North Lincolnshire Council

2024 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management, as amended by the Environment Act 2021

Date: June 2024

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Executive Summary: Air Quality in Our Area

Air Quality in North Lincolnshire

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

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

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

Table ES 1 - Description of Key Pollutants

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

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

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

The principal town within North Lincolnshire, Scunthorpe, is home to an Integrated Iron and Steel Works, employing over 3,000 people directly and supports over 20,000 jobs in the supply chain. The site covers over 2,400 acres and is located directly to the east of Scunthorpe. Emissions of PM10 (particulate matter with a diameter of 10 microns or less) from this site and neighbouring operators have contributed to the exceedance of legal air quality targets, leading to the declaration of Air Quality Management Areas (AQMA). There are a number of different operators on the site and particulate matter arises from a variety of sources, including point source emissions, for example: stacks, vents and chimneys and fugitive emissions from roads, stockpiles, and material handling operations.

The Council has been working with Industry, Health Professionals, and the Environment Agency for a number of years to implement actions on the Integrated Steelworks Site.

North Lincolnshire Council continues to monitor air pollution across the area, including within the Air Quality Management Area (AQMA) and on behalf of the National Networks. This includes pollutants such as Sulphur Dioxide (SO2), Nitrogen Dioxide (NO2), PM10 (Particulate Matter with a diameter of 10 microns or less), PM2.5 (Particulate Matter with a diameter of 2.5 microns or less), Heavy Metals (HM), PAH (Benzo(a)pyrene (B[a]P)) and Benzene.

Recent improvements in the level of PM10 are analysed in detail in the Detailed Assessment of the Scunthorpe PM10 Air Quality Management Area 2016 Report. This led to the revocation of the Low Santon Air Quality Management Area (declared for exceedances of Annual PM10 objective) and the amendment of the Scunthorpe Town Air Quality Management Area (declared for exceedances of the 24 hour mean PM10 objective) in March 2018. The reduction of the Scunthorpe Town AQMA boundary resulted in the removal of approximately 5,000 residential properties from within the AQMA. Details of the past and present AQMAs in North Lincolnshire can be found at the following links: http://www.nlincsair.info/home/text/336 and https://uk-air.defra.gov.uk/aqma/list

The main pollutant of concern within North Lincolnshire is PM10. For the year 2023, both the Annual Mean and 24 Hour Mean PM10 Air Quality Objectives were complied with at all monitoring locations across North Lincolnshire. However, the concentrations remain

elevated. In addition, all Air Quality Objectives relating to SO2, NO2 and PM2.5 were also complied with at all monitoring locations across North Lincolnshire.

For the year 2023, whilst the concentrations have reduced at both sites, the levels of PAH (Benzo(a)pyrene (B[a]P) in ambient air) remain elevated at both the Scunthorpe Town and Low Santon monitoring sites. The current levels at Low Santon and Scunthorpe Town are compliant with the European Community Air Quality Target value within the Fourth Air Quality Daughter Directive of 1ng/m^3 but in breach of the National Air Quality Objective of 0.25ng/m^3.

Compliance with PAH (Benzo(a)pyrene (B[a]P)) Air Quality requirements is not the responsibility of the local authority; this is overseen by DEFRA (Department of Environment, Food and Rural Affairs). Further information can be found at https://uk-air.defra.gov.uk/networks/network-info?view=pah. North Lincolnshire Council continues to support further improvement in regards to PAH (Benzo(a)pyrene (B[a]P)) concentrations and will support action to improve concentrations for local residents as part of the National Network.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The Environmental Improvement Plan[3] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter ($PM_{2.5}$), the pollutant of most harm to human health. The Air Quality Strategy[4] provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

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

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

The Road to Zero[5] details the Government's approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

Air Quality Action Plan

Where a Local Authority has declared an AQMA, they must develop and publish an Air Quality Action Plan (AQAP). The AQAP must set out measures the local authority will take to secure the achievement, and maintenance, of air quality standards and objectives in the area of the AQMA and must specify a date by which each measure will be carried out. North Lincolnshire Council produced its first AQAP in 2008, this was later updated in January 2012.

In February 2023, North Lincolnshire Council instructed Environmental Consultants Ricardo Energy & Environment to undertake a review and update of the AQAP. Ricardo support Local Authorities to deliver improvements in air quality and provide expert evidence and analysis needed to develop robust policy and actions, with a proven track record. During this time, a Steering Group has been formed which is made up of representatives from the Council including: Environmental Protection, Development Management, Public Health and Highways as well as the Environment Agency and several local operators. The Steering Group has met on two occasions to produce a list of measures to improve local air quality.

The AQAP was submitted and approved by DEFRA in December 2023 and the following conclusion was made:

> *"Overall, the AQAP appears well compiled, and is considered commensurate with the concentrations monitored most recently in the AQMA. It is therefore accepted as a final AQAP."*

The report is now awaiting Cabinet Approval before being uploaded to the Councils website.

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

Air Quality Monitoring Network Upgrade

North Lincolnshire Council have invested in the upgrade of TEOM and FDMS monitoring equipment used for measuring PM10 within Scunthorpe. The previous instruments were operated within the network for a number of years. They are considered old technology when compared with newer more effective real time air quality monitoring equipment. It is also recognised that due to this fact there are increasing levels of uncertainty in some of the results being obtained. Due to its high operating temperature, a correction using a volatile correction model is applied to TEOM data to give gravimetric equivalence. DEFRA have advised the following in relation to this correction:

> *"It should be noted, however, that due to the gradual withdrawal of TEOM-FDMS instruments and phased replacement with new compliant PM monitoring equipment on the AURN, the extent of data available to maintain the VCM has significantly reduced in recent years. As such, the extent of geographical coverage for the applicability and future viability of the VCM has become limited. Local authorities who have been reliant on the VCM are therefore advised to consider replacing these instruments for others that have been shown to be equivalent to the reference method."*[6]

This further supported the need to upgrade to instruments that did not rely upon the application of a VCM correction.

The upgrade of these instruments has allowed for more accurate real time recording of the PM10 concentrations and additional measurement of PM2.5 at Low Santon. This will facilitate a better understanding of the influence of weather, background contributions and operational activities at the Steelworks upon PM concentrations.

[6] https://laqm.defra.gov.uk/technical-guidance/

The equipment that has been purchased is Smart Heated BAM 1020s used for measuring PM10 or PM2.5. This equipment is deemed equivalent by Defra[7], Certified to MCERTS for UK Particulate Matter and Certified to MCERTS for Continuous Ambient Measurement Systems (CAMS).

The following equipment has been replaced during the Summer of 2022:

- Low Santon FDMS and TEOM
- East Common Lane TEOM
- High Street East TEOM
- Amvale TEOM

This investment demonstrates the Council's continued commitment to the review and assessment of local air quality.

Air Quality Website

During Spring 2021, North Lincolnshire Council's air quality website contract was retendered and awarded to the current provider to ensure sufficient data management, ratification, and reporting services in line with LAQM (TG22). The website also provides an essential source of public information and real time data. In addition to this, the service and maintenance contract for the air quality monitoring equipment was retendered and awarded to the current provider to ensure the continued operation and maintenance of the network.

The North Lincolnshire Council website will be continuously updated to include more information on air quality. This includes information on idling of vehicles, how to report smoky vehicles and the requirements of living within a Smoke Control Area. In addition, previous Annual Status Reports are uploaded onto the website to provide up to date information to the public. Further information can be found at the following website: https://www.northlincs.gov.uk/planning-and-environment/pollution/

[7] https://uk-air.defra.gov.uk/networks/monitoring-methods?view=mcerts-scheme

Both the Air Quality Website and Equipment Maintenance and Service contracts will be re-tendered in 2025.

Publicising air quality

Since 2019, North Lincolnshire Council and the Environment Agency have produced monthly reports regarding air quality within the Scunthorpe Town AQMA. The intention of providing a monthly report is to make local industry aware of the current air quality and to seek their continued cooperation in bringing about improvements. The production of this report continues and is circulated to relevant operators.

Environmental Protection Team

Other measures to improve air quality relate to the Environmental Protection Team's role within Development Management. Traffic congestion is directly linked to air pollution with the most polluting vehicles being those with older diesel engines. This contributes to increased NO2 emissions. The Climate Change Act 2008 committed the UK to reducing greenhouse gas emissions by at least 80% by 2050. In order to meet this target, the Government has committed for nearly every car and van in the UK to be zero emissions by 2050, as set out in their Road to Zero Strategy 2018. The strategy sets out how this will be achieved:

- The UK will end the sale of all new conventional petrol and diesel cars/vans in 2040.
- The UK will 'develop one of the best Electric Vehicle Charging Point (EVCP) networks in the World.

More recently, in November 2020, the UK Government announced the phase out date for the sale of new petrol and diesel cars and vans will be brought forward to 2030. Furthermore, all new cars and vans will be fully zero emission at the tailpipe from 2035.

With this in mind, it is essential that new development should seek to deliver high standards of sustainability in accordance with Local and National Planning Policy. The Environmental Protection Team act as consultees for planning applications and require developers within North Lincolnshire to demonstrate that they are making all reasonable efforts to minimise

total emissions from development sites, during both construction and operational phases. This will include the requirement to promote and incentivise the use of low emission vehicles, to reduce the overall emission impact of development related traffic.

The Local Plan

In addition to the above measure, North Lincolnshire Council are currently in the process of updating their Local Plan. A Local Plan sets out the vision and objectives for the future development of the area, addressing needs and opportunities in relation to housing, the economy, community facilities and infrastructure. It will outline the policies and proposals that will be used to guide planning decisions and investment on regeneration into the future. The draft plan was withdrawn from Examination in Public in October 2024. The Environmental Protection Team previously reviewed the proposed land allocations for the draft Local Plan and provided feedback in relation to the suitability of the proposed land use. This included feedback in relation to air quality generally and more specifically development within the Air Quality Management Area. This feedback discouraged residential development within the Scunthorpe Town AQMA and identified that developments that are likely to contribute to local air quality (i.e., B2 General Industrial) would be subject to further investigation.

This has taken into account the health implications of air quality and land use. Close liaison with the Environmental Protection Team will continue as the Place Planning team work to revise and resubmit the withdrawn Local Plan to examination.

Complaints

Dust and smoke complaints across North Lincolnshire are investigated and those within the AQMA are investigated as a priority due to increased emissions of PM10. It is an offence under Section 2 of the Clean Air Act 1993 for dark smoke to be emitted from any industrial or trade premises. It is also an offence under Section 33 (1C) of the Environmental Protection Act 1990 to treat, keep or dispose of controlled waste in a manner likely to cause pollution or harm to human health. The burning of waste produces pollutants that are both harmful to human health and the environment, this includes particulate matter, heavy metals, and polycyclic aromatic hydrocarbons (PAHs).

North Lincolnshire Council investigate a significant number of incidents reported by officers of the Council and members of the public. The burning of controlled waste at commercial premises has resulted in five prosecutions and several cautions in recent years. Complaints in relation to domestic bonfires and domestic chimneys are also investigated taking into account the recent changes introduced by the Environment Act 2021 in relation to Smoke Control Areas.

It is the intention of North Lincolnshire Council to continue to pursue offenders, in line with our enforcement policy, to protect human health and improve local air quality.

Working with partners

In 2023 the Council continued to work closely with Industry, Health Professionals, and the Environment Agency to initiate improvements and to share best practice. This included the distribution of reports detailing pollutant exceedances of air quality objectives on a weekly basis and for individual events. It also included the distribution of air quality warnings on days where concentrations are particularly high. This is a proactive method of advising industry in the area to take preventative action to avoid exceedances of air quality objectives. The Local Industry Forum, a group made up of local industry, regulators and other relevant stakeholders also met in March 2024 to discuss local air quality.

Conclusions and Priorities

North Lincolnshire Council has continued to operate an extensive air quality monitoring network. This has identified that all Air Quality Objectives have been met except for the following:

- National Air Quality Objective for PAH (Benzo(a)pyrene (B[a]P)) at Low Santon and Scunthorpe Town

All other air quality objectives were complied with during 2023.

Despite there being no exceedance of the PM10 24-hour mean objective in 2023, areas within Scunthorpe still experience high concentrations of this pollutant. This includes the

area immediately around the Scunthorpe Integrated Steelworks site including Low Santon and the East Common Lane area to the West of the site.

Although significant improvements have been made on the annual concentrations of PAH (Benzo(a)pyrene (B[a]P) in recent years, North Lincolnshire continues to record some of the highest levels of this pollutant in the United Kingdom. The improvements are partly due to the closure of the Dawes Lane Coke Ovens in March 2016 and the recent closure of the Appleby Coke Ovens in June 2023. Despite a downward trajectory in concentrations over recent years, both Low Santon and Scunthorpe Town breach the National Air Quality Objective of 0.25ng/m^3. However, further reductions are expected due to the closure of the Appleby Coke Ovens, the last remaining coke oven on site.

The PM2.5 levels recorded by the air quality monitors did not breach the European Union (EU) Annual Mean objective of 25 µg/m^3 or The Environmental Targets (Fine Particulate Matter) Regulations 2023 Target Value of 12ug/m3 by 2028. It would be beneficial in the future for more locations within North Lincolnshire to monitor for this pollutant, to provide a more detailed understanding of concentrations in the area. This matter has been addressed by the introduction of a Smart Heated BAM 1020 at Low Santon during Summer 2022.

There are a number of challenges the Council faces in achieving improvements in air quality:

- Within Scunthorpe and the Integrated Steel Works site there are a number of companies which contribute towards emissions of PM10. Some of these companies are regulated for emissions to air by North Lincolnshire Council and others by the Environment Agency. Air pollutants from multiple sources create a greater challenge than if it was from a single source and therefore collaborative working between the Environment Agency, North Lincolnshire Council, local industry, and other relevant parties is vital to bring about continued improvements.

- The majority of the Integrated Steelworks site is regulated by the Environment Agency rather than the Council. The Council therefore has minimal regulatory control of emissions into the atmosphere. As stated above, collaborative working helps towards addressing this constraint.

- The Council has no regulatory control over the monitoring and reduction at source of PAH (Benzo(a)pyrene (B[a]P)) emissions. They are not part of the Local Air Quality Management regime and the operations largely responsible for them, the Coke Ovens, are not regulated by the Council. The closure of the Dawes Lane and Appleby Coke Ovens has, however, seen a significant reduction of PAH (Benzo(a)pyrene (B[a]P)) emissions in recent years. Further reductions are expected as there are no longer any operational Coke Ovens at the Integrated Steelworks.

- In North Lincolnshire the prevailing wind is from the southwest direction, as shown in Figure 1. These winds impact directly upon local residents in Santon as the Integrated Steel Works is located upwind of these south westerly winds. In cooperation with local industry the Council has and continues to encourage operators to predict in advance the weather conditions, so that alterations can be made to their operational practices. This reduces the impact upon local residents but relies to some extent upon management practices which can be difficult to control and monitor.

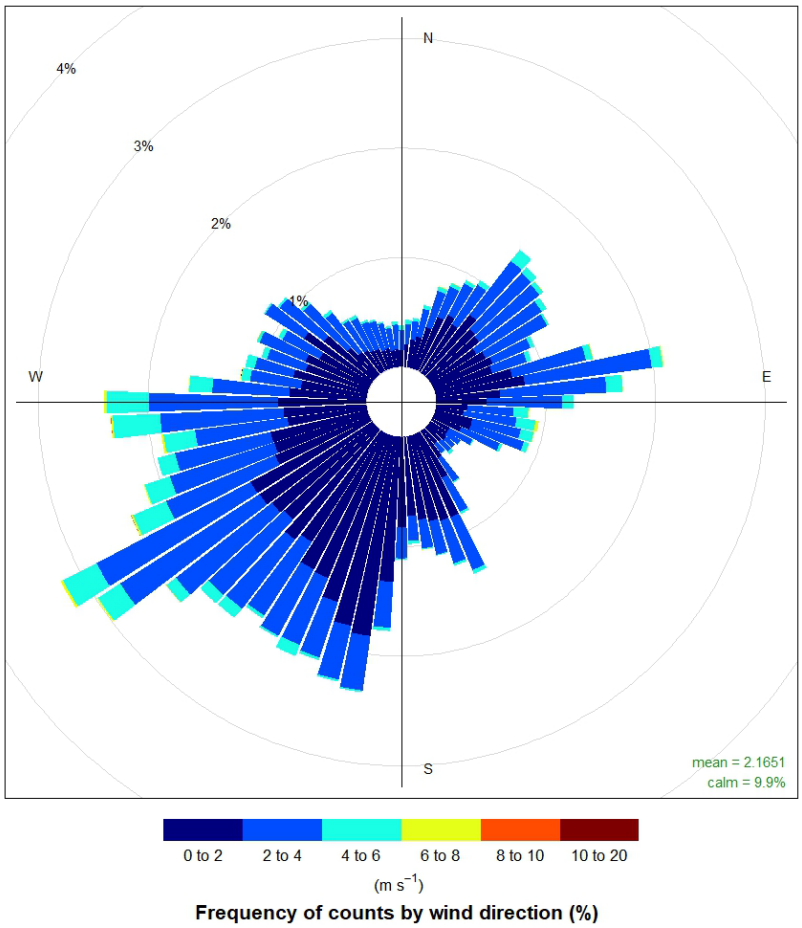

Figure 1 - Wind Direction and Speed 2023

In 2024/25 North Lincolnshire Council aims to:

- Continue operation of the air quality network and website, with associated data analysis and ratification
- Work closely with Industry, Stakeholders, and the Environment Agency to obtain continued air quality improvements for local residents
- Continue to implement measures within the Air Quality Action Plan to bring about continued improvements to local air quality
- Improve the existing mechanisms in place to influence and control on-site management practices to control dust emissions via the Air Quality Action Plan
- Apply for Grant Funding if suitable bids become available

- Put in place a public engagement strategy that will deliver key messages about ongoing improvements to air quality within North Lincolnshire

- To continue to provide planning consultation responses which takes into consideration local air quality such as the implementation of electric vehicle charging infrastructure

- Continue our regulatory functions in respect of emissions to air through the Environmental Permitting Regulations (2016) and complaint investigation

Local Engagement and How to get Involved

North Lincolnshire Council continues to engage with a variety of different parties, including for example, developers and businesses in relation to air quality and actions they can take to help bring about improvements.

North Lincolnshire Council operate a dedicated website with real-time air quality data which is available to the general public and can be found at the following link: http://www.nlincsair.info. In addition to this, North Lincolnshire Council's main website has a section on air quality, which can be found at the following link: https://www.northlincs.gov.uk/planning-and-environment/environmental-health/

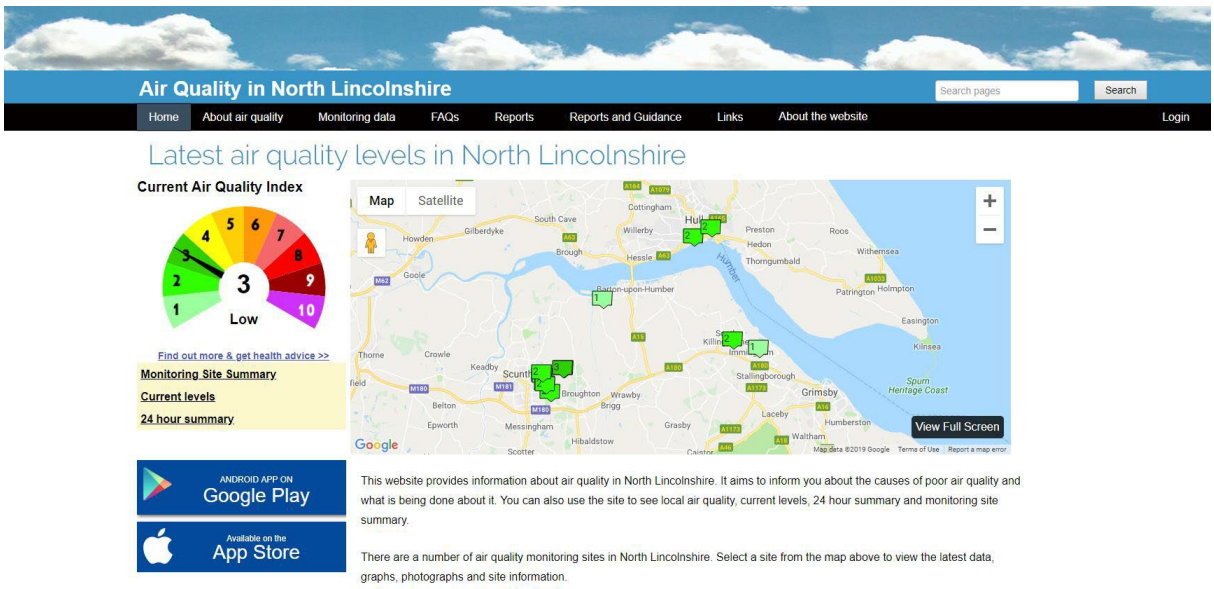

Figure 2 - Air Quality in North Lincolnshire Website

Members of the public are welcomed to contact the Council regarding Local Air Quality Management in North Lincolnshire using the contact details below:

Email: environmental.health@northlincs.gov.uk

Telephone: 01724 297000

There are several things that the general public can do to help improve air quality within North Lincolnshire, some of these are listed below:

Transportation

- Where possible, members of the public are encouraged to use public transport, such as local bus services. If the individual is able to, they are also encouraged to cycle or walk, giving a boost to both air quality and the health of the individual.

- The type of vehicle that is driven also has an impact on air quality; low emission or electric vehicles contribute less pollution than older petrol or diesel vehicles.

- Vehicle idling also contributes to air pollution. The public are advised to avoid idling to warm up their engine and if it is safe to do so, switch off their engine in traffic that is likely to be stationary for long periods.

- Poor driving habits also contribute to increased air pollution. Smooth acceleration

and deceleration is recommended to reduce fuel consumption and air pollution.

While at Home

- Domestic burning is a major source of air pollution. Replicated below is information provided from the Department for Environment, Food & Rural Affairs (DEFRA) in relation to a practical guide for minimising the impact of smoke from wood burning stoves on the environment and human health.
  - Consider burning less
  - Buy 'Ready to Burn' fuel
  - Season freshly chopped wood before burning (wet wood contains moisture which creates smoke and harmful particulates when burned).
  - Use approved solid fuels
  - Do not burn treated waste wood (e.g., old furniture, pallets, or fence panels) or household rubbish
  - Regularly maintain and service your stove (e.g., annually)
  - Get your chimney swept regularly (up to twice a year)

The above list is not exhaustive and is provided for information purposes. Further information can be found at the following link: https://uk-air.defra.gov.uk/assets/documents/reports/cat09/1901291307_Ready_to_Burn_Web.pdf

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Protection Team of North Lincolnshire Council.

This ASR will be approved and signed off by the relevant Heads of Service and Director of Public Health prior to consultation.

If you have any comments on this ASR please send them to Environmental Protection Team at:

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Local Air Quality Management

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

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

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

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

Actions to Improve Air Quality

Air Quality Management Areas

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

A summary of AQMAs declared by North Lincolnshire Council can be found in Table 1. The table presents a description of the AQMA that is currently designated within North Lincolnshire. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of the AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation is as follows:

- PM_{10} 24-hour mean

Table 1 - Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
Scunthorpe Town Air Quality Management Area	Declared 01/11/05. Amended 19/03/18.	PM10 24 Hour Mean	An area encompassing the integrated steelworks site and a number of properties to the east of Scunthorpe	NO	95	N/A (Compliant, 31 exceedance days)	1 year	North Lincolnshire Council Air Quality Action Plan 2024	Awaiting Cabinet Approval

☒ **North Lincolnshire Council confirm the information on UK-Air regarding their AQMA(s) is up to date**

☒ **North Lincolnshire Council confirm that all current AQAPs have been submitted to Defra**

Progress and Impact of Measures to address Air Quality in North Lincolnshire

Defra's appraisal of last year's ASR concluded:

> *"On the basis of the evidence provided by the local authority the conclusions reached are accepted for all sources and pollutants. Following the completion of this report, North Lincolnshire Council should submit an Annual Status Report in 2024."*

North Lincolnshire Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2. 76 measures are included within Table 2, with the type of measure and the progress North Lincolnshire Council have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.

More detail on these measures can be found in their respective Action Plans. Key completed measures include:

- Update the Scunthorpe Town Air Quality Action Plan. The AQAP was submitted and approved by DEFRA in December 2023.
- The successful implementation of new air quality monitoring equipment for measuring PM10 and PM2.5 within Scunthorpe.
- The Air Quality Website contract has been extended to ensure sufficient data management, ratification, and reporting services
- The Service and Maintenance contract has been extended to ensure continued operation of the air quality monitoring network
- Air pollution forecasting and exceedance reporting continues to be used to inform the activities of the operators on the Integrated Steel Works site

- Regular liaison with stakeholders and other interested bodies
- The Council continue to investigate complaints relating to emissions including dust and smoke and enforce as appropriate
- Environmental Permits will continue to be enforced and reviewed as required
- Development within the AQMA or affecting the AQMA continues to be reviewed
- The Environmental Protection Team continues to act as a consultee in relation to updates to North Lincolnshire Council's Local Plan and planning applications
- North Lincolnshire Council and the Environment Agency continue to produce monthly reports regarding air quality within the Scunthorpe Town AQMA

North Lincolnshire Council expects the following measures to be completed over the course of the next reporting year:

- Adoption of the updated AQAP for the Scunthorpe Town AQMA
- Continued operation of the air quality monitoring network, making up to date data available for the public, regulators, and industry for information purposes
- Analyse the data and target areas where improvements are needed
- Actively engage with regulators and industry to seek improvements in air quality
- Produce monthly air quality reports in collaboration with the Environment Agency and distribute them to relevant stakeholders.
- Provide comments and input in relation to air quality and proposed development for planning consultations
- Apply for DEFRA Grant funding where appropriate

These measures will ensure monitoring of air quality objectives is ongoing, with opportunities for improvements continually reviewed.

The principal challenges and barriers to implementation that North Lincolnshire Council anticipates facing are:

- The prevailing wind is predominantly from the southwest direction as shown in Figure 2 of the Executive Summary. These winds impact directly upon local residents in Santon, as the Integrated Steel Works is located upwind of these south westerly winds. In addition, recent summers have been dry and warm which leads to an increase in fugitive emissions from stockpiles and roads. In cooperation with local industry the Council has, and continues to, encourage operators to predict in advance the weather conditions so that alterations can be made to their operational practices. This reduces the impact upon local residents; however, this method relies to some extent upon management practices which are difficult to control.
- There are a number of emission sources and a number of different companies operating on the Integrated Steelworks Site rather than one single source. This requires collaboration on the part of local businesses and the Council.
- The majority of the Integrated Steel Works Site is regulated by the Environment Agency and therefore the Council has minimal regulatory control over these local businesses.
- The Council have no regulatory control over the monitoring and reduction of PAH (Benzo(a)pyrene (B[a]P)) emissions. They are not part of the Local Air Quality Management regime and the operations largely responsible for them (the Coke Ovens) are not regulated by the Council. However, as stated previously, the closure of the coke ovens is anticipated to result in a reduction of PAH emissions.

North Lincolnshire Council anticipates that the measures stated above and in Table 2 will help to achieve compliance in the Scunthorpe Town AQMA.

Whilst the measures stated above and in Table 2 will help to contribute towards compliance, North Lincolnshire Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the Scunthorpe Town AQMA.

Table 2 - Progress on Measures to Improve Air Quality

The three key measures are highlighted in yellow in the Table below.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Reinstating the Local Industry Forum, and holding regular meetings to review air quality data, investigate occurrences of very high exceedances, and feed back on measures to improve local air quality.	Promoting Low Emission Plant	Other Policy	2007	2028	NLC, EA, industry operators	NLC	No	Not funded	<10k	Implementation	Low - no quantifiable reduction in emissions, effectiveness reliant on engagement.	Local Industry Forum to meet annually	Local Industry Forum was established circa 2007 and has met annually except during the COVID-19 pandemic. The last meeting was held in March 2024	Cost and staff availability. Terms of reference for the needs to be updated
3	Continue regulatory functions in respect of emissions to air through the Environmental Permitting Regulations (2016).	Environmental Permits	Other	Ongoing	Ongoing	NLC and EA	NLC	No	Not funded	<10k (sites within AQMA only)	Implementation	High - ongoing measure has previously and may continue to directly abate or remove emissions.	Continue to effectively regulate Part B's and A2's within and in close proximity to AQMA	This is an existing measure which will continue.	Staff resourcing
7	PM_{10} pollution forecasting: 5-day PM_{10} forecasts are issued to all plant areas by the Environment Department on a daily basis to give guidance to plant areas where measures may need to be taken to prevent or reduce the impact on off-site air quality.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	British Steel	British Steel	No	Fully funded	N/A - part of ongoing operations	Implementation	High - direct reduction in emissions due to actions which may be taken to prevent or reduce emissions during high-risk conditions.	Warning emails sent, logs of actions taken in response to warning.	Ongoing measure. Scoping for improvements to forecasting.	Monitor downtime resulting in lack of data for a period of time - rare occurrence
2	Reporting of exceedances to operators	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	NLC	NLC	No	Not funded	<10k	Implementation	Low - no quantifiable reduction in emissions.	Exceedances sent the next working day	This is an existing measure which will continue.	None
4	To continue to provide planning consultation responses which takes into consideration local air quality.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	Ongoing	NLC and EA	NLC	No	Not funded	Dependant on number and complexity of apps	Implementation	Low - no quantifiable reduction in emissions.	Provision of consultation responses to planning applications, planning conditions which concern air quality.	This is an existing measure which will continue.	Staff resourcing

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5	To continually review site permits to ensure that they are updated as necessary to reflect new and updated guidance or legislation and changes in operation or site infrastructure.	Environmental Permits	Other	Ongoing	Ongoing	NLC and EA	NLC	No	Not funded	N/A - part of ongoing operations	Implementation	High - permits secure and enforce permanent actions to prevent or reduce emissions	Ongoing review of guidance and best practice, updates to permits.	This is an existing measure which will continue.	Staff resourcing
6	Complaints in respect of dust and smoke from commercial premises (not regulated under IPPC regime), and domestic smoke control will be investigated as a priority and enforcement action taken in accordance with the enforcement policy.	Environmental Permits	Other	Ongoing	Ongoing	NLC	NLC	No	Not funded	<10k	Implementation	Low - no quantifiable reduction in emissions.	Enforcement action taken against those contravening the Environmental Protection Act 1990 and Clean Air Act 1993	This is an existing measure which will continue.	Staff resourcing
8	Monitoring of NLC automatic air quality monitoring data for PM_{10} by 10am. If, by 10am, any of the monitoring stations are already recording PM_{10} measurements of 40 $\mu g/m^3$, then an air quality warning email is sent to plant areas to communicate the increased risk of exceeding the 50 $\mu g/m^3$ mean that day.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	British Steel	British Steel	No	Fully funded	N/A - part of ongoing operations	Implementation	High - direct reduction in emissions due to actions which may be taken to prevent or reduce emissions during high-risk conditions.	Warning emails sent, logs of actions taken in response to warning.	Ongoing	Monitor downtime resulting in lack of data for a period of time - rare occurrence

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9	Each week day, the previous day's daily mean for each monitoring station across the NLC monitoring network is checked and if the daily average is greater than 50 µg/m^3, an exceedance report is prepared to investigate and document the event and actions taken to mitigate during the day.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	British Steel	British Steel	No	Fully funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Warning emails sent, logs of actions taken in response to warning.	Ongoing	Monitor downtime resulting in lack of data for a period of time - rare occurrence
10	Closure of coke ovens at British Steel - transitioning from coal to coke.	Promoting Low Emission Plant	Other Policy	2023	2023	British Steel	British Steel	No	Fully funded	N/A	Planning	High - Direct reduction of point source emissions from coke ovens approx 20 tonnes. Total impact to emissions with new coke handling activities not yet known.	Completed closure of the coke ovens and transition to coke transported to and stored on site.	Closures undertaken in June 2023. Closure will have immediate effect, but transition to new coke transportation and handling processes will occur over a longer period of time.	Emissions associated with transporting coke to site and storage (as opposed to previous coal storage) still uncertain. Work being done from June to develop a quantitative evidence base.
11	Pilot low-cost sensor monitoring network within British Steel site perimeter, pilot plant area being identified potentially sinter plant or BOS plant.	Promoting Low Emission Plant	Other Policy	2023	2025	British Steel	British Steel	No	CapEx	£150k	Planning	Low - No direct reduction in emissions, but monitoring network to be used in source apportionment of pollution episodes, forecasting and handling dust complaints.	Installation of monitors, receipt of data, use of data in source apportionment, forecasting and handling dust complaints.	Pilot study in planning stage and will either commence in 2023 or 2024.	Subject to funding

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12	Investigating greening areas with grass where operations are stopping at British Steel.	Promoting Low Emission Plant	Other Policy	2023	2024	British Steel	To be confirmed	To be confirmed	To be confirmed	To be confirmed	Not yet started	Low - no quantifiable reduction in emissions.	Completion of investigation, proposed area(s) greened with grass (m2)	Ongoing site greening discussions are still taking place as there will be a whole site greening plan around the EAF introduction. This will be case as certain areas in use now will cease to operate freeing up land after demolition for storage, tree planting and greening. These discussions are still taking place.	Uncertainty surrounding locations and timescales.
13	Road Sweeper provision being increased irrespective of coke oven closure, to be kept under review during the transitional period of coke transport by road (with closure of the coke ovens).	Promoting Low Emission Plant	Other Policy	2023	Ongoing	British Steel	British Steel	No	OpEx	£150k	Implementation	Medium - direct reduction in fugitive emissions. 183 tonnes of PM_{10} currently attributed to roads. This could be reduced by 10% with increased sweeping[1] (approx. 18 tonnes)	Frequency of road sweeper use	Currently 4 road sweepers on site, ongoing discussions surrounding this topic.	None
14	Bowser provisions and wheel wash systems increased, being reviewed irrespective of coke oven closure, to be kept under review during the transitional period of coke transport by road. (with closure of the coke ovens).	Promoting Low Emission Plant	Other Policy	2023	Ongoing	British Steel	British Steel	No	OpEx	To be confirmed	Planning	Medium - direct reduction in fugitive emissions.	Frequency of bowser and wheel wash use	Ongoing	None
15	Introduction of localised site-specific Dust Management Plans at the plant.	Promoting Low Emission Plant	Other Policy	2023	Ongoing	British Steel	British Steel	No	OpEx	N/A	Implementation	Low - no quantifiable reduction in emissions, effectiveness reliant on enforcement of mitigation actions	Number of Dust Management Plans secured, logs and checks against mitigation actions	In process of developing rolling out	None

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												secured within DMPs.			
16	Trial use of binding agent on unpaved slag haulage roads on site, to reduce dust resuspension.	Promoting Low Emission Plant	Other Policy	2023	2023 (trial complete) 2024 (review of trial)	British Steel	British Steel	No	Fully funded	N/A	Planning	Medium - direct reduction in fugitive emissions. 183 tonnes of PM_{10} currently attributed to roads. This could be reduced by up to 80% with chemical dust suppressants (approx.144 tonnes) when applied at regular intervals of 2 weeks to 1 month[2]	Completion of trial, measured reduction in dust emissions.	In Summer 23 a trial took place on a small stretch of road at the BOS plant, the chemical was based on Molasses. It was stated that initial impressions were that it was effective in reducing dust but not totally eliminating. Since then the trial area has been inspected weekly with the intention to have it swept and compare the dust lift off with an area further down the same road that has not been treated. Unfortunately, with the constant rain, it has not been dry enough to repeat the vehicle running over the surface to check so this inspection is still to be reviewed.	Reapplication rate of every three years likely, assuming trial is successful.
17	Visual assessments of all operational areas made at regular intervals whilst operating.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Cemex	Cemex	No	Fully funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Records of faults or unusual activities.	Ongoing measures in place to ensure compliance with permit requirements, internal procedures and ISO 14001 certification. These are now kept electronically.	None
18	Road sweeper employed when required.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Cemex	Cemex	No	Fully funded	N/A - part of ongoing operations	Implementation	Medium - direct reduction in fugitive emissions.	Log of road sweeping activities and records of actions taken.	Ongoing measures in place to ensure compliance with permit requirements, internal procedures and ISO 14001 certification	None
19	Regular plant maintenance inspection program assessing all emission points	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Cemex	Cemex	No	Fully funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Inspection logs, and records of actions taken to address faults.	Ongoing measures in place to ensure compliance with permit requirements, internal procedures and ISO 14001 certification	None

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20	Staff training - all operational staff trained in permit, plant operation and dust assessment requirements.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Cemex	Cemex	No	Fully funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Completion of staff training.	Ongoing measures in place to ensure compliance with permit requirements, internal procedures and ISO 14001 certification	None
21	Weekly checks of silo protection devices.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Cemex	Cemex	No	Fully funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Log of checks	Ongoing measures in place to ensure compliance with permit requirements, internal procedures and ISO 14001 certification	None
22	Auto shutoff of delivery to cement silos in the event of high pressure	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Cemex	Cemex	No	Fully funded	N/A - part of ongoing operations	Implementation	High - direct reduction of emissions during high-risk scenarios.	Occurrences of high-pressure events and log of auto-shut offs	Ongoing measures in place to ensure compliance with permit requirements, internal procedures and ISO 14001 certification	None
23	All employees understand permit conditions and dust management protocols.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Civil and Marine Ltd	Civil and Marine Ltd	No	Fully funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Frequency of employee communication and completion of training on permit conditions and dust management protocols.	Ongoing measure as part of permit to operate	None
24	Emission points to air continuously monitored for particulates (and/or visually monitored).	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Civil and Marine Ltd	Civil and Marine Ltd	No	Fully funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Monitoring data capture	Ongoing measure as part of permit to operate	None
25	All emission points to air quantitively monitored for particulate matter every 12 months.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Civil and Marine Ltd	Civil and Marine Ltd	No	Fully funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Monitoring data capture	Ongoing measure as part of permit to operate	None
26	Visual assessments of raw material stockyard and operational areas during each shift and records made.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Civil and Marine Ltd	Civil and Marine Ltd	No	Fully funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Records of visual assessments	Ongoing measure as part of permit to operate	None
27	Weekly road sweeping and, when required, use of water bowser to dampen stockyard, roadways and operational areas.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Civil and Marine Ltd	Civil and Marine Ltd	No	Fully funded	N/A - part of ongoing operations	Implementation	Medium - direct reduction of emissions.	Records of road sweeping and bowser activities	Ongoing measure as part of permit to operate	None

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28	Housekeeping schedule (use of vacuum and wet sweeping).	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Civil and Marine Ltd	Civil and Marine Ltd	No	Fully funded	N/A - part of ongoing operations	Implementation	Medium - direct reduction of emissions.	Records of vacuuming and sweeping activities	Ongoing measure as part of permit to operate	None
29	Regular plant maintenance to repair / replace / improve existing process equipment.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	Civil and Marine Ltd	Civil and Marine Ltd	No	Fully funded	N/A - part of ongoing operations	Implementation	Medium - direct reduction in emissions when repairs and replacements are carried out.	Maintenance records	Ongoing measure as part of permit to operate	None
30	Installation of Inter-Load 650 on conveyor transfer point (table house dust plant / crusher feed belt)	Promoting Low Emission Plant	Other Policy	2023	2023	Civil and Marine Ltd	Civil and Marine Ltd	No	Not funded	<£10k	Awaiting installation	High - direct and permanent reduction in emissions at the conveyor transfer point.	Completion of installation.	Purchased (Installation planned June 2023)	None
31	Trial with double side-skirt seal (return conveyor / crusher feed belt)	Promoting Low Emission Plant	Other Policy	2023	2023	Civil and Marine Ltd	Civil and Marine Ltd	No	Not funded	<£10k	Awaiting installation	High - direct and reduction in emissions at the conveyor transfer point.	Completion of trial.	Purchased (Installation planned June 2023)	None
32	Alterations to feed chute between return and crusher feed conveyors	Promoting Low Emission Plant	Other Policy	2023	2023	Civil and Marine Ltd	Civil and Marine Ltd	No	Not funded	<£10k	Awaiting installation	Medium - direct reduction of emissions by Fabrication of alternative feed chute arrangement to further control the impact of material falling from one conveyor onto another.	Completion of alterations.	Purchased (Installation planned June 2023)	None

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33	Upon receipt of a [British Steel] warning e-mail, the Air Quality Warning Exceedance check sheet must be completed, which outlines what actions should be reviewed and, if necessary, taken, including making employees and contractors aware of the AQ warning, checking for visible dust releases and consider stopping operations causing fugitive dust, and checking that bowsers, dust suppression sprinklers and wheel wash are operational.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Tarmac	Tarmac	No	Fully funded	N/A - part of ongoing operations	Implementation	High - direct reduction in emissions due to actions which may be taken to prevent or reduce emissions during high-risk conditions.	Number and frequency of warnings, records of actions implemented in response.	Already being followed, ongoing action	Changes to management at site level
34	Reduced drop heights from conveyors	Promoting Low Emission Plant	Other Policy	2022	2024	Tarmac	Tarmac	No	Fully funded	N/A	Implementation	High - direct and permanent reduction in emissions at conveyors.	Drop height reduction, number of conveyor points action has been applied to.	Coaching of loading shovel operators to let belt ends build up. Monitoring of operations is ongoing.	None
35	Reducing wind-blown movement of PM using drapes	Promoting Low Emission Plant	Other Policy	2022	2023	Tarmac	Tarmac	No	Fully funded	<£2000	Implementation	Medium - direct reduction of dust emissions through interception.	Number of locations with drapes installed	Blending pant has drapes to reduce windblown dust. Completed Dec 2023.	None
36	Communication of AQ warnings and measures to implement to employees.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Tarmac	Tarmac	No	Not funded	N/A - part of ongoing operations	Implementation	Low - no quantifiable reduction in emissions.	Number and frequency of warnings, records of actions implemented in response.	In use, ongoing measure	None
37	Monitoring mobile plant idle time	Promoting Low Emission Plant	Other Policy	2019	Ongoing	Tarmac	Tarmac	No	Fully funded	<10k	Implementation	Low - no quantifiable reduction in emissions.	National Target 15%. Site target decided by ourselves 8%	Daily, weekly & quarterly monitoring of each machine. March 2023 average idle time 7%. April 2023 average idle time 6%.	Measure ongoing. Future discussion to be held around reducing site specific target even further.

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38	Investigating reducing length of haul roads onsite - are there any shortcuts or options for redesign so vehicles don't have to travel so far to get to their destinations.	Promoting Low Emission Plant	Other Policy	2022	Ongoing	Tarmac	Tarmac	No	Not funded	N/A	Implementation	Medium - direct reduction of fugitive emissions arising from vehicle movements.	No visible dust lift off from the disused haul road	One haul route already shortened by 475 metres. Shortened length of haul roads on site, 2 further routes completed and shortened by 228m and 106m. Looking at a further route from blending plant. Another changed route being considered.	Proposal is limited to haul roads within Tarmac site boundary. Minimal impact on haul roads within British Steel complex.
39	Undertake visual monitoring of aerial emissions during vehicle movements and the reception and pre-treatment of waste, and on detection of visible aerial emissions, immediate action will be taken to spray the source of dust emission with additional water or stop the waste handling operations. The incident and remedial action shall be recorded.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Ellgia	Ellgia	No	Fully Funded	N/A - part of ongoing operations	Implementation	High - direct reduction in emissions due to actions which may be taken to prevent or reduce emissions during high-risk conditions.	Records of incidences and remedial actions taken.	Already in place, ongoing measure	N/A
40	During shredding operations, an exclusion zone will be maintained around the shredding equipment to ensure that site operatives and waste vehicle drivers are outside the area where airborne dusts would be concentrated.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Ellgia	Ellgia	No	Fully Funded	N/A - part of ongoing operations	Implementation	Medium - reduction in exposure of site employees to increased PM concentrations.	Extent of exclusion zone, monitoring to ensure exclusion zone is maintained.	Already in place, ongoing measure	N/A

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41	Composting materials as well as wastes in the stockpiles will be kept at a suitable moisture content, using water sprays when necessary.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Ellgia	Ellgia	No	Fully Funded	N/A - part of ongoing operations	Implementation	Medium - direct reduction of dust emissions.	Number and frequency of water spray actions taken.	Already in place, ongoing measure	N/A
42	The screening operations will be monitored (as per shredding) and if found necessary, water sprays will be provided on the screening equipment.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Ellgia	Ellgia	No	Fully Funded	N/A - part of ongoing operations	Implementation	Medium - direct reduction of dust emissions.	Number and frequency of water spray actions taken.	Already in place, ongoing measure	N/A
43	Bioaerosol and dust generation attributable to vehicle movements will be controlled by the maintenance and sweeping of the site access road.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Ellgia	Ellgia	No	Fully Funded	N/A - part of ongoing operations	Implementation	Medium - direct reduction of dust emissions.	Number and frequency of maintenance and sweeping activities.	Already in place, ongoing measure	N/A
44	During dry weather, action will be taken to spray the roads using a water bowser.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Ellgia	Ellgia	No	Fully Funded	N/A - part of ongoing operations	Implementation	Medium - direct reduction of dust emissions.	Number of bowser spray actions taken.	Already in place, ongoing measure	N/A
45	Increase concrete coverage to reduce dust.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Ellgia	Ellgia	No	Fully Funded	N/A - part of ongoing operations	Implementation	Medium - direct reduction of dust emissions.	Percentage of concrete coverage.	Already in place, ongoing measure to increase as part of site development plan	N/A
46	Moving operations inside where possible.	Promoting Low Emission Plant	Other Policy	Ongoing	Ongoing	Ellgia	Ellgia	No	Fully Funded	N/A - part of ongoing operations	Implementation	High - direct and permanent reduction in emissions from operations moved inside.	Number of operations moved inside, estimated emissions from operations moved inside	Already in place, ongoing measure	Planning permission cycle requires time
47	All employees understand permit conditions and dust management protocols.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Low - no quantifiable reduction in emissions.	Frequency of employee communication and completion of training on permit conditions and dust management protocols.	Ongoing measure as part of permit to operate	None

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48	Emission points to air continuously monitored for particulates (and/or visually monitored).	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Low - no quantifiable reduction in emissions.	Monitoring data capture.	Ongoing measure as part of permit to operate	None
49	Continuous monitoring equipment calibrated and serviced annually by OEM.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Low - no quantifiable reduction in emissions.	Monitoring data capture.	Ongoing measure as part of permit to operate	None
50	Continuous monitoring equipment maintained every 6 months.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Low - no quantifiable reduction in emissions.	Monitoring data capture.	Ongoing measure as part of permit to operate	None
51	All emission points to air quantitively monitored for particulate matter every 12 months.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Low - no quantifiable reduction in emissions.	Monitoring data capture.	Ongoing measure as part of permit to operate	None
52	Visual assessments of raw material stockyard and operational areas during each shift and records made.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Low - no quantifiable reduction in emissions.	Records of visual assessments.	Ongoing measure as part of permit to operate	None
53	Dust suppression sprays used where appropriate to damp down trafficked areas in the stockyard.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Medium - direct reduction of emissions from dust resuspension.	Records of road sweeping and bowser activities.	Ongoing measure as part of permit to operate	None
54	Twice weekly road sweeping and, when required, use of water bowser to dampen stockyard, roadways and operational areas.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Medium - direct reduction of emissions from dust resuspension.	Records of road sweeping and bowser activities.	Ongoing measure as part of permit to operate	None
55	Housekeeping schedule (use of vacuum and wet sweeping).	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Medium - direct reduction of emissions from dust resuspension.	Visual inspections within the production facility.	Ongoing measure as part of permit to operate	None

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56	Regular plant maintenance to repair / replace / improve existing process equipment.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Medium - direct reduction in emissions when repairs and replacements are carried out.	Maintenance records.	Ongoing measure as part of permit to operate	None
57	6 Monthly maintenance and inspection regime of silo protection devices.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	Low - no quantifiable reduction in emissions.	Maintenance records.	Ongoing measure as part of permit to operate	None
58	Auto shut off of delivery by tanker to silos in the event of high level.	Environmental Permits	Other measure through permit systems and economic instruments	Ongoing	Ongoing	LKAB	LKAB	No	Fully funded	N/A - part of ongoing operations	Implemented	High - direct reduction of emissions during high-risk scenarios.	Maintenance records = Occurrences of high-pressure events and log of auto-shut offs	Ongoing measure as part of permit to operate	None
59	Requirements for EV charging points at new developments through Building Regulations Approval Document S	Policy Guidance and Development Control	Other policy	2023	2023	NLC	NLC	No	Not funded	N/A	Implementation	Low - no quantifiable reduction in emissions, effectiveness reliant on engagement and increased uptake of EVs.	Number of charging points installed through requirement.	Ongoing	None
60	Active Travel Programme, including cycle training and bike repair workshops.	Promoting Travel Alternatives	Promotion of cycling and walking	2022	2023	NLC Public Health	NLC	No	Not funded	N/A	Implementation	Low - no quantifiable reduction in emissions, effectiveness reliant on engagement and increased modal shift.	Number of training courses and workshops delivered.	As active travel is a program created to increase physical activity we can not change the message to increase air quality, however, we will add to the comms that one of the benefits of active travel is the reduction of air pollution. Active travel is a summer program that lasts a month. However, we will work in public health to create a campaign to promote throughout the year, by linking with the Green Future agenda lead.	No barriers, we plan to repeat this every year. We work closely with a charity that supports the community with bike repairs, therefore promotion to signpost people to them will be part of the campaign. The all-year-round campaign linking with the green future agenda is yet to be developed and will provide updates throughout the year to the steering group.

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
61	Improve active travel infrastructure in the Scunthorpe urban area	Transport Planning and Infrastructure	Cycle network	2023	Ongoing	NLC	Active Travel England/Department for Transport	No	Some funding received from Active Travel England	<50k	Implementation	Low - no quantifiable reduction in emissions, effectiveness reliant on engagement and increased modal shift.	Number of infrastructure improvement schemes delivered, number of users of infrastructure.	Work has started on the provision of a cycleway through Central Park, from Rowland Road roundabout to the UCNL. This includes the provision of parallel crossings (zebra crossings for pedestrians & cyclists) at the UCNL entrance, Centenary Way and one will also be provided on Ashby Road, near Cottage Beck Road. We have also secured an additional £300k from Active Travel England to provide a footway/cycleway facility along the northern side of Kingsway, from the signalised crossing at Ridge Walk to the signalised crossing at Glanville Avenue. We will also be providing a new signalised crossing on the A18 in the vicinity of North Lindsey College.	Availability of funding
62	Bikeability cycle training – school aged children	Road Safety	Developing cycle skills	2022	Ongoing	NLC Road Safety	DfT Bikeability Funding	No	Currently funded	Unknown	Implementation	Low - no quantifiable reduction in emissions, effectiveness reliant on engagement and increased modal shift.	Number of training courses delivered, number of spaces on courses.	Ongoing initiative	Availability of funding
63	Investigate the possibility of developing a Local Cycling and Walking Infrastructure Plan (LCWIP)	Transport Planning and Infrastructure	Cycle network and Other	2024	2025	NLC	Active Travel England/Department for Transport	No	Not funded	<£25K	Not yet started	Low - no quantifiable reduction in emissions, effectiveness reliant on engagement and increased modal shift.	Completion of investigation	Work has started on the Local Cycling & Walking Investment Plan for Scunthorpe. The draft should be out for consultation in late Spring/Summer 2024.	Availability of funding
64	Provision of accessible information on walking and cycling routes via council website.	Public Information	Via the Internet	2024	2025	NLC	Internal NLC funding	No	Not funded	<£5k	Not yet started	Low - no quantifiable reduction in emissions, effectiveness reliant on engagement and increased modal shift.	Numbers of traffic on website	Ongoing initiative	Availability of funding

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
65	Through the Safer Roads Humber partnership we will deliver continued enforcement of speed limits and driving standards.	Traffic Management	Other	2023	Ongoing initiative	NLC	Internal NLC Funding	No	Not funded	Unknown	Implementation	Low - no quantifiable reduction in emissions due to transport travelling at lower speeds.	Enforcement actions	Ongoing initiative	Availability of funding
66	Continued provision of charging for electric vehicles, including at council buildings, and projects such as On Street Residential Charge Points.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2030	NLC	Workplace Charging Grant scheme, On-Street Residential Charge Scheme Fund.	No	Partially funded	£2m+	Implementation	Low - no quantifiable reduction in emissions, effectiveness reliant on engagement and increased uptake of EVs.	Number of charging points, rates of usage, CO_2 saving.	Electric Vehicle Charge Points Strategy and Plan 2023 to 2030. £1.2 million in grant funding received. Aim to install 87 to 118 per annum. https://www.northlincs.gov.uk/site/documents/transport-and-streets/electric-vehicle-chargepoint-strategy-plan-2023-2030/#1694707477652-b9b70f20-8379	Local distribution electricity network operator and the pace/resistance restricting the rollout.
67	Improving the Council's fleet of vehicles, including ensuing new vehicles purchased are Euro 6 compliant, phasing out diesel vehicles, considering electric and hybrid vehicle use, and route planning.	Vehicle Fleet Efficiency	Other	2017	2030	NLC	Internal Capital Funding	No	Partially funded	£30 Million Est.	Implementation and Planning	Medium - direct reduction in emissions from vehicular exhaust	Implementation of fleet improvement plan	Y1 funding secured. Commenced procurement of 6 x RCV, 5 x Road Sweepers and commenced trials on electrification of some specialist and generic vehicles	Links in to Council's Green Futures Plan; Capital Funding
68	Council driver awareness training and policies	Vehicle Fleet Efficiency	Other	2023	2023	NLC	NLC	No	Fully funded	<£10k	Planning	Medium - direct reduction in emissions from vehicular exhaust, brake and tyre wear and road wear.	Delivery of staff training events	None	Driver uptake
69	Anti-Idling public information campaign	Public Information	Via the Internet and other mechanisms	2024	2024	NLC	NLC	No	Not funded	<£10k	Planning	Low - unquantifiable reduction in emissions.	Publication or provision of information in relation to anti-idling	Ongoing measure	None
70	Anti-idling enforcement	Traffic Management	Anti-idling enforcement	2024	Ongoing	NLC	NLC	No	Not funded	<£10k	Not yet started	Low - unquantifiable reduction in emissions.	Number of fines issued for idling	None	Cllr approval for further changes to the PSPO

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
71	Maintenance of highways and road cleaning	Transport Planning and Infrastructure	Other	Ongoing	Ongoing	NLC and National Highways	NLC and National Highways	No	Fully funded	Unknown	Implemented	Medium - direct reduction in emissions from resuspension through removal of dust.	Road cleaning logs and schedules, number of routine and non-routine activities and locations.	£1.5 million invested in sweeper fleet – new sweepers have a 4-star accreditation for PM10 and PM2.5 dust suppression. Telematic system investment for detailed sweeping information. Brigg Road night sweeping schedule once a month Mortal Ash Hill cleaning in progress and will continue. 9 sweepers covering NL, 70% on telematics. 1 electric for cycle path cleaning	None
72	Establishing and maintaining communication between highway maintenance road cleaning team and air quality monitoring team, to notify road cleaning team of 5 day forecast high pollution days and arrange rescheduling of routine fortnightly road cleaning.	Transport Planning and Infrastructure	Other	2023	2023	NLC	NLC	No	Not funded	<£10k	Planning	Low - unquantifiable reduction in emissions.	Communication of forecast high pollution days to highway maintenance/road cleaning teams, re-scheduling of road cleaning activities.	Ongoing measure	12-week notification of closures, flood risk and drainage road closures
73	Conduct a public information campaign about domestic burning e.g. solid fuel heating and bonfires and implications of living in a smoke control area, publishing through Direct Magazine as well as keeping the air quality website up to date with information for the public.	Public Information	Via the Internet and other mechanisms	2023	2024	NLC	NLC	No	Not funded	<£10k	Implementation and planning	Low - unquantifiable reduction in emissions.	Information available on NLC website. To also include within North Lincs New email bulletin	Periodic review of information on website and additional campaigns as appropriate.	None
74	Investigate development of a Smoke Control Area Enforcement Policy.	Policy Guidance and Development Control	Other policy	2024	2024	NLC	NLC	No	Not funded	<£10k	Not yet started	Low - unquantifiable reduction in emissions.	Create a Smoke Control Area Policy to enable the issue of FPN's	No progress yet.	Political interest and Cllr approval

Measure No.	Measure Title	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
75	Develop a Supplementary Planning Document (SPD), which identifies the constraints and mitigation to development within the Air Quality Management Area	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2024	2024/2025	NLC	NLC	No	Not funded	<£30k (if external consultants required)	Planning	Low-Medium. Low in short term - unquantifiable reduction in emissions. In the long-term capacity for medium - reduction in emissions through securing effective mitigation actions.	Develop an SPD specifically for development within the AQMA	No progress yet. SPD cannot be adopted until Local Plan is adopted.	The Place Planning team is currently under pressure to adopt numerous SPD's on local plan is adopted.
76	Continue operation of the air quality network and website, with associated data analysis and ratification	Other	Other	2002	2025	NLC	NLC, British Steel	No	Not funded	£10-£50k	Implementation	Low - unquantifiable reduction in emissions.	Continue to operate targeted network of air quality monitors and website	Ongoing	None

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

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

Due to the proportion of $PM_{2.5}$ contained within the PM_{10} suspension, a reduction in PM_{10} should see a reduction in $PM_{2.5}$. In addition, North Lincolnshire Council is taking the following measures to address $PM_{2.5}$:

- Maintaining a network of particulate analysers, including monitoring of $PM_{2.5}$ at East Common Lane and Low Santon which is within the Scunthorpe AQMA.
- Expanding the network further if grant funding or opportunities to do so arise
- Environmental Permit improvement programmes.
- Campaigns to discourage waste burning and bonfires.
- Liaison with Industry, Health Professionals, and the Environment Agency to initiate improvements and share good practice.
- Transport improvement schemes.
- Public transport and fleet improvements, such as encouraging uptake of electric vehicles to replace older more polluting vehicles.

Operators on the Integrated Steelworks site actively participate in a number of measures that would reduce particulate emissions, including $PM_{2.5}$ including the following:

- Reduction of speed limits.
- A targeted road sweeping scheme.

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

- Improved dust mitigation methods, such as dampening down of roadways and the closure of external doors when not in use.
- Road surfacing and landscaping improvements.
- Improvements in manual handling and storage methods.
- Email notification to site operators when a high particulate emission day is predicted to allow changes in activities.

North Lincolnshire Council has provided up to date advice on our website, in relation to wood burning stoves, Smoke Control Areas and air pollution. In addition, information has been circulated to residents in a local publication (News Direct), to raise awareness in relation to the use of wood burning stoves and how best practice, such as burning dry wood and having chimneys swept can reduce air pollution.

The Air Quality Action Plan targets reductions in PM_{10} concentrations within the Scunthorpe Town AQMA. This will therefore also incorporate measures to reduce $PM_{2.5}$ within the area.

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

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

Summary of Monitoring Undertaken

Automatic Monitoring Sites

North Lincolnshire Council undertook automatic (continuous) monitoring at 6 sites during 2023. in Appendix A shows the details of the automatic monitoring sites. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. The https://nlincsair.info/ page presents automatic monitoring results for North Lincolnshire Council with automatic monitoring results also available through the UK-Air website.

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

Non-Automatic Monitoring Sites

North Lincolnshire Council undertook non-automatic (i.e. passive) monitoring of NO_2 at 24 sites during 2023. Table A. 2 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided 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.

Individual Pollutants

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

Nitrogen Dioxide (NO_2)

Table A. 3 and Table A. 4 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

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

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

For 2023, there were no exceedances of the air quality objective for the annual mean (>40µg/m^3), or of the hourly mean (200µg/m^3, not to be exceeded more than 18 times per year) for nitrogen dioxide.

Particulate Matter (PM_{10})

Particulate Matter (PM10) is fine particles measuring 10 microns in diameter. These particles are from varying sources, these include:

- Combustion from industry and road traffic emissions.
- Secondary sources of the pollutant such as chemical reactions in the atmosphere.

- Coarser particles from tertiary sources, such as, suspended dusts, natural salts, biological particles, and construction work.

PM10 is known to have varied health effects. The size of the particles allows them to enter the lungs and be carried around in the blood to the rest of body. When in the lungs the particles can cause irritation and inflammation, particularly of those with underlying conditions and vulnerable groups. There is also evidence that these fine particles may cause dementia and could carry cancer causing compounds into the body.

A large contributor of PM10 emissions in Scunthorpe is from the Integrated Steel Works site. These are both fugitive and diffuse emission sources which are both defined in the Iron and Steelmaking BREF document as follows:

- Diffuse emissions occur during regular operation such as coal and coke handling, transport of coal and coke, coal blending beds, ascension pipes, coke pushing, coke quenching; if not captured they can be released by the roof, roof hatch, window or from stored material.
- Fugitive emissions happen during irregular operation from leakages at the battery, e.g., because of leakage of vessels, oven doors, flanges etc. or at the by-product plant.

In relation to Amvale, this site is within the boundary of a commercial premises and is therefore not relevant to public exposure. An Osiris instrument was installed on site in October 2010 as an indicative tool to establish concentrations of PM10 and PM2.5 and to help inform the decision-making process as a planning application for a large housing development in close proximity to site had been made. Following a review of the initial findings it was agreed that a TEOM instrument should be installed on site for measuring PM10 concentrations. North Lincolnshire Council will continue to monitor at this location and monitor trends in concentrations.

Within the Scunthorpe AQMA, the following instruments were replaced by Smart Heated BAM 1020’s in August 2022:

- Low Santon FDMS and TEOM

- East Common Lane TEOM
- High Street East TEOM
- Amvale TEOM

The TEOM/FDMS's were considered old technology when compared with newer more effective real time air quality monitoring equipment. The Smart Heated BAM 1020's are deemed equivalent by Defra[9], Certified to MCERTS for UK Particulate Matter and Certified to MCERTS for Continuous Ambient Measurement Systems (CAMS).

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

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

In 2023 there were no recorded exceedances of the annual mean air quality objective for PM10 (40µg/m^3). The 24 hour mean air quality objective (50 µg/m^{3}not to be exceeded more than 35 times a year) was also complied with at all monitoring locations.

Particulate Matter ($PM_{2.5}$)

PM2.5 is particulate matter that is less than 2.5 microns in diameter. The sources for this are similar for the PM10 pollutant as listed above.

This pollutant was measured using an Osiris monitor at East Common Lane (CM2). The Council recognises that Osiris monitors do not meet the standard for the European reference method for particulate monitoring within the UK, however data from the Osiris monitors is included within this report as there are limited PM2.5 monitoring methods available to the

[9] https://uk-air.defra.gov.uk/networks/monitoring-methods?view=mcerts-scheme

Council at this time. In addition, a Smart Heated BAM 1020 was installed at Low Santon (CM3) during Summer 2022 to increase the monitoring distribution of PM2.5 within the district.

The Public Health Outcomes Framework (PHOF) is a Department of Health data tool for England; it is intended to focus public health action on increasing healthy life expectancy and reducing the difference in life expectancy between communities. The tool uses indicators to assess improvements. The PHOF includes an indicator, based on the effect of particulate matter (PM2.5) on mortality. This is replicated in Table 3 below:

Table 3 - PHOF Indicator

D01: Fraction of mortality attributable to particulate air pollution	
Rationale	Poor air quality is a significant public health issue. The burden of air pollution in the UK in 2013 was estimated to be equivalent to approximately 28,000-36,000 deaths at typical ages and an associated loss of population life of 328,000-416,000 life years lost (COMEAP, 2018a). Inclusion of this indicator in the Public Health Outcomes Framework will enable Directors of Public Health to prioritise action on air quality in their local area to help reduce the health burden from air pollution.

Further information in relation to this indicator can be found at the following link: https://fingertips.phe.org.uk/

For North Lincolnshire, the fraction of mortality attributable to particulate air pollution is 4.3% (most recent data set, 2022). This is lower than the England average of 5.8%. The main objective of the PHOF is to raise awareness of the effect of air pollution on public health. It is intended to encourage promotion of the need for local, regional, and national actions to reduce air pollution and to help form a partnership between all delivery partners in pursuit of this goal.

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

The PM2.5 levels recorded by the air quality monitors did not breach the European Union (EU) Annual Mean objective of 20µg/m^3 or The Environmental Targets (Fine Particulate Matter) Regulations 2023 Target Value of 12ug/m3 by 2028.

Sulphur Dioxide (SO_2)

UK emissions of SO2 are dominated by combustion of fuels containing sulphur, such as coal and heavy oils. SO2, even in smaller concentrations is known to cause reduced lung function in asthmatics and higher concentrations can cause asthma sufferers to require hospital treatment.

Table A. 9 in Appendix A compares the ratified continuous monitored SO_2 concentrations for 2023 with the air quality objectives for SO_2.

In 2023 there were no recorded exceedances of the 15-minute mean (266µg/m^3 not to be exceeded more than 35 times a year), 1 hour mean (350µg/m^3 not to be exceeded more than 24 times a year) and 24 hour mean (125µg/m^3 not to be exceeded more than 3 times a year) air quality objectives for sulphur dioxide.

Benzene

Benzene is an elementary petrochemical, mainly sourced from the combustion of petrol with industrial combustion also contributing. Benzene exposure has been linked to increases in the risks of cancer, liver diseases and other conditions.

The annual mean objective for Benzene is 5µg/m3. This was not exceeded in 2023 as the annual mean recorded at Scunthorpe Town AURN was 0.8µg/m3.

Monitoring results are displayed in Table A. 10 in Appendix A and Figure A. 6.

In 2023 there were no recorded exceedances of the annual mean (5µg/m^3) air quality objective for benzene.

PAH (Benzo(a)pyrene (B[a]P))

The local monitoring network is to provide PAH (Benzo(a)pyrene (B[a]P)) concentration information at Scunthorpe Town and Low Santon. Measurement of Solid Phase PAH (Benzo(a)pyrene (B[a]P)) samples are of the PM10 fraction of ambient air. These concentrations are measured over a period of 24 hours on a filter using Digitel DHA-80 samplers with automatic filter changes. The collection of this data enables the assessment of current concentrations of PAH (Benzo(a)pyrene (B[a]P)) for assessment against the National Air Quality Objective for PAH (annual mean of 0.25 ngm^{-3} Benzo(a)pyrene (B[a]P) in ambient air) published in the UK Air Quality Strategy. Also to enable demonstration of the UK's compliance with the Fourth Air Quality Daughter Directive (target value of 1 ngm^{-3} for the annual mean concentration of B[a]P), the OSPAR convention and the UNECE Convention on Long Range Transboundary Air Pollutants.

Polycyclic Aromatic Hydrocarbons (PAHs) are persistent organic compounds some of which are proven carcinogens or toxic. These arise due to the incomplete combustions of fossil fuels from vehicles, industry, and residential sources.

Although significant improvements have been made on the annual concentrations of PAH (Benzo(a)pyrene (B[a]P) in recent years, North Lincolnshire continues to record some of the highest levels of this pollutant in the United Kingdom. The improvements are partly due to the closure of the Dawes Lane Coke Ovens in March 2016 and the recent closure of the Appleby Coke Ovens in June 2023. Despite a downward trajectory in concentrations over recent years, both Low Santon and Scunthorpe Town breached the National Air Quality Objective of 0.25ng/m^3 in 2023. However, further reductions are expected due to the closure of the Appleby Coke Ovens, the last remaining coke oven on site. PAH (Benzo(a)pyrene (B[a]P)) emissions are not part of the Local Air Quality Management regime and the operations largely responsible for them – the coke ovens – are not regulated by the Council.

The European Community's fourth Air Quality Daughter Directive (2005/107/EC) specifies a target value of 1 ng/m^3 for the annual mean concentration of benzo[a]pyrene as a representative PAH (Benzo(a)pyrene (B[a]P)), to be achieved by 2012. The National Air Quality Objective for PAH (Benzo(a)pyrene (B[a]P)) levels is 0.25ng/m^3.

In 2023 the annual average for Scunthorpe Town AURN was 0.48ng/m^3, and for Low Santon it was 0.39 ng/m^3, this is a reduction at both sites. With this in mind, the EU Target Value was complied with at both sites and the National Air Quality Objective was exceeded at both sites. Overall, however, there has been a significant decline in the emissions at these monitoring sites in recent years.

Table A. 11 in Appendix A presents the monthly PAH (Benzo(a)pyrene (B[a]P)) data for the year 2023 at Scunthorpe Town and Low Santon.

Figure A. 7 in Appendix A shows the trend in PAH (Benzo(a)pyrene (B[a]P)) annual mean concentrations for the last 5 years at Scunthorpe Town and Low Santon.

Heavy Metals

The Heavy Metals network records concentrations of heavy metals in air near industrial sources and areas of population. The Heavy Metals network now forms the basis of the UK's compliance monitoring for:

- The Air Quality Directive (2008/50/EC) which provides a Limit Value for lead concentration in air of 0.5 µg/m^3, expressed as an annual mean.
- The 4th Air Quality Daughter Directive (2004/107/EC), which sets target values for arsenic, cadmium, nickel (and polycyclic aromatic hydrocarbons) in the PM_{10} particulate fraction of ambient air.

Table A. 12 in Appendix A presents the heavy metals data for the year 2023 at Scunthorpe Town and Low Santon.

In 2023 there were no exceedances of the target or limit values for heavy metals.

Appendix A: Monitoring Results

Table A. 1 - Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM1	Scunthorpe Town AURN	Industrial	490320	410831	SO_2, NO_2, PM_{10}	YES, Scunthorpe Town AQMA	Chemiluminescent, Flourescent, BAM & TEOM	21	7	2
CM2	East Common Lane	Urban background	490663	409789	PM_{10}, $PM_{2.5}$	YES, Scunthorpe Town AQMA	Osiris BAM	3	28	1.5
CM3	Low Santon	Industrial	492945	411931	SO_2, NO_2, PM_{10}, $PM_{2.5}$	YES, Scunthorpe Town AQMA	Chemiluminescent, Flourescent, BAMs (2)	41	5	2
CM4	Amvale	Industrial	491343	408782	PM_{10}	YES, Scunthorpe Town AQMA	BAM	150	100	1.5
CM5	High Street East	Industrial	490224	411301	PM_{10}	YES, Scunthorpe Town AQMA	BAM	18	10	1.5
CM6	Killingholme School	Other	514880	416133	SO_2, NO_2, PM_{10}	NO	Chemiluminescent & TEOM	9	N/A	2

Notes:

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

(2) N/A if not applicable

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

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
1	Frodingham Road	Urban Background	489099	411723	NO2	NO	3.0	1.0	No	2.0
2	Scotter Road (North side of roundabout)	Roadside	487239	411259	NO2	NO	9.0	2.0	No	2.0
3	B & Q	Roadside	486699	411110	NO2	NO	2.0	15.0	No	2.0
4	Hilton Ave	Roadside	486928	411156	NO2	NO	12.0	3.0	No	2.0
5	Britannia Corner	Urban Background	489190	411285	NO2	NO	4.0	2.0	No	2.0
6	Oswald Road	Urban Background	489209	411118	NO2	NO	4.0	3.0	No	2.0
7	Queensway Pub	Roadside	489172	409926	NO2	NO	20.0	2.0	No	2.0
8	Ashby Road	Roadside	489112	409463	NO2	NO	15.0	1.0	No	2.0
9	Queensway	Roadside	491628	408658	NO2	NO	16.0	2.0	No	2.0
10	Mortal Ash Hill	Roadside	491901	408626	NO2	YES, Scunthorpe Town AQMA	15.0	9.0	No	1.5
11	Front of Ashby Lodge Pub	Roadside	491859	408645	NO2	YES, Scunthorpe Town AQMA	1.0	9.0	No	2.0
12	Barnard Avenue Brigg	Suburban	499975	407421	NO2	NO	30.0	3.0	No	2.0

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
13	Ulceby Road Killingholme	Roadside	514573	415901	NO2	NO	15.0	1.0	No	2.0
14	School Road Killingholme	Roadside	514782	415971	NO2	NO	15.0	1.0	No	2.0
15	Humber Rd Chip shop	Urban Background	515452	416107	NO2	NO	2.0	15.0	No	2.0
16	Humber Rd	Roadside	515279	416085	NO2	NO	5.0	2.0	No	2.0
17	Holydyke Barton	Suburban	503025	421942	NO2	NO	15.0	1.0	No	2.0
18	Rowland Road AQ station	Industrial	490316	410837	NO2	YES, Scunthorpe Town AQMA	21.0	6.0	Yes	2.0
19	Rowland Road AQ station	Industrial	490316	410837	NO2	YES, Scunthorpe Town AQMA	21.0	6.0	Yes	2.0
20	Rowland Road AQ station	Industrial	490316	410837	NO2	YES, Scunthorpe Town AQMA	21.0	6.0	Yes	2.0
21	ASDA Carlton Street	Roadside	490080	411258	NO2	YES, Scunthorpe Town AQMA	20.0	1.0	No	2.0
22	East Halton Road Killingholme	Roadside	514141	417483	NO2	NO	4.0	1.0	No	2.0
23	Phoenix Park Care Village	Roadside	488645	412891	NO2	No	85.0	1.0	No	2.0
24	Burringham Road/ Woodside Drive	Roadside	487203	408372	NO2	No	5.0	1.0	No	2.0

Notes:

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

(2) N/A if not applicable.

Table A. 3 - Annual Mean NO2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1	490320	410831	Industrial	N/A	94.0	15	13	13	13	12
CM3	492945	411931	Industrial	N/A	98.8	19	20	13	13	11
CM6	514880	416133	Other	N/A	98.4	15	13	14	14	13

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

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

Notes:

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

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

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

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

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

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

Figure A. 1 - Trends in Annual Mean NO2 Concentrations: Automatic Monitoring (µg/m^3)

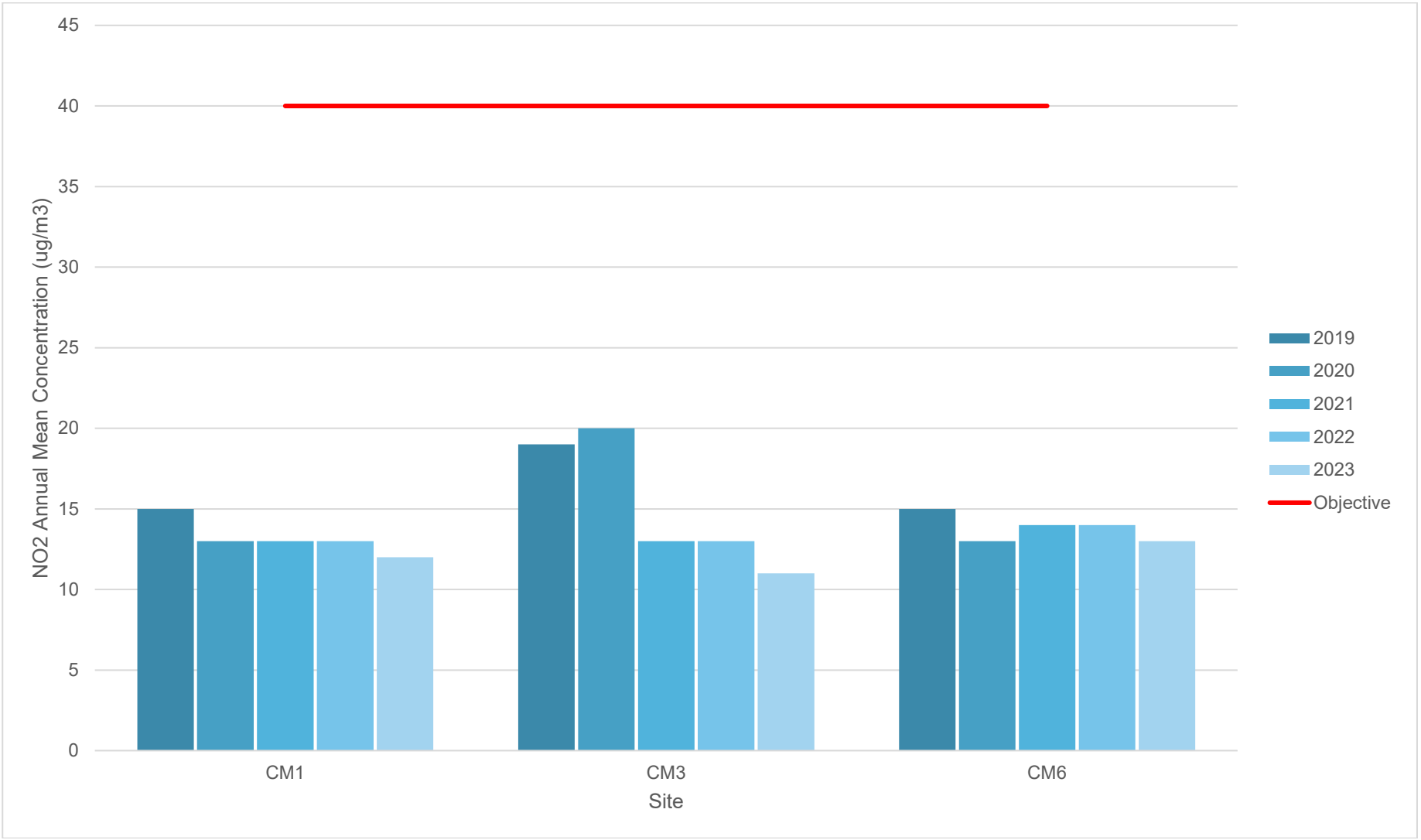


Table A. 4 - Annual Mean NO2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
1	489099	411723	Urban Background	N/A	92.3	21.3	23.8	24.0	28.4	25.0
2	487239	411259	Roadside	N/A	84.6	24.0	21.5	24.6	24.3	23.5
3	486699	411110	Roadside	N/A	100.0	18.0	17.5	17.2	19.8	16.5
4	486928	411156	Roadside	N/A	100.0	20.0	19.0	21.0	20.7	18.6
5	489190	411285	Urban Background	N/A	100.0	24.0	21.5	24.8	24.0	21.6
6	489209	411118	Urban Background	N/A	90.4	24.0	21.5	23.3	22.7	21.7
7	489172	409926	Roadside	N/A	100.0	22.0	21.2	26.3	22.9	21.5
8	489112	409463	Roadside	N/A	100.0	26.0	22.5	25.3	25.3	22.7
9	491628	408658	Roadside	N/A	100.0	20.0	17.8	17.5	19.1	18.0
10	491901	408626	Roadside	N/A	100.0	34.0	28.5	34.4	30.2	36.7
11	491859	408645	Roadside	N/A	100.0	20.0	20.7	20.4	19.6	19.1
12	499975	407421	Suburban	N/A	100.0	20.0	17.1	18.8	19.6	17.0
13	514573	415901	Roadside	N/A	100.0	17.0	18.2	17.4	16.8	14.2

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
14	514782	415971	Roadside	N/A	100.0	29.0	26.4	28.4	27.1	24.1
15	515452	416107	Urban Background	N/A	100.0	18.0	16.6	17.9	16.7	15.0
16	515279	416085	Roadside	N/A	100.0	25.0	23.4	22.0	23.8	20.8
17	503025	421942	Suburban	N/A	82.7	21.0	17.6	20.9	22.3	18.5
18	490316	410837	Industrial	N/A	100.0	15.0	13.7	13.4	13.9	11.7
19	490316	410837	Industrial	N/A	100.0	15.0	13.4	13.5	13.3	11.8
20	490316	410837	Industrial	N/A	100.0	15.0	13.7	14.1	13.1	11.9
21	490080	411258	Roadside	N/A	92.3	22.0	19.4	19.9	20.2	19.7
22	514141	417483	Roadside	N/A	100.0	21.0	22.0	25.6	24.4	21.4
23	488645	412891	Roadside	N/A	100.0	**N/A**	**N/A**	21.2	24.3	14.6
24	487203	408372	Roadside	N/A	100.0	**N/A**	**N/A**	17.3	15.9	14.3

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

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

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

Notes:

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

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

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

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

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

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

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

Figure A. 2 - Trends in Annual Mean NO2 Concentrations: Diffusion Tubes (µg/m^3)

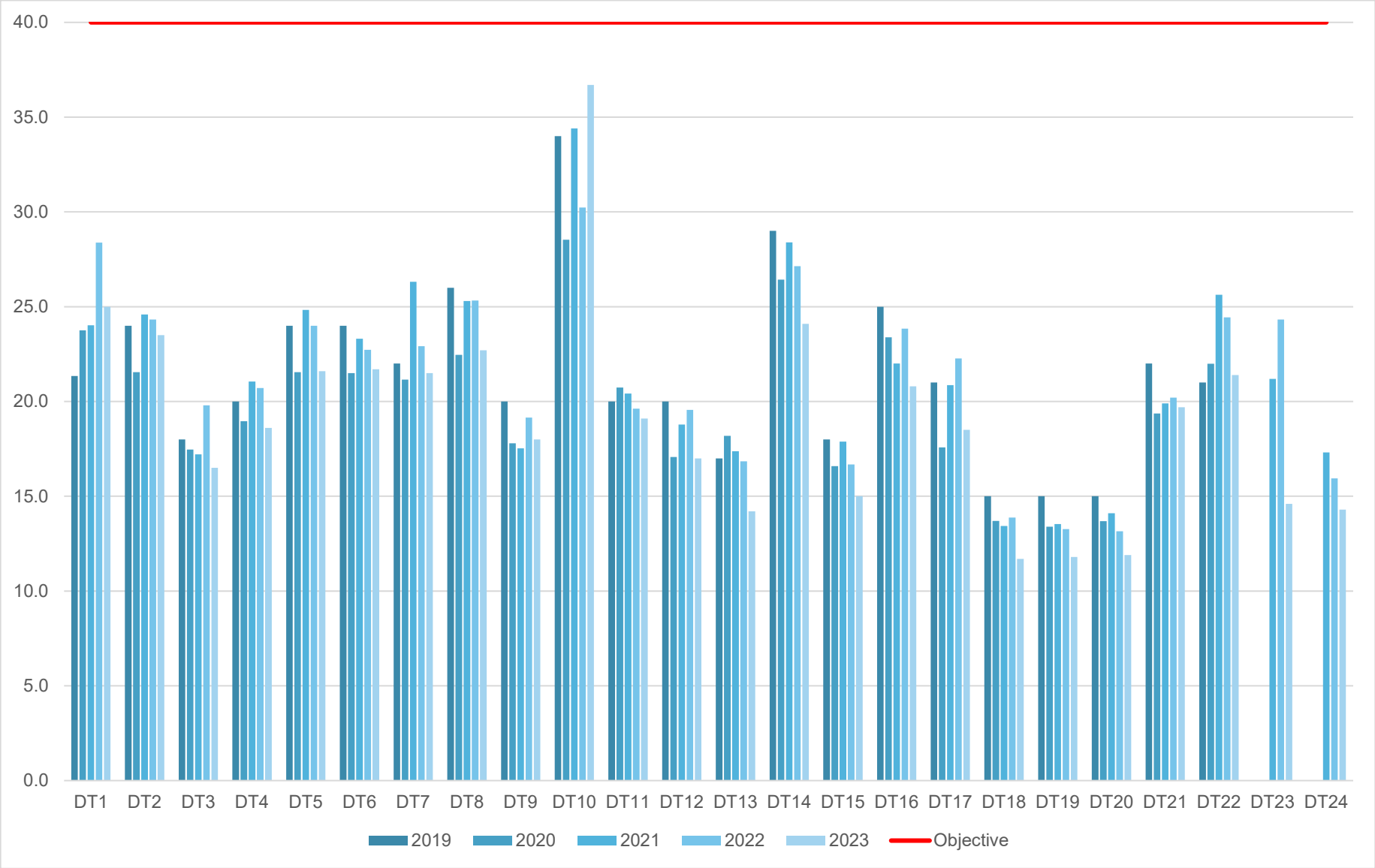


Table A. 5 - 1-Hour Mean NO2 Monitoring Results, Number of 1-Hour Means >200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1	490320	410831	Industrial	N/A	94.0	0	0	0	0	0
CM3	492945	411931	Industrial	N/A	98.8	0	0	0	0	0
CM6	514880	416133	Other	N/A	98.4	0	0	0	0	0

Notes:

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

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

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

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

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

Table A. 6 - Annual Mean PM10 Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1 BAM	490320	410831	Industrial	N/A	89	20	17	17	19	16
CM1 TEOM	490320	410831	Industrial	N/A	87.3	22	17	17	19	17
CM2	490663	409789	Urban Background	N/A	99.2	22	19	22	22	19
CM3 - TEOM (until August 2022), BAM (August 2022 onwards)	492945	411931	Industrial	N/A	96.6	29	29	27	31	27
CM4	491343	408782	Industrial	N/A	94.7	21	22	21	20	16
CM5	490224	411301	Industrial	N/A	99.4	21	18	19	22	19
CM6	514880	416133	Other	N/A	94.9	19	15	11	18	17

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

Notes:

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

Exceedances of the PM_{10} annual mean objective of 40µg/m^3 are shown in **bold**.

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

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

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

Figure A. 3 - Trends in Annual Mean PM10 Concentrations

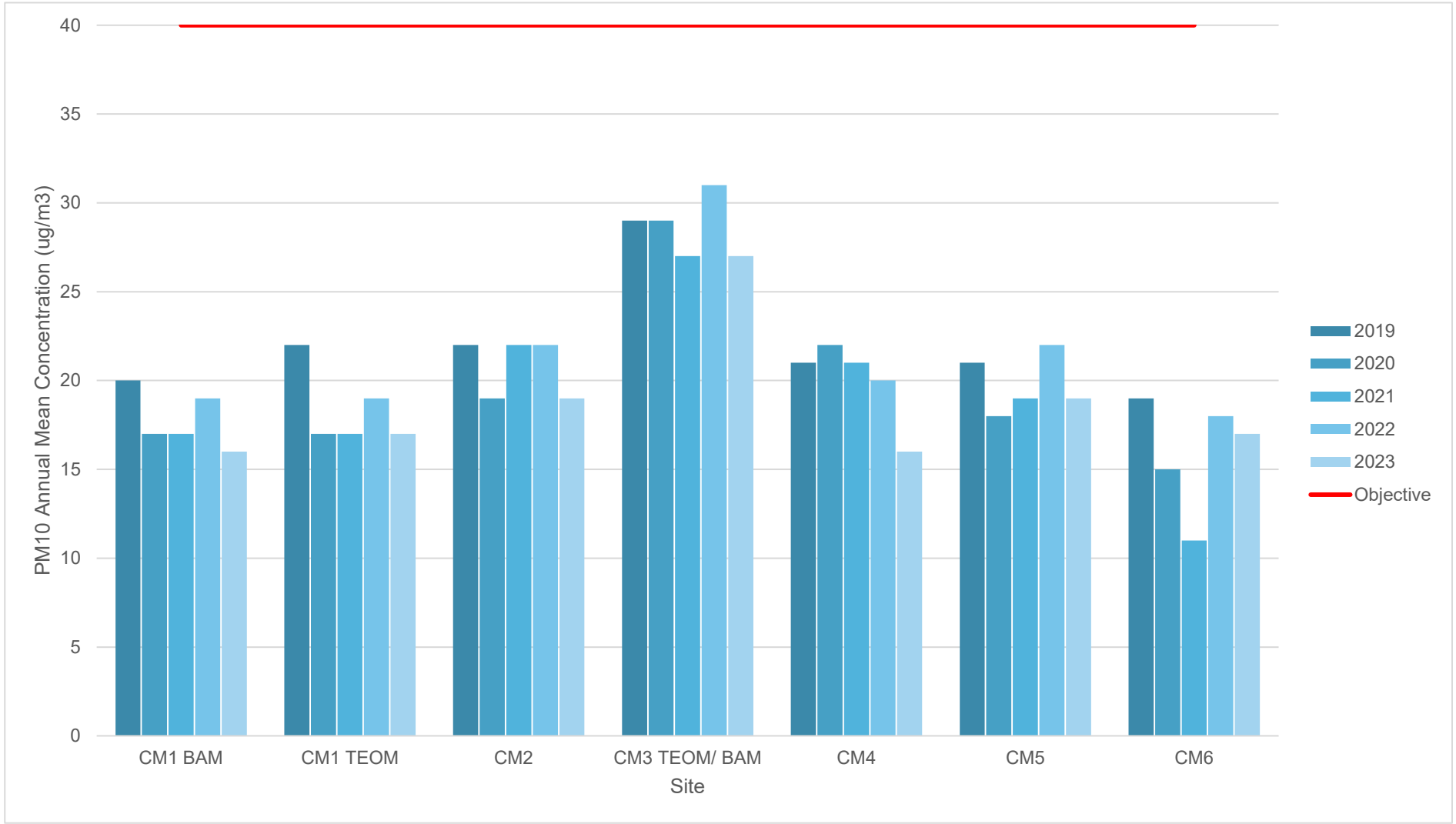


Table A. 7 - 24 Hour Mean PM10 Monitoring Results, Number of PM10 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1 BAM	490320	410831	Industrial	N/A	89	18	3	4	15 (33)	3
CM1 TEOM	490320	410831	Industrial	N/A	87.3	22	3	4	11	5
CM2	490663	409789	Urban Background	N/A	99.2	22	24	30	26	22
CM3 - TEOM (until August 2022), BAM (August 2022 onwards)	492945	411931	Industrial	N/A	96.6	35	30	30	**42**	31
CM4	491343	408782	Industrial	N/A	94.7	15	30 (51)	23	20	9
CM5	490224	411301	Industrial	N/A	99.4	14	1	3	10	2
CM6	514880	416133	Other	N/A	94.9	5	0	0	3	1

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

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

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

Figure A. 4 - Trends in Number of 24-Hour Mean PM10 Results > 50µg/m^3

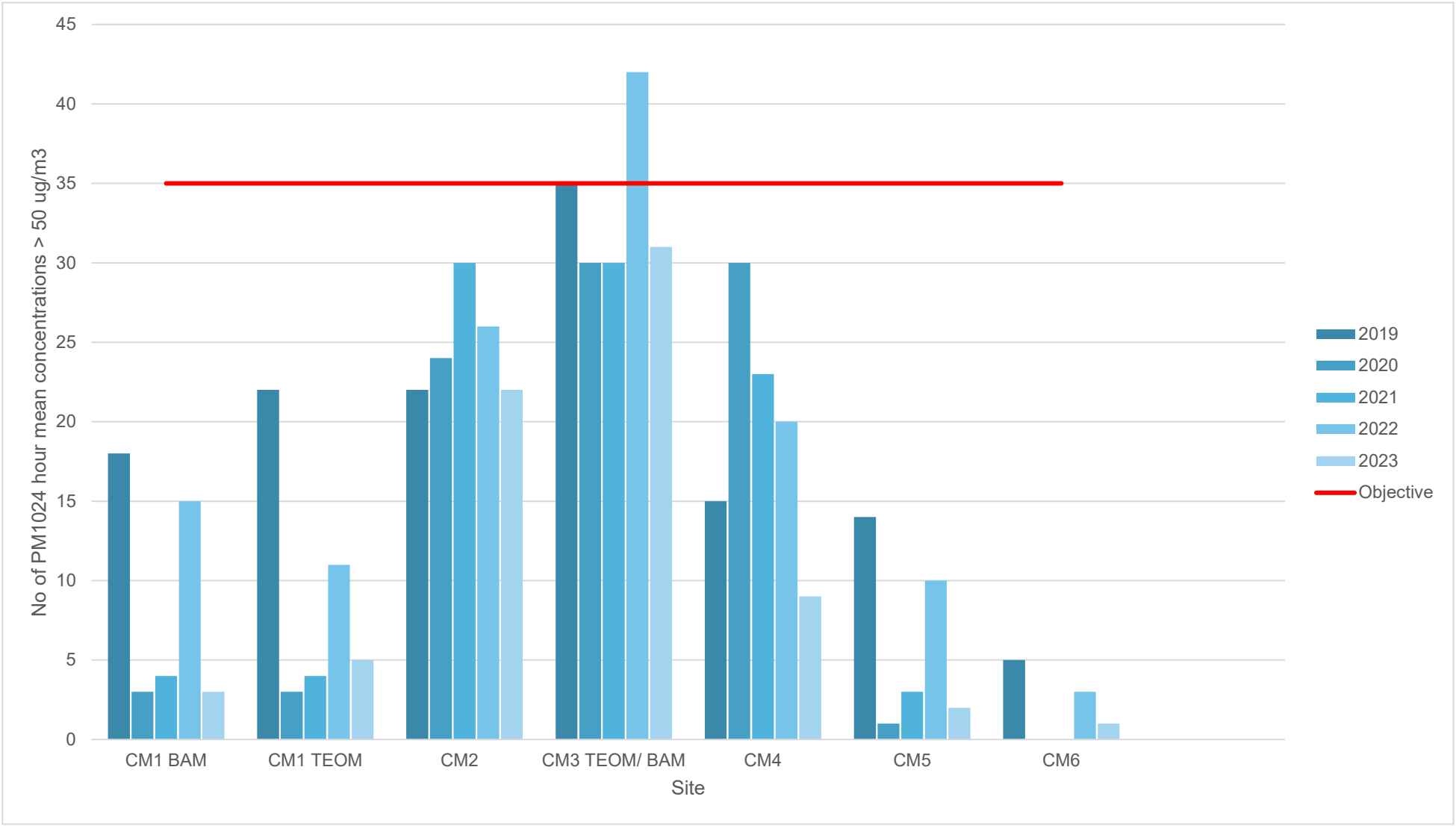


Table A. 8 - Annual Mean PM2.5 Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM2	490663	409789	Urban Background	N/A	62.9	7	7	6	8	5
CM3	492945	411931	Industrial	N/A	98.7	N/A	N/A	N/A	13	11

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

Notes:

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

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

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

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

Figure A. 5 - Trends in Annual Mean PM2.5 Concentrations

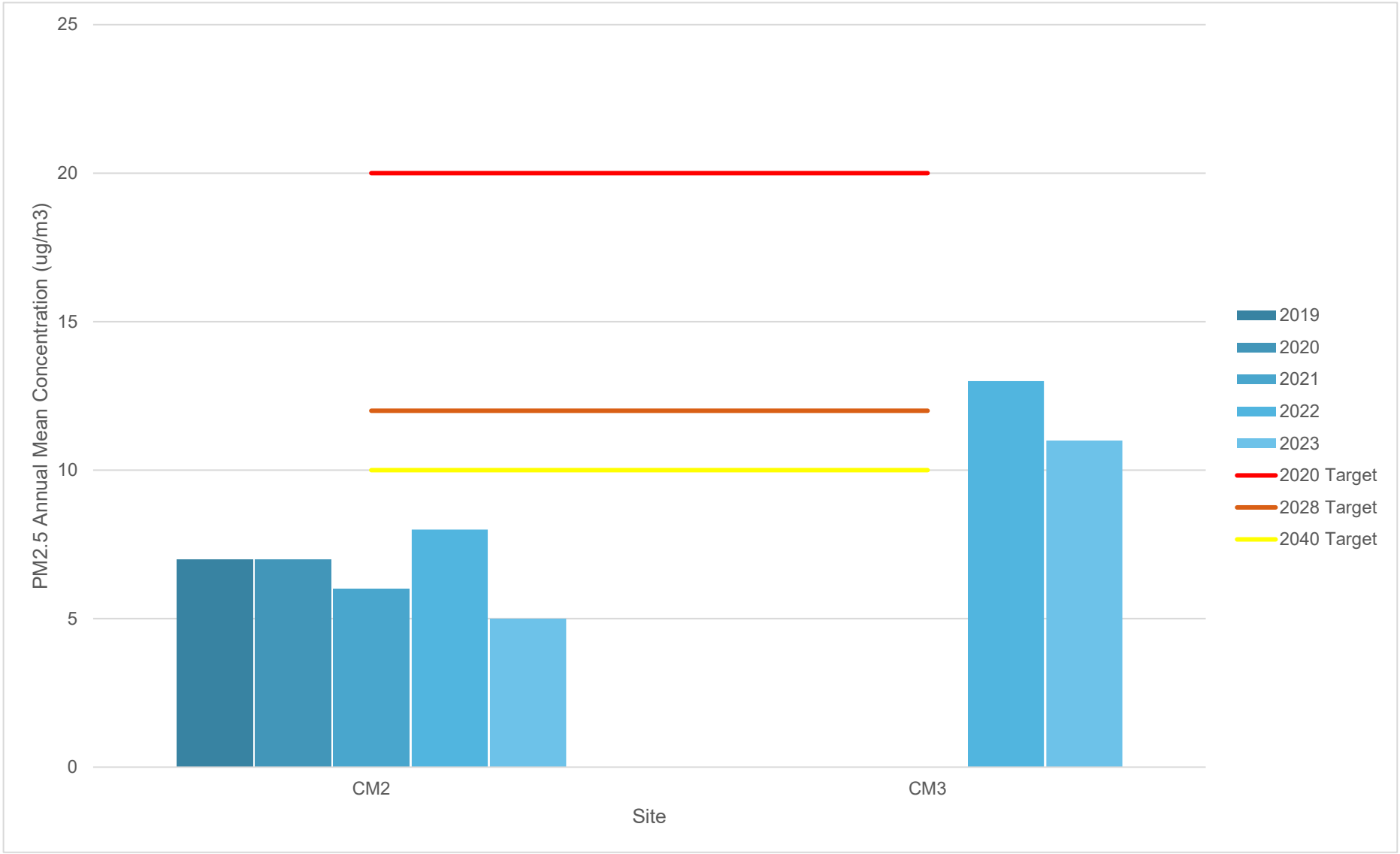


Table A. 9 - SO2 Monitoring Results, Number of Relevant Instances

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	Number of 15-minute Means > 266µg/m^3	Number of 1-hour Means > 350µg/m^3	Number of 24-hour Means > 125µg/m^3
CM1	490320	410831	Industrial	N/A	93.0	0	0	0
CM3	492945	411931	Industrial	N/A	94.6	0	0	0
CM6	514880	416133	Other	N/A	98.3	1	0	0

Notes:

Results are presented as the number of instances where monitored concentrations are greater than the objective concentration.

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

If the period of valid data is less than 85%, the relevant percentiles are provided in brackets.

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

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

Table A. 10 - Benzene Monitoring Results

Start Date	End Date	Scunthorpe Town AURN (CM1) Concentrations (ug/m3)
18/01/2023	25/01/2023	1.04
25/01/2023	08/02/2023	0.77
08/02/2023	22/02/2023	0.69
22/02/2023	08/03/2023	1.41
08/03/2023	22/03/2023	1.51
22/03/2023	05/04/2023	0.85
05/04/2023	19/04/2023	0.93
19/04/2023	03/05/2023	0.81
03/05/2023	17/05/2023	0.78
17/05/2023	31/05/2023	0.5
31/05/2023	14/06/2023	1.27
14/06/2023	28/06/2023	0.56
28/06/2023	12/07/2023	0.3
12/07/2023	02/08/2023	0.22
02/08/2023	09/08/2023	0.36
09/08/2023	23/08/2023	0.45
23/08/2023	06/09/2023	0.62
06/09/2023	20/09/2023	0.8
20/09/2023	04/10/2023	
04/10/2023	18/10/2023	1.01
18/10/2023	01/11/2023	0.8
01/11/2023	15/11/2023	0.98
15/11/2023	29/11/2023	0.75
29/11/2023	13/12/2023	1
13/12/2023	27/12/2023	0.51
27/12/2023	10/01/2024	1.12
Annual Average		**0.80**

Figure A. 6 - Trends in Annual Mean Benzene Concentrations

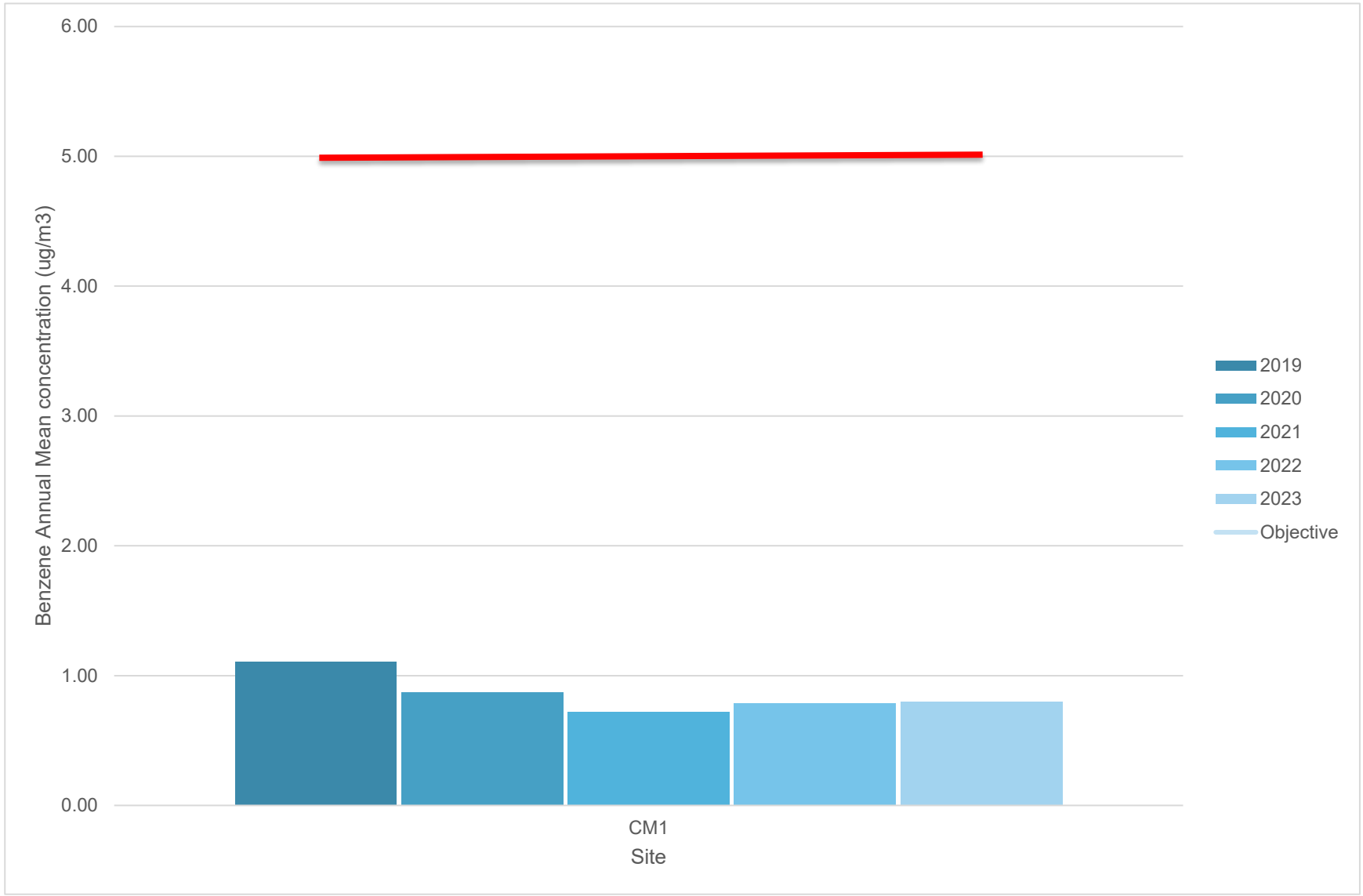


Table A. 11 - PAH (Benzo(a)pyrene (B[a]P)) Monitoring Results

Concentration ng/m^3	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Time Weighted Average
Scunthorpe Town (CM1)	0.64	0.5	0.85	0.86	1.2	0.4	0.03	0.05	0.06	0.2	0.6	0.42	**0.48**
Low Santon (CM3)	1.5	0.91	0.4	0.35	0.13	0.07	0.09	0.05	0.1	0.1	0.36	0.29	**0.39**

Notes:

Exceedances of the National Air Quality Objective of 0.25 ng/m^3 shown in bold.

Exceedances of the European Community Air Quality Target value of 1ng/m^3.

Figure A. 7 - Trends in PAH (Benzo(a)pyrene (B[a]P)) Concentrations

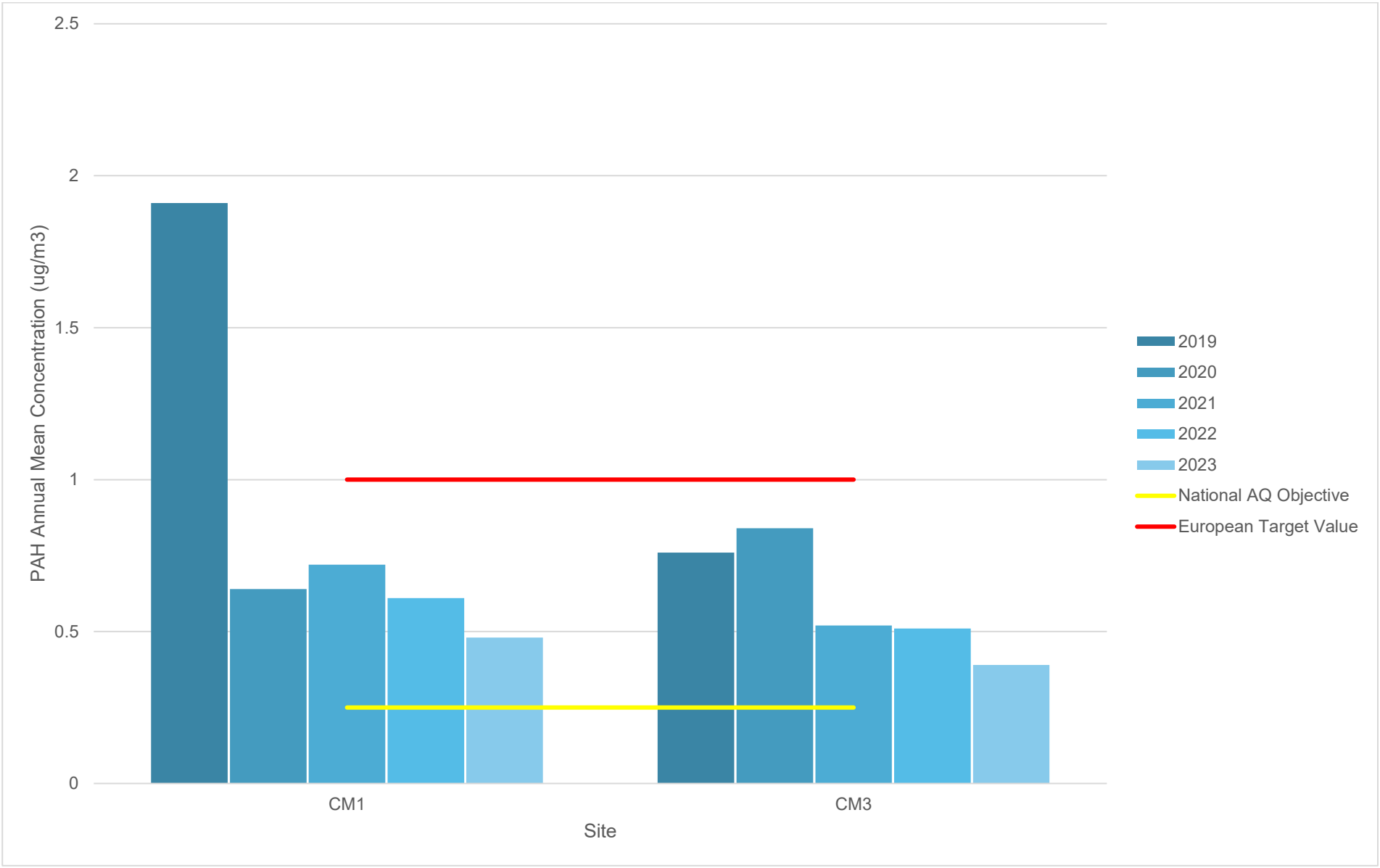


Table A. 12 - Heavy Metal Monitoring Results - Annual Mean Concentration ng/m^3

Heavy Metal	Scunthorpe Town AURN (CM1) Annual Mean Concentration ng/m^3	Low Santon (CM3) Annual Mean Concentration ng/m^3	Target Value ng/m^3
Arsenic (As)	0.7	0.9	6
Cadmium (Cd)	0.2	0.4	5
Cobalt (Co)	0.1	0.2	
Chromium (Cr)	1.9	3.4	
Copper (Cu)	4.1	4.3	
Iron (Fe)	403.1	178.2	
Manganese (Mn)	18.3	69.3	
Nickel (Ni)	0.8	1.2	20
Lead (Pb)	7.7	19.6	500
Selenium (Se)	1.1	1.3	
Vanadium (V)	1.7	8.8	
Zinc (Zn)	19.5	31.9	

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B. 1 - NO2 2023 Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.79)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	489099	411723	46.4		35.1	28.0	27.6	21.7	31.2	28.1	28.5	32.4	40.7	28.5	31.7	25.0	-	
2	487239	411259	35.4	31.7	31.7		27.9	24.3		29.0	27.3	32.1	31.4	26.7	29.8	23.5	-	
3	486699	411110	28.5	28.0	22.0	16.9	16.8	14.8	19.4	17.9	18.9	20.6	22.7	23.9	20.9	16.5	-	
4	486928	411156	28.1	21.8	25.0	24.9	19.5	20.9	20.4	20.8	24.7	26.6	26.1	24.1	23.6	18.6	-	
5	489190	411285	35.5	38.2	30.5	25.5	24.6	18.5	23.7	22.7	23.8	27.1	29.0	28.5	27.3	21.6	-	
6	489209	411118	21.9	35.4	31.0	26.7	27.7	24.8	21.7		29.0	29.5	28.8	25.3	27.4	21.7	-	
7	489172	409926	38.1	23.7	30.9	24.0	26.3	19.9	21.5	23.4	25.4	26.5	36.4	30.4	27.2	21.5	-	
8	489112	409463	37.2	29.7	32.8	27.1	28.6	23.4	26.5	24.0	31.1	25.6	34.0	25.3	28.8	22.7	-	
9	491628	408658	30.3	26.3	23.0	21.1	19.4	18.1	16.9	18.3	23.2	23.9	28.0	25.4	22.8	18.0	-	
10	491901	408626	52.5	40.7	49.3	44.1	47.4	42.2	45.0	41.3	57.4	42.7	50.6	44.9	46.5	36.7	27.6	
11	491859	408645	28.2	21.2	26.8	28.0	23.8	18.3	21.5	21.3	27.7	21.6	27.7	23.9	24.2	19.1	-	
12	499975	407421	27.5	22.7	23.7	18.8	23.7	21.3	19.9	20.0	23.2	18.8	22.9	15.1	21.5	17.0	-	
13	514573	415901	16.1	23.8	19.7	18.0	15.3	15.9	14.4	14.8	16.8	20.6	20.4	19.9	18.0	14.2	-	
14	514782	415971	30.4	30.6	26.8	32.2	28.7	32.9	27.4	24.6	38.1	34.4	31.5	28.3	30.5	24.1	-	
15	515452	416107	21.8	19.3	19.4	21.8	22.1	24.7	13.1	16.0	16.7	14.4	19.6	18.6	19.0	15.0	-	
16	515279	416085	30.4	37.5	27.8	27.3	25.4	29.2	23.9	21.8	20.8	20.5	30.2	21.3	26.3	20.8	-	
17	503025	421942		29.5	27.7	23.9	22.1	20.6	17.9		22.9	21.5	25.5	23.1	23.5	18.5	-	
18	490316	410837	21.8	14.1	16.5	13.7	11.9	9.8	11.2	11.3	14.3	16.1	18.8	17.6	14.8	11.7	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.79)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
19	490316	410837	20.3	21.7	16.6	13.1	13.1	9.1	11.5	11.2	12.5	16.7	17.1	16.7	15.0	11.8	-	
20	490316	410837	19.8	21.0	15.9	12.6	12.9	11.3	11.0	11.8	14.6	18.5	18.7	12.7	15.1	11.9	-	
21	490080	411258	25.9	24.3	26.2	26.4	25.0	24.3	19.1	21.2	26.2	27.8		27.4	24.9	19.7	-	
22	514141	417483	34.7	29.6	31.0	26.6	16.1	27.8	24.2	25.5	27.2	28.8	29.5	23.5	27.0	21.4	-	
23	488645	412891	24.2	16.8	20.4	18.9	18.2	16.1	12.2	14.7	18.5	21.5	19.2	21.2	18.5	14.6	-	
24	487203	408372	21.4	15.0	22.0	17.9	18.3	18.0	13.0	15.8	18.3	21.7	21.7	13.7	18.1	14.3	-	

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

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

☒ Local bias adjustment factor used

☐ National bias adjustment factor used

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

☒ North Lincolnshire Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within North Lincolnshire During 2023

The below table provides a list of planning applications or Environmental Permits that have been granted or are yet to be determined that have been identified as having a potential impact on air quality. The sources include a range of transport related and point sources such as biomass boilers or industrial installations. As a consultee, the Environmental Protection Team has provided appropriate comments to the Development Management Team.

Reference	Application	Location	Decision	AQ Relevance
PA/2023/421	Planning permission for the construction and operation of a post-combustion carbon capture plant, including carbon dioxide compressor and metering, cooling equipment, stacks, substations, internal roads, partial ditch realignment, new and modified services, connections, accesses, maintenance and laydown areas	VPI Power Station, Rosper Road, South Killingholme, DN40 3DZ	Not yet determined	Accompanied by AQ assessment. Relevant comments provided.
PA/2023/422	Planning permission for the construction and operation of a post-combustion carbon capture plant, including carbon dioxide compression and metering, cooling equipment, stacks, substations, new and modified services, connections, internal roads, new access onto Eastfield	Phillips 66 Ltd, Eastfield Road, South Killingholme, DN40 3DW	Not yet determined	Accompanied by AQ assessment. Relevant comments provided.

Reference	Application	Location	Decision	AQ Relevance
	Road, and maintenance and laydown area			
PA/2023/502	Full planning application with an Environmental Impact Assessment the proposed development comprises: • regrading of land with general fill and raising site levels with imported fill, • installation of ground drainage as required, • installation of boundary fencing, •widening of Marsh Lane (vertical alignment to be retained) and construction of new footpath - hedge to be replaced north of road widening, • upgrades at junction of Marsh Lane with Rosper Road, including extending a drainage culvert • diversion of a section of Station Road and construction of new road • new ditch culvert under Marsh Lane, • five new entrances to proposed sites to be created, • demolition of buildings, •construction of new 33kV substation,	Land at Marsh Lane, South Killingholme	Not yet determined	Accompanied by AQ assessment. Relevant comments provided.

Reference	Application	Location	Decision	AQ Relevance
	• new drainage ditch/diversion and new ditch crossings, • bridge crossings of existing over ground pipelines, • diversion to existing Exolum underground pipeline, and • construction of new rail sidings			
PA/2023/734	Planning permission to install four gas engines within a turbine hall, erection of four 30m chimney stacks and the provision of a reagent tank and two engine coolers (radiator units) and associated infrastructure	Power Station, Access roads to Power Station, Scawby Brook, DN20 9LT	Granted with conditions	Accompanied by AQ assessment. Relevant comments provided.
PA/2023/823	Hybrid application consisting of outline planning permission for up to 220 dwellings and a building for commercial and/or community use, with all matters reserved for subsequent consideration except access, and full planning permission for 130 dwellings, two points of access, part of the spine road, provision of a pumping station and substation, engineering and ancillary works, demolition of existing buildings (with the exception of a listed building) and creation of development platforms throughout the whole site	RAF Kirton in Lindsey, B1400 from B1398 to B1205, Kirton in Lindsey, DN21 4HZ	Granted with conditions	Accompanied by AQ assessment. Relevant comments provided.

Reference	Application	Location	Decision	AQ Relevance
PA/2023/1045	Planning permission to construct and operate an anaerobic digestion facility and associated ancillary infrastructure for the production of biomethane and carbon dioxide	Singleton Birch, Brigg Road, Melton Ross, DN38 6AE	Granted with conditions	Accompanied by AQ assessment. Relevant comments provided.
PA/2023/1124	Planning permission for the development of 599 dwellings and lake, along with associated infrastructure, including landscaping, public open space and play area, pedestrian and cycle links, pumping station and sub-station	Lincolnshire Lakes, Land east of M181 and north of Burringham Road, Scunthorpe	Not yet determined	Accompanied by AQ assessment. Relevant comments provided.
PA/2023/1236	Planning permission for a residential development (Use Class C3) with associated works, including highways, open space, landscaping and drainage infrastructure	land off Wrawby Road, Brigg	Not yet determined	Accompanied by AQ assessment. Relevant comments provided.
PA/2023/1282	Outline planning permission to erect up to four commercial units for E(g) (i, ii and iii), B2 and B8 use with appearance and scale reserved for subsequent consideration	land north of Wellington Way, Elsham	Granted with conditions	Accompanied by AQ assessment. Relevant comments provided.
PA/2023/1408	Planning permission to vary conditions 4, 6, 9, 15, 40, 77, 79, 82 & 88 of previously approved hybrid application PA/2015/0628 (Hybrid application for full planning	Lincolnshire Lakes, M181 from M180 to A18, Burringham	Granted with conditions	Accompanied by AQ assessment. Relevant comments provided.

Reference	Application	Location	Decision	AQ Relevance
	permission for new road and footpaths, informal areas of open space, parklands, play areas and new wildlife habitats, attenuation ponds, recreational lakes and wetlands community; and outline planning permission with all matters reserved for non-residential institutions (Use Classes D1 and D2), leisure facilities (Use Classes A1 and A3) and storage (Use Class B8))			
PA/2023/1750	Planning application to erect 158 dwellings with associated car parking, garages, landscaping, open space, pedestrian circulation and links, pumping station, infrastructure works and access from Burringham Road	Land north of Burringham Road, Burringham Road, Scunthorpe, DN17 2AA	Not yet determined	Accompanied by AQ assessment. Relevant comments provided.
PA/2023/1935	Planning permission for the installation of a gas pressure reduction metering station and associated fencing	Chimney 23m From B W S C G S Uk Ltd, Brigg Renewable Energy Plant 12m From Unnamed Road, Access Roads To Power Station, Scawby Brook, DN20 9LT	Granted with conditions	Accompanied by AQ assessment. Relevant comments provided.
PA/2023/1981	Planning permission to construct a vehicular link road joining Barrow Road, A1077 and Caistor Road with cycle carriageway, footways and hard and soft landscaping treatment	Land off Barrow Road and Caistor Road, Barton upon Humber	Not yet determined	Accompanied by AQ assessment. Relevant comments provided.

Reference	Application	Location	Decision	AQ Relevance
P318/3.5/23	Application for an Environmental Permit for the loading, unloading, storage and handling of petroleum coke, coal, coke and coal products as prescribed in the Environmental Permitting (England and Wales) Regulations 2016 (as amended) Schedule 1, Part 2, Section 3.5(b)(iii).	Blocks 9, 10, and 11, Salfina, Lancaster Approach, North Killingholme, North Lincolnshire, DN40 3JZ.	Granted with conditions	Appropriate controls included to minimise dust emissions.
P319/6.31/23	Application for an Environmental Permit for the spraying of powder coating with a consumption of 20 or more tonnes per year of any paint or other coating material which is applied in solid form as prescribed in the Environmental Permitting (England and Wales) Regulations 2016 (as amended) Schedule 1, Part 2, Section 6.4 Part B (a)(i)	Bradbury Group Ltd, Plot 6 Atkinsons Way, Foxhills Industrial Estate, Scunthorpe, North Lincolnshire, DN15 8QJ	Granted with conditions	Appropriate controls included to minimise dust emissions.

QA/QC of Diffusion Tube Monitoring

North Lincolnshire Council currently uses SOCOTEC (Didcot) for both supply and analysis of its Nitrogen Dioxide Diffusion Tubes. The samples have been analysed in accordance with SOCOTEC's standard operating procedure ANU/SOP/1015. This method meets the guidelines set out in DEFRA's 'Diffusion Tubes For Ambient NO2 Monitoring: Practical Guidance. The tubes were prepared by spiking acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled. The tubes were desorbed with distilled water and the extract analysed using a segmented flow autoanalyser with ultraviolet detection.

SOCOTEC are UKAS accredited for the analysis of diffusion tube samples to determine the amount of nitrogen dioxide present on the tube. SOCOTEC also holds the highest rank of a "satisfactory laboratory" in the AIR PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes.

The 2023 Diffusion Tube Monitoring Calendar was adhered to throughout this calendar year.

Diffusion Tube Annualisation

All diffusion tube monitoring locations within North Lincolnshire Council recorded data capture of 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2024 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

North Lincolnshire Council have applied a local bias adjustment factor of 0.79 to the 2023 monitoring data. A summary of bias adjustment factors used by North Lincolnshire Council over the past five years is presented in Table C. 1.

Table C. 1 - Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	Local	-	0.79
2022	Local	-	0.76
2021	Local	-	0.79
2020	Local	-	0.78
2019	Local	-	0.68

North Lincolnshire Council had one co-location study site in 2023, at CM1: Scunthorpe Town an industrial site. Diffusion tubes 18,19 and 20 were co-located at this location.

The decision to use a Bias Adjustment Factor generated from our own co-location study was reached due to the complexity of the issues within North Lincolnshire. As the AQMA's declared within North Lincolnshire are predominantly industry related, it was felt that using an average of other authority figures would be unsuitable. Although the tube network is spread over a wide area of North Lincolnshire, the tubes are situated in relatively similar situations, all at the same height and if the tubes are not co-located most are held on roadside lamp posts. This study has been ongoing since 2006 and has presented different adjustment factors each year. We have confidence within our AURN continuous monitor at this location due to its strict calibration programme and ratification procedures undertaken by Ricardo.

The calculation of the local bias adjustment is provided within Table C. 2 below.

Table C. 2 - Local Bias Adjustment Calculation

	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	9				
Bias Factor A	0.79 (0.72 - 0.86)				
Bias Factor B	27% (16% - 38%)				
Diffusion Tube Mean (µg/m^3)	13.9				
Mean CV (Precision)	6.4%				
Automatic Mean (µg/m^3)	10.9				
Data Capture	97%				
Adjusted Tube Mean (µg/m^3)	11 (10 - 12)				

Notes:

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

NO2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B. 1.

Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36µg/m^3 and the monitoring site is not located at a point of relevant exposure (taking the limitations of the calculator into account). One diffusion tube NO2 monitoring location within North Lincolnshire required distance correction during 2023, details of this can be found in Table C.3 below.

Table C. 3 - Non-Automatic NO2 Fall off With Distance Calculations (concentrations presented in µg/m3)

Site ID	Distance (m): Monitoring Site to Kerb	Distance (m): Receptor to Kerb	Monitored Concentration (Annualised and Bias Adjusted	Background Concentration	Concentration Predicted at Receptor	Comments
DT10	9.0	24.0	36.7	11.1	27.6	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*

QA/QC of Automatic Monitoring

Air Quality Data Management (AQDM) performed the QA/QC on the measurements. Each of the gas analysers is calibrated every 2 weeks. The TEOMs were visited at the same frequency, with the filter changed whenever required. All the instruments are audited every 6-months by NPL who are UKAS accredited to AURN standards and serviced every 6 months by Enviro Technology Services Ltd.

Below are the details of the QA/QC procedures which has been provided by AQDM

QA/QC of Automatic Air Quality Instruments Use

Air quality measurements from automatic instruments are validated and ratified to the standards described in the Local Air Quality Management – Technical Guidance LAQM TG(22): https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf by Air Quality Data Management (AQDM) http://www.aqdm.co.uk

Staff at North Lincolnshire Council attend the site at frequent intervals and follow procedures as set out by the manufacturers in the instrument operating manuals.

Validation

This process operates on data during the data collection stage. All data is continually screened algorithmically and manually for anomalies. There are several techniques designed to discover spurious and unusual measurements within a very large dataset.

These anomalies may be due to equipment failure, human error, power failures, interference or other disturbances. Automatic screening can only safely identify spurious results that need further manual investigation.

Raw data from the gaseous instruments (e.g., NOx, O_3, SO_2 and CO) are scaled into concentrations using the latest values derived from the manual and automatic calibrations. These instruments are not absolute and suffer drifts. Both the zero baseline (background) and the sensitivity change with time. Regular calibrations with certified gas standards are used to measure the zero and sensitivity. However, these are only valid for the moment of the calibration since the instrument will continue to drift. Raw measurements from particulate instruments (e.g., PM_{10} and $PM_{2.5}$) generally do not require scaling into concentrations. The original raw data are always preserved intact while the processed data are dynamically scaled and edited.

Ratification

This is the process that finalises the data to produce the measurements suitable for reporting. All available information is critically assessed so that the best data scaling is applied, and all anomalies are appropriately edited. Generally, this operates at three, six or twelve month intervals. However, unexpected faults can be identified during the instrument routine services or independent audits which are often at 6-monthly intervals. In practice, therefore, the data can only be fully ratified in 12-month or annual periods. The data processing performed during the three and six monthly cycles helps build a reliable dataset that is finalised at the end of the year.

There is a diverse range of additional information that can be essential to the correct understanding and editing of data anomalies. These may include:

- the correct scaling of data
- ignoring calibrations that were poor e.g., a spent zero scrubber
- closely tracking rapid drifts or eliminating the data
- comparing the measurements with other pollutants and nearby sites
- corrections due to span cylinder drift
- corrections due to flow drifts for the particulate instruments
- corrections for ozone instrument sensitivity drifts

- eliminating measurements for NO_2 conversion inefficiencies
- eliminating periods where calibration gas is in the ambient dataset
- identifying periods where instruments are warming-up after a power cut and identification of anomalies due to mains power spikes
- correcting problems with the date and time stamp
- observations made during the sites visits and services

The identification of data anomalies, the proper understanding of the effects and the application of appropriate corrections requires expertise gained over many years of operational experience. Instruments and infrastructure can fail in numerous ways that significantly and visually affect the quality of the measurements. There are rarely simple faults that can be discovered by computer algorithms or can be understood without previous experience.

Further information about air quality data management, expert data ratification and examples of bad practices are given on the Air Quality Data Management (AQDM) website http://www.aqdm.co.uk.

PM10 and PM2.5 Monitoring Adjustment

The PM_{10} and $PM_{2.5}$ concentrations may require scaling into Gravimetric Equivalent concentration units by use of the Volatile Correction Model (VCM) http://www.volatile-correction-model.info or by corrections published by Defra https://uk-air.defra.gov.uk/networks/monitoring-methods?view=mcerts-scheme depending in the measurement technique.

In addition to the above and for transparency and Low Santon (CM3) until 2022 North Lincolnshire council monitored PM10 with both a TEOM and FDMS instrument. In 2022 these were both removed and replaced by a singular BAM. For reporting purposes within the Annual Status Report and to avoid confusion, the data from the TEOM prior to 2022 has been included in Table A.6 and Table A.7 as this instrument recorded the highest concentrations. This approach was confirmed with the LAQM helpdesk and given the unique reference code ***009563.***

Automatic Monitoring Annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%. At East Common Lane (CM2), for the Osiris, the data capture for the PM2.5 annual mean was 62.9% due to connection issues. The data therefore requires annualisation. This is presented in Table C. 4 below.

Table C. 4 - Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Santon	Annualisation Factor Hull Freetown	Annualisation Factor Immingham Woodland	Annualisation Factor Site 4 Name	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
CM2	1.06	1.05	1.00	-	1.03	5	5.15	

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

Figure D. 1 - Monitoring locations within the Scunthorpe Town AQMA

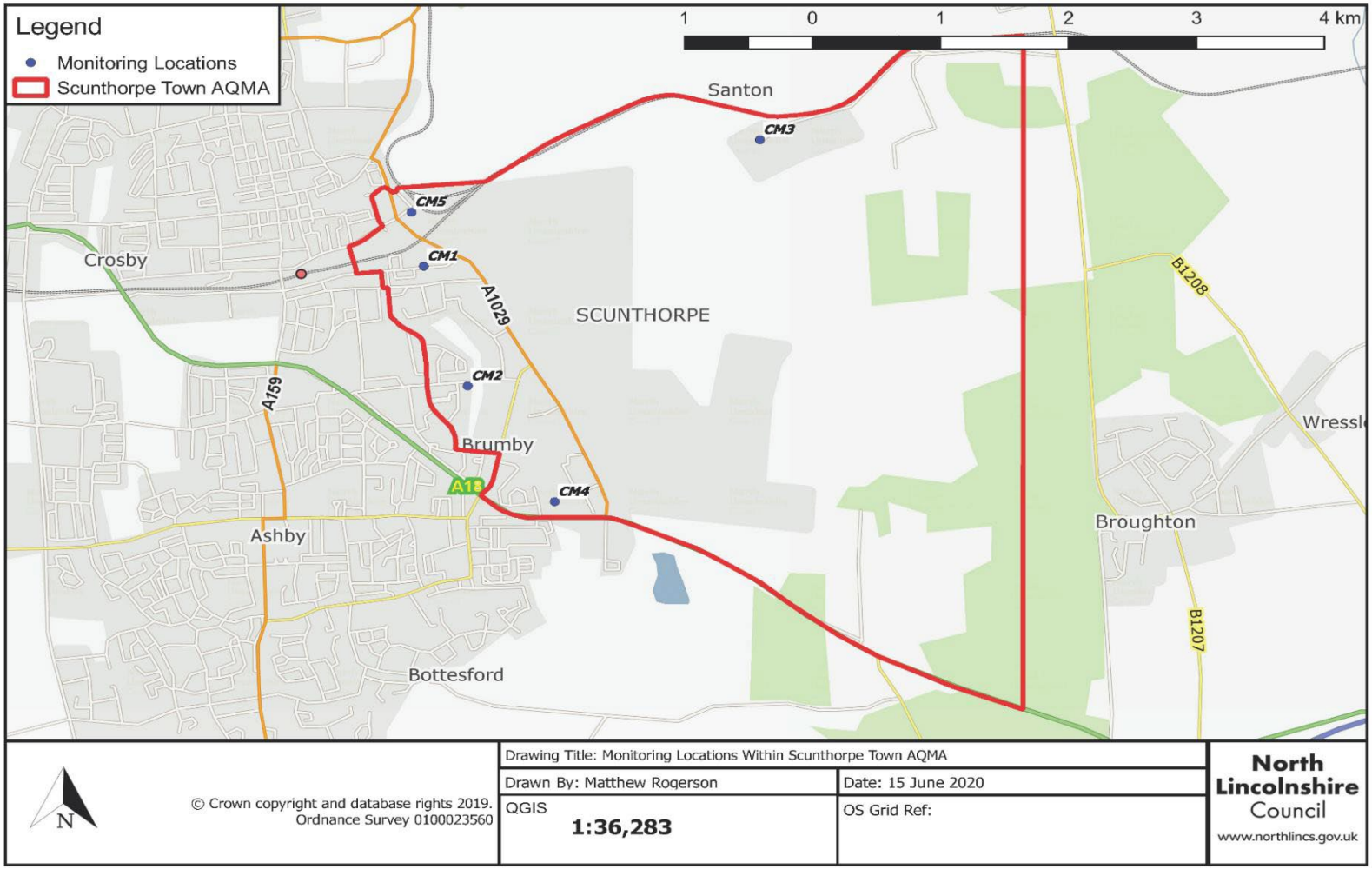


Figure D. 2 - Monitoring locations within North Lincolnshire

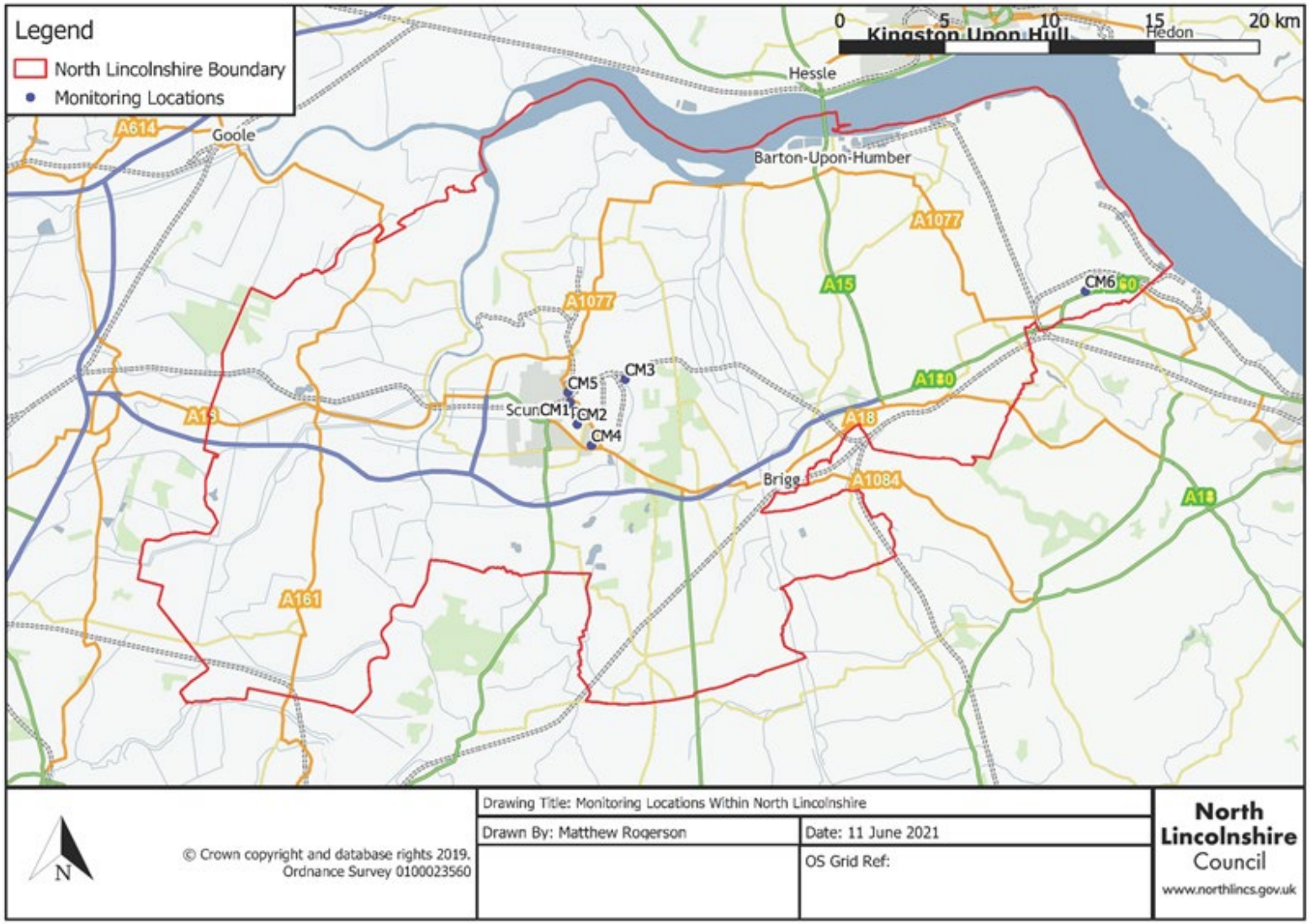
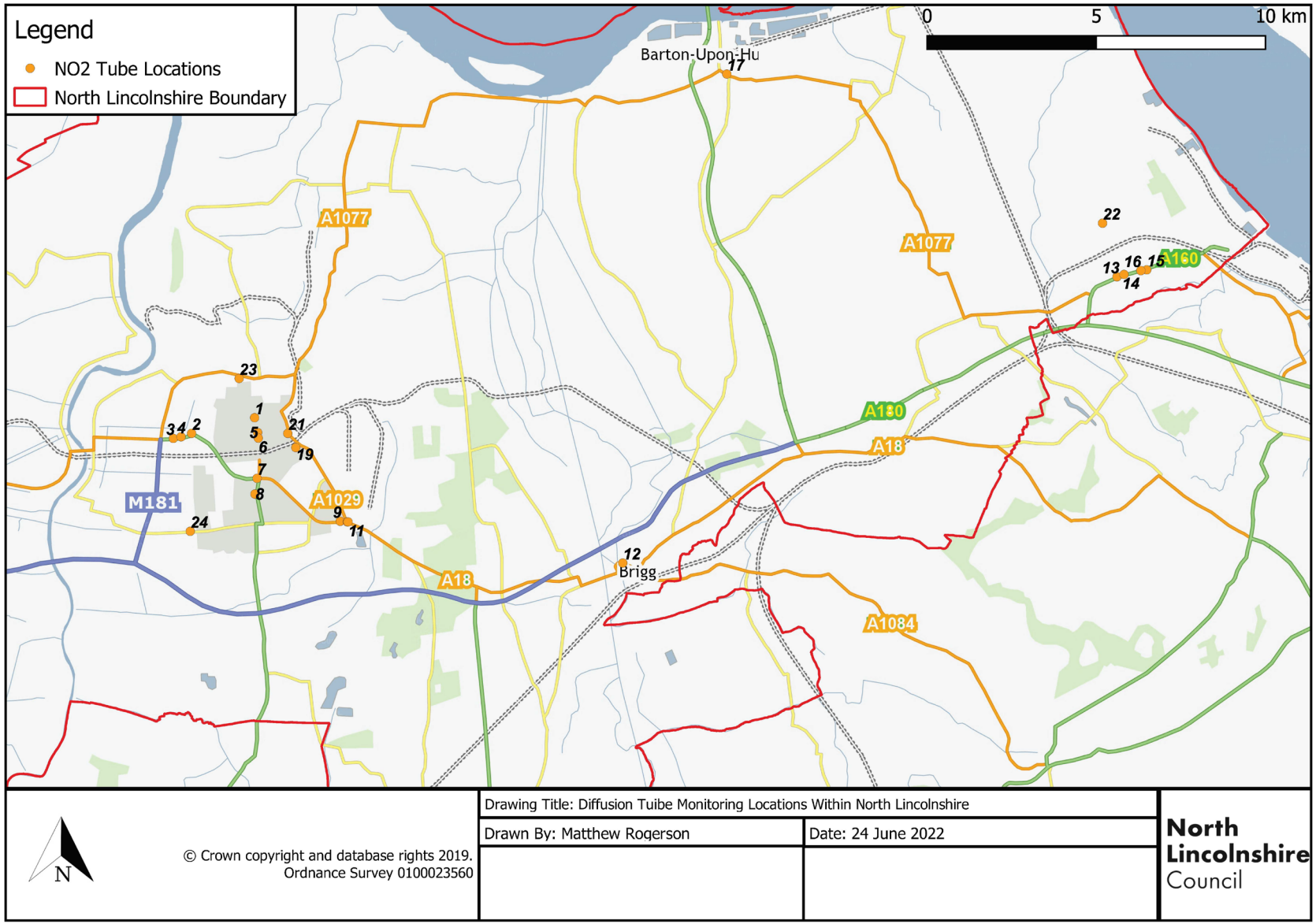


Figure D. 3 - Diffusion tube monitoring locations within North Lincolnshire



Appendix E: Summary of Air Quality Objectives in England

Table E. 1 - Air Quality Objectives in England

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide

References

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