83		32	32	33	30
CAV1	434820	336505	Roadside	Diffusion Tube	100	100	27	28	26	23	23
CC1	435725	335802	Kerbside	Diffusion Tube	83	83				25	28
CH1	435496	336294	Urban Centre	Diffusion Tube	83	83		27	29	25	25
CM1	435262	336157	Roadside	Diffusion Tube	67	67	27	26	26	23	22
DER1	438942	335864	Roadside	Diffusion Tube	100	100		29	30	29	28
DR1	434814	337041	Roadside	Diffusion Tube	92	92	35	32	27	26	27
DR2	434937	336916	Roadside	Diffusion Tube	100	100		35	29	29	27
EG1	436064	336487	Roadside	Diffusion Tube	100	100		47	45	43	40

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ^{(3) (4)}				
							2015	2016	2017	2018	2019
FG1	434718	336375	Roadside	Diffusion Tube	67	67					28
FG2	434450	336523	Roadside	Diffusion Tube	92	92					31
FG3	434497	336510	Roadside	Diffusion Tube	92	92	36	39	33	35	33
GC1	439776	335696	Roadside	Diffusion Tube	100	100	30	29	27	25	24
HL1	437382	336044	Roadside	Diffusion Tube	100	100	29	28	30	24	26
HS1	437196	334410	Roadside	Diffusion Tube	92	92	30	30	32	30	29
KL1	440206	335650	Roadside	Diffusion Tube	100	100	28	29	29	25	24
KL2	440198	335611	Roadside	Diffusion Tube	100	100	25	26	25	22	21
KR1	434775	337086	Roadside	Diffusion Tube	100	100	31	31	31	29	27
LR1	437676	334090	Roadside	Diffusion Tube	100	100		44	44	40	42
LR2	438162	333654	Roadside	Diffusion Tube	100	100		35	35	33	33
LW1	439647	335575	Roadside	Diffusion Tube	100	100				23	23
ML1	435477	336176	Roadside	Diffusion Tube	83	83	38	39	38	34	34
MR1	435439	336817	Roadside	Diffusion Tube	100	100	30	30	31	27	28
NOR1	435198	335537	Roadside	Diffusion Tube	92	92		38	33	32	29
NR1	439899	335348	Roadside	Diffusion Tube	100	100				34	37
NR2	436700	336637	Roadside	Diffusion Tube	100	100		47	48	45	44
NR3	435795	336625	Roadside	Diffusion Tube	92	92	33	32	32	30	29
NR4	435586	336642	Roadside	Diffusion Tube	100	100		30	33	30	29
NS1	435091	333526	Roadside	Diffusion Tube	92	92	34	41	38	37	31
NS2	435022	333581	Roadside	Diffusion Tube	100	100		41	36	38	33

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ^{(3) (4)}				
							2015	2016	2017	2018	2019
OPR1	436809	332826	Roadside	Diffusion Tube	100	100		27	27	27	27
OPR2	435716	333327	Roadside	Diffusion Tube	75	75		43	36	36	37
OR1	436992	332713	Roadside	Diffusion Tube	100	100	26	26	26	24	24
OR2	436046	334857	Roadside	Diffusion Tube	100	100	32	33	34	33	31
OR3	435534	335467	Roadside	Diffusion Tube	100	100		34	37	35	34
OR4	435440	335717	Roadside	Diffusion Tube	100	100	31	33	31	28	29
PL1	434364	337881	Urban Background	Diffusion Tube	100	100		17	16	15	15
RS1	433118	336650	Roadside	Diffusion Tube	100	100	28	31	28	25	24
RT1	435653	335706	Roadside	Diffusion Tube	92	92	39	39	38	36	33
RW1	438535	333508	Roadside	Diffusion Tube	100	100		31	32	31	31
SMC1	435203	336779	Roadside	Diffusion Tube	100	100	32	41	40	38	37
SMC2	435249	336785	Roadside	Diffusion Tube	100	100				25	25
SR1	439789	335412	Roadside	Diffusion Tube	100	100	27	31	36	32	29
SS1	434748	336352	Roadside	Diffusion Tube	100	100		51	48	45	45
SS2	434766	336329	Roadside	Diffusion Tube	100	100					28
SS3	434703	336213	Roadside	Diffusion Tube	100	100					27
SS4	434688	336155	Roadside	Diffusion Tube	100	100		37	36	37	34
ST1	435294	334202	Roadside	Diffusion Tube	100	100					37
UNR1	433076	335299	Roadside	Diffusion Tube	100	100		27	24	23	22
UNR2	433190	335380	Roadside	Diffusion Tube	100	100				28	27
UNR3	433186	335327	Roadside	Diffusion Tube	50	50		31	48	44	27

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ^{(3) (4)}				
							2015	2016	2017	2018	2019
UNR4	433786	335778	Roadside	Diffusion Tube	100	100	39	41	40	37	36
UNR5	433887	335804	Roadside	Diffusion Tube	100	100		32	35	33	32
UNR6	434227	335958	Roadside	Diffusion Tube	92	92					26
UNR7	434461	336041	Roadside	Diffusion Tube	92	92				23	22
UOR1	433877	335850	Roadside	Diffusion Tube	100	100					28
UOR2	434182	336329	Roadside	Diffusion Tube	83	83					23
UOR3	434109	336255	Roadside	Diffusion Tube	75	75					28
UOR4	434310	336533	Roadside	Diffusion Tube	100	100					31
WH1	433161	336692	Roadside	Diffusion Tube	100	100					26
WR1	434852	334055	Roadside	Diffusion Tube	100	100					30

☒ Diffusion tube data has been bias corrected

☒ Annualisation has been conducted where data capture is <75%

☒ 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 adjustment

Notes:

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

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

(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%).

(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

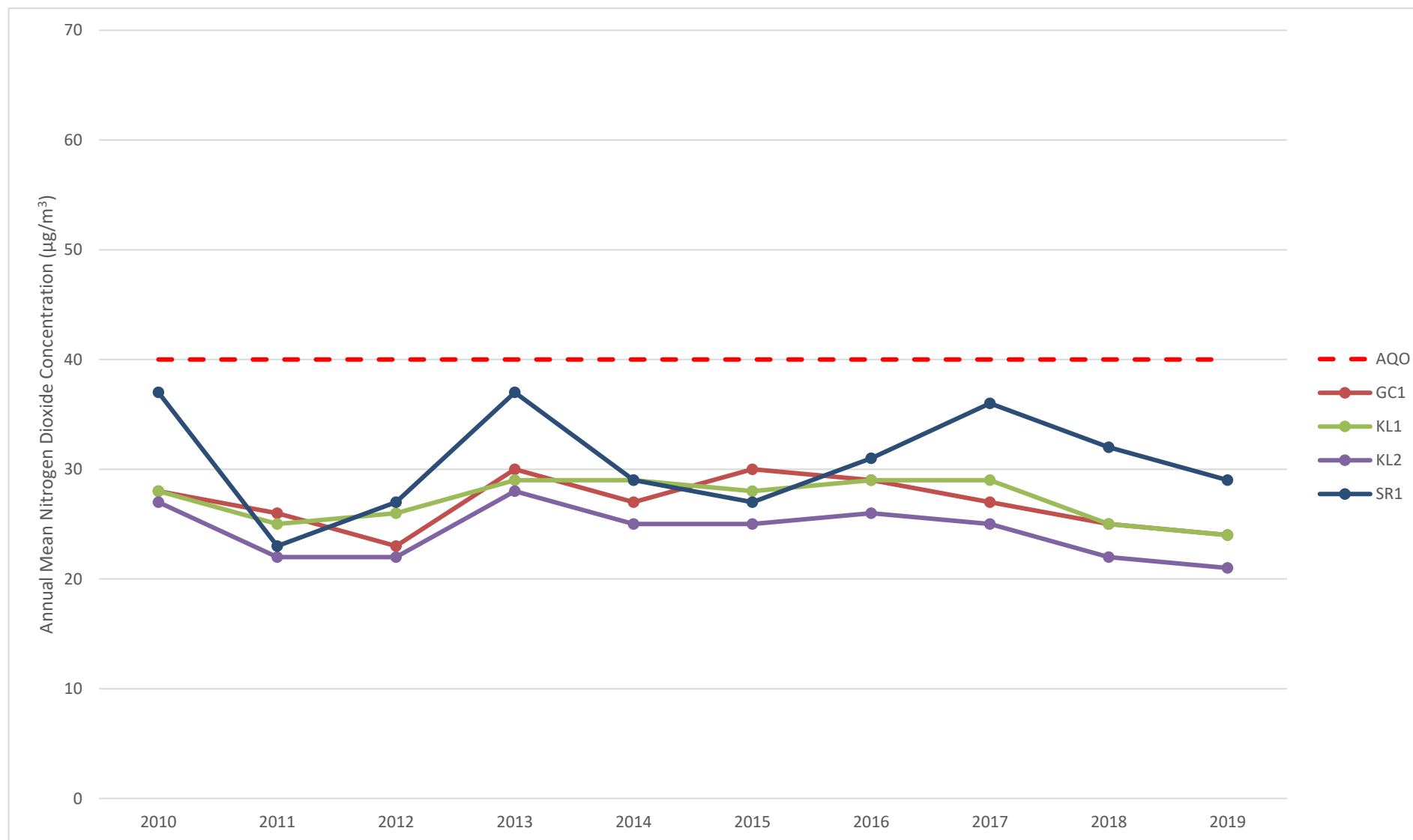
Figure A.2 – Trends in Annual Mean NO₂ Concentrations Measured in the Spondon AQMA

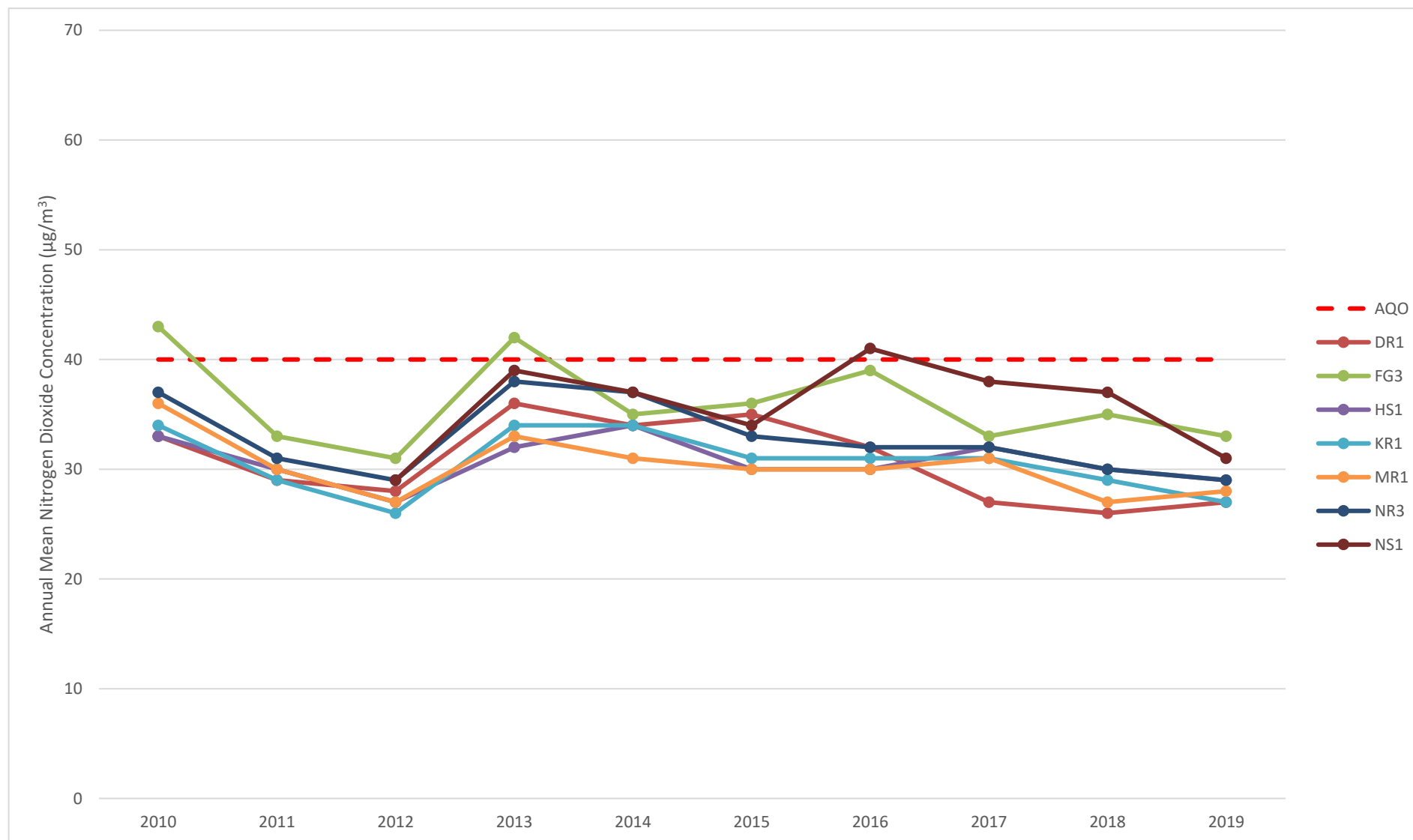
Figure A.3 – Trends in Annual Mean NO₂ Concentrations Measured in the Derby AQMA

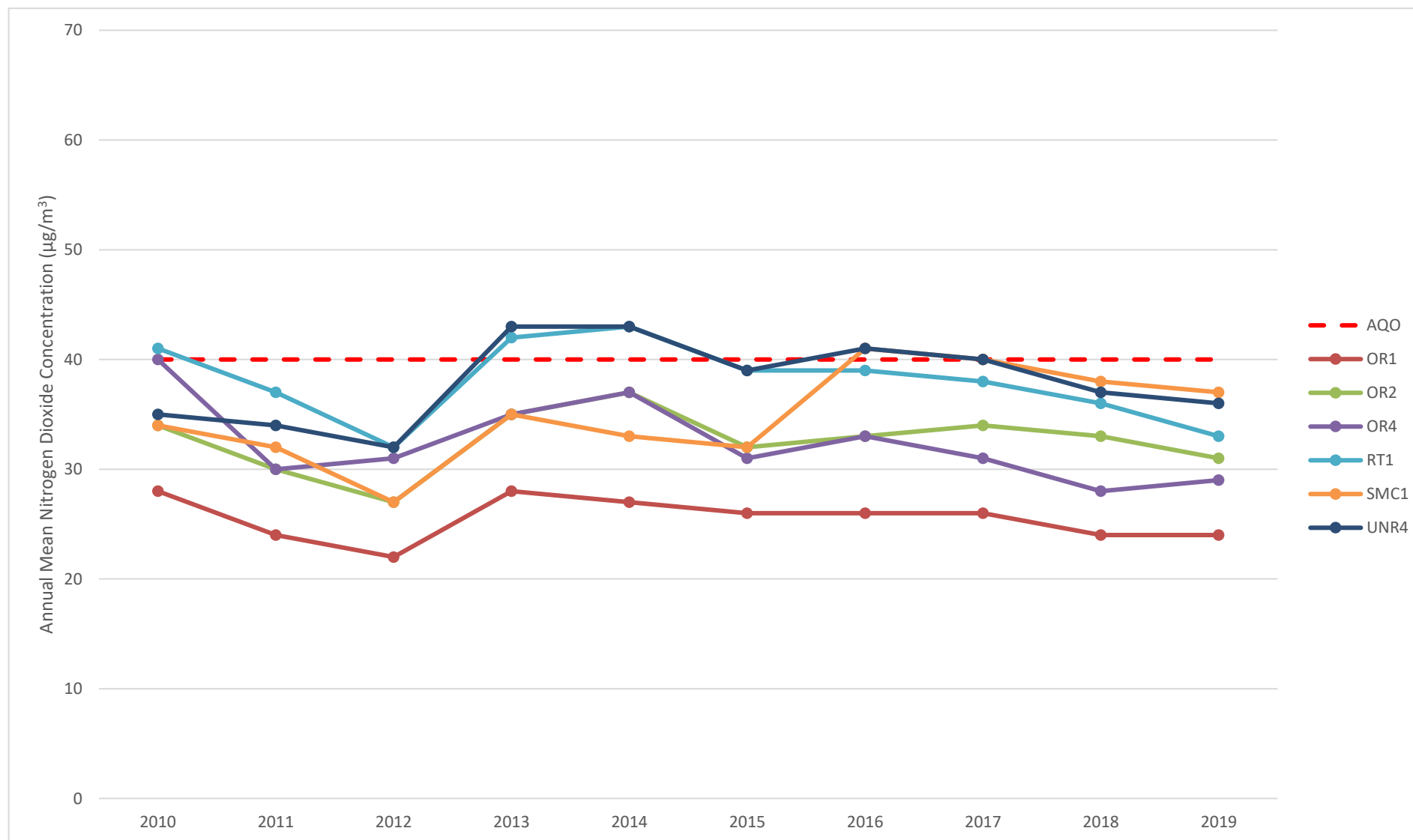
Figure A.4 – Trends in Annual Mean NO₂ Concentrations Measured in the Derby AQMA

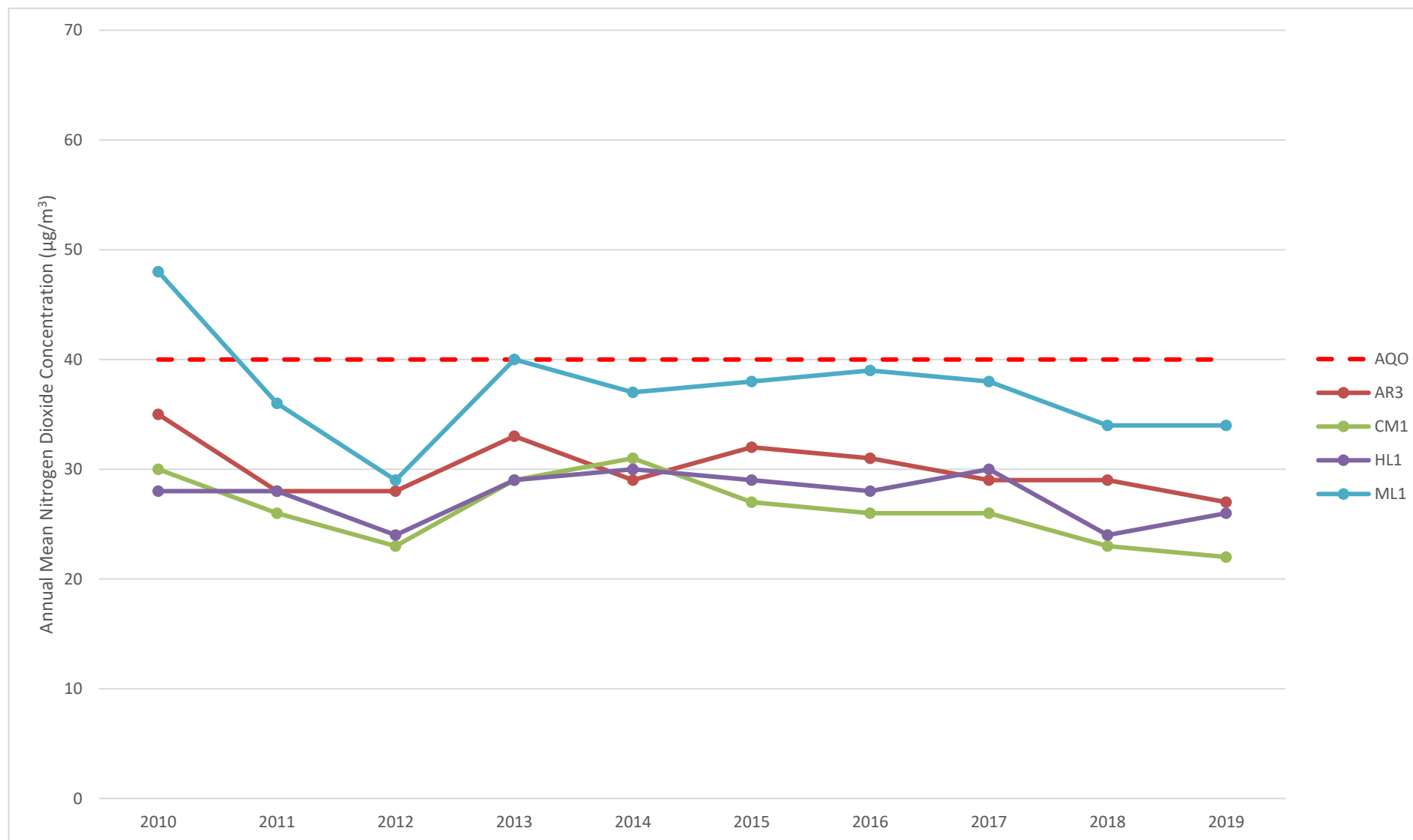
Figure A.5 – Trends in Annual Mean NO₂ Concentrations Measured outside of an AQMA

Table A.4 – 1-Hour Mean NO₂ Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
							2015	2016	2017	2018	2019
AURN	435763	336306	Roadside	Automatic	100	100	-	-	0	0	0

Notes:

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

(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%).

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

Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.75) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
AB1	434846	335657	43.7	34.3	29.0	44.4	34.1	37.9	27.9	23.9	38.5	49.7	64.0	42.2	39.1	29.4	
AR1	433633	336850	36.4	51.5	53.8	46.3	46.4	46.8	45.9	48.5	48.9	57.8	68.3	53.8	50.4	37.8	
AR2	433459	336918	50.6	34.5	44.1		39.6	37.9	32.8	35.2	35.3	34.2	47.0	32.3	38.5	28.9	
AR3	433796	336786	45.0	44.0	33.0	39.7	29.2	28.3	24.5	25.6	34.5	38.7	54.6	38.5	36.3	27.2	
AR4	434307	336565					33.8	29.3	34.0	34.8	37.8	42.8	49.8	46.4	38.6	28.5	
AS1	434545	336570	45.9	57.1		38.6	36.1	35.0	36.7	43.6	40.2		42.3	48.3	42.4	31.8	
AS2	434579	336571	41.2	29.1	30.8	54.5	30.9	29.3	32.4	27.3	37.3	43.8	55.4	37.0	37.4	28.1	
AS3	434712	336490	49.9	42.4	40.3	44.0	31.9	33.0		32.1	39.1		57.8	50.6	42.1	31.6	
BR1	435764	336306	59.8	45.3	48.9	38.9		43.6	47.9	50.6	49.7	58.4	64.6	61.1	51.7	38.8	
BUR1	434785	335241	49.7	38.5	43.4	45.5	37.0	35.1	35.9	36.6	41.0	48.7	50.7	48.0	42.5	31.9	
BUR2	435025	335508	52.8	37.1			34.3	36.0	31.2	32.5	41.0	46.0	58.4	31.1	40.0	30.0	
CAV1	434820	336505	39.8	41.1	28.8	24.9	21.9	22.4	21.9	24.2	29.3	35.1	42.2	36.3	30.7	23.0	
CC1	435725	335802	43.1	31.5	31.9	32.5		26.3		31.7	33.3	36.8	61.9	39.5	36.9	27.6	
CH1	435496	336294	44.2	48.6			23.9	24.4	20.0	24.5	30.2	34.3	48.5	40.6	33.9	25.4	
CM1	435262	336157	40.7	39.6			22.4	21.7	19.8	21.3	24.6		45.3		29.4	22.1	22.2
DER1	438942	335864	49.1	30.4	41.1	30.2	30.9	30.5	30.4	34.5	35.1	45.6	45.3	43.2	37.2	27.9	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.75) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
DR1	434814	337041	43.0	42.4	35.2	34.2	28.7	27.7		26.6	32.9	40.8	47.9	44.7	36.7	27.6	26.6
DR2	434937	336916	46.7	43.9	30.5	40.7	30.2	27.5	25.5	23.8	34.5	38.9	57.2	36.8	36.4	27.3	
EG1	436064	336487	61.9	39.3	52.2	62.7	49.6	51.4	46.9	44.8	52.9	61.7	70.5	52.2	53.8	40.4	
FG1	434718	336375		35.5	37.4	45.2	35.9	34.9		28.4		39.4		44.3	37.6	28.0	
FG2	434450	336523		32.7	38.5	45.6	37.3	36.0	35.3	34.7	43.3	49.3	60.9	41.4	41.4	31.0	
FG3	434497	336510	52.3	42.9	35.8	51.1	40.3		38.5	31.9	37.6	48.8	65.3	40.9	44.1	33.1	
GC1	439776	335696	39.9	34.4	30.3	30.7	23.3	23.9	24.2	26.2	29.4	39.3	40.9	40.5	31.9	23.9	
HL1	437382	336044	42.0	37.0	38.4	24.1	23.9	23.9	25.6	34.6	32.5	41.9	38.8	52.5	34.6	26.0	25.9
HS1	437196	334410	52.9	37.8	39.3	31.2	31.5	29.2	29.8	32.0		44.2	45.7	45.2	38.1	28.6	
KL1	440206	335650	40.7	30.8	31.1	30.2	25.1	25.2	23.7	29.6	31.6	39.3	40.9	40.9	32.4	24.3	
KL2	440198	335611	42.3	27.2	25.8	28.8	22.8	20.2	20.0	20.5	26.7	34.4	42.8	28.8	28.4	21.3	
KR1	434775	337086	45.4	40.5	37.8	31.3	34.0	28.4	27.3	23.7	36.6	41.5	51.0	36.7	36.2	27.1	
LR1	437676	334090	70.1	53.2	54.4	54.2	47.1	49.7	49.9	51.4	59.0	60.1	49.6	65.4	55.3	41.5	
LR2	438162	333654	55.4	41.4	45.7	35.4	40.1	37.8	39.1	39.9	44.9	49.3	50.8	42.6	43.5	32.7	
LW1	439647	335575	45.1	26.2	33.1	19.8	25.5	23.6	23.4	28.8	31.6	37.2	38.9	37.9	30.9	23.2	
ML1	435477	336176	52.9	54.0			39.0	35.6	36.0	35.9	39.4	50.1	59.7	53.8	45.6	34.2	
MR1	435439	336817	45.6	42.5	33.2	32.5	26.9	33.2	29.0	33.9	36.8	40.4	50.6	43.1	37.3	28.0	
NOR1	435198	335537	48.2	36.2	28.5		35.4	33.9	31.2	25.3	39.6	44.8	66.4	42.6	39.3	29.5	29.3
NR1	439899	335348	64.5	45.4	52.2	39.5	47.5	40.2	44.6	48.6	44.0	51.1	57.4	61.3	49.7	37.3	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.75) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
NR2	436700	336637	74.9	51.7	64.9	55.8	50.2	44.2	50.4	51.0	57.8	59.9	75.4	67.0	58.6	44.0	
NR3	435795	336625		38.8	39.0	38.2	31.0	33.4	28.9	27.8	38.1	42.6	58.4	47.9	38.6	28.9	
NR4	435586	336642	45.7	48.7	37.3	32.1	28.9	31.4	31.5	32.5	35.7	41.8	49.9	42.7	38.2	28.6	
NS1	435091	333526	55.2	32.2	38.4	54.1	40.4	42.6	34.7	29.8	44.3	42.1		43.5	41.6	31.2	
NS2	435022	333581	61.3	41.1	26.5	50.9	34.0	41.4	39.4	34.7	43.6	54.8	58.8	48.5	44.6	33.4	
OPR1	436809	332826	46.5	31.4	34.8	39.1	29.5	28.8	26.1	28.0	34.7	44.4	49.6	38.4	35.9	27.0	
OPR2	435716	333327	56.8	48.1		51.9		43.0	36.2		47.1	53.9	55.2	52.8	49.4	37.1	
OR1	436992	332713	37.7	29.2	35.5	28.6	27.4	29.2	24.6	25.4	32.3	38.8	44.9	36.1	32.5	24.4	
OR2	436046	334857	52.3	37.6	41.6	40.7	32.5	35.3	36.2	35.8	42.9	44.6	52.5	40.2	41.0	30.8	
OR3	435534	335467	53.8	38.3	43.3	32.4	41.6	38.9	39.6	44.3	49.5	49.9	52.9	52.2	44.7	33.5	
OR4	435440	335717	45.3	30.8	32.8	41.6	30.8	34.5	30.1	29.7	41.0	45.5	50.9	46.6	38.3	28.7	28.6
PL1	434364	337881	27.8	28.2	17.6	15.4	11.4	13.5	12.0	14.7	18.9	22.5	33.3	26.0	20.1	15.1	
RS1	433118	336650	45.8	29.6	33.3	30.0	28.4	27.1	25.3	27.9	32.0	37.2	41.9	26.8	32.1	24.1	
RT1	435653	335706	58.2	43.5	45.0		43.0	39.1	38.0	23.0	45.4	49.3	54.3	46.6	44.1	33.1	
RW1	438535	333508	47.3	37.3	40.2	46.0	34.3	38.4	32.9	31.8	39.6	43.7	54.6	45.0	40.9	30.7	
SMC1	435203	336779	50.1	51.0	44.9	55.4	48.4	41.8	44.6	42.7	48.5	52.9	63.5	48.3	49.3	37.0	
SMC2	435249	336785	41.4	43.8	34.1	28.8	26.5	27.0	26.3	27.9	31.4	34.4	43.6	33.6	33.2	24.9	
SR1	439789	335412	57.6	35.5	40.8	36.8	28.9	25.0	24.3	26.9	32.4	46.4	58.2	46.5	38.3	28.7	
SS1	434748	336352	64.5	51.4	55.5	66.8	59.0	34.1	54.3	52.4	61.3	68.0	78.3	67.9	59.5	44.6	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.75) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
SS2	434766	336329	36.4	21.8	30.3	48.3	34.8	37.0	31.1	27.8	38.2	46.4	54.7	41.9	37.4	28.0	
SS3	434703	336213	44.1	33.3	29.2	33.1	29.4	28.0	27.8	29.7	37.8	46.6	52.2	44.7	36.3	27.2	
SS4	434688	336155	48.1	40.9	40.4	41.0	43.1	39.2	39.3	37.7	46.1	56.7	62.4	51.1	45.5	34.1	
ST1	435294	334202	61.1	37.9	51.2	50.5	44.9	47.7	43.5	40.2	51.1	56.3	66.5	45.9	49.7	37.3	
UNR1	433076	335299	35.0	29.9	23.2	30.3	22.7	24.1	21.4	23.4	23.8	39.4	34.4	38.3	28.8	21.6	
UNR2	433190	335380	46.4	38.8	32.3	32.7	28.0	29.7	27.8	34.3	32.8	44.6	44.2	46.4	36.5	27.4	
UNR3	433186	335327		35.8				29.7	30.1			40.7	45.1	38.1	36.6	27.1	
UNR4	433786	335778	54.6	43.0	46.8	61.8	43.2	38.7	38.0	33.7	46.6	57.4	65.2	53.0	48.5	36.4	
UNR5	433887	335804	43.6	43.8	41.9	40.9	35.1	32.6	35.3	36.1	45.1	58.8	47.6	50.6	42.6	32.0	
UNR6	434227	335958		31.1	34.0	34.8	31.9	31.7	28.4	27.9	36.5	43.6	38.4	37.3	34.1	25.6	
UNR7	434461	336041	36.6	26.8	30.4	32.6	25.6	24.6	22.6	24.8	30.0	38.1		35.2	29.8	22.3	
UOR1	433877	335850	47.1	34.9	39.1	34.7	31.0	32.7	34.8	30.6	37.7	46.9	43.3	41.5	37.9	28.4	
UOR2	434182	336329		28.0	26.3	35.9	25.6	26.8	21.3		30.4	34.3	44.3	32.5	30.5	22.9	
UOR3	434109	336255		37.1	41.7		31.7	30.8	28.7	22.6		43.7	57.1	43.9	37.5	28.1	
UOR4	434310	336533	49.3	35.5	44.9	39.6	36.5	36.5	34.7	30.0	42.6	44.8	58.5	44.5	41.5	31.1	
WH1	433161	336692	43.1	28.5	35.0	31.5	26.5	32.7	25.3	25.6	34.2	37.2	52.5	35.1	33.9	25.5	
WR1	434852	334055	48.3	31.3	38.7	44.7	34.4	34.1	28.9	25.6	36.7	60.7	50.3	43.5	39.8	29.8	

- ☐ Local bias adjustment factor used
- ☒ National bias adjustment factor used
- ☒ Annualisation has been conducted where data capture is <75%
- ☒ Where applicable, data has been distance corrected for relevant exposure in the final column

Notes:

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

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

(1) See Appendix C for details on bias adjustment and annualisation.

(2) Distance corrected to nearest relevant public exposure.

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

Diffusion Tube QA/QC

Derby City Council deploy diffusion tubes prepared and analysed by SOCOTEC Didcot (50% TEA in acetone method). Tubes are changed on a monthly basis.

Bias Adjustment Factors from Local Co-location Studies

Derby City Council do not currently undertake a co-location study. It is therefore not possible to calculate a local bias adjustment factor.

National Bias Adjustment Factor

The national bias adjustment factor for SOCOTEC Didcot in 2019 is 0.75 (taken from spreadsheet 03/19, based on 21 studies; available at:

<http://laqm.defra.gov.uk/biasadjustment-factors/national-bias.html>). This factor has been applied to all 2019 diffusion tube data. This factor was chosen as SOCOTEC analysed Derby City Council's diffusion tubes.

Short-term to Long-term Data Adjustment (Annualisation)

Missing diffusion tubes meant that four monitoring locations did not achieve the minimum data requirements (75%) during 2019. The data for these sites (AR4, CM1, FG1 and UNR3) have therefore been adjusted to an annual mean, based on the ratio of concentrations during the short-term monitoring period to those over the 2019 calendar year. This has utilised data from the three closest urban background monitoring sites whose data are available from the Automatic Urban and Rural Network (AURN; <https://uk-air.defra.gov.uk>) where long-term NO₂ data are available (with data capture >90%).

AR4: 03/05/19-06/01/20

Site	2019 Annual Mean	Period Mean	Ratio
Nottingham Centre	27.6	25.1	1.10
Chesterfield Loundsley Green	12.3	10.1	1.22
Burton-on-Trent Horninglow	18.2	16.1	1.13
Average			1.15

CM1: 07/01-06/03, 03/05-04/10, 08/11-02/12

Site	2019 Annual Mean	Period Mean	Ratio
Nottingham Centre	27.6	27.0	1.02
Chesterfield Loundsley Green	12.3	12.1	1.02
Burton-on-Trent Horninglow	18.2	17.5	1.04
Average			1.03


FG1: 04/02-04/07, 07/08-06/09, 04/10-08/11, 02/12-06/01

Site	2019 Annual Mean	Period Mean	Ratio
Nottingham Centre	27.6	26.6	1.04
Chesterfield Loundsley Green	12.3	11.9	1.03
Burton-on-Trent Horninglow	18.2	17.7	1.03
Average			1.03

UNR3: 04/02-06/03, 06/06-07/08, 04/10-06/01

Site	2019 Annual Mean	Period Mean	Ratio
Nottingham Centre	27.6	28.5	0.97
Chesterfield Loundsley Green	12.3	13.6	0.90
Burton-on-Trent Horninglow	18.2	19.2	0.95
Average			0.94

Fall Off with Distance Calculator



Enter data into the pink cells

Site Name/ID	Distance (m)		NO ₂ Annual Mean Concentration (µg/m ³)			Comment
	Monitoring Site to Kerb	Receptor to Kerb	Background	Monitored at Site	Predicted at Receptor	
DR1	4.0	6.0	19.2	27.6	26.6	
HL1	19.0	21.0	23.6	26.0	25.9	Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution. Warning: your monitor is more than 10m further from the kerb than your receptor - treat result with caution.
NOR1	2.0	2.2	18.4	29.5	29.3	
OR4	2.0	2.1	18.4	28.7	28.6	

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

Maps of monitoring locations and AQMAs within the Derby City Council administrative area are available at: <http://maps.derby.gov.uk>.

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective ⁶	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

⁶ The units are in micrograms of pollutant per cubic metre of air (µg/m³).

Glossary of Terms

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

¹ Public Health England (2014). [Estimating Local Mortality Burdens associated with Particulate Air Pollution](#).

² South Derbyshire District Council (2020). 2020 Air Quality Annual Status Report.