2020 Air Quality Annual Status Report (ASR)

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

July 2020

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Executive Summary: Air Quality in Our Area

Air Quality in Charnwood

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 billion[3].

The data collated in Charnwood during 2019 indicates that the Borough's trend in meeting the Air Quality Objectives continue.

In reference to those locations that had historically exhibited concentrations of concern in terms of air quality; Town centre concentrations of NO_2 around the area of the inner relief road sees the majority of monitoring sites remaining beneath 30 μgm^{-3}, with only the High Street site being the exception at a slightly higher level of 30.8 μgm^{-3}. These now established levels of concentrations are showing the significant positive impact that the road scheme has had on this area since the road opened in 2014.

Monitoring at Syston continues to show that NO_2 levels remain consistently beneath the Air Quality Objectives and continues to support the Council's view that a future revocation of the AQMA in this area would be a feasible option, but will continue to listen to the views of local Councillors and residents in their concerns around this particular stretch of road.

The work with Mountsorrel Quarry (Tarmac) continues to monitor, appraise and scrutinise PM_{10} data obtained around the local area with reference to the normal associated activities inherent with quarry operations. Relevant partners to the quarry Dust Management and Monitoring Plan (DMMP) i.e. Charnwood Borough Council Environmental Health staff, Leicester County Council Planning staff, Tarmac management team and external consultants continue to regularly meet to ensure that

[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

any sources of on-site fugitive dust emissions are continually identified and addressed through appropriate mechanisms to reduce impact to the local community.

Whilst PM_{10} levels have markedly lowered since the introduction of the quarry DMMP, and are now being reported consistently within NAQO targets, it is apparent that residents still experience episodic concentration impact from local activities; we can however support the suggestion that transboundary movements are still continuing to play a part in a number of the 24-hour exceedances experienced at Mountsorrel.

It is encouraging that we have again seen the return of SO_2 concentrations around the Great Central Railway (GCR) engine sheds that indicate stable and long-term compliance with the NAQO's. Monitoring continues at this location to provide us with further confidence in our observations.

Further information about the work of the Council in respect to Local Air Quality Management can be found on our webpages at:

http://www.charnwood.gov.uk/pages/airpollution

Actions to Improve Air Quality

During April 2020 conversations were held with 'ITP' who had been commissioned by Leicestershire County Council to undertake a feasibility study into the potential to submit a bid to the DfT for funding to convert all bus services in Loughborough to electric under the *'All-Electric bus Town'* fund.

The study was undertaken to assess the viability of submitting such a bid. The output of the study indicated there was a potential bid opportunity for Loughborough and benefits could have included showing commitment to the declaration of climate emergency, supporting delivery of the Tranche 2 of the Environment Strategy Route Map and alignment with the government's Transport Decarbonisation Plan.

However, this is a challenging time for passenger transport operators, due to uncertainties around usage and size of vehicles etc. post-Covid19 and early indications were that match-funding required could be up to £20m.

Given this uncertainty and the challenges of match-funding due to Covid-19 budget impacts, it was decided that this was not the right time to progress this bidding opportunity.

Conclusions and Priorities

2019 monitoring throughout the borough has been fully in compliance with the air quality objectives, both inside and outside of the existing AQMAs. Overall trends for NO_2 are beginning to appear more stabilised across several locations following a period of infrastructure improvements around some of the key arterial routes in previous years. The data is seemingly suggesting that the larger initial 'gains' achieved through these schemes have now started to level-off with any current rise/fall in concentrations now likely associated to annual variation rather than the scheme(s) themselves.

We continue to be committed to the work at Mountsorrel Quarry. Whilst we have demonstratable data for a number of years now that both the annual average concentration of PM_{10} is significantly down (currently by ~32% from pre-AQMA data) and daily exceedances are now within the permitted maximum objective of 35, the nature and scale of the operations on-site continue to remain an environmental focus for both the public and ward Councillors.

The challenge for both the quarry (and the regulators) here is to promote the extensive work and financial investment already undertaken by the operators. The quarry remains committed to continuing with site improvements where appropriate, however considering the recent Covid-19 circumstances there will now obviously be some constraint in the ability to move forward at this time with some of the previously tabled proposals.

Monitoring data from our SO_2 monitor located close to the Great Central Railway engine sheds continues to suggest that concentrations are falling within the required objective levels of this pollutant. The monitor now appears to be operating more stable than on first deployment and we cautiously consider the data now being obtained as a reliable source to determine the future status of the AQMA.

We continue to handle a considerable number of queries from Members in respect to the air quality in their respective wards. Whilst we have no reason to believe there are any areas of concern currently within Charnwood we will still consider, where appropriate and practicable, to cater for the re-siting of a small number of existing diffusion tubes to specific areas where coverage will enhance our network.

Following a couple of such requests (highlighted as '*priorities*' in the 2018 ASR), two amendments were made to our network during 2019:

i. **DT50 – Cropston Rd, Anstey**. The relocation of an existing tube situated on Groby Rd, Anstey at the request of local Councillors. The initial siting of the tube on Groby Rd had been made following local concerns around a housing development. However, following 4 years of data, concentrations were falling within a range of 21.9 to 27.4 μgm^{-3} and it was felt to be more beneficial if the tube was now located to a more central location in Anstey.

ii. DT53 – Fredrick St / William St., Loughborough. An additional monitoring location identified as an area of interest where monitoring has not been conducted previously.

It will be of interest to see observed concentrations at both these locations in future years.

One aspect of our monitoring that we need to be mindful of is the ageing life of our monitoring equipment. Unfortunately, we have again experienced issues with our automatic NO_2 analysers this period that has meant insufficient data capture for inclusion within this report. The remaining longevity of existing equipment, some of which has been in operation since 2007, is now becoming a significant consideration when planning flexibility to cover future air quality requirements in the borough.

It is the intention of the Environmental Protection team (Environmental Health) at this time to continue monitoring and annually reporting in all areas currently declared as AQMAs. Whilst long-term objective compliance is being achieved, these designated areas in question are regarded as locally known 'hotspots' and are under a sizable degree of resident and Councillor scrutiny.

Local Engagement and How to get Involved

In order to help local people and visitors to travel easily in and around Charnwood and Leicestershire as well as to reach places further afield, all whilst reducing the burden on the environment; more information about the local buses, cycling paths, car share schemes, local air travel and road traffic and weather conditions can be found on our public transport and sustainable travel website pages at:

Public transport and sustainable travel.

Alternatively, follow the direct links below for information on:

- Cycling, pedestrian and other pathways located within Charnwood.
- Leicestershire Sustainable Travel
- The 'Chose How You Move' Car share scheme

Table of Contents

Executive Summary: Air Quality in Our Area i

Air Quality in Charnwood i

Actions to Improve Air Quality ii

Conclusions and Priorities iii

Local Engagement and How to get Involved v

1 Local Air Quality Management 1

2 Actions to Improve Air Quality 2

2.1 Air Quality Management Areas 3

2.2 Progress and Impact of Measures to address Air Quality in Charnwood 5

2.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations 16

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance 17

3.1 Summary of Monitoring Undertaken 17

3.1.1 Automatic Monitoring Sites 17

3.1.2 Non-Automatic Monitoring Sites 17

3.2 Individual Pollutants 18

3.2.1 Nitrogen Dioxide (NO_2) 18

3.2.2 Particulate Matter (PM_{10}) 18

3.2.3 Particulate Matter ($PM_{2.5}$) 19

3.2.4 Sulphur Dioxide (SO_2) 20

Appendix A: Monitoring Results 21

Appendix B: Full Monthly Diffusion Tube Results for 2019 45

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 67

Glossary of Terms 68

References 69

List of Tables

Table 2.1 – Declared Air Quality Management Areas....3
Table 2.2 – Progress on Measures to Improve Air Quality 8

Table A.1 - Details of Automatic Monitoring Sites....21
Table A.2 – Details of Non-Automatic Monitoring Sites 22
Table A.3 – Annual Mean NO_2 Monitoring Results....26
Table A.4 – 1-Hour Mean NO_2 Monitoring Results 41
Table A.5 – Annual Mean PM_{10} Monitoring Results....42
Table A.6 – 24-Hour Mean PM_{10} Monitoring Results....43
Table A.7 – SO_2 Monitoring Results 44

Table B.1 - NO_2 Monthly Diffusion Tube Results - 2019....45

Table E.1 – Air Quality Objectives in England 67

List of Figures

Figure A.1 Plot of NO_2 Concentration against Year for Loughborough Town Centre (i) sites 30

Figure A.2 Plot of NO_2 Concentration against Year for Loughborough Town Centre (ii) sites 31

Figure A.3 Plot of NO_2 Concentration against Year for Loughborough South sites.. 32

Figure A.4 Plot of NO_2 Concentration against Year for Loughborough West sites .. 33

Figure A.5 Plot of NO_2 Concentration against Year for Loughborough North sites .. 34

Figure A.6 Plot of NO_2 Concentration against Year for Loughborough East sites … 35

Figure A.7 Plot of NO_2 Concentration against Year for Syston sites 36

Figure A.8 Plot of NO_2 Concentration against Year for Birstall sites 37

Figure A.9 Plot of NO_2 Concentration against Year for Thurmaston sites 38

Figure A.10 Plot of NO_2 Concentration against Year for Shepshed sites 39

Figure A.11 Plot of NO_2 Concentration against Year for Hathern site 40

1 Local Air Quality Management

This report provides an overview of air quality in Charnwood 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 Charnwood 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 Charnwood Borough Council can be found in Table 2.1. 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=52

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).

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)					
						At Declaration		Now		Name	D Pub
Loughborough	Declared 2001, Amended 2004	NO2 Annual Mean	Loughborough	An area encompassing a number of properties around the town centre	NO	Unknown (in excess of 40 µg/m3)	µg/m3	33.0 µg/m3 (Leicester Rd)	µg/m3	Charnwood Local Air Quality Management – Final Action Plan	
Syston	Declared 2001, Amended 2004	NO2 Annual Mean	Syston	Residential properties along Melton Rd and Sandford Rd	NO	Unknown (in excess of 40 µg/m3)	µg/m3	34.2 µg/m3 (1116 Melton Rd)	µg/m3	Charnwood Local Air Quality Management – Final Action Plan	

Great Central Railway (GCR)	Declared 2001	SO2 15 Minute Mean	Loughborough	An area encompassing residential properties near The Great Central Railway	NO	Unknown (in excess of 266 µg/m3 more than 35 times a year)	µg/m3	No exceedances of any objective level recorded during the 2019 monitoring period	µg/m3	Charnwood Local Air Quality Management – Final Action Plan	
Mountsorrel	Declared 2011	PM10 Annual Mean	Mountsorrel	An area encompassing residential properties near Mountsorrel Quarry	NO	60 recorded exceedences (from 313 valid samples) of the 24 Hr Mean	Exceedances	09 recorded exceedences (from 200 valid samples) of the 24 Hr Mean. Equivalent to 17 for full year	Exceedances	Dust Management and Monitoring Plan	R

☒ **Charnwood Borough 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 Charnwood

Defra's appraisal of last year's ASR concluded that both automatic and passive monitoring within the borough continued to confirm that there were no results, or recent evidence of exceedances above objectives limits for:

- Loughborough AQMA
- Syston AQMA
- Mountsorrel AQMA
- Great Central Railway AQMA

Furthermore, it was noted that The Council had made progress with measures to address air quality in Charnwood in 2018, such as publishing the Climate Change Strategy and its associated action plan

Acknowledgement was also given that the publishing of an additional year's data in support of the proposed revocation of the Syston AQMA was appropriate. Whilst further data for 2019 has been presented in this report, and we continue to support this proposal, a final decision on the revocation is yet to be made.

Many measures Charnwood seek to implement to address air quality/climate change issues are not thought of in isolation at departmental level, for which evidencing within in this document would be unfeasible, but rather form an integral but broader strategic approach by both the Council and across the County of Leicestershire. There are several detailed strategic documents that are monitored and reported on elsewhere.

Local Plan (2011-2028) Core Strategy. This is a multi-faceted document that is strategically developed to acknowledge the wider perspective with consideration given to current national and local legislative and economic challenges, but still charting a level of control over sustainable development and means to reduce environmental impact throughout the Borough.

More information on the adopted Local Plan and details towards its measure of progress can be viewed on the Council website:

https://www.charnwood.gov.uk/pages/corestrategydpd

The latest available annual monitoring report (2017-2018) is available to download from:https://www.charnwood.gov.uk/files/documents/annual_monitoring_report_2017_2018/Annual%20Monitoring%20Report%202017-2018.pdf

At the time of writing the Council is developing its **Draft Charnwood Local Plan 2019-2036**

The Draft Charnwood Local Plan 2019-2036 retains the same policy as the Core Strategy on the matter of preserving local air quality, embedded with Draft Policy LP30 'Sustainable Construction'.

The Draft Charnwood Local Plan 2019-2036 was published in November 2019 and was subject to public consultation until 16th December 2019. It can be viewed here:

https://www.charnwood.gov.uk/pages/draft_charnwood_local_plan_2019_36

As part of this process, experienced consultants (AECOM) have been appointed to undertake an assessment of air quality issues within the borough to inform the preparation of the final Charnwood Local Plan

All comments and additional evidence received are currently being considered to update the plan ready for further consultation in 2020. This will also draw upon countywide air quality considerations as highlighted in the **Leicestershire Joint Strategic Needs Assessment – Air Quality and Health Chapter (May 2019),** available at:

https://www.lsr-online.org/uploads/jsna-air-quality-2019-v10-final.pdf?v=1561477116

Climate Change Strategy. The Climate Change Strategy 2018-2030 sets out the Council's aim of influencing and empowering residents, community groups, schools and businesses in the Borough to help them to mitigate climate change by reducing their carbon emissions and also aims to implement carbon reduction projects to reduce the carbon emissions of its own buildings.

More information on the Strategy can be found at:

https://www.charnwood.gov.uk/pages/climate_change_strategy

With the Action Plan available to download from:

https://www.charnwood.gov.uk/files/documents/climate_change_strategy_and_action_plan/Climate%20change%20strategy%202018-2030.pdf

The schedule from the Action Plan has been reproduced under Table 2.2

Table 2.2 – Measures to Improve Air Quality

Awareness Raising

Ref	Commitment	Action	Measure	Target	Responsibility	Timescale	Links to Policies
1.1	We will recognise climate change as a corporate commitment for the Council	Ensure climate change is recognised as a priority within the corporate plan	Climate Change included in the Corporate Plan for 2020-2025	Corporate plan published with Climate Change as a key priority	Corporate Management Sustainability	2020	Corporate Plan
1.2	We will encourage environmental education and promote climate action through a proactive communication campaign	Engage with schools to promote environmental programmes	Working with schools across the Borough on the 'Enviro Detectives' resource	Number of children engaged 200- 300	Street Management	Annual	Climate Local
1.2.1			Promotion of the 'Don't Muck Around' Campaign to Schools and Young People	Achieve 5 entries/pledges from schools and young people	Street Management	Annual	Corporate Plan
1.2.2		Encourage residents to adopt energy efficiency measures	Frontline Services training & awareness taking place Information on website	Training provided Website up to date	Sustainability Private Sector Housing Landlord Services	Annual	Climate Local
1.2.3		Encourage residents to reduce waste to landfill and increase recycling	Awareness programmes in place #Recycle Right campaign (along with Comms Team) Big Guide brochure delivered to all new properties	Two number of promotions	Cleansing	Annual	Zero waste strategy
1.2.4		Encourage the improvement of our environment by taking part in Loughborough in Bloom	Resources and promotion's in place to support and take part in competition	Maintain the number of Love Your Neighbourhood groups >30	Open Spaces	Annual	Open Spaces Strategy
1.2.5		Encourage residents to cut down on meat consumption to within accepted health guidelines to help reduce the carbon emissions associated with meat production and to bring about health benefits	Work with Leicestershire Nutrition Dietetic Services as part of the Lifestyle Activity programme for adults to raise awareness Awareness programme in place	Ensure key messages delivered through our dietitians Deliver 1 promotional campaign annually	Recreational Services Sustainability	Annual	Climate Change Strategy

Ref	Commitment	Action	Measure	Target	Responsibility	Timescale	Links to Policies
1.3	We will encourage a low carbon economy	Work with partnership agencies to encourage businesses to adopt energy efficiency measures by signposting to relevant services and opportunities	Engage with Businesses to promote energy efficiency Details made available on website and publications	Deliver 1 promotional campaign annually	Economic Regeneration Sustainability	Annual	Climate Local
1.4	We will promote environmental behaviour change and showcase best practice	Develop and implement an environmental behavioural change programme and work with teams to showcase positive changes in environmental practice	Programme in place Questionnaire to staff on feedback of scheme	Number of staff taking part 40	All Services Sustainability	Annual	Climate Local

Reducing our Impact on Climate Change

Ref	Commitment	Action	Measure	Target	Responsibility	Timescale	Links to Policies
2.1	We will measure and reduce carbon emissions across our buildings and operations, including our fleet	Implement actions in Carbon Management Plan	Reduction in carbon emissions from energy saving schemes	Carbon 2020 pledge	All Services Sustainability	2020	Climate Local
2.1.1			Resources available to complete annual carbon monitoring report	Production of annual report	Sustainability	Annual	Climate Local
2.1.2		Review low carbon solutions across Council buildings, operations and fleet	Number of schemes implemented	Carbon savings will depend on schemes developed	Asset Management	Ongoing	Climate Local
2.1.3		Improve energy efficiency of Council ICS equipment	Minimise surplus hardware and energy demand through virtualisation of devices by the implementation of Thin Client Terminal	Carbon savings will depend on schemes developed	Information & Communication Services	Ongoing	ICS Strategy Carbon Management Plan
2.1.4			Implementation of Cloud based telephony system	Migration onto the new phone system and decommission existing telephone infrastructure	Information & Communication Services	2018	ICS Strategy
2.1.5			Implementation of Office 365	Complete the proof of concept with 25 users	Information & Communication Services	Ongoing	ICS Strategy
2.1.6			Options identified for improving remote working systems, encouraging smarter, more efficient working	Carbon savings will depend on schemes developed	Information & Communication Services	Ongoing	ICS Strategy Carbon Management Plan
2.1.7		Support tree planting across Charnwood to offset CO_2 emissions, provide habitat for wildlife, enhance natural landscape and reduce flood risk	Number of trees planted	Plant 10,000 trees	Open Spaces Natural & Built Environment	2020	Climate Change Strategy

Ref	Commitment	Action	Measure	Target	Responsibility	Timescale	Links to Policies
2.1.8		Assess the feasibility of electric or hybrid vehicles when the Council's existing fleet vehicles are replaced	Number of electric or hybrid vehicles / leased	Minimum of 3 electric / hybrid vehicles leased	Fleet Management	Ongoing	Climate Local
2.2	We will encourage energy reduction, clean energy and energy efficiency and promote its benefits to our community and businesses	Update and implement the Home Energy Conservation Act (HECA) report	Production of HECA report	Report published	Private Sector Housing	Biannual	HECA
2.2.1		Work in partnership to deliver government energy efficiency programmes	ECO top up grant contribution	Guidance available to support residents	Private Sector Housing	Ongoing	Private Sector Housing Grants Policy
2.2.2			Resources in place to signpost to first contact plus	Guidance available to support residents	Private Sector Housing	Ongoing	
2.2.3		Energy Performance Certificate records for Council housing stock to be updated to give an average SAP value	Energy Performance Certificate records being updated on the stream line software which will give an average SAP value	To carry out EPC's at all void properties and upload to software	Landlord Services	Ongoing	Housing Business Plan
2.2.4		Provide top-up roofing insulation, cavity wall and boiler upgrade programme for Council housing stock	Investment in programme	125 loft insulation installations based on £400 per property	Landlord Services	2018/19	Housing Business Plan
2.2.5		Carry out stock condition surveys to monitor energy condition of Council housing stock	Stock condition surveys	250 stock condition surveys per year this may be increased with the new capital contract starting in April 2018	Landlord Services	Ongoing	Housing Business Plan
2.2.6		Ensure Charnwood standard is implemented and maintained for Council housing stock	Charnwood Standard in place and being maintained	No properties not meeting standard programmes created from the housing management system to ensure the Charnwood standard is maintained	Landlord Services	Ongoing	Housing Business Plan

Ref	Commitment	Action	Measure	Target	Responsibility	Timescale	Links to Policies
2.3	We will minimise the climate impact from development and encourage a low carbon economy through the planning system	Encourage a sustainable pattern of development supported by a low carbon transport infrastructure	Amount of new major developments that provide walking, cycling and public transport access to key facilities and services embedded in the emerging local plan	100% of major developments to provide walking, cycling and public transport links to key facilities and services	Plans, Policy & Place Making Development Management	Ongoing	Core Strategy
2.3.1			Green Travel Plans required for all major developments	100% of major development to have travel plan			
2.3.2		Encourage renewable sources of energy supply	Amount of new energy being provided from renewable or low carbon energy developments embedded in the emerging local plan	27.5 MWe of energy provision from decentralised and renewable sources of energy supply	Plans, Policy & Place Making Development Management	Ongoing	Core Strategy
2.3.3			Include policies in our Local Plan that encourage developers to achieve high energy standards and to incorporate renewable and decentralised (on-site) energy generation.	Local Plan adopted by 2020	Plans, Policy & Place Making Development Management	Ongoing	Core Strategy
2.3.4			Include policies in our Local Plan that encourage new large scale development to explore and incorporate new low carbon district heating networks	Local Plan adopted by 2020	Plans, Policy & Place Making Development Management	Ongoing	Core Strategy
2.3.5		Promote sustainable design in buildings	Sustainable Design category in the Charnwood Design Awards	Design Awards Scheme	Conservation & Landscape	Biannual	Core strategy
2.4	We will encourage reduced car use and promote sustainable travel	Investigate actions in Council Sustainable Travel Plan	Implementation of actions	1 new scheme introduced	Sustainability	2021	Climate Local
2.4.1		Promote cycling, walking, running and other physical activity to our own staff and the wider community	Assess the feasibility of electric or hybrid pool car / bike	1 electric / hybrid vehicles leased 1 electric pool bike	Fleet Management Sustainability Street Management	2021	Climate Local

Ref	Commitment	Action	Measure	Target	Responsibility	Timescale	Links to Policies
2.4.2			Engage with workplaces in the Borough	Provide a bespoke physical activity package to 5 Charnwood based workplaces per year	Sport and Active Recreation Team	Ongoing	
2.4.3			Deliver and promote national physical activity/health Campaigns to Charnwood residents	In line with Public Health Priorities Deliver 3 campaigns weeks per year and achieve 300 new participants annually	Sport and Active Recreation Team	Ongoing	
2.4.4			Provide support to Charnwood based cycling clubs and groups to deliver recreational and family bike rides	2 New ride leaders trained annually 10 Recreational / family Bike Rides delivered annually	Sport and Active Recreation Team	Ongoing	
2.4.5			Develop and promote new and existing walking initiatives	Deliver 2 New Patient Participation Groups and Community Walking groups annually Provide training to 10 volunteers walk leaders annually Promote the Charnwood Walks programme with an annual target of 2000 attendances	Sport and Active Recreation Team	Ongoing	
2.4.6			Develop a parkrun site within Charnwood at Derby Road Playing Fields in partnership with our Open Spaces team, Loughborough Rugby Club, local running clubs, local workplaces and Loughborough University	Weekly park run event organised. With 500 members annually and 2500 attendances Annually.	Sport and Active Recreation Team	Ongoing	

Ref	Commitment	Action	Measure	Target	Responsibility	Timescale	Links to Policies
2.4.7			Support the development of the Green Gym project	Promote the physical activity volunteering opportunities with the Green Gym project to individuals, community groups and local workplaces at 5 events	Sport and Active Recreation Team	Ongoing	
2.4.8		Promote non-recreational cycling for commuting as well as recreational cycling	Promote the 'Choose how you Move' programme to encourage cycling for commuting	Promotional campaign in place	Sport and Active Recreation Team Sustainability	Ongoing	
2.5	We will encourage an increase in the proportion of reuse and recycling and a reduction in waste to landfill	Update and implement the Zero Waste Strategy	New Zero Waste Strategy in place	Strategy published	Cleansing	Ongoing	Zero Waste Strategy
2.5.1			Zero Waste Strategy in place to divert waste from landfill and improve recycling	Compare tonnage of landfill waste with other LCC authorities as well as against the national average	Cleansing	Ongoing	Zero Waste Strategy
2.5.2			Increase the household recycling rate. Tonnages of green waste and recycling as a percentage	Contractors to achieve a 50% household recycling rate	Cleansing	Ongoing	Zero Waste Strategy
2.5.3		Implement waste education / promotional campaigns	Resources available to deliver educational campaigns on reducing waste to landfill and recycling	Deliver waste promotional programmes on an annual basis	Cleansing	Ongoing	Zero Waste Strategy
2.5.4		Phase out use of single use plastics within Council offices and buildings	Investigate use of single use plastics	Implement reduction of single use plastics	Sustainability	Ongoing	Zero Waste Strategy
2.6	We will work in partnership to improve air quality	Monitor and review air quality across the borough to determine whether national air quality objectives are being met	Preparation of DEFRA annual monitoring report Air Quality Annual Status Report	Review annually	Environmental Protection – Regulatory services	Ongoing	Charnwood Air Quality Action Plan
2.6.1			Production of Monitoring Report	National air quality targets being met	Environmental Protection –	Annually in April	Charnwood Air Quality Action

Climate Change Resilience

Ref	Commitment	Action	Measure	Target	Responsibility	Timescale	Links to Policies
3.1	We will work with our partners to understand the current and future risks of flooding	Review Charnwood Community Flood Plans with Local Resilient Forum partners	Charnwood Community Flood Plans & recommendations being implemented	Review biannually	Resilience Officer in association with LRF partners	April 2018	Business Continuity Plan Major Incident Plan
3.2	We will work with communities and businesses to increase resilience to future changes in climate	Promote the community flood warden monitoring scheme	Number of Flood Wardens in place	At least 1 flood warden for each flood warning area	Resilience Officer	Ongoing	Business Continuity Plan Major Incident Plan
3.2.1			Flood wardens scheme on Charnwood and LRF websites	Website updated on a regular basis	Resilience Officer	Ongoing	Business Continuity Plan Major Incident Plan
3.2.2		Advise residents on steps to increase resilience	Up to date information made available on Charnwood and LRF websites	Website updated on a regular basis	Resilience Officer	Ongoing	Business Continuity Plan Major Incident Plan
3.2.3		Development of community resilient plans with parish councils	Number of community resilient plans in place	5 plans in place	Resilience Officer	Ongoing	Business Continuity Plan Major Incident Plan
3.2.4		Promote the Climate East Midlands Business adaptation guide for business	Information provided on website, forums, seminars & business groups	Deliver 1 new promotional campaign annually	Regeneration Sustainability	Ongoing	Climate Local
3.3	We will ensure business continuity planning at the council is resilient to climate impacts	Work with partners to prepare and assess Council business continuity plans	Annual assessment of business continuity plans and reviews of live incidents.	Annual assessment complete	Health & Safety Officer	Annual	Business Continuity Plan Major Incident Plan

Ref	Commitment	Action	Measure	Target	Responsibility	Timescale	Links to Policies
3.3.1			Quarterly assessment of Strategic Risk Register	Annual assessment complete	Audit	Ongoing	
3.4	We will ensure that Council owned open spaces and habitat are well adapted to the changing climate	Work in partnership to carry out biodiversity and heritage audits in Charnwood	Full list of Council owned land and their wildlife features	2 No. of Biodiversity & Heritage audits conducted 5 new LNR sites to be accredited by 2020	Open Spaces	2020	Open Spaces Strategy
3.4.1		Work in partnership to deliver Charnwood Forest Regional Park partnership funding	Promote heritage, improve biodiversity, geology, history and cultural values of Charnwood sites	Stage 1 completed and approved by HLF Development phase, Stage 2 to take place during 18/19 and 19/20	Open Spaces Conservation & Landscape	2020	
3.5	When new development is considered in areas with nature conservation value we will ensure that risks can be manged through suitable adaptation measures	Protect and enhance native species and habitats	Monitoring the implementation of policies such as CS11 Landscape and Countryside, CS12 Green Infrastructure and CS13 Biodiversity and Geodiversity	Core Strategy annual monitoring report published	Plans, Policy & Place Making Conservation & Landscape	Ongoing	Core Strategy
3.5.1		Promotion of climate resilient buildings through the revised Local Plan	Embed policy in emerging Local Plan	Local Plan published	Plans, Policy & Place Making	2020	Core Strategy
3.5.2		Promote and support opportunities for environmental enhancement and regeneration	Embed policy in emerging Local Plan	Local Plan published	Plans, Policy & Place Making	2020	Core Strategy
3.6	We will support healthy and ethical local food initiatives.	Promote the allotment and community orchard schemes	Number of new allotment schemes introduced Number of community orchards introduced	1 no of new allotment schemes introduced 1 no of community orchards scheme introduced	Open Spaces	Ongoing	Open Spaces Strategy
3.6.1		Work with partners to support the Loughborough farmers market	Number of businesses participating in the Farmers Market.	Sustain the number of businesses participating in the Farmers Market	Leisure Services – Markets & Fairs	Ongoing	
3.6.2		Work with partners to promote and support Fairtrade in the borough	Information provided on website	Deliver 1 promotion annually	Sustainability	Ongoing	

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.

Charnwood Borough Council considers some of the following measures (either independently or in combination) when assessing $PM_{2.5}$ levels within the Borough:

As no local $PM_{2.5}$ monitoring or modelling data is available, there are several sources of existing information that may assist in evaluating $PM_{2.5}$ at the local level. This includes, but is not limited to:

***National $PM_{2.5}$ Monitoring*.** There are approximately eighty $PM_{2.5}$ monitoring stations within the AURN. Monitoring data from sites located either close to, or within the local authority area, these will provide a good indicator as to likely $PM_{2.5}$ concentrations within the Council area.

***National $PM_{2.5}$ Modelling*.** Defra maintains national background maps, which are provided for each 1km × 1km grid square across the UK. By plotting the $PM_{2.5}$ mapped data for the appropriate base year, $PM_{2.5}$ concentrations can be identified within the local authority area. Although considered quite coarse resolution, such information may prove useful to local authorities in directing actions to areas that are most in need of reductions in $PM_{2.5}$ levels.

***Ratio of PM_{10} to $PM_{2.5}$*.** In the absence of any $PM_{2.5}$ monitoring data, local authorities can use one of the methodologies provided in LAQM.(TG16) Chapter 7 Section 1 (paras 7.107 to 7.111) to provide an indication of $PM_{2.5}$ concentrations.

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.

Charnwood Borough Council have automatic (continuous) monitoring available at 4 sites. Table A.1 in Appendix A shows the details of the sites.

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.

Unfortunately, insufficient data was obtained from our automatic NO_2 analysers for this period; however the reporting tables have been left included to show historic data.

3.1.2 Non-Automatic Monitoring Sites

Charnwood Borough Council undertook non- automatic (passive) monitoring of NO_2 at 49 (53 tubes) sites during 2019. Table A.2 in Appendix A shows the details of the sites.

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 bias[4], "annualisation" (where the data capture falls below 75%), and distance correction[5]. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

Note that the concentration data presented in Table A.3 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 inclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2019 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.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past 5 years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

There were no exceedences of the annual mean air quality objective in 2019.

3.2.2 Particulate Matter (PM_{10})

Charnwood Borough Council continues to monitor PM_{10} levels in the vicinity of Mountsorrel Quarry. Recent monitoring has shown that levels are in compliance with the air quality objectives. Further areas of site improvement and methods for on-site monitoring are detailed within the sites Dust Management and Monitoring Plan, available at: Mountsorrel Quarry Dust Management and Monitoring Plan

Table A.5 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

[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)

Table A.6 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past 5 years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

There were no exceedences of the annual mean air quality objective in 2019.

3.2.3 Particulate Matter ($PM_{2.5}$)

Charnwood Borough Council do not undertake any local monitoring of $PM_{2.5}$

As outlined in section 2.3; consideration will be taken via several available indicative data sources as well as local knowledge for us to identify any localised 'hot-spots' that may be, or become, potential areas of concern.

It is important to note however that due to its extremely small size, $PM_{2.5}$ can travel for long distances in the air and it is estimated that as much as 40% to 50% of the levels found in any given area can be from sources outside a local authority's direct boundary[4].

The following provides an estimation of $PM_{2.5}$ using the nationally derived correction factor from recorded PM_{10} observations at the Mountsorrel PM_{10} monitoring site, considered to be the 'worst-case' location for public exposure to dust within the Borough:

The recorded annual mean concentration of PM_{10} at the Mountsorrel site in 2019 was 22.6µg/m^3. The PM2.5 concentration at this location can be estimated as follows:

The recorded annual mean PM10 concentration multiplied by the nationally derived correction factor: 22.6 x 0.7 = 15.8

Estimated annual mean PM2.5 = 15.8µg/m^3

Given the fact that considerable effort is being made to lessen PM_{10} dust emissions from Mountsorrel Quarry over recent years via the DMMP; it would be fair to suggest that whilst not directly measured, it is likely that associated levels of $PM_{2.5}$ from the plant are also seeing discernible reductions.

[4] Fine Particulate Matter (PM2.5) in the United Kingdom. Air Quality Expert Group (AQEG) Report, 2012

3.2.4 Sulphur Dioxide (SO_2)

Table A.7 in Appendix A compares the ratified continuous monitored SO_2 concentrations for 2019 with the air quality objectives for SO_2.

The monitor is co-located alongside 3x sulphur dioxide tubes that that are changed on a monthly basis. 3 further 'background' diffusion tubes have also been located throughout the Borough to allow a comparison of concentrations against the site of interest.

Results for 2019 would indicate that receptor exposure continues to be within the required objective levels for this particular pollutant, however we will continue to monitor levels to build a longer-term picture of concentrations at this site.

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)
CM1	Mountsorrel	Industrial	457355	315396	PM10	YES	Volumetric Gravimetric	~34	N/A	~1.5
CM2	Great Central Railway	Industrial	454380	319768	SO2	YES	Electrochemical Sensor	0	N/A	~1.5
CM3	Baxter Gate (Loughborough) AQMA	Kerbside	453687	319672	NO2	YES	Chemiluminescent	N/A	~1	~1.5
CM4	Syston AQMA	Roadside	462540	311428	NO2	YES	Chemiluminescent	~10	~3	~1.5

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)
DT1	Ratcliffe Rd (L'boro)	Roadside	454087	320392	NO2	YES	0	~3	NO	~3
DT2	Shelthorpe Rd (L'boro)	Roadside	454234	318657	NO2	NO	~8	~3	NO	~3
DT3	Forest Rd (L'boro)	Roadside	452833	318776	NO2	NO	0	~6	NO	~2.5
DT4	Haydon Rd (L'boro)	Roadside	452314	319620	NO2	YES	~8	~6	NO	~2.5
DT5	Alan Moss Rd / Epinal Way (L'boro)	Roadside	452173	319924	NO2	YES	0	~15	NO	~1.5
DT6	Epinal Way / Ling Rd (L'boro)	Roadside	453678	318678	NO2	NO	0	~9	NO	~3
DT7	Leicester Rd (L'boro)	Roadside	454002	319253	NO2	YES	0	~3	NO	~3
DT8	Derby Rd (L'boro)	Roadside	453231	320028	NO2	YES	~3	~3	NO	~3
DT9	Derby Rd / Briscoe Avn (L'boro)	Roadside	452670	320527	NO2	YES	~3	~4	NO	~3
DT10	Durham Rd 1 (L'boro)	Urban Background	452352	320697	NO2	NO	N/A	N/A	NO	~3.5
DT11	Durham Rd 2 (L'boro)	Urban Background	452352	320697	NO2	NO	N/A	N/A	NO	~3.5
DT12	Durham Rd 3 (L'boro)	Urban Background	452352	320697	NO2	NO	N/A	N/A	NO	~3.5

DT13	Alan Moss Rd / A6 Derby Rd (L'boro)	Roadside	452903	320212	NO2	YES	0	~8	NO	~1.5
DT14	High St (L'boro)	Roadside	453730	319596	NO2	YES	N/A	~3	NO	~3
DT15	Market Place (L'boro)	Urban Centre	453611	319540	NO2	YES	N/A	N/A	NO	~3
DT16	Ashby Rd (L'boro)	Roadside	453189	319709	NO2	YES	0	~4	NO	~3
DT17	Cow Hill Lodge (Shepshed)	Roadside	448876	318307	NO2	NO	0	~10	NO	~1.5
DT18	Roseberry St (L'boro)	Roadside	452697	319921	NO2	NO	~13	~3	NO	~3
DT19	Melton Rd Town Centre (Syston)	Roadside	462777	311692	NO2	YES	~3	~3	NO	~3
DT20	1123 Melton Rd (Syston)	Roadside	46235	311213	NO2	YES	0	~6	NO	~1.5
DT21	1116 Melton Rd (Syston)	Roadside	462373	311254	NO2	YES	0	~3	NO	~3
DT22	Loughborough Rd (Birstall)	Roadside	459233	309233	NO2	NO	0	~15	NO	~1.5
DT23	A6 (Birstall)	Roadside	459178	309890	NO2	NO	~2	~5	NO	~3
DT24	21 Humberstone Lane (Thurmaston)	Roadside	460821	308757	NO2	NO	0	~6	NO	~1.5
DT25	43 Humberstone Lane (Thurmaston)	Roadside	460861	308824	NO2	NO	0	~5	NO	~1.5
DT26	22 Humberstone Lane (Thurmaston)	Roadside	460835	308784	NO2	NO	0	~5	NO	~1.5
DT27	Ashby Rd Central (Shepshed)	Roadside	448121	318257	NO2	NO	~12	~2	NO	~3

DT28	Loughborough Rd (Hathern)	Roadside	450260	321922	NO2	NO	~30	~3	NO	~3
DT29	Barrow Street (L'boro)	Roadside	453901	319488	NO2	NO	0	~10	NO	~3
DT30	School Street (L'boro)	Roadside	453946	319619	NO2	NO	0	~3	NO	~3
DT31	Fennel Street (L'boro)	Roadside	453694	319890	NO2	NO	0	~3	NO	~3
DT32	High Street (Syston)	Roadside	462369	311809	NO2	YES	0	~4	NO	~3
DT33	Syston AQMS 1	Roadside	462540	311428	NO2	YES	~10	~3	YES	~1.5
DT34	Syston AQMS 2	Roadside	462540	311428	NO2	YES	~10	~3	YES	~1.5
DT35	Syston AQMS 3	Roadside	462540	311428	NO2	YES	~10	~3	YES	~1.5
DT36	Baxter Gate AQMS 1	Kerbside	453687	319672	NO2	YES	N/A	~1	YES	~1.5
DT37	Baxter Gate AQMS 2	Kerbside	453687	319672	NO2	YES	N/A	~1	YES	~1.5
DT38	Baxter Gate AQMS 3	Kerbside	453687	319672	NO2	YES	N/A	~1	YES	~1.5
DT39	Nottingham Rd (L'boro)	Roadside	454154	320116	NO2	NO	N/A	~3	NO	~3
DT40	156 Ratcliffe Rd (L'boro)	Roadside	454285	320294	NO2	NO	0	~6	NO	~1.5
DT41	156 Meadow Lane (L'boro)	Roadside	453933	320663	NO2	NO	0	~8	NO	~1.5
DT42	31 Station Boulevard (L'boro)	Roadside	454142	320593	NO2	NO	0	~9	NO	~1.5
DT43	91 Wharncliffe Rd (L'boro)	Roadside	454250	319682	NO2	NO	0	~4	NO	~1.5
DT44	3 Simpson Cl (Syston)	Roadside	461499	310459	NO2	NO	0	~30	NO	~1.5

DT45	1 Brackenfield Way (Thurmaston)	Roadside	461994	309975	NO2	NO	0	~8	NO	~1.5
DT46	74 Hathern Rd (Shepshed)	Roadside	448311	320511	NO2	NO	0	~8	NO	~1.5
DT47	7 Shepshed Rd (Hathern)	Roadside	449935	322227	NO2	NO	0	~11	NO	~1.5
DT48	37 Darwin Crescent (L'boro)	Suburban	450942	321076	NO2	NO	~4	N/A	NO	~1.5
DT49	Far Street (Wymeswold)	Roadside	460313	323521	NO2	NO	~1	~2	NO	~3
DT50	Cropston Rd (Anstey)	Roadside	455141	308686	NO2	NO	~1	~3	NO	~3
DT51	15 Leicester Rd (Anstey)	Roadside	455167	308549	NO2	NO	0	~4	NO	~3
DT52	22 Main Street (Barkby)	Roadside	463483	309880	NO2	NO	0	~4	NO	~3
DT53	Frederick Street (L'boro)	Roadside	453277	319248	NO2	NO	0	~4	NO	~3

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results

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
CM3	453687	319672	Kerbside	Automatic	0	0	-	-	29.45	29.05	-
CM4	462540	311428	Roadside	Automatic	0	0	-	-	34.87	27.64	-
DT1	454087	320392	Roadside	Diffusion Tube	83	83	21	24.3	24.3	20.9	21.8
DT2	454234	318657	Roadside	Diffusion Tube	100	100	20.1	23.1	21.0	20.0	20.7
DT3	452833	318776	Roadside	Diffusion Tube	100	100	25	28.6	26.7	24.1	25.7
DT4	452314	319620	Roadside	Diffusion Tube	100	100	26	27.8	30.0	23.1	25.7
DT5	452173	319924	Roadside	Diffusion Tube	100	100	21.5	23.7	24.8	20.4	21.4
DT6	453678	318678	Roadside	Diffusion Tube	100	100	24.4	26.7	29.1	26.0	27.7
DT7	454002	319253	Roadside	Diffusion Tube	92	92	30.6	37.9	36.0	33.5	33.0
DT8	453231	320028	Roadside	Diffusion Tube	83	83	28.7	33.4	33.3	28.8	27.0
DT9	452670	320527	Roadside	Diffusion Tube	100	100	23.1	26.8	27.0	22.5	23.3
DT10	452352	320697	Urban Background	Diffusion Tube	100	100	17.8	19.9	21.1	17.7	17.6
DT11	452352	320697	Urban Background	Diffusion Tube	100	100	17	19.4	19.7	17.9	17.3
DT12	452352	320697	Urban Background	Diffusion Tube	100	100	16.9	19.1	19.9	17.2	18.1
DT13	452903	320212	Roadside	Diffusion Tube	100	100	25.2	27.4	27.5	24.9	25.3

DT14	453730	319596	Roadside	Diffusion Tube	100	100	28.5	32.4	33.0	28.4	30.8
DT15	453611	319540	Urban Centre	Diffusion Tube	92	92	18.4	21.2	21.3	17.3	19.1
DT16	453189	319709	Roadside	Diffusion Tube	100	100	26.7	28	31.6	28.0	30.2
DT17	448876	318307	Roadside	Diffusion Tube	100	100	21.3	27.1	25.4	23.3	26.6
DT18	452697	319921	Roadside	Diffusion Tube	100	100	17.9	19.7	19.4	17.0	17.6
DT19	462777	311692	Roadside	Diffusion Tube	100	100	27.2	31.7	33.2	26.1	27.0
DT20	46235	311213	Roadside	Diffusion Tube	100	100	22.9	27.3	29.8	24.1	24.1
DT21	462373	311254	Roadside	Diffusion Tube	100	100	26.4	35.8	37.2	32.1	34.2
DT22	459233	309233	Roadside	Diffusion Tube	100	100	28.5	32.3	33.7	26.3	27.1
DT23	459178	309890	Roadside	Diffusion Tube	100	100	30.2	34.1	35.6	29.4	26.0
DT24	460821	308757	Roadside	Diffusion Tube	100	100	30.9	33.9	35.3	28.3	30.6
DT25	460861	308824	Roadside	Diffusion Tube	100	100	26	32.6	34.2	29.7	30.4
DT26	460835	308784	Roadside	Diffusion Tube	100	100	24.1	27.3	30.9	24.1	24.1
DT27	448121	318257	Roadside	Diffusion Tube	92	92	31.5	39	34.9	33.9	22.2
DT28	450260	321922	Roadside	Diffusion Tube	100	100	25.4	30.1	28.3	25.0	20.3
DT29	453901	319488	Roadside	Diffusion Tube	100	100	22.6	26.3	26.0	23.3	25.2
DT30	453946	319619	Roadside	Diffusion Tube	100	100	19.9	22.1	22.4	19.6	20.6
DT31	453694	319890	Roadside	Diffusion Tube	100	100	27.4	31.4	30.5	28.9	28.3

DT32	462369	311809	Roadside	Diffusion Tube	100	100	24.7	28.5	32.2	26.0	25.7
DT33	462540	311428	Roadside	Diffusion Tube	100	100	27.6	30.5	35.4	28.3	29.5
DT34	462540	311428	Roadside	Diffusion Tube	100	100	27.1	29.8	34.6	27.6	28.6
DT35	462540	311428	Roadside	Diffusion Tube	100	100	25.7	29.8	34.1	26.8	28.1
DT36	453687	319672	Kerbside	Diffusion Tube	100	100	26.2	30.9	29.9	29.5	27.7
DT37	453687	319672	Kerbside	Diffusion Tube	100	100	25.3	31.7	29.9	28.6	28.9
DT38	453687	319672	Kerbside	Diffusion Tube	100	100	26.1	31	28.8	28.8	28.1
DT39	454154	320116	Roadside	Diffusion Tube	100	100	30.7	35.2	32.6	32.6	29.7
DT40	454285	320294	Roadside	Diffusion Tube	100	100	21.1	24.8	22.9	22.2	22.0
DT41	453933	320663	Roadside	Diffusion Tube	100	100	21.5	24.6	23.6	22.8	21.7
DT42	454142	320593	Roadside	Diffusion Tube	100	100	22.2	25.8	25.8	22.5	23.4
DT43	454250	319682	Roadside	Diffusion Tube	100	100	24.3	28.2	25.7	24.0	28.3
DT44	461499	310459	Roadside	Diffusion Tube	100	100	21.8	26.5	28.0	20.8	21.5
DT45	461994	309975	Roadside	Diffusion Tube	100	100	19.9	22.2	24.5	19.6	19.2
DT46	448311	320511	Roadside	Diffusion Tube	100	100	18.9	22.2	21.5	20.4	19.8
DT47	449935	322227	Roadside	Diffusion Tube	100	100	21.1	22.9	24.2	21.9	22.6
DT48	450942	321076	Suburban	Diffusion Tube	100	100	14.1	17.6	15.8	14.3	13.9
DT49	460313	323521	Roadside	Diffusion Tube	100	100	27.9	31.6	29.4	27.7	25.7

DT50	455141	308686	Roadside	Diffusion Tube	100	100	-	-	-	-	31.3
DT51	455167	308549	Roadside	Diffusion Tube	100	100	22.2	26.2	27.5	23.6	22.8
DT52	463483	309880	Roadside	Diffusion Tube	100	100	18	20.8	23.1	17.7	17.7
DT53	453277	319248	Roadside	Diffusion Tube	100	83	-	-	-	-	26.2

☒ **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 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.**

(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.1 – A.11 Trends in Annual Mean NO_2 Concentrations

The following plots show the trends in Annual Mean Nitrogen Concentrations measured at selected Diffusion Tube Monitoring Sites.

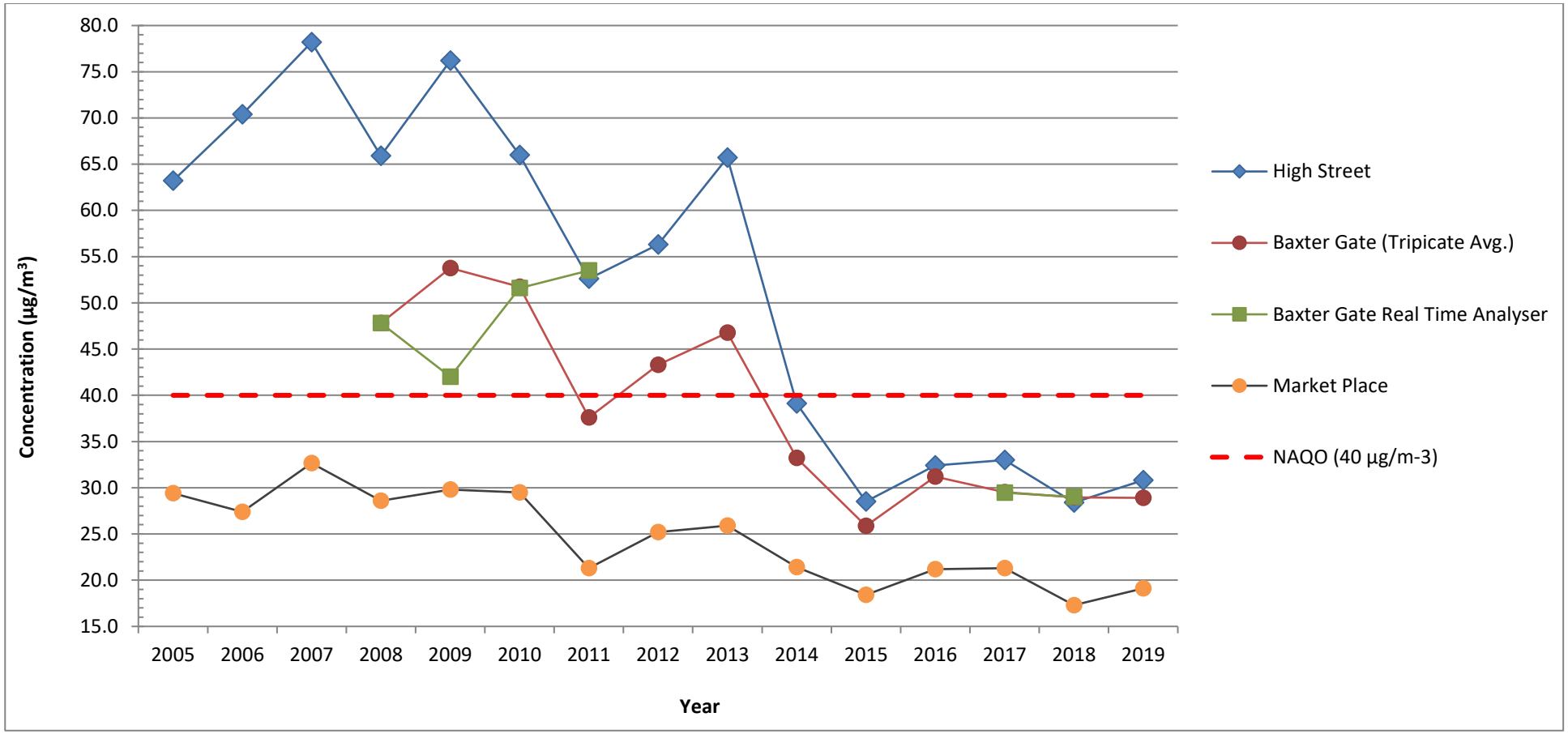


Figure A.1 Plot of NO_2 Concentration against Year for Loughborough Town Centre (i) sites

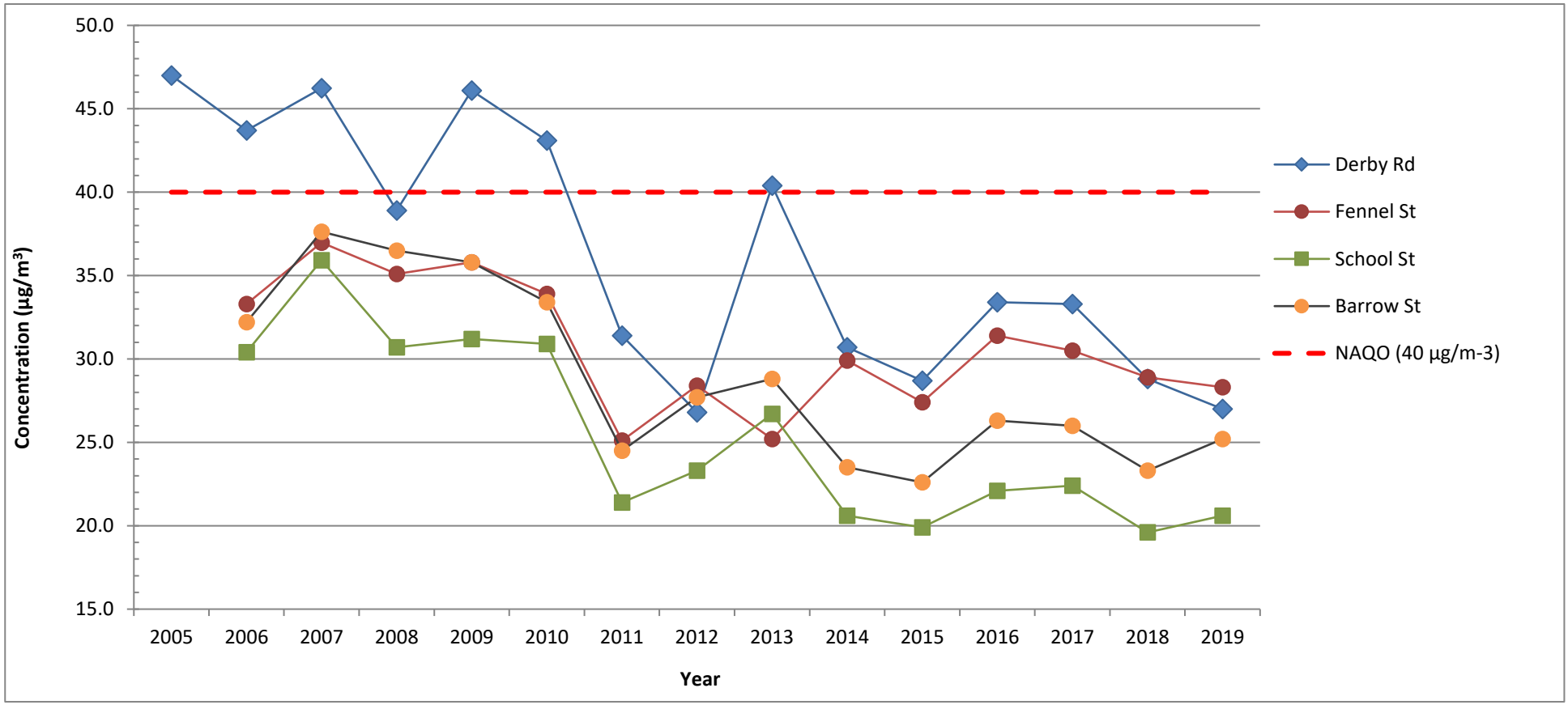


Figure A.2 Plot of NO_2 Concentration against Year for Loughborough Town Centre (ii) sites

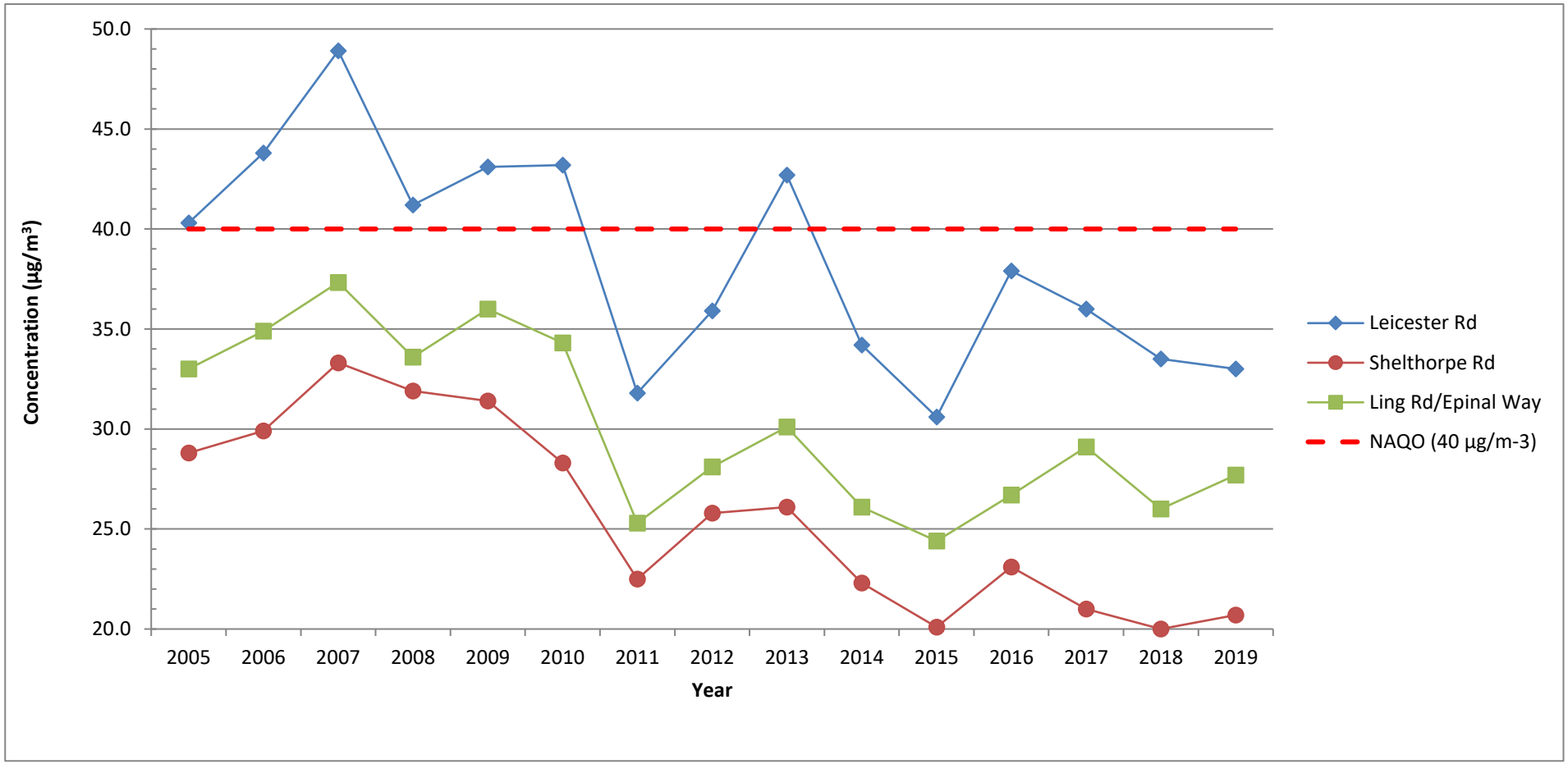


Figure A.3 Plot of NO_2 Concentration against Year for Loughborough South sites

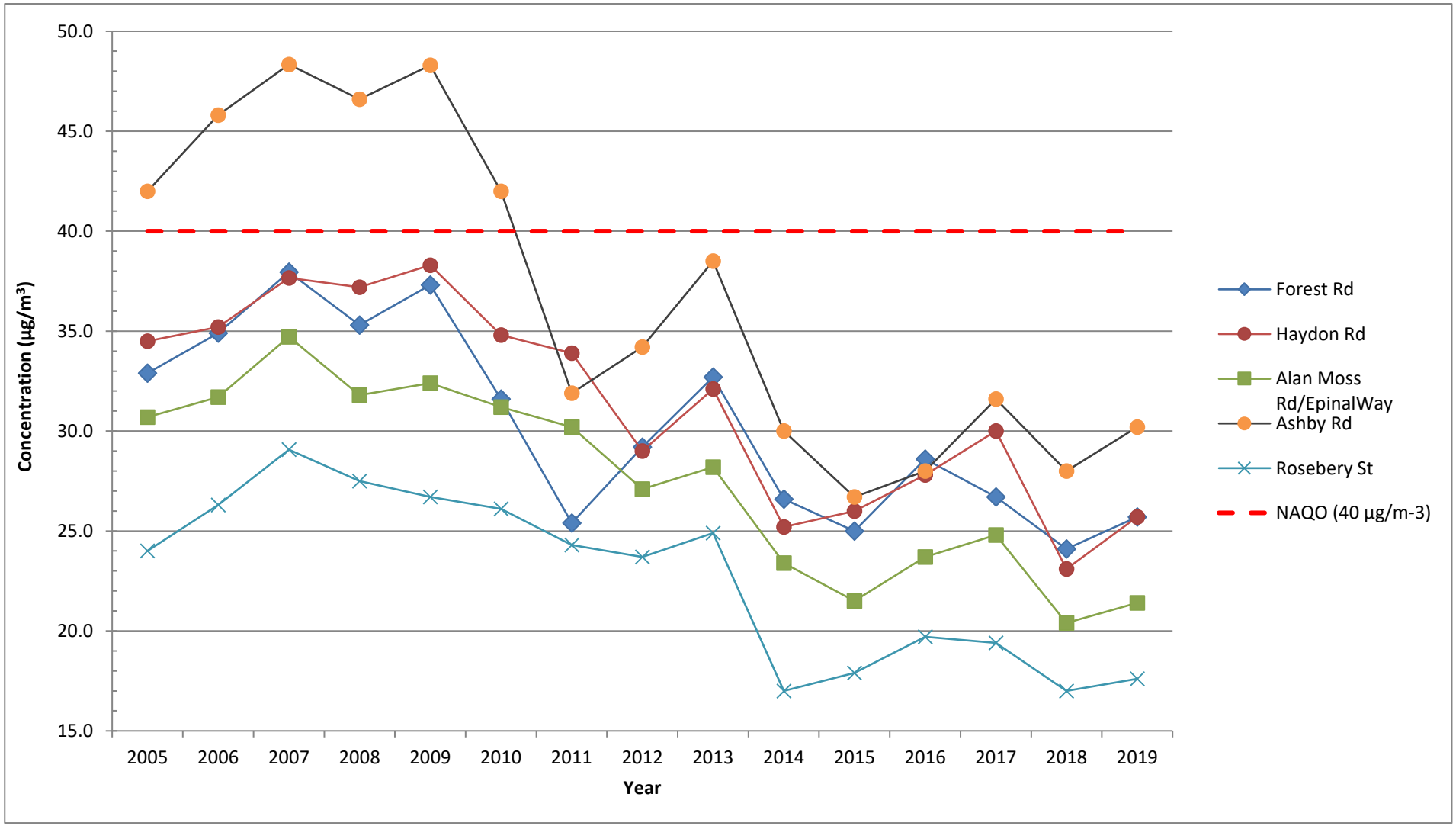


Figure A.4 Plot of NO_2 Concentration against Year for Loughborough West sites

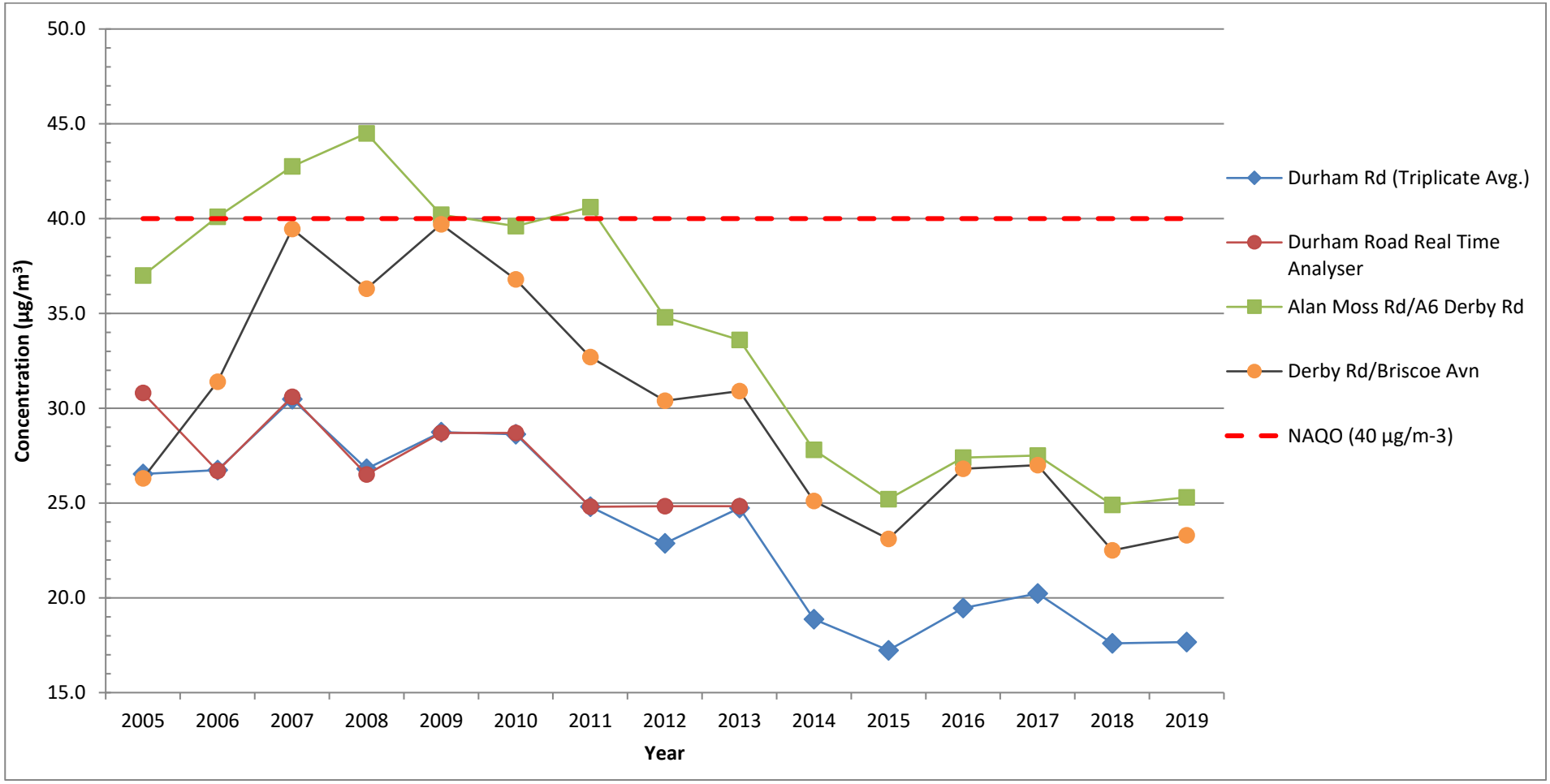


Figure A.5 Plot of NO_2 Concentration against Year for Loughborough North sites

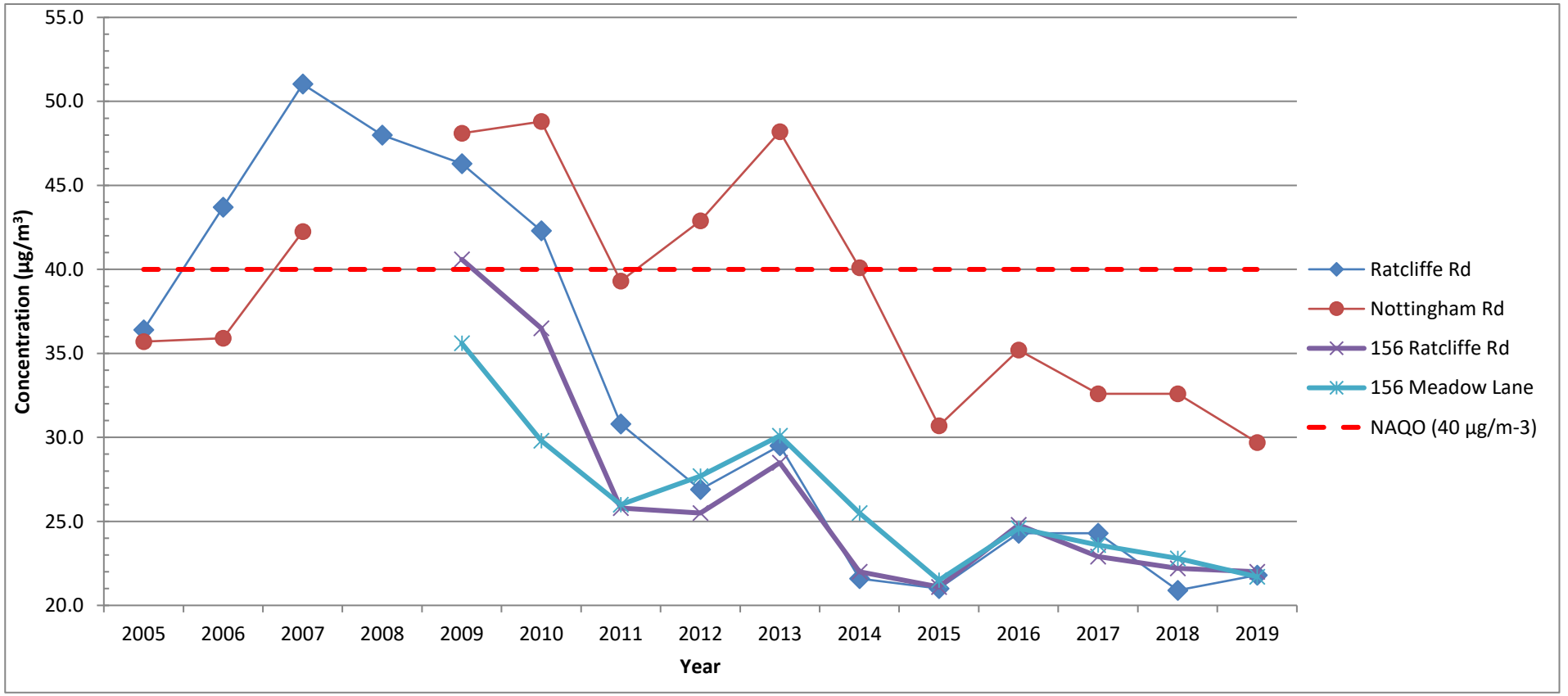


Figure A.6 Plot of NO_2 Concentration against Year for Loughborough East sites

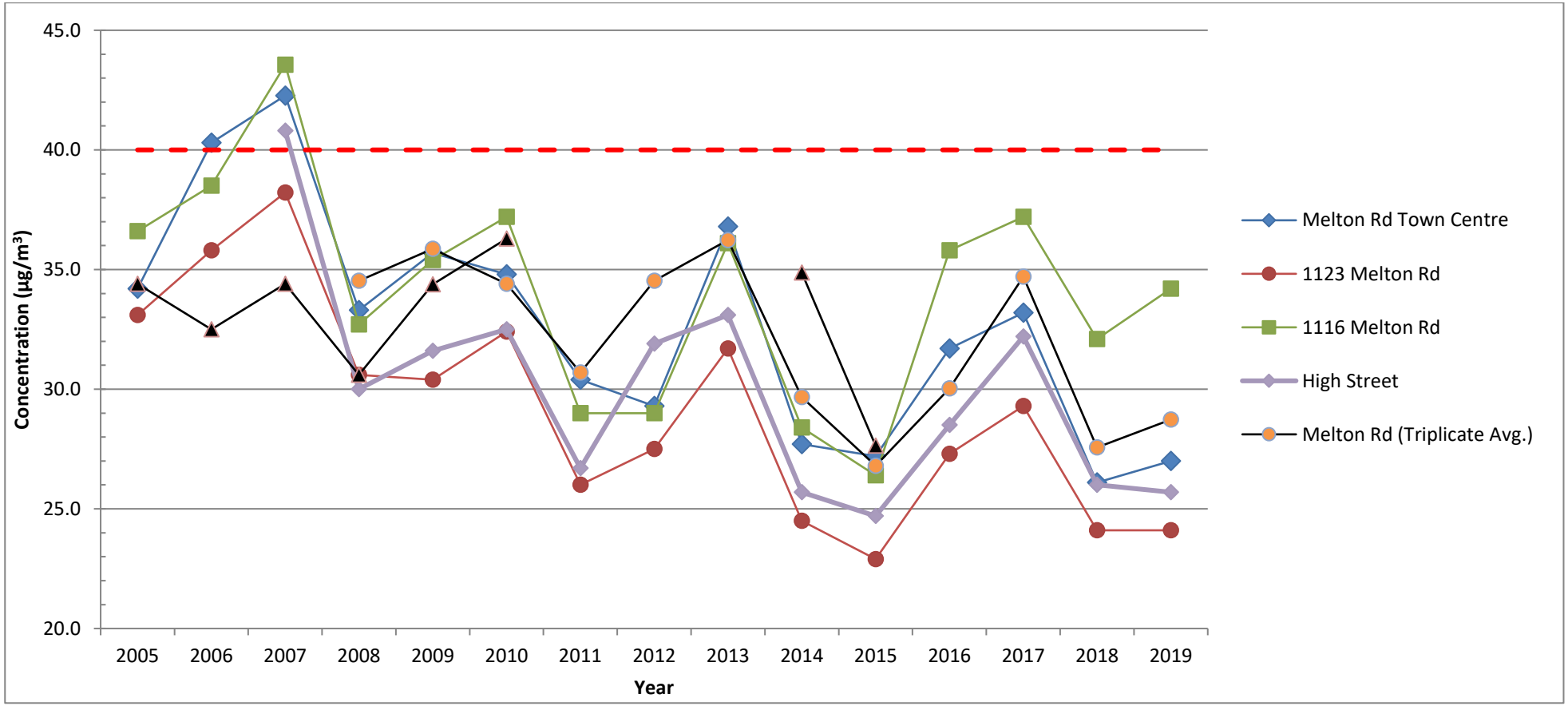


Figure A.7 Plot of NO_2 Concentration against Year for Syston sites

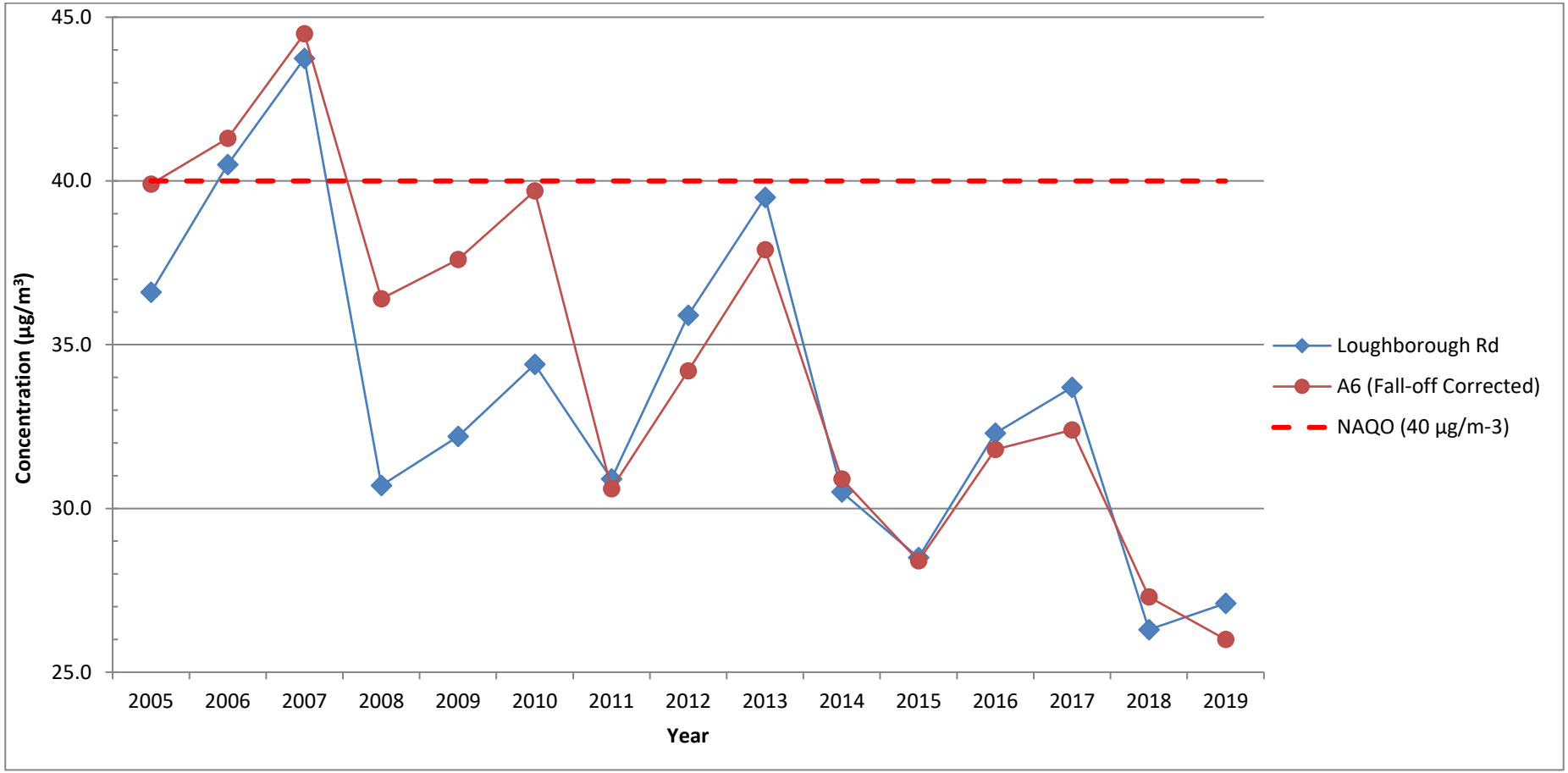


Figure A.8 Plot of NO_2 Concentration against Year for Birstall sites

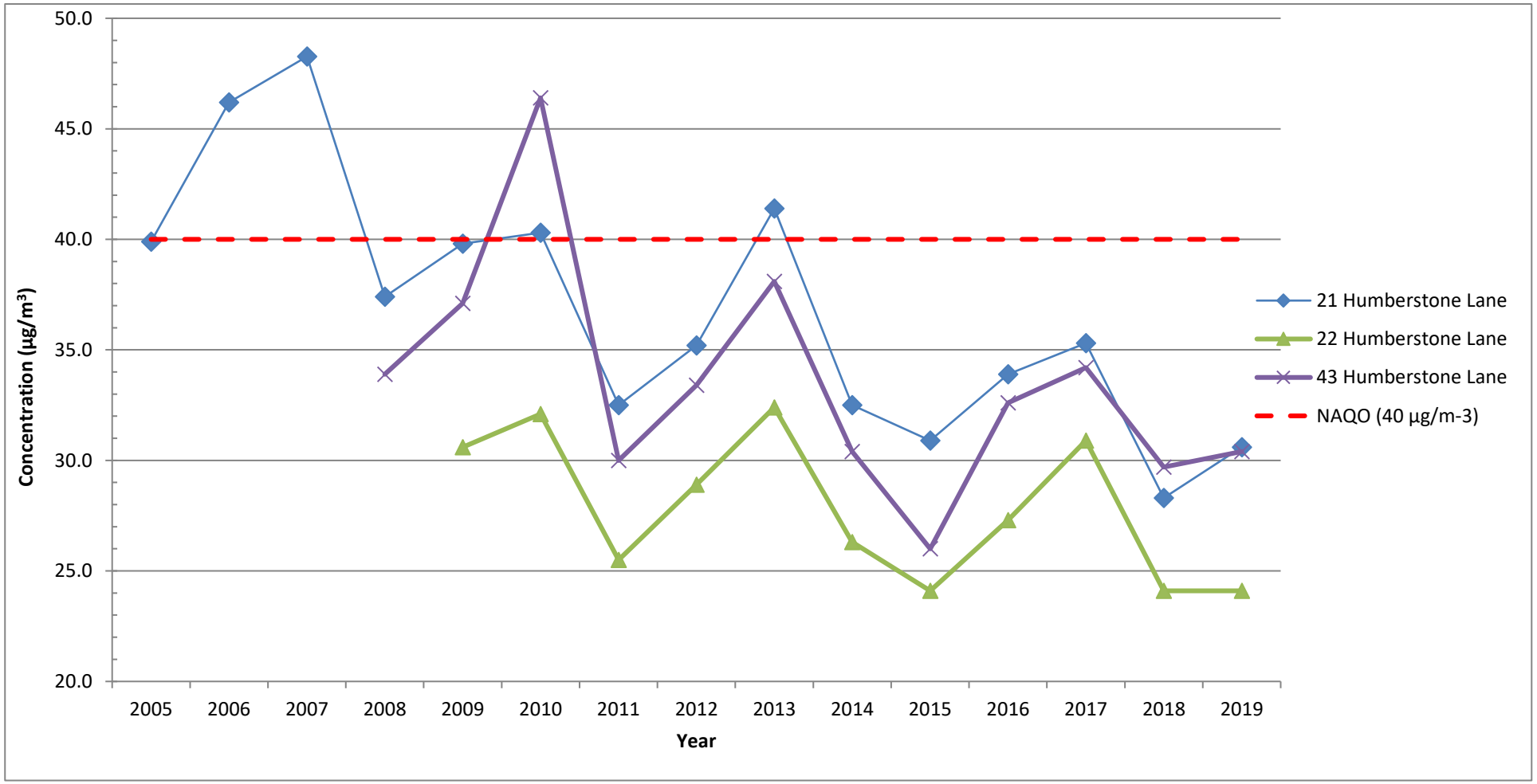


Figure A.9 Plot of NO_2 Concentration against Year for Thurmaston sites

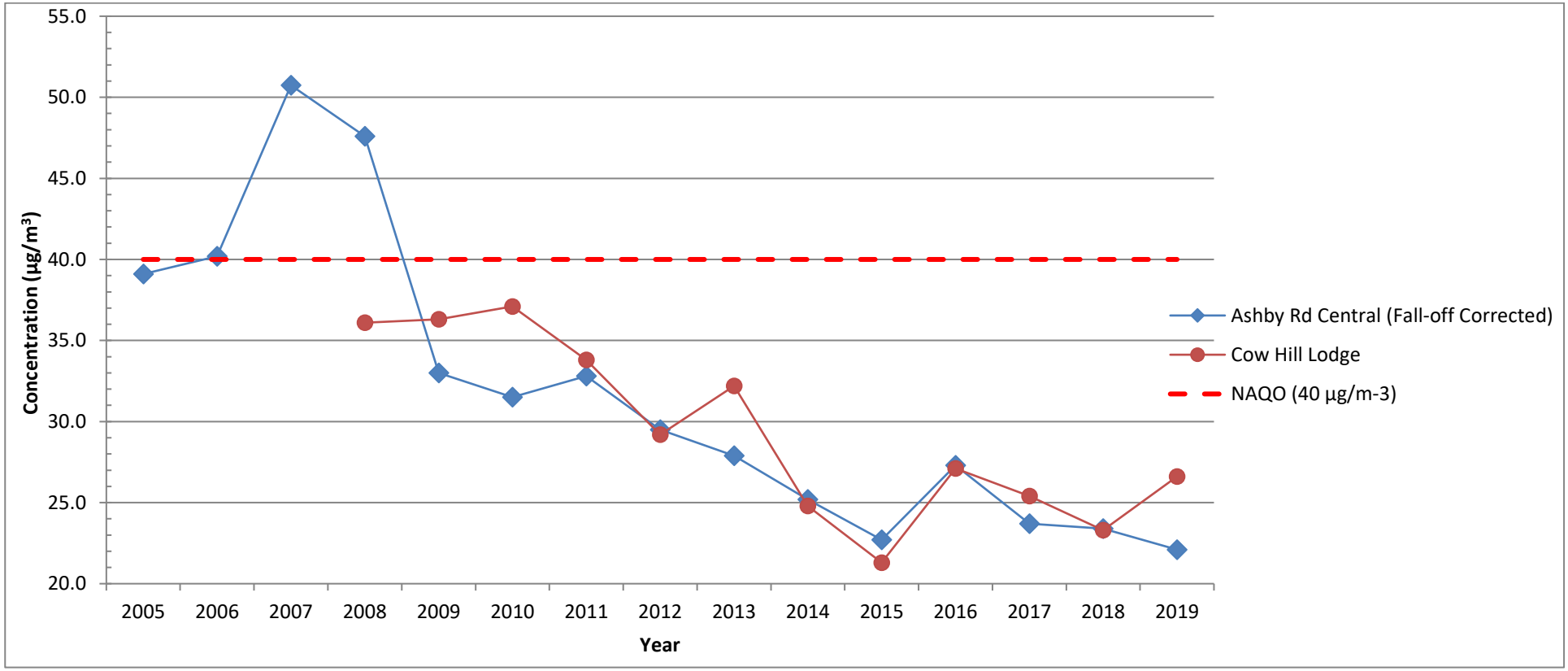


Figure A.10 Plot of NO_2 Concentration against Year for selected Shepshed sites

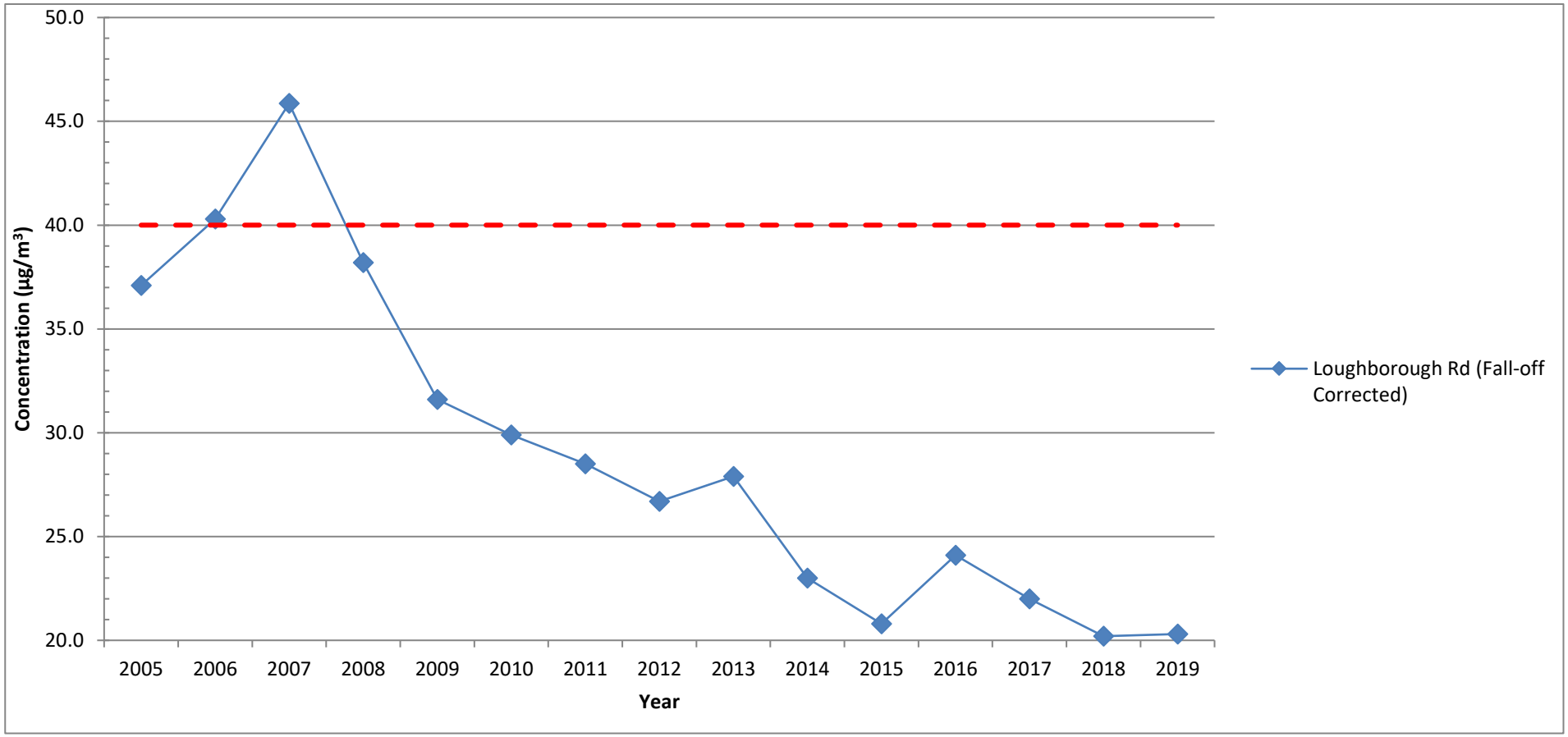


Figure A.11 Plot of NO_2 Concentration against Year for selected Hathern sites

Table A.4 – 1-Hour Mean NO_2 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
CM3	453687	319672	Kerbside	Automatic	0	0	**-**	-	0	[95.9]	**-**
CM4	462540	311428	Roadside	Automatic	0	0	**-**	-	[11.46]	0	**-**

Notes:

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.**

(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.

Table A.5 – Annual Mean PM_{10} Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} Annual Mean Concentration (µg/m³) (3)				
						2015	2016	2017	2018	2019
CM1	457355	315396	Industrial	55	55	27.09	24.65	24.84	24.66	22.6

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

Notes:

Exceedances of the PM_{10} annual mean objective of 40µg/m³ 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) All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.6 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} 24-Hour Means > 50µg/m^3 (3)				
						2015	2016	2017	2018	2019
CM1	457355	315396	Industrial	55	55	[49.01]	[46.86]	[46.94]	[46.25]	[43.13]

Notes:

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.**

(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 90.4th percentile of 24-hour means is provided in brackets.

Table A.7 – SO_2 Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for monitoring Period (%) [1]	Valid Data Capture 2019 (%) [2]	Number of Exceedances 2019 (percentile in bracket) [3]		
						15-minute Objective (266 µg/m^3)	1-hour Objective (350 µg/m^3)	24-hour Objective (125 µg/m^3)
CM2	454380	319768	Industrial	94	94	0 [66.09]	0 [46.94]	0 [22.05]

Notes:

Exceedances of the SO_2 objectives are shown in **bold** (15-min mean = 35 allowed a year, 1-hour mean = 24 allowed a year, 24-hour mean = 3 allowed a year)

(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 relevant percentiles are provided in brackets.

Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO_2 Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations ($\mu g/m^3$)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.93) and Annualised (1)	Distance Corrected to Nearest Exposure (2)
DT1	454087	320392	36.0	32.1	24.3	20.2	18.9	18.2	18.0	18.9	22.9	24.5	0.0	0.0	23.4	21.8	
DT2	454234	318657	29.4	28.8	22.3	23.0	16.8	18.1	16.7	16.2	18.9	25.5	30.9	21.1	22.3	20.7	
DT3	452833	318776	31.9	32.8	27.8	28.8	25.8	25.2	23.6	24.3	26.7	29.3	30.5	25.2	27.7	25.7	
DT4	452314	319620	38.1	38.0	29.5	18.1	23.2	24.0	21.7	23.7	26.1	33.2	31.6	24.1	27.6	25.7	
DT5	452173	319924	32.7	32.2	24.8	17.9	18.4	19.8	17.3	20.7	19.2	25.7	26.5	20.7	23.0	21.4	
DT6	453678	318678	39.8	37.6	29.1	30.3	25.5	24.9	23.5	21.3	29.2	27.9	40.4	27.7	29.8	27.7	
DT7	454002	319253	47.3	0.0	34.2	50.9	38.5	34.3	31.3	27.2	29.5	38.3	32.1	26.8	35.5	33.0	
DT8	453231	320028	43.7	39.9	0.0	0.0	25.9	20.7	18.3	21.6	27.7	32.1	33.7	26.4	29.0	27.0	
DT9	452670	320527	38.0	34.0	23.2	21.9	18.0	19.8	18.6	18.6	23.8	26.6	32.1	25.6	25.0	23.3	
DT10	452352	320697	27.5	26.0	16.9	17.3	13.9	15.1	13.0	12.5	18.9	22.0	26.7	16.9	18.9	17.6	
DT11	452352	320697	29.5	25.8	17.1	17.6	15.1	15.1	13.4	12.6	18.6	19.9	22.9	16.1	18.6	17.3	
DT12	452352	320697	30.3	25.3	18.1	18.7	15.9	14.6	13.2	12.6	18.1	21.7	27.0	17.5	19.4	18.1	
DT13	452903	320212	37.5	34.6	26.6	25.1	24.9	22.6	21.2	20.8	27.0	29.8	33.2	23.3	27.2	25.3	
DT14	453730	319596	42.9	44.7	33.2	31.2	26.0	28.2	27.3	26.6	32.2	36.6	33.8	34.9	33.1	30.8	
DT15	453611	319540	28.5	27.4	17.5	18.7	14.7	14.6	13.9	0.0	17.8	20.9	31.0	20.4	20.5	19.1	

DT16	453189	319709	43.0	42.1	31.4	29.7	25.1	27.5	28.7	28.7	31.0	39.6	34.4	29.0	32.5	30.2	
DT17	448876	318307	34.1	35.4	27.7	29.6	27.8	27.9	24.3	27.3	28.4	30.6	31.8	18.7	28.6	26.6	
DT18	452697	319921	27.0	27.4	17.3	17.9	13.8	14.0	13.0	12.8	17.5	21.3	23.9	20.7	18.9	17.6	
DT19	462777	311692	41.7	32.5	30.9	27.2	22.6	23.6	26.2	25.0	26.9	32.9	31.4	28.2	29.1	27.0	
DT20	46235	311213	35.7	29.6	25.9	27.0	21.8	21.5	20.9	21.7	25.0	30.7	26.6	24.4	25.9	24.1	
DT21	462373	311254	47.1	46.9	41.5	27.9	31.0	29.5	30.8	28.4	38.6	39.2	45.2	35.9	36.8	34.2	
DT22	459233	309233	41.0	37.1	31.5	24.8	23.0	24.3	22.6	26.0	28.2	31.3	32.8	27.1	29.1	27.1	
DT23	459178	309890	40.6	38.7	29.7	37.4	26.3	24.9	22.4	21.5	29.0	30.4	33.1	26.4	30.0	27.9	26.0
DT24	460821	308757	41.9	43.9	30.6	25.5	27.6	29.2	30.0	28.8	33.0	39.3	29.8	35.5	32.9	30.6	
DT25	460861	308824	42.6	36.0	32.0	25.9	29.5	27.5	28.9	27.8	32.8	37.7	37.9	33.2	32.7	30.4	
DT26	460835	308784	41.9	34.1	26.9	19.8	19.4	18.9	20.6	22.7	25.9	29.8	28.9	22.4	25.9	24.1	
DT27	448121	318257	42.8	36.2	34.1	43.7	31.9	32.3	31.5	28.2	0.0	35.2	35.0	29.2	34.5	32.1	22.2
DT28	450260	321922	39.0	31.2	26.7	23.2	24.4	21.4	22.8	19.6	28.2	31.6	37.3	23.2	27.4	25.5	20.3
DT29	453901	319488	37.6	33.5	26.2	25.1	23.0	22.2	21.5	19.6	23.6	28.1	36.9	27.5	27.1	25.2	
DT30	453946	319619	35.0	29.6	21.6	16.2	16.7	17.6	15.8	16.4	21.1	25.0	27.7	22.9	22.1	20.6	
DT31	453694	319890	36.2	35.7	28.6	36.9	30.4	27.5	25.3	23.5	31.1	31.7	33.3	25.6	30.5	28.3	
DT32	462369	311809	44.9	36.7	27.6	22.3	22.7	19.4	23.1	22.4	23.6	31.5	27.4	29.9	27.6	25.7	
DT33	462540	311428	42.1	40.8	34.0	23.4	25.7	26.6	25.5	33.2	30.8	37.3	28.9	32.1	31.7	29.5	
DT34	462540	311428	38.3	39.7	34.1	24.1	26.5	23.9	25.8	30.0	30.6	33.6	31.4	31.6	30.8	28.6	
DT35	462540	311428	37.6	36.3	31.4	23.2	25.2	24.9	25.8	30.7	30.0	33.6	31.5	31.7	30.2	28.1	
DT36	453687	319672	33.7	37.6	26.1	39.9	26.9	27.5	22.1	21.1	27.9	31.6	37.2	25.7	29.8	27.7	
DT37	453687	319672	37.5	36.2	24.7	43.4	27.8	27.0	24.1	21.4	30.4	34.0	39.8	26.4	31.0	28.9	
DT38	453687	319672	36.9	34.3	24.6	42.1	28.1	26.8	24.2	20.5	26.2	33.2	37.9	27.7	30.2	28.1	
DT39	454154	320116	41.1	46.3	32.1	31.5	26.4	23.2	24.9	27.5	31.8	34.5	35.8	27.9	31.9	29.7	
DT40	454285	320294	33.9	31.7	25.7	22.0	20.7	19.6	18.0	18.5	22.7	26.1	23.4	21.3	23.6	22.0	
DT41	453933	320663	33.3	33.9	22.4	20.0	16.8	18.1	17.0	16.1	21.2	26.3	29.7	24.9	23.3	21.7	

DT42	454142	320593	34.0	31.9	26.7	22.3	24.5	19.8	20.8	19.2	25.5	25.9	29.3	22.5	25.2	23.4	
DT43	454250	319682	35.0	34.4	23.8	32.8	23.4	24.2	21.3	19.8	25.0	41.5	55.8	27.6	30.4	28.3	
DT44	461499	310459	33.6	33.2	22.0	19.2	17.1	17.4	15.5	18.5	20.8	25.1	28.2	27.3	23.2	21.5	
DT45	461994	309975	11.5	32.1	22.9	17.7	17.4	17.2	15.3	16.1	20.7	25.2	24.0	27.3	20.6	19.2	
DT46	448311	320511	24.4	26.2	16.9	25.4	18.9	16.7	17.3	15.3	19.4	24.3	29.5	21.1	21.3	19.8	
DT47	449935	322227	31.1	30.1	24.4	23.8	21.0	19.3	20.2	20.3	23.6	24.1	29.3	24.7	24.3	22.6	
DT48	450942	321076	22.5	22.6	12.5	13.9	10.9	9.2	9.3	8.9	14.0	15.7	22.2	18.1	15.0	13.9	
DT49	460313	323521	37.4	31.7	27.3	33.2	28.6	23.1	23.3	18.7	26.1	26.2	31.5	24.8	27.7	25.7	
DT50	455141	308686	0.0	0.0	38.0	28.8	35.8	27.0	30.3	31.1	31.6	36.6	39.6	38.5	33.7	31.3	
DT51	455167	308549	35.5	24.6	25.6	21.7	23.1	22.4	20.1	17.6	24.0	26.4	29.4	23.8	24.5	22.8	
DT52	463483	309880	31.8	22.6	19.4	14.2	13.0	9.0	15.2	16.3	19.9	20.6	27.6	19.1	19.1	17.7	
DT53	453277	319248	31.1	36.3	23.7	29.5	23.7	23.8	23.1	21.7	27.9	32.1	37.7	27.0	28.1	26.2	

☐ **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 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.**

(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 Tubes

All NO_2 diffusion tubes are supplied and analysed by Gradko using 20% TEA in water preparation.

Consideration is normally given to the advisory documents on the LAQM Support website when defining and considering whether to use local or national co-location bias adjustment factors.

The following factors are part of our decision for deciding on which factors to use:

- Tube exposure time
- Length of the monitoring study
- QA/QC of the chemiluminescence analyser
- QA/QC of diffusion tubes
- Siting of the co-location study
- Siting of other tubes in the survey

Unfortunately, due to unresolvable communications issues for a large part of 2019 (modem compatibility and network provision) we were unable to collate data from our 2 automatic NO_2 automatic analysers during this period. Whilst the analysers remained operational it has limited our ability to provide data or provide direct comparisons with co-located diffusion tubes for this period of reporting.

All ‘raw’ diffusion tube concentrations for 2019 have therefore been corrected using The National Diffusion Tube Bias Adjustment Factor Spreadsheet v03/20 which gives a factor of 0.93 (from 27 studies) for Gradko analysed 20% TEA in water.

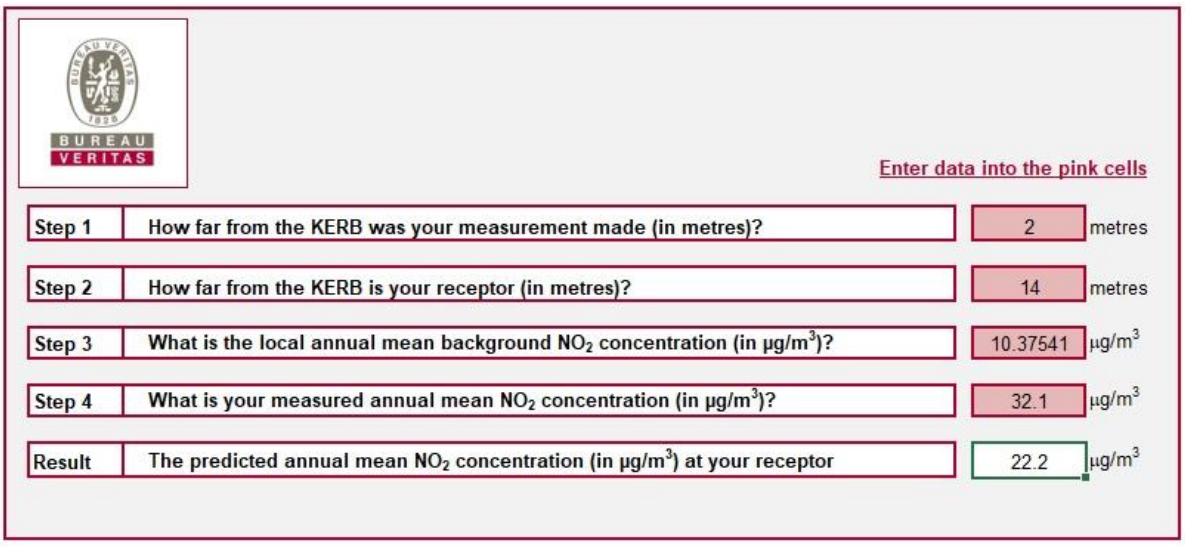
Diffusion Tube – Distance Correction

The raw data for three sites: Ashby Rd Central (Shepshed), Loughborough Rd (Hathern) and A6 (Birstall) have been distance corrected as they are all roadside locations where the tubes are positioned some distance away from the façade of the nearest receptor – in all cases on a roadside lighting column.

Using the "NO_2 with Distance from Roads Calculator" (v 4.2) available from the UK Air Quality Archive, it is possible for us to calculate the distance NO_2 falloff between these kerbside tubes and the nearest receptors, as follows:

Ashby Rd Central (Shepshed)

Using the calculator the concentration at the nearest receptor is shown below to be 22.2µg/m^{-3}



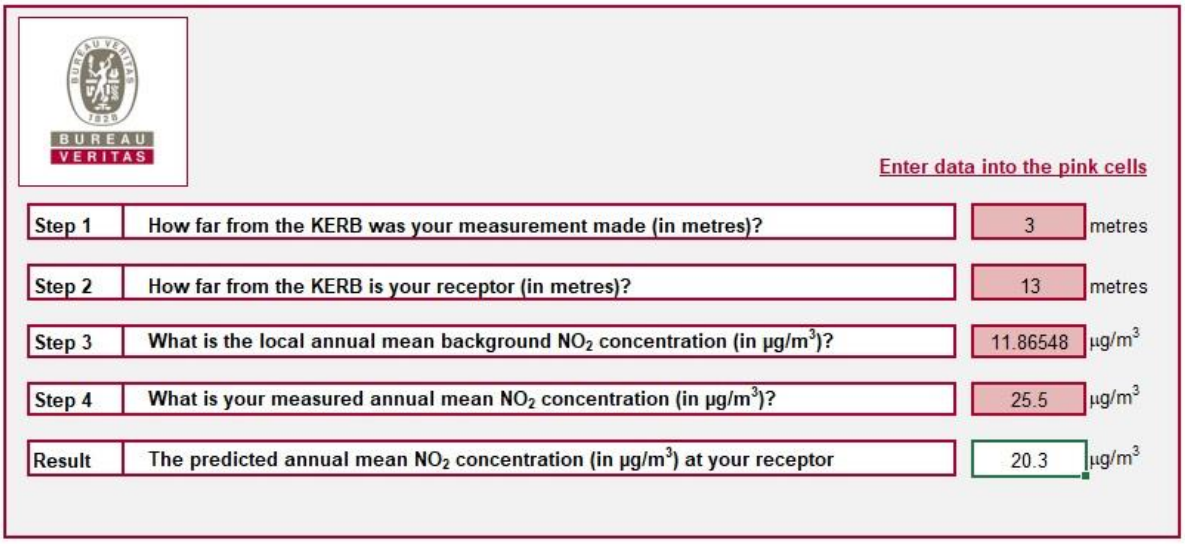
BUREAU VERITAS

Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	2	metres
Step 2	How far from the KERB is your receptor (in metres)?	14	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	10.37541	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	32.1	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	22.2	µg/m^3

Loughborough Rd (Hathern)

Using the calculator the concentration at the nearest receptor is shown below to be 20.3µg/m^{-3}

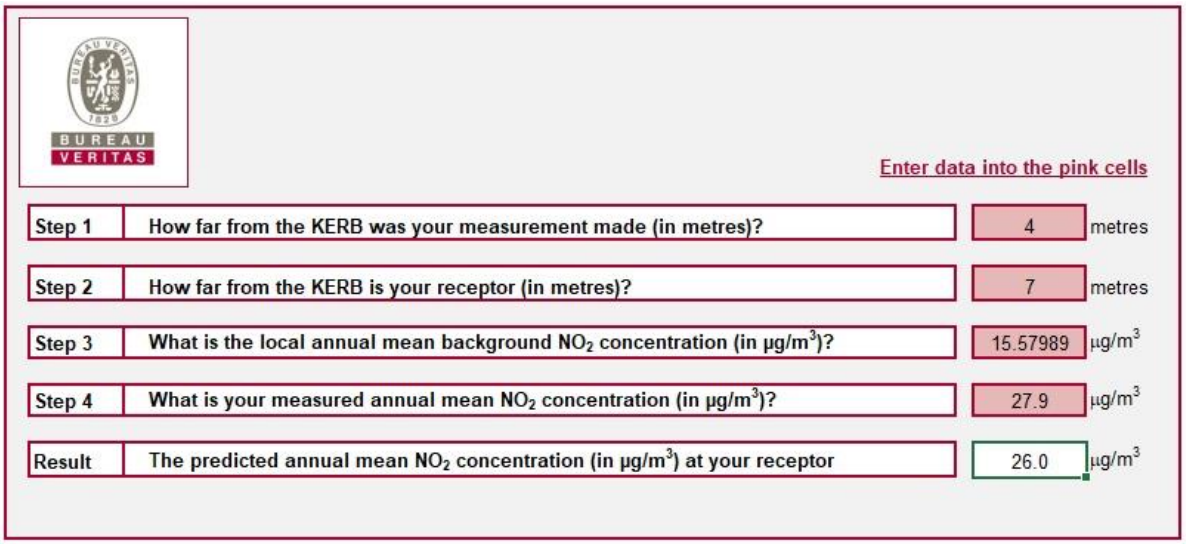


Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	3	metres
Step 2	How far from the KERB is your receptor (in metres)?	13	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	11.86548	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	25.5	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	20.3	µg/m^3

A6 (Birstall)

Using the calculator the concentration at the nearest receptor is shown below to be 26.0µg/m^{-3}



Enter data into the pink cells

Step 1	How far from the KERB was your measurement made (in metres)?	4	metres
Step 2	How far from the KERB is your receptor (in metres)?	7	metres
Step 3	What is the local annual mean background NO_2 concentration (in µg/m^3)?	15.57989	µg/m^3
Step 4	What is your measured annual mean NO_2 concentration (in µg/m^3)?	27.9	µg/m^3
Result	The predicted annual mean NO_2 concentration (in µg/m^3) at your receptor	26.0	µg/m^3

QA/QC of diffusion tube monitoring

As part of their provision of support to Local Authorities for air quality management, Defra and the Devolved Administrations provide a set of centralised QA/QC services, to assist Local Authorities using diffusive samplers for monitoring of ambient nitrogen dioxide (NO_2) concentration, as part of their Local Air Quality Management process.

This is aimed at the analytical laboratories that supply and analyse the diffusion tubes, and currently comprises:

Promotion of the independent AIR-PT scheme, operated by LGC Standards and supported by the Health and Safety Laboratory, with yearly assessment against agreed performance criteria. AIR-PT combines two long running PT schemes: LGC Standards STACKS PT scheme and HSL Workplace Analysis Scheme for Proficiency (WASP) PT scheme. For more information the AIR-PT scheme, please click **here**.

Performance summaries in the AIR-PT scheme for the laboratory chosen to prepare and analyse diffusion tubes on behalf of Charnwood Borough Council (Gradko), prepared by AEA, are as per the following link:

AIR-PT-Rounds 24 to 34 (Jan 2018 - Nov 2019) (PDF 228KB)

Results submitted were determined to be **satisfactory**

QA/QC of automatic monitoring

The analysers are serviced under schedule through ‘Matt’s Monitors’.

Daily “automatic” and fortnightly manual calibrations are also undertaken, the later performed by the Local Authority.

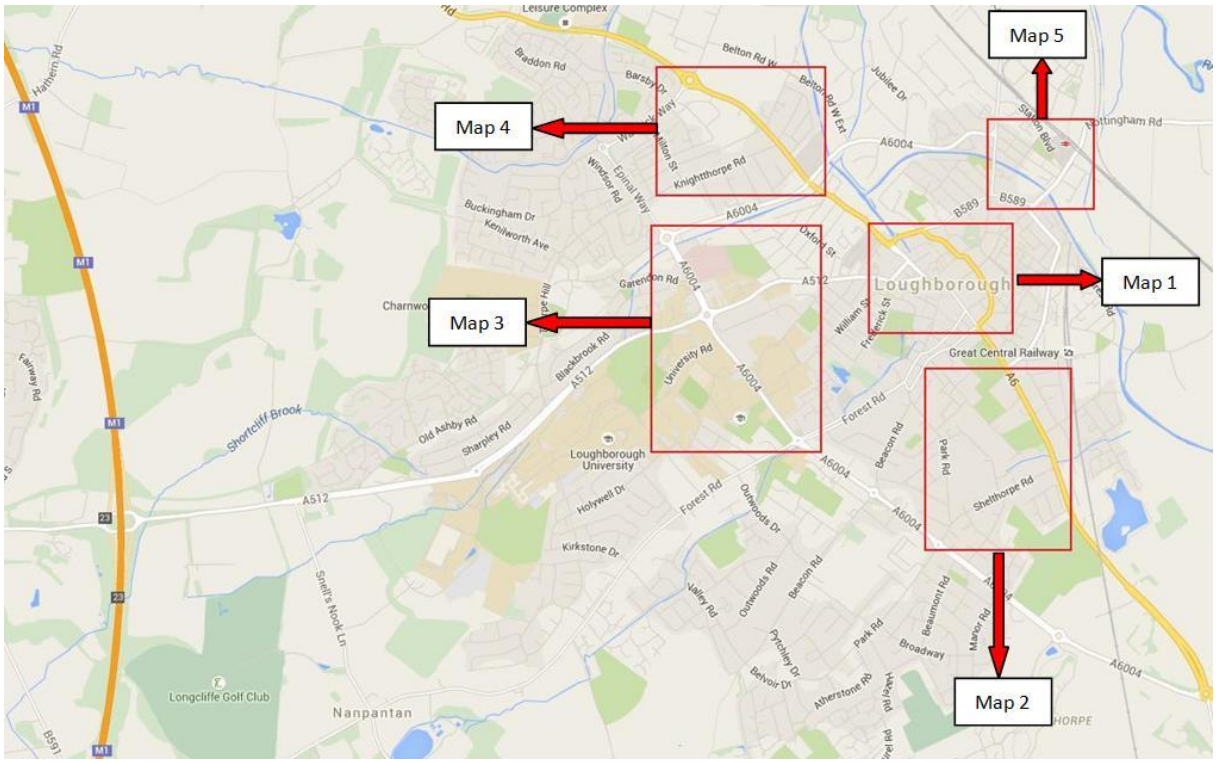
Data validation and ratification procedures follow Technical Guidance LAQM.TG(16)

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

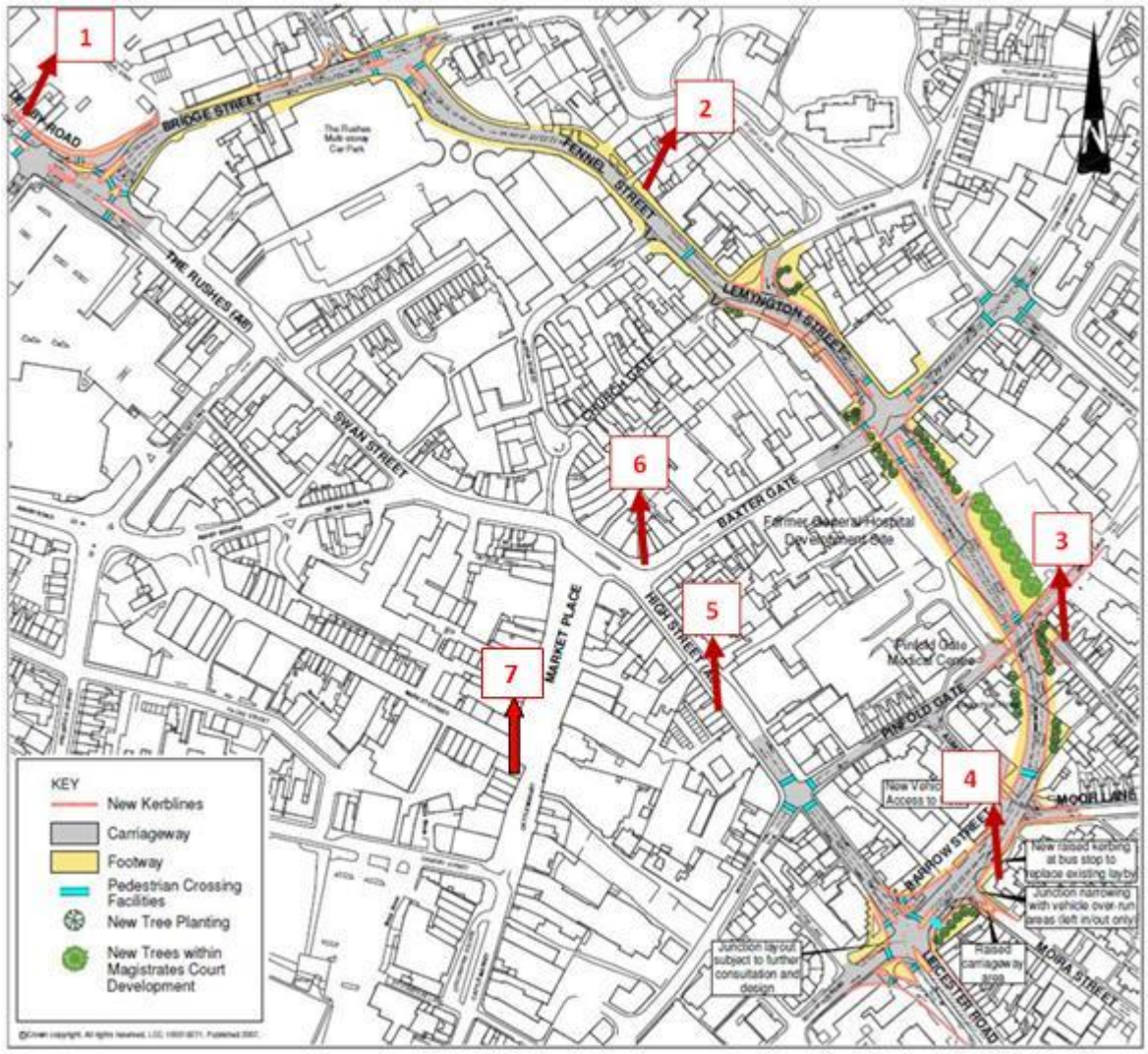
Selected maps of key monitoring locations

The Borough of Charnwood

Loughborough Area:



Map 1: Loughborough Town Centre

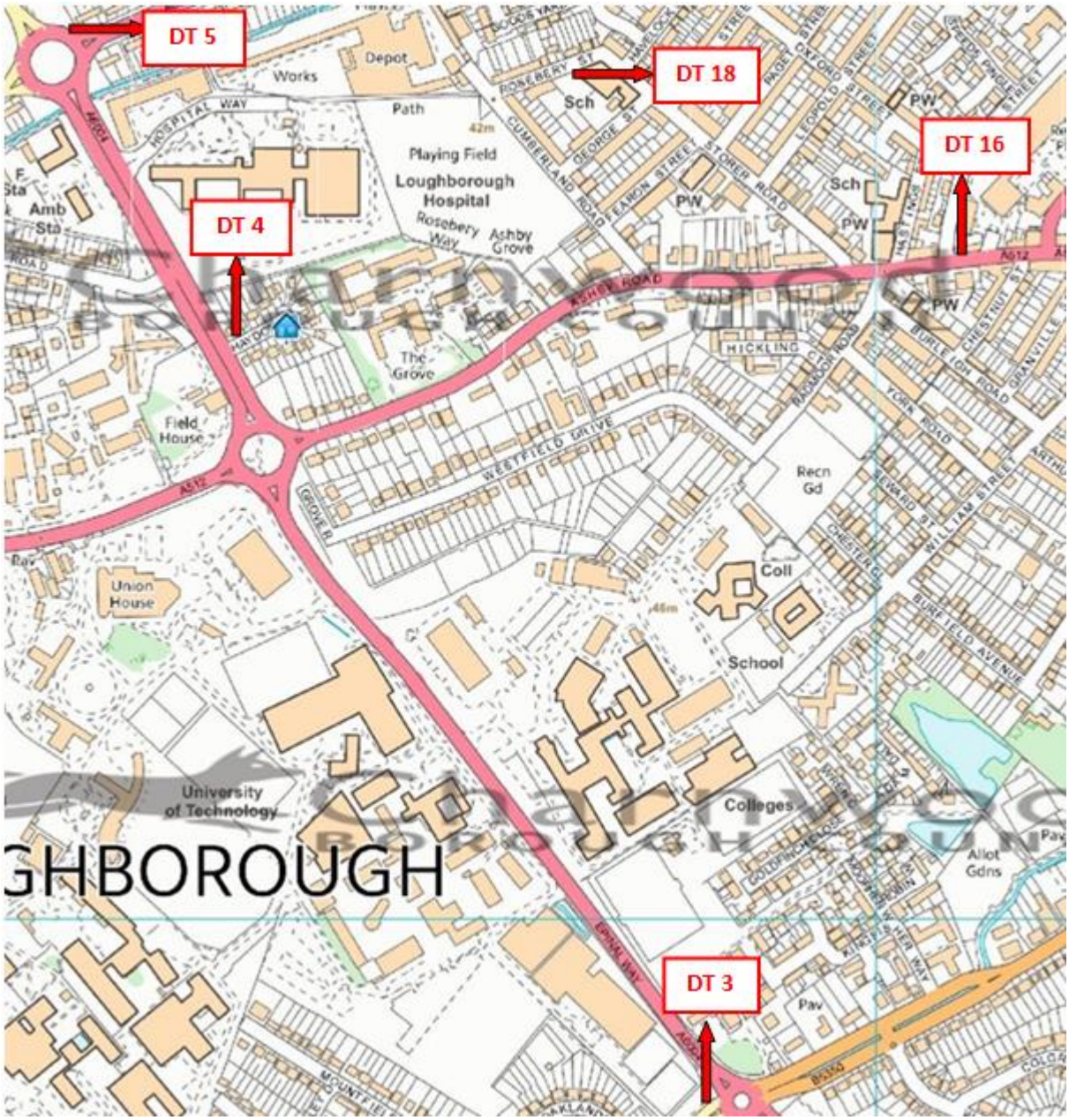


Map Position	Site ID	Site Name	Pollutant
1	DT8	Derby Road	NO_2
2	DT31	Fennel Street	NO_2
3	DT30	School Street	NO_2
4	DT29	Barrow Street	NO_2
5	DT14	High Street	NO_2
6	DT36, DT37, DT38	Baxter Gate AQMS 1, 2, and 3	NO_2

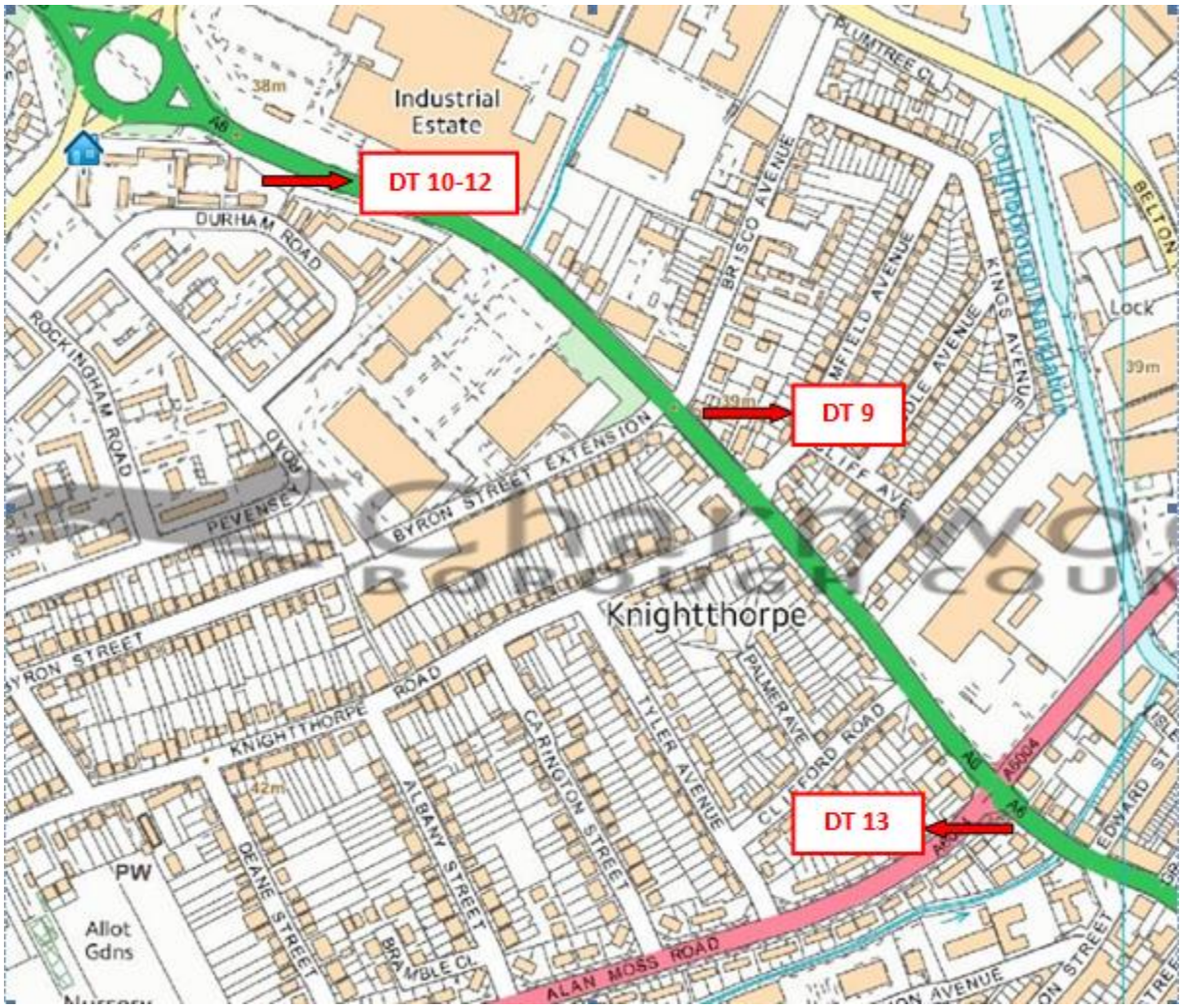
The above map shows the route of the Inner Relief Road which opened in November 2014. Traffic is now routed away from the town centre.

Map 2: Loughborough South

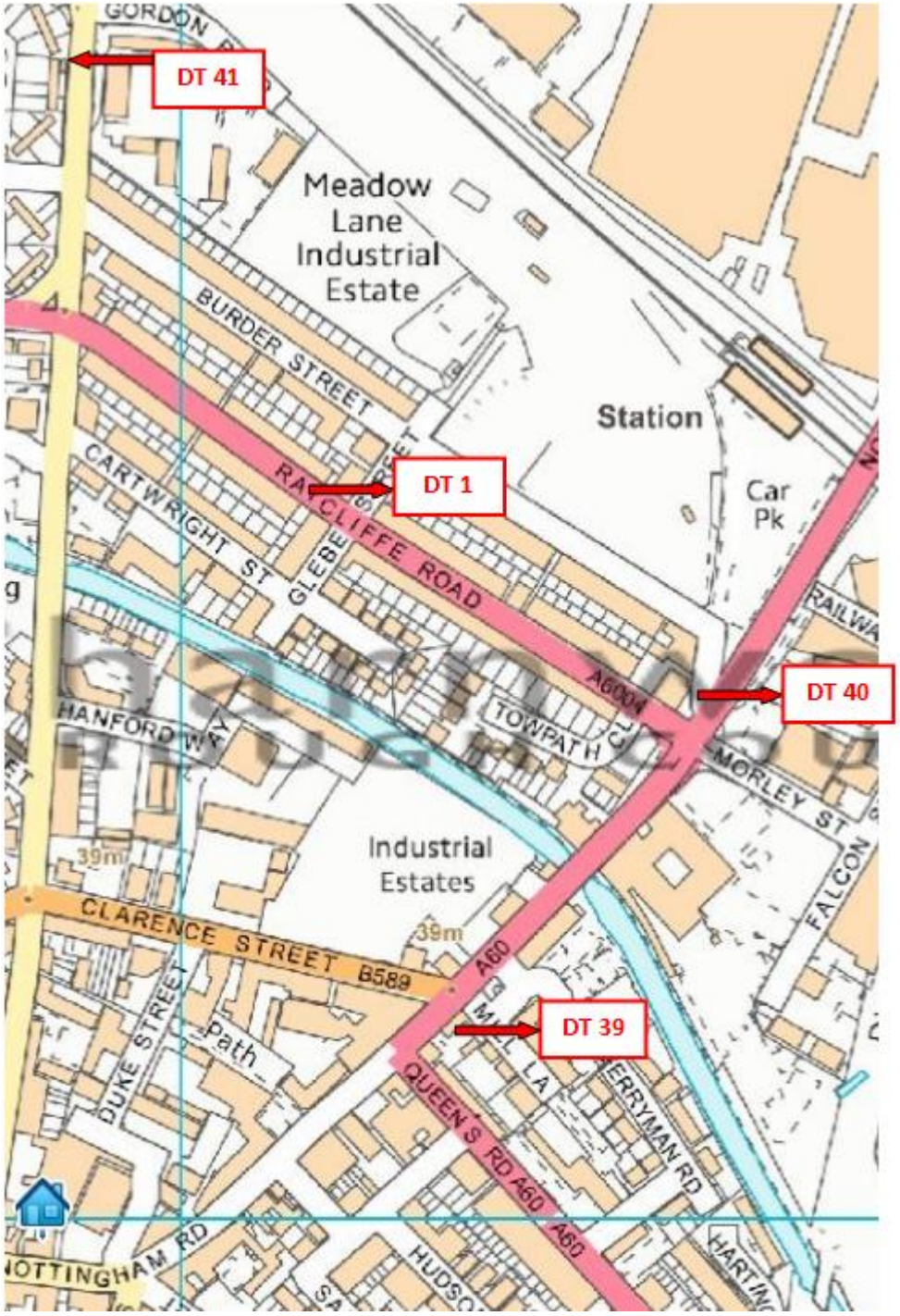
Map 3: Loughborough West



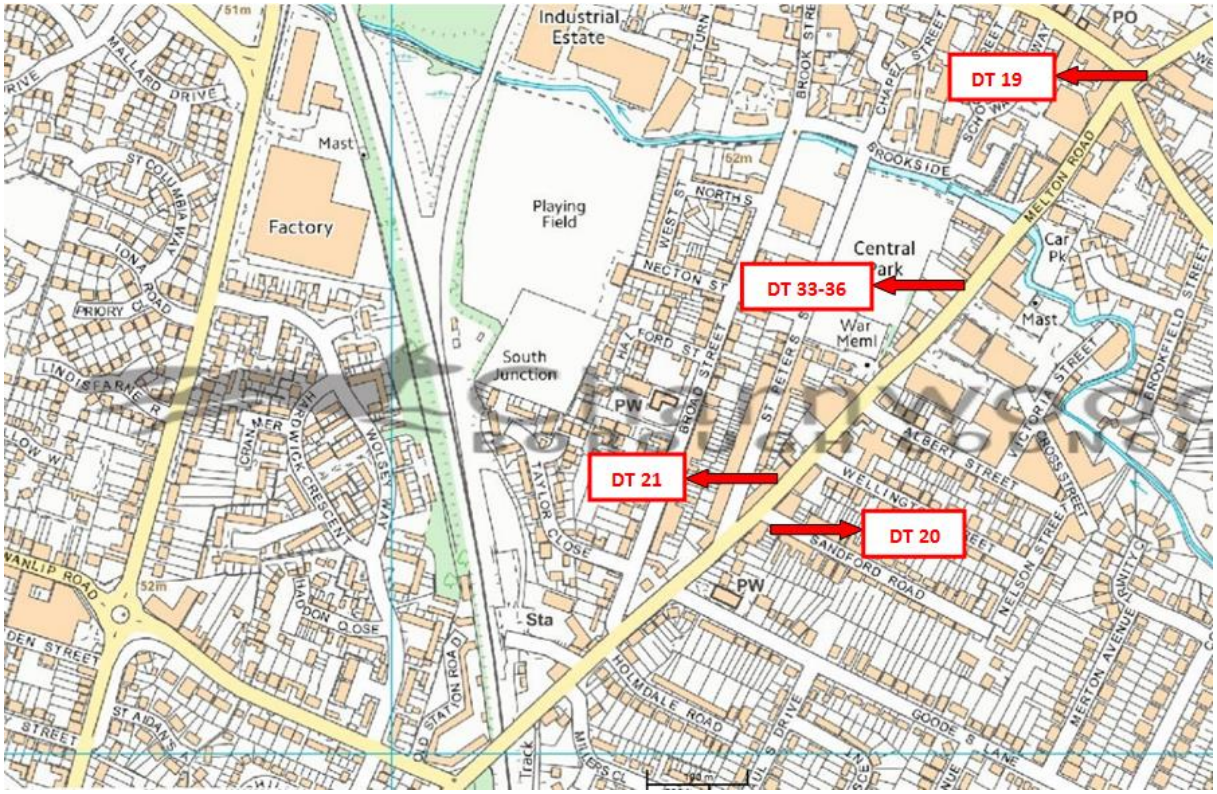
Map 4: Loughborough North



Map 5: Loughborough East

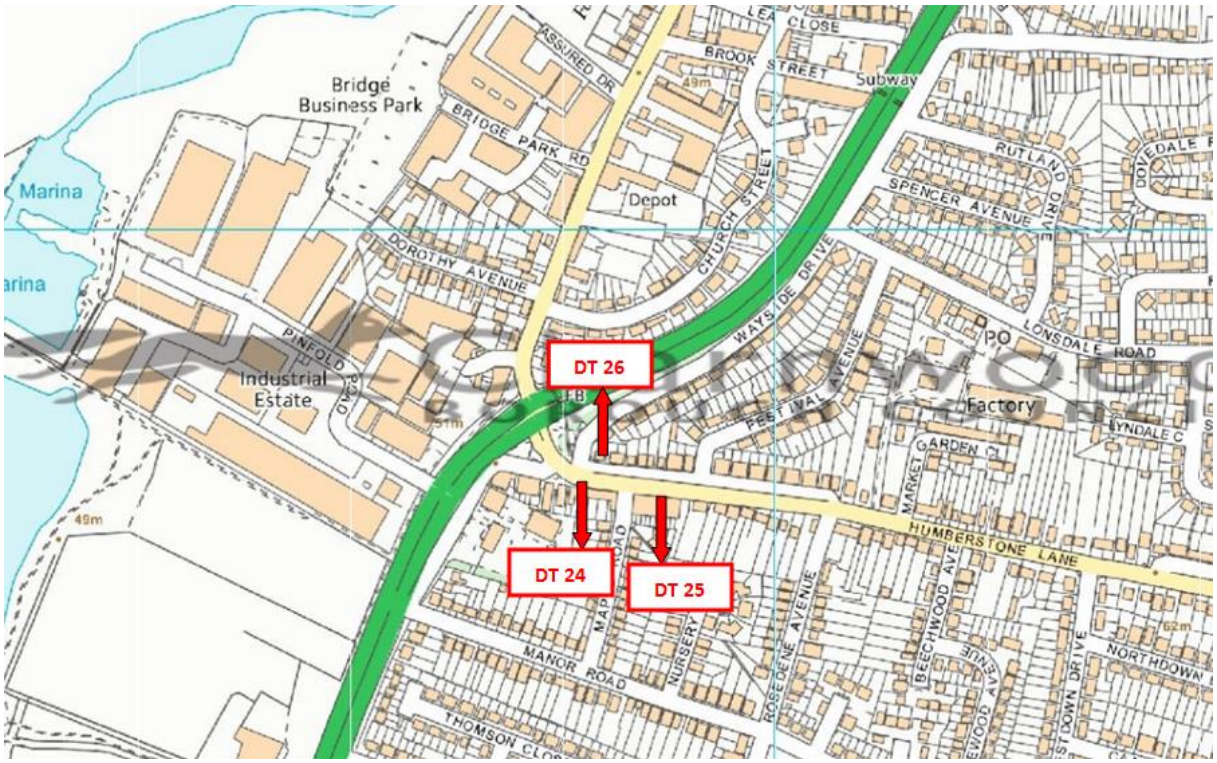


Map 6: Syston

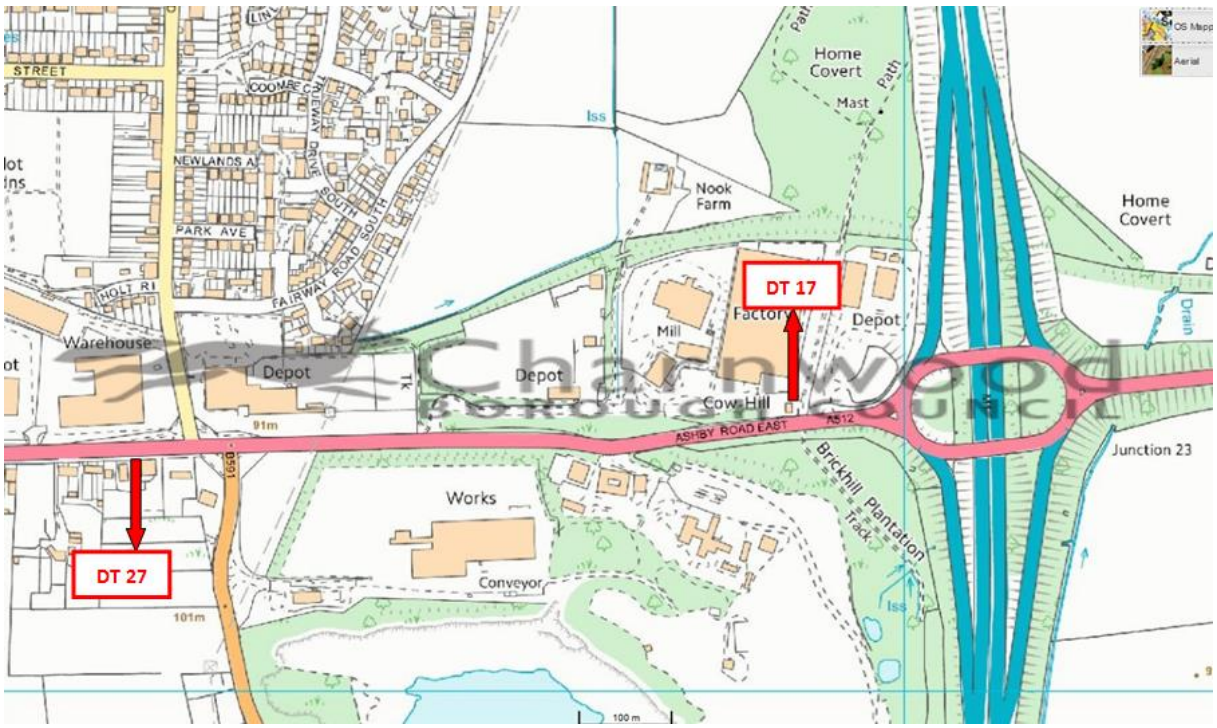


Map 7: Birstall

Map 8: Thurmaston



Map 9: Shepshed



Map 10: Hathern

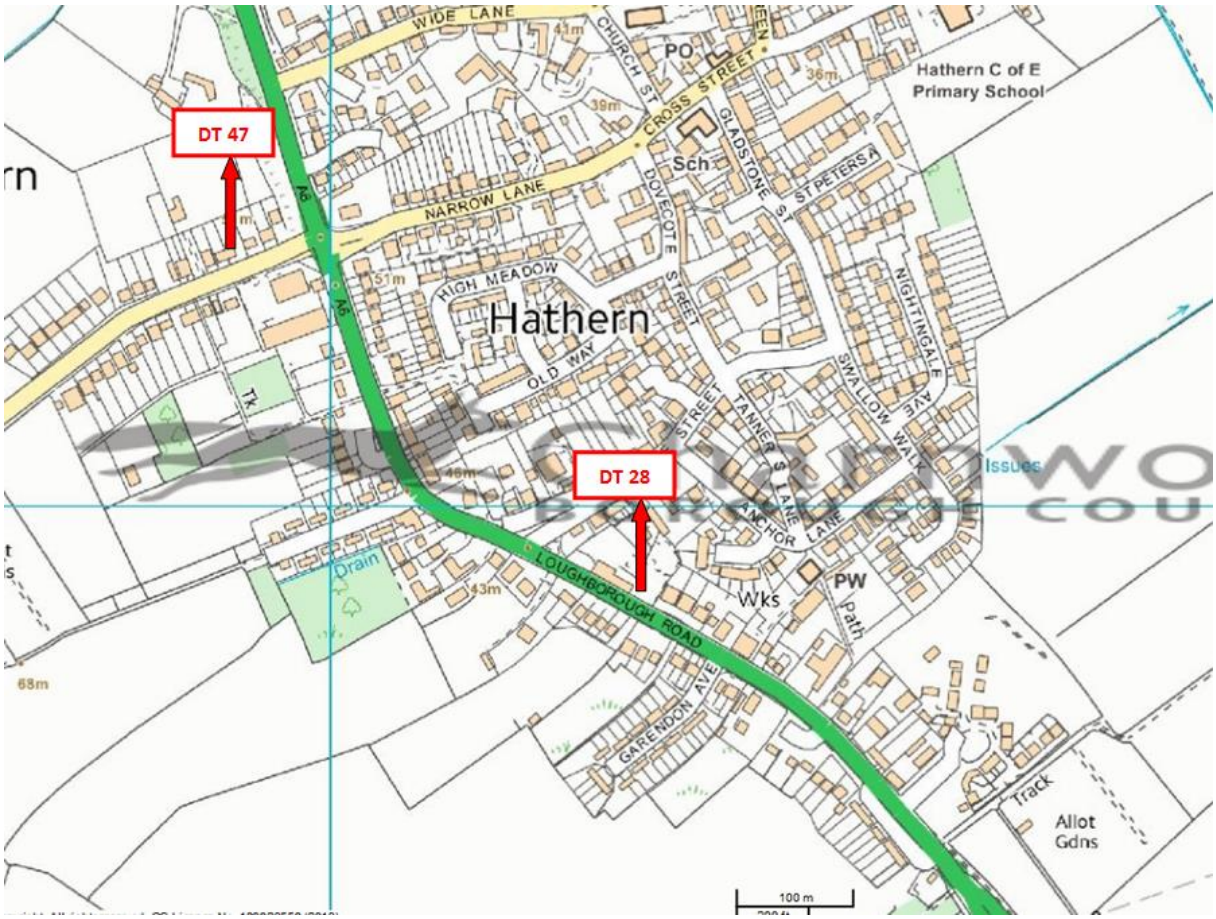
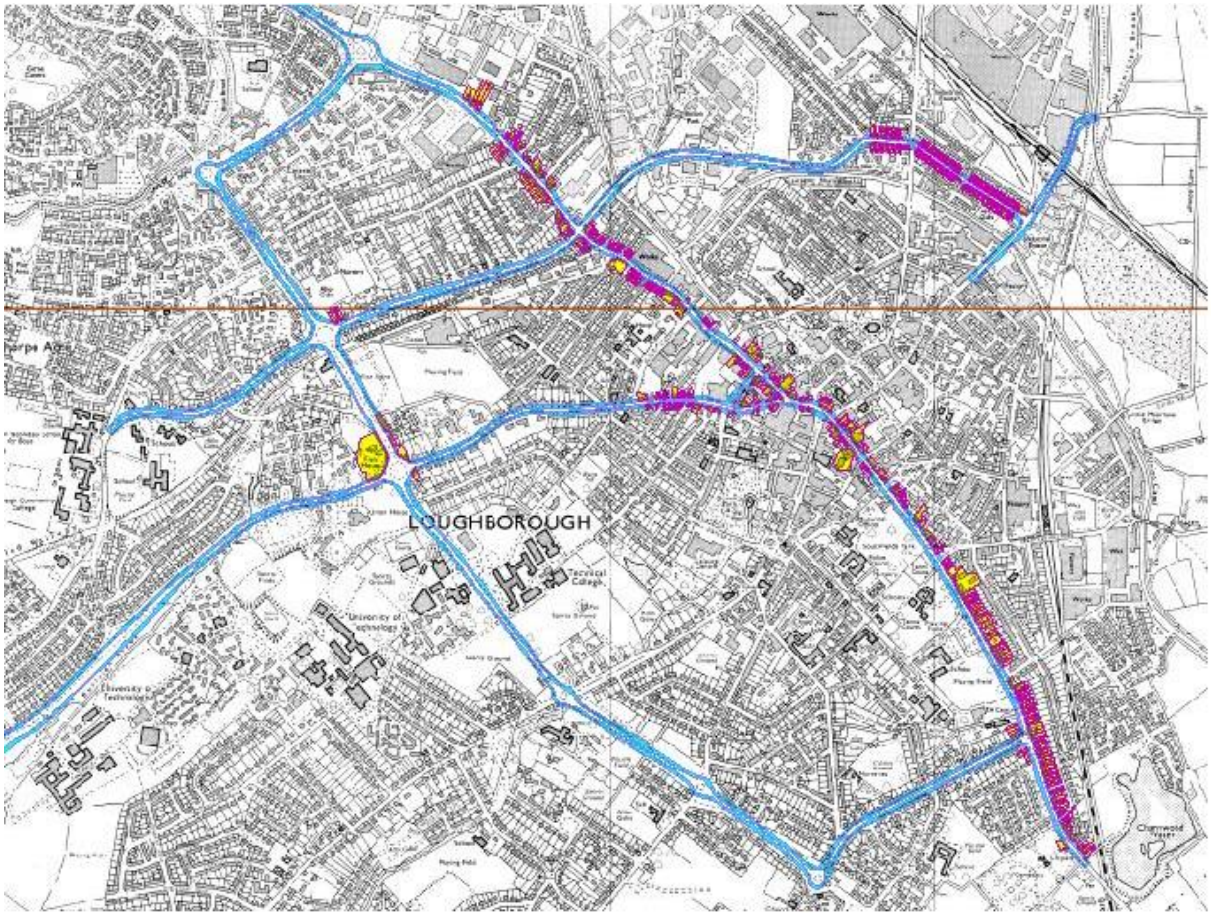


Figure 11: Loughborough AQMA



The area is designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations (England)(Wales) 2000.

The land of the following highways and all publicly owned land within 10 meters of the kerbside of each highway:

- Leicester Road, High Street, Swan Street, The Rushes, Derby Road (From The Rushes to Warwick Way), Warwick Way, Epinal Way (From Warwick Way to Shelthorpe Road), Epinal Way Extension, Ashby Road (From Greenclose Lane to Epinal Way), Alan Moss Road (From Epinal Way to Derby Road), Greenclose Lane, Belton Road, Ratcliffe Road, Nottingham Road (From Brush Works entrance to Queens Road).

The following privately owned properties are included because we understand they are used for residential purposes and have a building facade less that 10 meters from the kerbside of the roads listed above:

- Leicester Road 2, 5a, 36-44, 58-94, 166
- High Street 3, 35
- Burton Walks The Lodge
- The Rushes 4-21, 41
- Ashby Road 31-59, 67-75, 85-95, 99-115, 119-125, 219, 20-46, 62a-92, 96-108, 142, 148, 150-172, 176, 190-192
- Ratcliffe Road 8-154, 3-141
- Glebe Street 32-36
- Storer Road 1
- Haydon Road 1&2
- Brisco Avenue 1&3
- Derby Road Station Hotel, 25a, 35, 107-151, 187, 191-209, 215-219, 223-225, 46-114, 120-124, 130-142, 156-162
- Cliffe Avenue 12b, 12d

Figure 12: Syston AQMA

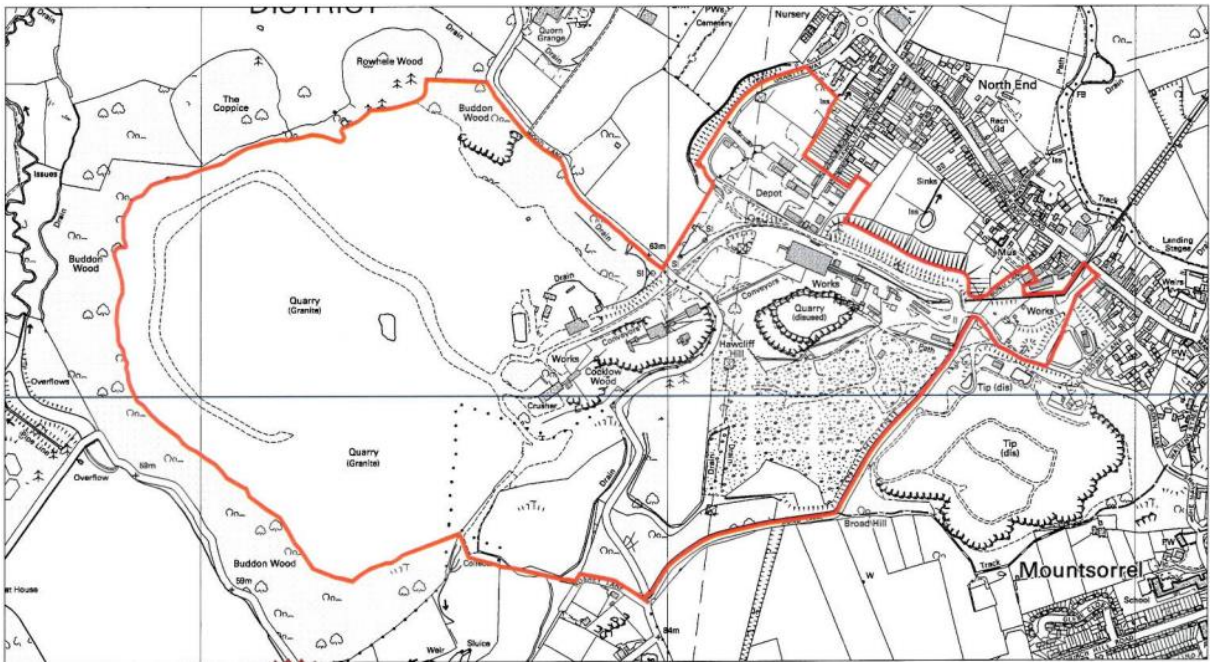
This area is designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations (England & Wales) 2000.

The land of the A607 highway between the junctions with Wanlip Road and High Street, Syston and all publicly owned land within 10 meters of the kerbside of the highway.

The following privately owned properties are included because we understand they are used for residential purposes and have a building facade less that 10 meters from the kerbside of the roads listed above:

- Melton Road 1108-1126, 1182-1190, 1238-1260, 1091-1109, 1121-1141, 1163
- Midland Railway Hotel
- Sandford Road number 2A

Figure 13: Mountsorrel AQMA



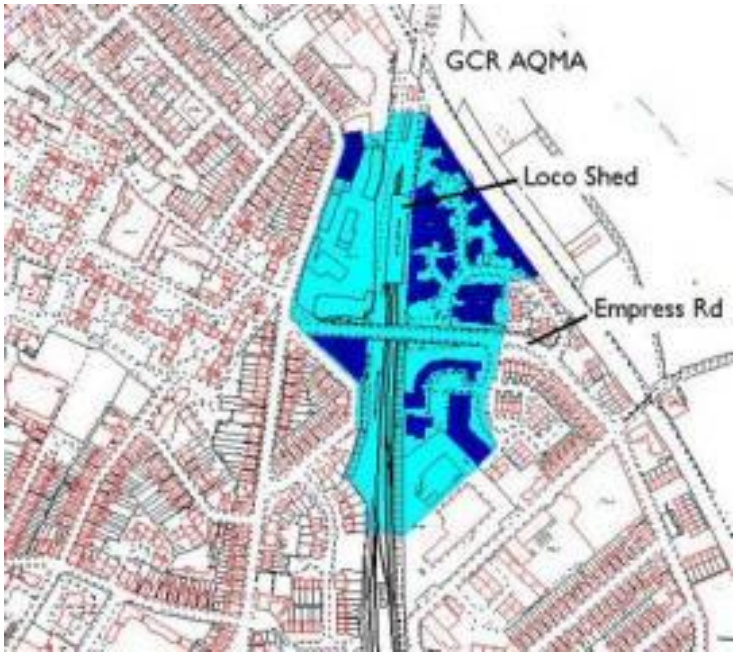
This area is designated in relation to a likely breach of the particulate matter (PM10) 24 hour mean National Air Quality Objective as specified in the Air Quality Regulations (England)(Wales) 2000.

- Hawcliffe Road 49-55 (odd) and 84 & 86 (even)
- Farnham Court, Bond Lane: 13-24

The designated area also incorporates sections of highways including all publicly owned land within 10 meters of the kerbside of each;

- Granite Way, Wood Lane, Rushey Lane, Bond Lane

Figure 14: Great Central Railway AQMA



This area is designated in relation to a likely breach of the sulphur dioxide (fifteen minute mean) objective as specified in the Air Quality Regulations (England)(Wales) 2000.

The area around the Great Central Railway that has been declared is based on computer modelling of the emissions from the railway locomotives at the engine sheds.

The private residential properties contained within the Area are:

- Queens Road 62-74
- Warner Place 33-39
- Morris Close 5-65, Taylor House
- Holbein Close 2-18, 1-39
- Wolsey Way 19-45, 18-40

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 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	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMMP	Dust Monitoring and Management Plan
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
EU	European Union
GCR	Great Central Railway
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

Charnwood Borough Council - Previous Air Quality Review & Assessment documents (including Final AQ Action Plan)
https://www.charnwood.gov.uk/pages/airpollution

LAQM Technical Guidance document TG(16)
https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf

LAQM Support - NO_2 Diffusion Tube QA/QC
https://laqm.defra.gov.uk/diffusion-tubes/diffusion-tubes.html