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Annual Progress Report 2023

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# 2023 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, 2023

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## Executive Summary: Air Quality in Our Area

### Air Quality in North East Lincolnshire

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

The mortality burden of air pollution within the UK is equivalent to 29,000 to 43,000 deaths at typical ages<sup>3</sup>, with a total estimated healthcare cost to the NHS and social care of £157 million in 2017<sup>4</sup>.

North East Lincolnshire is situated on the east coast of England, at the mouth of the River Humber. It covers 192 km<sup>2</sup>, is home to approximately 160,000 people and incorporates the towns of Grimsby, Immingham and Cleethorpes. The main source of air pollution within North East Lincolnshire is from road traffic, with additional background sources including domestic, industrial and commercial space heating.

There is one Air Quality Management Area (AQMA) currently declared in North East Lincolnshire, located at Cleethorpe Road in Grimsby ('[Grimsby AQMA](#)'). The AQMA was declared in 2010 due to exceedances of the NO<sub>2</sub> annual mean. An Air Quality Action Plan was produced initially in 2012. This was revised in July 2020 and North East Lincolnshire Council adopted a new [Air Quality Action Plan](#), outlining new measures to reduce NO<sub>2</sub> concentrations in the AQMA.

During 2022 there was a decrease in the annual mean NO<sub>2</sub> recorded at every diffusion tube site and all automatic monitoring stations when compared to 2021. This is despite

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<sup>1</sup> Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

<sup>2</sup> Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

<sup>3</sup> Defra. Air quality appraisal: damage cost guidance, January 2023

<sup>4</sup> Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

increased travel activity in 2022 compared to 2020 and 2021 when there were more COVID-19 restrictions in place. All of the reported concentrations continued to be below the NO<sub>2</sub> annual mean AQS objective (40 µg/m<sup>3</sup>). The maximum NO<sub>2</sub> annual mean concentration was recorded at the 112 Cleethorpe Road diffusion tube site co-located with the automatic monitor within the AQMA (NEL 11/12/13) at 36.7 µg/m<sup>3</sup>, whilst the maximum NO<sub>2</sub> annual mean concentration outside of the AQMA was 31.5 µg/m<sup>3</sup> (site NEL 18). At the three automatic monitoring stations, annual mean NO<sub>2</sub> concentrations of 11.7 µg/m<sup>3</sup> (Immingham Woodlands Avenue), 29.6 µg/m<sup>3</sup> (Cleethorpes Road) and 26.3 µg/m<sup>3</sup> (Peaks Parkway) were recorded in 2022. During 2022, the annual mean and hourly objective for NO<sub>2</sub> was not exceeded at any site.

## Actions to Improve Air Quality

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

The Environmental Improvement Plan<sup>5</sup> sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term PM<sub>2.5</sub> targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and reduce PM<sub>2.5</sub> in their areas. The Road to Zero<sup>6</sup> details the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMA) are designated due to elevated concentrations heavily influenced by transport emissions.

North East Lincolnshire Council is committed to reducing the exposure of people to poor air quality in order to improve health. The actions taken by North East Lincolnshire Council to improve air quality can be considered under five broad topics:

- Transport: Upgrading existing transport infrastructure, changing the road layout to give priority to public transport, forming traffic plans that encourage the use of

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<sup>5</sup> Defra. Environmental Improvement Plan 2023, January 2023

<sup>6</sup> DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

greener modes of transport, and reducing congestion and associated vehicle emissions.

- **Public Health:** Encouraging wider behavioural changes in the local population with respect to travel choices and raising to the public on the impacts of air pollution. This is done by educating people so that they feel inclined to change their current habits.
- **Planning and Infrastructure:** Mitigating potential air quality impacts effectively by being involved in decision making early on for future developments required to support the growth of North East Lincolnshire.
- **Strategies and Policy Guidance:** Working with partners and stakeholders to direct the use of legislation and targeted enforcement to control air pollution.
- **Air Quality Monitoring:** Ensure satisfactory air quality monitoring data is available to track outcomes of the implemented Air Quality Action Plan measures.

Consultation on a new North East Lincolnshire Council Local Plan is currently underway and supporting the drive towards a low carbon economy and supporting a greener and more biodiversity rich environment are two key themes that will be given increased weight in the draft local plan.

## Conclusions and Priorities

During 2022, no exceedances of the NO<sub>2</sub> annual mean objective were identified within the existing AQMA, continuing the trend observed since 2018. Additionally, the NO<sub>2</sub> annual mean AQS objective was not exceeded at any monitoring location outside of the AQMA during 2022. There was only one diffusion tube site that recorded an NO<sub>2</sub> annual mean concentration that was within 10% of the AQS objective (36.7 µg/m<sup>3</sup>, triplicate site NEL 11/12/13). Relative to 2021, the NO<sub>2</sub> annual mean concentration also decreased at all three automatic monitoring sites within North East Lincolnshire in 2022. This decrease in NO<sub>2</sub> across both the diffusion tube network and automatic monitoring network is despite increased travel activity in 2022, compared to 2020 and 2021 when there were more COVID-19 restrictions in place.

The updated AQAP adopted in 2020 outlines the priorities of North East Lincolnshire Council in addressing air quality. These five priorities align to the five categories listed above and are as follows:

- **Priority 1:** Improve transport infrastructure to encourage the use of public transport, or sustainable modes of travel (i.e. walking/cycling).
- **Priority 2:** Promote behavioural changes by raising awareness and educating the public on the impacts of air pollution so that they rethink their travel choices.
- **Priority 3:** Ensure that potential air quality impacts are mitigated early on in any new developments, required to support the growth of North East Lincolnshire.
- **Priority 4:** Use legislation and enforcement to control air pollution by effectively engaging with partners and stakeholders.
- **Priority 5:** Obtain measures of air quality and ensure the data is satisfactory so that it can be determined if the measures that have been implemented from the Air Quality Action Plan are having a positive impact on the concentration of NO<sub>2</sub>.

North East Lincolnshire Council currently engage with the following working groups on the topic of air quality:

- North East Lincolnshire Council Air Quality Steering Committee (AQSC) – an internal Air Quality Steering Group which continues to meet quarterly to discuss council wide air quality issues
- ABP – quarterly meetings with ABP and other Humber local authorities discussing Port and local air quality issues
- Yorkshire and Lincolnshire Pollution Advisory Group (YALPAG) – a knowledge sharing working group with other local authorities
- Air Quality Hub – North East Lincolnshire Council has completed the onboarding process on the Air Quality Hub.

## Local Engagement and How to get Involved

Air pollution is contributed to, often inadvertently, by the wider community. Therefore, localised changes in behaviour can help to reduce the concentrations of air pollutants on a wider scale. Many of these measures will also simultaneously improve health:

- Where possible, consider walking, cycling or using public transport. This is important for short journeys where it may not be necessary to use a private vehicle. An increase in the amount of people using active forms of travel or public transport not only reduces the emissions by decreasing the number of cars on the road, but also from the reduced congestion, thus less stopping and starting of vehicles.



- Driving economically by turning your engine off when stationary. Not idling the vehicle can reduce emissions but also save fuel.
- Keep your vehicle in good working order. Having well inflated tyres means your car will be more efficient and use less fuel.

North East Lincolnshire Council have also promoted initiatives such as 'Clean Air Day', encouraging people to find out more about air pollution, share information with others and help make the environment safer for everyone. Clean Air Day took place on 16<sup>th</sup> June 2022 and North East Lincolnshire Council promoted the day on social media channels.

Additional air quality resources can be found on North East Lincolnshire Council's [website](#).

## Local Responsibilities and Commitment

This ASR was prepared by the Bureau Veritas on behalf of the Environmental Protection Department of North East Lincolnshire Council with the support and agreement of the following officers and departments:

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- Communication and Marketing Team
- Policy Strategy and Resources
- Economy and Growth Team
- Fleet Management
- Highway and Transport Department
- Planning Department
- Environmental Protection Team
- Public Health Department
- Regulatory Services Strategic Lead
- Environmental Sustainability

This ASR has been approved by:

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# 1 Local Air Quality Management

This report provides an overview of air quality in North East Lincolnshire Council during 2022. 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 East 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.

## 2 Actions to Improve Air Quality

### 2.1 Air Quality Management Areas

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

A summary of AQMAs declared by North East Lincolnshire Council can be found in Table 2.1. The table presents a description of the AQMA that is currently designated within North East Lincolnshire. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMA and also the air quality monitoring locations in relation to the AQMA. The air quality objectives pertinent to the current AQMA designation is the NO<sub>2</sub> annual mean.

**Table 2.1 – Declared Air Quality Management Areas**

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective*	Name and Date of AQAP Publication	Web Link to AQAP
Grimsby AQMA	September 2010	NO <sub>2</sub> Annual Mean	Cleethorpe Road between Freeman Street and Nacton Street	No	48.4 µg/m <sup>3</sup>	36.7 µg/m <sup>3</sup>	5 years	July 2020 AQAP	<a href="#">July 2020 AQAP</a>

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

North East Lincolnshire Council confirm that all current AQAPs have been submitted to Defra.

\* The number of years compliant with the Air Quality Objective includes 2020 and 2021 which should be excluded due to Covid-19 when considering revocation.

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

Defra's appraisal of last year's ASR concluded the report was well structured, detailed, and provides the information specified in the guidance. The inclusion of trend graphs for all monitoring was commended.

Specific comments from Defra within the appraisal of last year's ASR include the following:

*"The council is commended for their newly developed Natural Assets Plan in 2021 to further improve air quality in the area. It would be useful if they could continue to update their AQAP and identify the measures adopted from the National Assets plan in future reporting years."*

The measures to improve air quality that feature in North East Lincolnshire Council's Natural Assets Plan 2021 can be found [here](#).

The 'Improving Air Quality' section outlines the actions that North East Lincolnshire Council want to see with respect to air quality, these include:

- Air quality issues being prominent in decision making and being considered in local policy development
- Air quality monitoring identifying risks and delivering publicly available information
- Solutions for air quality reduction, including those that use natural assets

The Natural Asset Plan also outlines North East Lincolnshire Council's main focus areas for the coming years that will help to reduce air pollution within the area. These cover a range of topics and include the following:

- Acquire new monitoring equipment to assist when meeting new statutory duties on measuring concentrations of smaller particulates (i.e. PM<sub>2.5</sub>)
- Producing a Planning Technical Advice Document for air quality
- Linking air quality into public education/public health on environmental matters
- Providing accessible air quality information to assist those with breathing difficulties
- Make links between air quality and other environmental services
- Investigate how nature-based solutions might help to improve air quality



Quarterly monitoring of progress on both of these documents is undertaken with an annual report produced and submitted to cabinet. Our First Annual Report to Cabinet has been completed with members happy with our progress to meet our Net Zero targets.

*“The council is recommended to continue to review their current monitoring regime, specifically the addition of several new non-automatic monitoring sites (diffusion tubes) across the region. This is important as additional sites will help to identify whether there are other key areas of relevant exposure where there may be exceedances and the appropriate measures can be adopted accordingly.”*

A full review of the diffusion tube network was undertaken in October 2022, using data from Highways and Planning, North East Lincolnshire Council commenced monitoring in eight new locations in January 2023 which will be included within the 2024 ASR.

### Local Transport Plan

The current Local Transport Plan (LTP) is being refreshed and due for publication towards Autumn 2024. The key themes are focused on de-carbonisation of transport with a big focus on electric vehicles and the infrastructure required to support the Government targets over the next few years of eliminating petrol and diesel cars, HGV's and buses which are one of the main factors that increase air pollution.

Offering sustainable and green alternatives to car travel are another major focus and North East Lincolnshire Council will be looking at offering better improved services along with educating and encouraging change in people's choices to show improved healthier lifestyles that emerge from cycling and walking which ultimately help improve the air quality.

### Net Zero Carbon Roadmap

In October 2019, North East Lincolnshire Council declared a climate emergency and in 2016 the council signed up to Climate Local. Since then, North East Lincolnshire Council has worked with partner EQUANS to plan how to reduce the carbon emissions. The [Net Zero Carbon Roadmap](#) explains how targets will be achieved and mitigate the impact of climate change. North East Lincolnshire Council adopted the roadmap and set net zero targets in December 2021.

The Net Zero Carbon Roadmap sets out six workstreams which must be completed to reach net zero by 2030:

- Low carbon estate (our buildings)

- Low carbon fleet (council vehicles)
- Low carbon street lighting
- Climate-conscious decision-making
- Climate-conscious purchasing (goods and services)
- Climate conscious behaviours (staff and those who work for the council)

The Net Zero Carbon Roadmap also sets out a further six workstreams the council will follow, to help North East Lincolnshire Council reach carbon net zero by 2050:

- Climate-conscious community: by facilitating and encouraging community engagement and sustainability actions
- Low carbon commercial buildings: working as an enabler to ensure sufficient support is in place for businesses to increase sustainability
- Low carbon transport: through policy change, network investment and partnership working we want to enable a local transition to more sustainable travel
- Low carbon industry: by supporting our partners and industry in achieving industrial decarbonisation, including carbon capture and hydrogen economy
- Enable low carbon new homes-through our role as a policy maker and planning authority
- Climate-conscious improvements to older homes, by supporting our partners and residents to improve their homes to become more sustainable

### 2.2.1 Air Quality Action Plan

North East Lincolnshire Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Twenty-eight measures are included within Table 2.2, with the type of measure and the progress North East Lincolnshire Council have made during the reporting year of 2022 presented. Eight of these measures are new in 2023 to continue the work North East Lincolnshire Council has made with three completed measures to date. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in the North East Lincolnshire Council Air Quality Action Plan. Key completed measures are:

- Improve signage for the Port of Grimsby;

- Improve public transport services, bus stop/train infrastructure & information and interchange facilities; and
- The updated air quality action strategy was adopted in 2021.

North East Lincolnshire Council anticipates that through the implementation of the measures listed above and those detailed in Table 2.2, compliance will be achieved within the Grimsby AQMA.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	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	Improve public transport services, bus stop/train infrastructure & information and interchange facilities	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2016	2022	NELC & Service Provider	NELC & Service Provider	NO	Not Funded	£50k - £100k	Implementation	Reduced vehicle emissions	Increase in use of public transport based on average numbers of people using the services	Increase in use of public transport based on average numbers of people using the services	Completed
2	Encourage Council Travel Plan opportunities and seek to facilitate uptake of sustainable modes of transport	Promoting Travel Alternatives	Workplace Travel Planning	2016	On-going	NELC & EQUAN	NELC & EQUAN	NO	Not Funded	£10k - 50k	Implementation	Reduced vehicle emissions	% modal shift to car share/public transport/walking/ cycling	No progress to date	Ongoing
3	Bus fleet upgrades	Promoting low emission transport	Public vehicle procurement – prioritising uptake of low emission vehicles	2017	On-going	NELC & Stagecoach	NELC & Stagecoach	NO	Not Funded	£1 million - £10 million	Implementation	Reduced vehicle emissions	Number of low/zero emission buses	The Council could not provide any match funding towards it was decided we could not submit a bid.	The work has been done so if any funds become available we can continue with the project
4	Improve signage for the Port of Grimsby	Transport Planning and Infrastructure	Other	2012	2021	NELC & ABP	NELC & ABP	NO	Not Funded	£10k - 50k	Completed	Reduced vehicle emissions	A reduced number of HGV's entering the AQMA	Signage to the port is very good, directs HGV's off at Lockhill Roundabout and doesn't progress through the AQMA.	Completed
5	Continue to promote and facilitate cycling as for both transportation and leisure purposes - Capability Fund	Promoting Travel Alternatives	Promotion of cycling	2021	2022	NELC/ EQUAN	Capability Fund grant (DfT)	No	Funding awarded	£300k	Implementation	Reduced vehicle emissions	Uptake of cycling incentives and bike purchases	Doctor Bike cycle maintenance events continue to be delivered, over 40 events delivered across the summer in 2022 and further events planned for 2023. Design and delivery of new 'local walks' and 'local rides' guides with distribution through TIC and other leisure outlets. Completion of phases 1&2 of Cycle Superhighway link along the South Humber Bank between Immingham and Grimsby. Improvements made to on-street public cycle parking facilities around NEL including new facility at Grimsby Town railway station. Cycle Hubs now operating at both Grimsby Town and Cleethorpes railway stations.	
6	Encouraging residents and visitors to North East Lincolnshire to use car share and public transport	Alternatives to private vehicle use	Car & lift sharing schemes	2016	On-going	NELC & EQUAN	NELC & EQUAN	NO	Not Funded	< £10k	Implementation	Reduced vehicle emissions	% modal shift to car share/public transport	Support for post COVID public transport recovery. Service changes to support improved accessibility to key sites such as Grimsby town centre and local supermarkets.	Passenger numbers increasing but still lower than pre-pandemic levels.
7	Encourage the uptake of Employer and School Travel	Promoting Travel Alternatives	School Travel Plans	2018	On-going	NELC & EQUAN	NELC & EQUAN	NO	Not Funded	< £10k	Implementation	Reduced vehicle emissions	No. of travel plans in place	Five school travel plans developed in 2021/22, two schools awarded Modeshift accreditation	

Measure No.	Measure	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	
	Plans within the Borough														for their efforts to encourage and support sustainable and active travel. School Street pilots implements and experiments on going through to end of current Academic year.	
8	Public Air Quality Information including promotion of fuel saving measures, residential and commercial buildings	Public Information	Via the Internet	2017	On-going	NELC	NELC	NO	Not Funded	£10k - 50k	Planning	Reduced vehicle emissions	Number of people reached via social media channels	Continue to promote AQ issues through social media channels. Looking at improving AQ webpages to include more informative information. Support Clean Air Day via social media campaign.	Funding needed for website development	
9	Report on air quality, including making details of the Action Plan measures and Annual Progress Reports available on the Website and inclusion of an Air Quality update in the Corporate Annual Report	Public Information	Via the Internet	2000	Updated annually after DEFRA approval of ASR.	NELC	NELC	NO	Not Funded	< £10k	Implementation	Public information	Availability of recently published reports online	2022 Annual Status Report/Action Plan 2020 is available on NELC website.	Progressing as normal	
10	Ensure that air quality is taken into account in the planning process when located in or close to the AQMAs or in areas marginally below air quality objectives	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2015	On-going	NELC	NELC	NO	Not Funded	< £10k	Implementation	Ensure developments don't have a negative impact on AQ	Number of planning applications with air quality conditions/assessments	Environmental Protection Team review of planning applications weekly for adverse effects of AQ	Progressing as normal	
11	Work together with developers to improve sustainable transport links serving new developments	Transport Planning and Infrastructure	Other	2015	On-going	NELC & Developer	NELC & Developer	NO	Not Funded	< £10k	Implementation	Ensure developments don't have a negative impact on AQ	% modal shift to public transport	Continuing working on this issue with the requirements for Travel Plans in major planning apps which are assessed by Highways colleagues	Progressing as normal	
12	Work together with developers to promote the inclusion of electric charging points for electric/hybrid vehicles at new development sites	Promoting Low Emission Transport	Producing alternative refuelling infrastructure to promote low emissions vehicles, EV recharging, gas fuel recharging	2016	On-going	NELC & EQUAN	NELC & EQUAN	NO	Not Funded	< £10k	Implementation	Ensure developments don't have a negative impact on AQ	Number of planning applications where charging points have been secured	Environmental Protection Team review of planning applications weekly for adverse effects of AQ	Measure progressing	
13	Consideration of measures to improve air quality in all new strategies when a Strategy is reviewed or updated	Policy Guidance and development control	Other policy	2017	On-going	NELC & EQUAN	NELC & EQUAN	NO	Not Funded	< £10k	Implementation	-	Air Quality a key topic in released strategy documents	Air Quality Steering Group meets quarterly to discuss AQ issues council wide. Increasing our efforts to consider a range of environmental issues when decisions are made and business cases developed.	Measure progressing	
14	NELC Vehicle Procurement	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2016	On-going	NELC	NELC	NO	Not Funded	£1 million - £10 million	Planning	Reduced vehicle emissions	Number of vehicles replaced (in addition to normal fleet turnover)	Currently replaced 32 small diesel vehicles with 32 full electric vehicles, including the Mayor's car (18% of	Currently trying to plan how to replace larger commercial vehicles, which are either limited on	

Measure No.	Measure	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
														fleet). Also undertaking a fleet rationalisation project to try and reduce fleet	availability or are not an economically viable option. Lack of alternatives and price are limiting transition to EV.
15	Produce Air Quality Strategies setting out their plans to reduce emissions across the port estate including ship and shore activities.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2019	On-going	NELC & ABP	NELC & ABP	NO	Not Funded	< £10k	Planning	Reduce port emissions	Not quantifiable	Quarterly meetings held with ABP Environmental Team/Local authorities to ensure AQ matters are considered. ABP Port Strategy progressing working on building the inventories.	Measure progressing
16	Local air quality monitoring within the Borough to ensure a high standard of data is achieved	Public information	Other	2000	On-going	NELC	NELC	NO	Not Funded	£10k - 50k	Implementation	LAQM	Number of monitoring locations	Continue to monitor NO <sub>2</sub> levels in the borough, currently have 2 real-time monitors and 35 diffusion tubes.	Progressing as normal
17	Declared Climate Emergency in September 2019	Policy Guidance and Development Control	Other policy	2019	2050	NELC & EQUAN	NELC & EQUAN	NO	Not Funded	£1 million - £10 million	Planning	Carbon reduction	Carbon Neutral by 2050	NELC has adopted the Carbon Roadmap and Natural Assets Plan and the quarterly monitoring of progress on both of these, with an annual report to cabinet. Our First Annual Report to Cabinet has been completed with members happy with our progress to meet our Net Zero targets.	Measure progressing
18	Updating the Air Quality Strategy	Policy Guidance and development control	Air Quality Planning & Policy Guidance	2015	On-going	NELC	NELC	NO	Not Funded	< £10k	Completed	NELC Policy	Not quantifiable	Strategy adopted in 2021	Completed
19	Supplementary Planning Guidance document	Policy Guidance and development control	Air Quality Planning & Policy Guidance	N/A	On-going	NELC	NELC	NO	Not Funded	< £10k	Planning	Ensure developments don't have a negative impact on AQ	Number of planning applications with air quality conditions/ an air quality assessment	Planning Department recommended a Technical Advice note be produced. Procedure under a new measure #21	Measure progressing
20	Indoor Air Quality	Public Information	Via the Internet	2023	n/a	NELC	NELC	NO	Not Funded	<10K	Planning	Public information	Public information	Added Indoor Air Pollution onto Departmental Service Plan. New area to research and inform public on.	Attending webinars/on-line course to gain more knowledge on subject
21	Produce Developers Guidance	Policy Guidance and Development Control	Other policy	2023	2024	NELC	NELC	NO	Not Funded	< £10k	Planning	Ensure that AQ is a material consideration in the planning process	Number of requests from developers for AQ information	Added to Natural Assets Plan for 2023	Measure progressing
22	Burn Better Campaign	Public Information	Via the Internet	2023	2024	NELC	NELC	NO	Not Funded	< £10k	Planning	Targeting PM <sub>2.5</sub> emissions	Number of people reached via social media channels	No progress to date, in planning stages. Attending the LAQM Workshop around burning to gain more knowledge in this area.	
23	Clean Air Day Poster Competition	Public Information	Via the Internet	2023	2023	NELC	NELC	NO	Not Funded	<£10k	Implementation	Public information	Public information	Competition Launched, winners announced on CAD. Posters to be used on bins etc around borough.	Measure progressing
24	Bus Priority Measures	Transport Planning and Infrastructure	Bus route improvements	2023	2025	NELC/ Stagecoach East Midlands	DfT BSIP funding	No		£909,662	Planning	Reduction in congestion. Reduction in bus idle time/ journey time improvements	Increase in public transport use and reduction is bus punctuality/ journey time	NELC are reviewing a bus priority study to decide what schemes will be implemented.	Level of improvements delivered is subject to Council decision.
25	Traffic Signal Priority Programme	Transport Planning and Infrastructure	Bus route improvements	2023	2025	NELC	DfT BSIP funding	No		£271,350	Planning	Reduction in journey times, resulting in increased	Increase in public transport use and reduction is bus	Funds available April 2023, scheme is mobilised ready for delivery.	

Measure No.	Measure	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
												patronage. Less congestion/ emissions	punctuality/ journey time		
26	Fare capping by day/ week	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	2023	2025	NELC/ Stagecoach East Midlands	DfT BSIP funding	No		£257,168	Planning	Encourage modal shift/ increase patronage, resulting in less single occupancy car journeys.	Increase in patronage and potential encouragement of modal shift.	Funds available April 2023, scheme is mobilised ready for delivery.	
27	Bus Service Enhancements	Transport Planning and Infrastructure	Bus route improvements	2023	2025	NELC/ Stagecoach East Midlands	DfT BSIP funding	No		£864,000	Planning	Improved connections resulting in increased patronage/ modal shift	Increase in patronage and potential encouragement of modal shift.	Funds available April 2023, scheme is mobilised ready for delivery.	
28	High Quality Bus Interchange	Transport Planning and Infrastructure	Bus route improvements	2024	2025	NELC/ Stagecoach East Midlands	DfT BSIP funding	No		£1,705,499	Planning	Improved infrastructure/ improved facilities for passengers, increased patronage/ modal shift	Increase in patronage and potential encouragement of modal shift.	Funds available April 2023, scheme proposed for 2024/25	



## 2.3 PM<sub>2.5</sub> – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), local authorities are expected to work towards reducing emissions and/or concentrations of PM<sub>2.5</sub> (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that PM<sub>2.5</sub> has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

There are a number of measures outlined in Table 2.2 that have been implemented to reduce NO<sub>2</sub> emissions but will subsequently reduce PM<sub>2.5</sub> concentrations. Some major sources of PM<sub>2.5</sub> are road traffic from exhaust emissions, brake and tyre wear, and the resuspension of particles on the road. Thus, by reducing private vehicle use and introducing more efficient, less polluting vehicles, the concentration on PM<sub>2.5</sub> should begin to reduce.

North East Lincolnshire Council has included a specific new measure in the Air Quality Action Plan for 2023 to address PM<sub>2.5</sub> through a social media Burn Better campaign. Officers at North East Lincolnshire Council have attended workshops and will continue in 2023. The requirement for PM<sub>2.5</sub> monitoring has been highlighted to the senior management team and documented in the North East Lincolnshire Council Natural Assets Plan.



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

This section sets out the monitoring undertaken within 2022 by North East Lincolnshire Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

### 3.1 Summary of Monitoring Undertaken

#### 3.1.1 Automatic Monitoring Sites

North East Lincolnshire Council undertook automatic (continuous) monitoring at two sites during 2022. Additionally there is an AURN monitoring station location at Immingham Woodlands Avenue which is within North East Lincolnshire. Table A.1 in Appendix A shows the details of the automatic monitoring sites. The automatic monitoring results are available through the UK-Air website.

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

#### 3.1.2 Non-Automatic Monitoring Sites

North East Lincolnshire Council undertook non- automatic (i.e. passive) monitoring of NO<sub>2</sub> at 30 sites during 2022 including two triplicate sites. A total of 34 diffusion tubes were deployed in North East Lincolnshire each month. 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.

During 2022 there were no changes to the diffusion tube monitoring locations from 2021 and 2020.

## 3.2 Individual Pollutants

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

### 3.2.1 Nitrogen Dioxide (NO<sub>2</sub>)

Table A.3 and Table A.4 in Appendix A compare the ratified and adjusted monitored NO<sub>2</sub> annual mean concentrations for the past five years with the air quality objective of 40µg/m<sup>3</sup>. 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).

During 2022, a maximum NO<sub>2</sub>, annual mean concentration of 36.7 µg/m<sup>3</sup> was recorded at the triplicate co-location at 112 Cleethorpe Road (NEL11, NEL12 and NEL13) within the Grimsby AQMA. This monitoring location has shown a decrease in concentrations compared to 2021 of 2.4 µg/m<sup>3</sup> however, the monitored concentration is still within 10% of the annual mean NO<sub>2</sub> objective of 40 µg/m<sup>3</sup>. Within the AQMA, the other passive monitoring locations recorded concentrations of 31.5 µg/m<sup>3</sup> and 31.3 µg/m<sup>3</sup> for NEL14 and NEL15 respectively. These concentrations are below than the annual mean NO<sub>2</sub> objective and demonstrate a decrease compared with 2021 recorded concentrations. Given the monitored concentration within 10% of the annual mean NO<sub>2</sub> air quality objective is within the AQMA, revocation of the AQMA is not proposed.

Outside the AQMA, the maximum recorded NO<sub>2</sub> concentration was 32.3 µg/m<sup>3</sup> at 8 Town Hall Street in Grimsby. No monitoring location outside the AQMA recorded concentrations within 10% of the annual mean NO<sub>2</sub> objective.

For diffusion tubes, the full 2022 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in Appendix A compares the ratified continuous monitored NO<sub>2</sub> hourly mean concentrations for the past five years with the air quality objective of 200µg/m<sup>3</sup>, not to be exceeded more than 18 times per year.

During 2022 there were no exceedances of the NO<sub>2</sub> hourly objective of 200 µg/m<sup>3</sup>, with the maximum hourly concentration recorded at the three automatic monitoring stations being 97.5 µg/m<sup>3</sup> (AURN Immingham Woodlands Avenue), 126.0 µg/m<sup>3</sup> (Cleethorpes Road) and 145.0 µg/m<sup>3</sup> (Peaks Parkway). In addition, no single diffusion tube recorded an annual mean concentration greater than 60 µg/m<sup>3</sup>, indicating that it is unlikely that the 1-hour objective was exceeded at any diffusion tube monitoring site in 2022.

In summary, relative to the previous reporting year, NO<sub>2</sub> annual mean concentrations have decreased at every single diffusion tube site. Additionally, all reported concentrations were below the NO<sub>2</sub> annual mean AQS objective (40 µg/m<sup>3</sup>) in 2022. The NO<sub>2</sub> annual mean concentration recorded at the three automatic monitoring sites was less than 2021 concentrations and well below the AQS objective. For example, annual NO<sub>2</sub> concentrations of 11.7 µg/m<sup>3</sup> (AURN Immingham Woodlands Avenue), 29.6 µg/m<sup>3</sup> (Cleethorpes Road) and 26.3 µg/m<sup>3</sup> (Peaks Parkway) were recorded in 2022. Therefore, both the annual mean and hourly objective of NO<sub>2</sub> were not breached during 2022.

## 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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Inlet Height (m)
AURN	Immingham Woodlands Avenue	Urban Background	518277	415116	NO <sub>2</sub>	NO	Chemiluminescent	10	4	3
Cleethorpe Road	Cleethorpe Road	Roadside	527767	410414	NO <sub>2</sub>	YES (Grimsby AQMA)	Serinus 40 Oxides	0	2	2
Peaks Parkway	Peaks Parkway	Kerbside	527540	408080	NO <sub>2</sub>	NO	Serinus 40 Oxides	20	1.5	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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NEL 1	Victoria Street West, The Friary PH	Kerbside	526838	409261	NO <sub>2</sub>	NO	5.0	2.0	NO	2.0
NEL 2	8 Town Hall Street	Roadside	527095	409367	NO <sub>2</sub>	NO	5.0	2.0	NO	2.0
NEL 3	1 Town Hall Street	Roadside	527100	409400	NO <sub>2</sub>	NO	10.0	2.0	NO	2.0
NEL 4	Fryston House, Grimsby AQM Station	Roadside	526583	408047	NO <sub>2</sub>	NO	50.0	3.0	NO	2.0
NEL 5	192 Littlecoates Road, Bradley roundabout	Roadside	524350	407765	NO <sub>2</sub>	NO	13.0	2.0	NO	2.0
NEL 6	Toll Bar Roundabout, A16 New Waltham	Roadside	527748	404396	NO <sub>2</sub>	NO	31.0	2.0	NO	2.0
NEL 8	Peaks Parkway & Welholme Road, Grimsby	Kerbside	527403	408666	NO <sub>2</sub>	NO	8.0	1.0	NO	2.0
NEL 9	76 Freeman Street, Grimsby	Kerbside	527665	410164	NO <sub>2</sub>	NO	0.0	2.0	NO	2.0
NEL 10	Aylesby Road Grimsby	Roadside	523284	409883	NO <sub>2</sub>	NO	0.0	2.0	NO	2.0
NEL 11, NEL 12, NEL 13	112 Cleethorpe Road, Grimsby	Roadside	527761	410425	NO <sub>2</sub>	YES	0.0	2.0	YES	2.0
NEL 14	113 Cleethorpe Road, Grimsby	Kerbside	527754	410445	NO <sub>2</sub>	YES	5.0	<1	NO	2.0
NEL 15	123 Cleethorpe Road, Grimsby	Kerbside	527789	410438	NO <sub>2</sub>	YES	5.0	<1	NO	2.0
NEL 16	6 Freeman St, Riby Square	Kerbside	527693	410413	NO <sub>2</sub>	NO	0.0	1.5	NO	2.0
NEL 17	Park Street	Roadside	528725	410102	NO <sub>2</sub>	NO	0.0	3.0	NO	2.0
NEL 18	Victor Street	Kerbside	528171	410338	NO <sub>2</sub>	NO	7.0	1.0	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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NEL 19	Victoria Street North, Victoria Mills A	Kerbside	527165	409995	NO <sub>2</sub>	NO	0.0	2.0	NO	2.0
NEL 20	Victoria Street North, Victoria Mills B	Kerbside	527182	410092	NO <sub>2</sub>	NO	0.0	2.0	NO	2.0
NEL 21	9 Pyewipe Road, Grimsby	Roadside	526077	410124	NO <sub>2</sub>	NO	0.0	2.0	NO	2.0
NEL 22	Great Cotes Road/Yarborough Rd	Roadside	524666	408814	NO <sub>2</sub>	NO	5.0	2.0	NO	2.0
NEL 23	Kings Road, Immingham AQM Station	Roadside	519193	415279	NO <sub>2</sub>	NO	20.0	1.0	NO	2.0
NEL 24	Bluestone, Immingham	Kerbside	517543	414312	NO <sub>2</sub>	NO	10.0	1.0	NO	2.0
NEL 25	St Margret/Pelham Ave, Immingham	Kerbside	518108	414533	NO <sub>2</sub>	NO	29.0	0.5	NO	2.0
NEL 26	Love Lane Corner, Grimsby	Roadside	528891	408078	NO <sub>2</sub>	NO	14.0	2.0	NO	2.0
NEL 27	Hewitts Circus, Cleethopres	Roadside	529532	406835	NO <sub>2</sub>	NO	6.0	2.0	NO	2.0
NEL 28	Toll Bar Roundabout, New Waltham	Kerbside	527716	404516	NO <sub>2</sub>	NO	13.0	2.0	NO	2.0
NEL 29	Louth Road & Waltham Road, Grimsby	Roadside	526465	406334	NO <sub>2</sub>	NO	3.0	2.0	NO	2.0
NEL 30	Victoria Street South	Roadside	527181	409513	NO <sub>2</sub>	NO	0.0	2.0	NO	2.0
NEL 31	Lampost Magistrates Court	Kerbside	527183	409647	NO <sub>2</sub>	NO	3.0	2.0	NO	2.0
NEL 32	Drainpipe Pink Butterfly	Kerbside	527189	409621	NO <sub>2</sub>	NO	0.0	2.0	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) <sup>(1)</sup>	Distance to kerb of nearest road (m) <sup>(2)</sup>	Tube Co-located with a Continuous Analyser?	Tube Height (m)
NEL 7, NEL 33, NEL 34	Weelsby Road AQ Station C	Roadside	527540	408080	NO <sub>2</sub>	NO	20.0	2.0	YES	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 NO<sub>2</sub> Monitoring Results: Automatic Monitoring (µg/m<sup>3</sup>)**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
AURN	518277	415116	Urban Background	93.5	93.5	13.9	13.5	11.0	12.1	11.7
Cleethorpe Road	527767	410414	Roadside	92.6	92.6	-	32.0	26.0	33.4	29.6
Peaks Parkway	527540	408080	Kerbside	100	100	-	-	20.0	29.2	26.3

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<sup>3</sup>.

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> 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%).



Annual Mean NO<sub>2</sub> Concentration (µg.m<sup>-3</sup>)Table A.4 – Annual Mean NO<sub>2</sub> Monitoring Results: Non-Automatic Monitoring (µg/m<sup>3</sup>)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
NEL 1	526838	409261	Kerbside	82.7	82.7	30.3	28.9	26.3	32.2	28.1
NEL 2	527095	409367	Roadside	82.7	82.7	33.6	33.3	30.3	33.9	32.3
NEL 3	527100	409400	Roadside	82.7	82.7	32.0	30.4	25.7	32.3	28.0
NEL 4	526583	408047	Roadside	82.7	82.7	25.1	26.1	22.9	27.0	24.6
NEL 5	524350	407765	Roadside	75.0	75.0	-	22.1	20.1	22.0	20.3
NEL 6	527748	404396	Roadside	82.7	82.7	-	17.4	12.0	17.5	15.1
NEL 8	527403	408666	Kerbside	75.0	75.0	28.8	28.5	23.6	28.2	25.9
NEL 9	527665	410164	Kerbside	82.7	82.7	21.4	21.1	16.4	19.5	17.5
NEL 10	523284	409883	Roadside	82.7	82.7	21.2	19.9	16.4	18.9	16.6
NEL 11, NEL 12, NEL 13	527761	410425	Roadside	82.7	82.7	38.0	37.8	32.7	39.1	36.7
NEL 14	527754	410445	Kerbside	75.0	75.0	33.3	31.6	28.2	34.2	31.5
NEL 15	527789	410438	Kerbside	75.0	75.0	32.9	31.0	28.0	35.8	31.3
NEL 16	527693	410413	Kerbside	82.7	82.7	30.9	28.9	28.4	31.8	27.2
NEL 17	528725	410102	Roadside	67.3	67.3	30.6	29.6	26.4	31.8	28.1
NEL 18	528171	410338	Kerbside	67.3	67.3	33.6	32.4	30.9	35.2	31.2
NEL 19	527165	409995	Kerbside	73.1	73.1	29.8	29.6	27.0	27.5	25.2
NEL 20	527182	410092	Kerbside	82.7	82.7	33.1	32.9	29.7	34.8	28.0
NEL 21	526077	410124	Roadside	82.7	82.7	26.9	25.2	22.5	27.2	23.8
NEL 22	524666	408814	Roadside	50.0	50.0	24.3	23.8	19.2	23.8	21.6
NEL 23	519193	415279	Roadside	82.7	82.7	26.6	24.5	21.1	25.3	21.7
NEL 24	517543	414312	Kerbside	82.7	82.7	-	16.5	12.5	15.0	14.6
NEL 25	518108	414533	Kerbside	82.7	82.7	-	19.1	16.0	18.2	17.6
NEL 26	528891	408078	Roadside	82.7	82.7	21.0	20.7	15.1	21.9	19.8
NEL 27	529532	406835	Roadside	82.7	82.7	19.8	22.5	19.1	23.2	21.0
NEL 28	527716	404516	Kerbside	82.7	82.7	24.9	23.9	20.6	21.6	19.8
NEL 29	526465	406334	Roadside	82.7	82.7	22.5	22.4	18.9	23.6	20.5
NEL 30	527181	409513	Roadside	82.7	82.7	29.4	27.0	22.6	29.6	26.7
NEL 31	527183	409647	Kerbside	82.7	82.7	29.5	27.2	20.6	25.6	23.9
NEL 32	527189	409621	Kerbside	82.7	82.7	29.1	26.6	22.3	27.1	24.6

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
NEL 7, NEL 33, NEL 34	527540	408080	Roadside	82.7	82.7	-	-	20.0	23.6	21.9

**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  $\mu\text{g}/\text{m}^3$ .

Exceedances of the NO<sub>2</sub> annual mean objective of  $40\mu\text{g}/\text{m}^3$  are shown in **bold**.

NO<sub>2</sub> annual means exceeding  $60\mu\text{g}/\text{m}^3$ , indicating a potential exceedance of the NO<sub>2</sub> 1-hour mean objective are shown in **bold and underlined**.

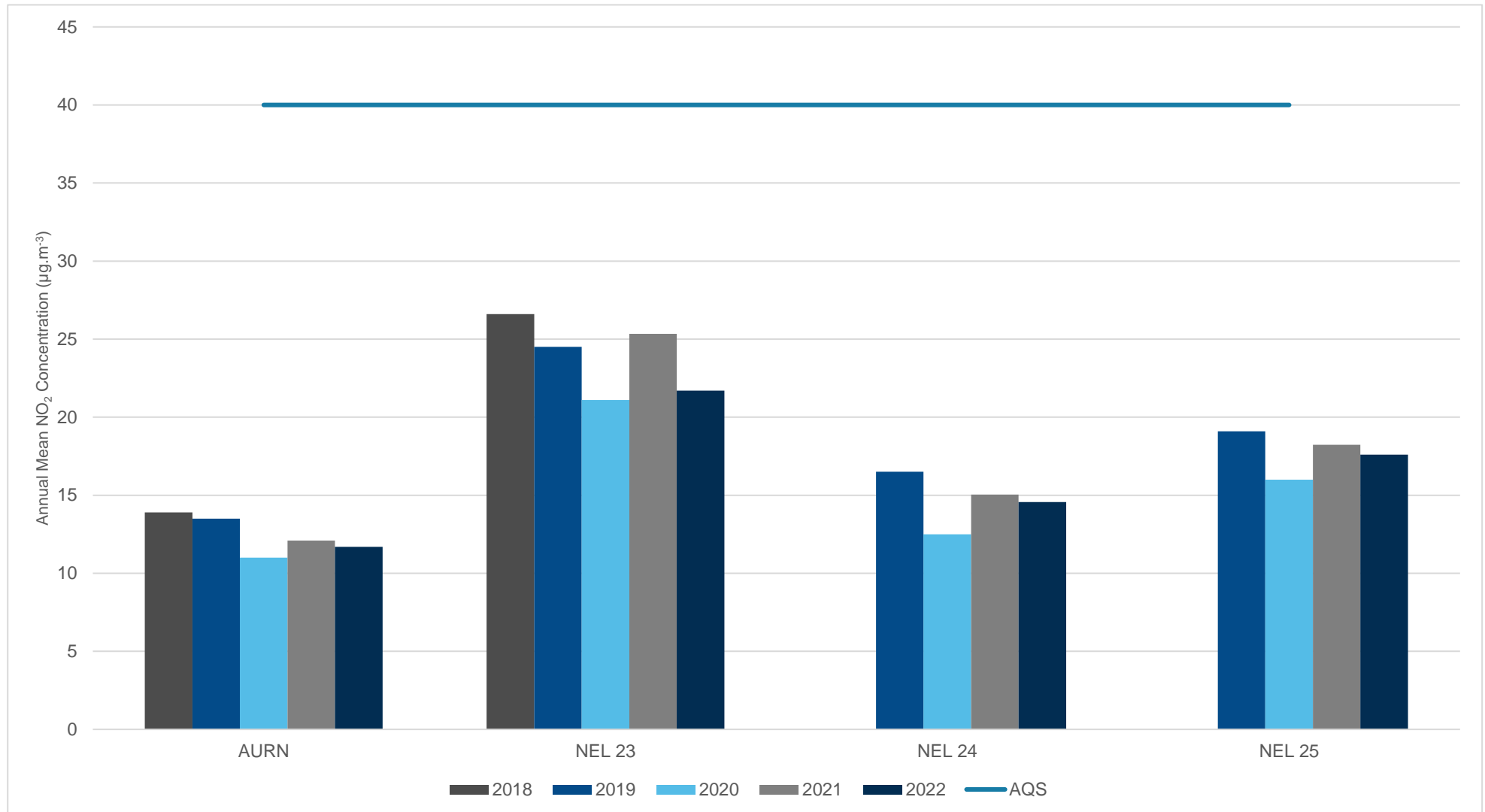
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

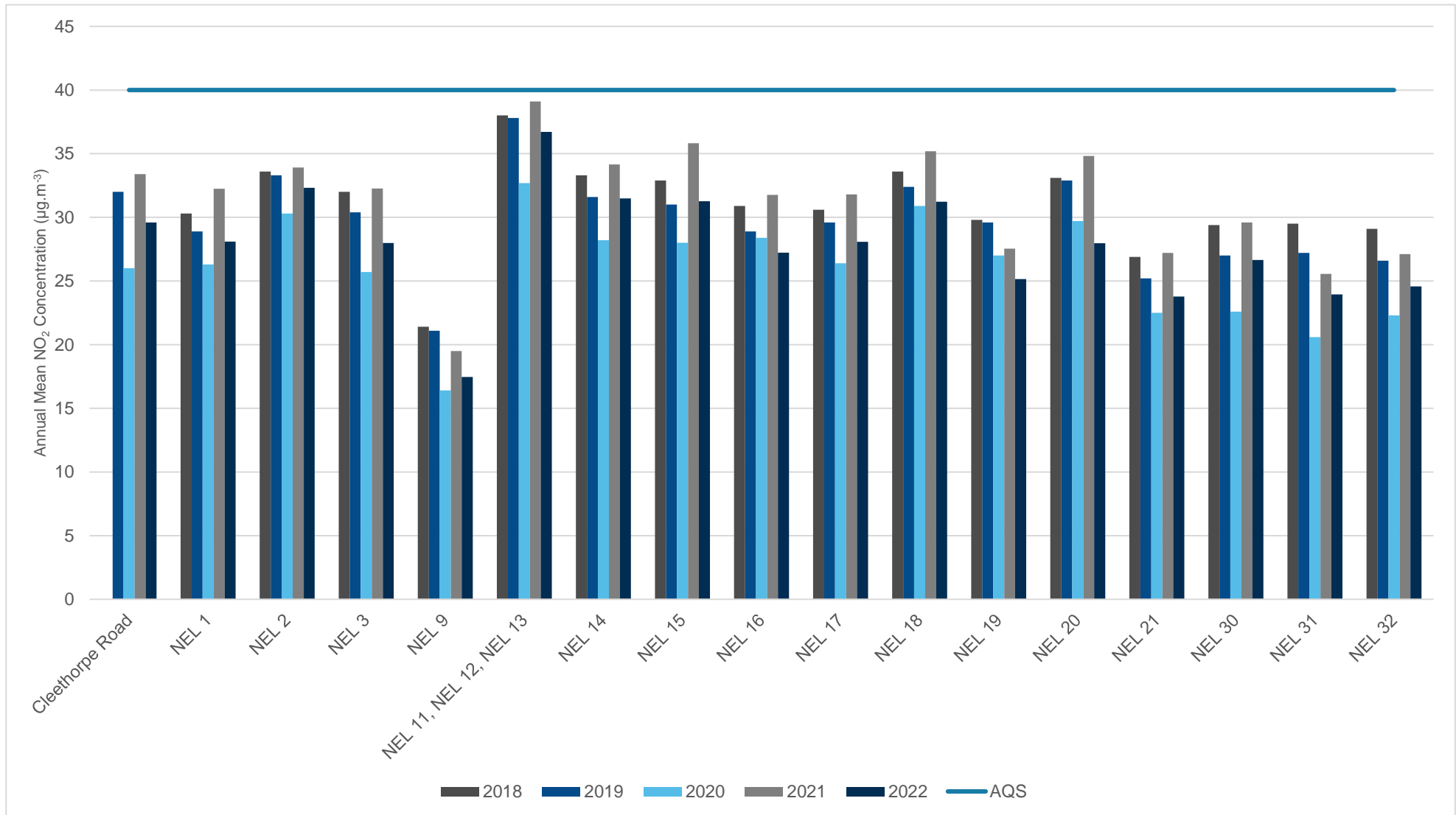
(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

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

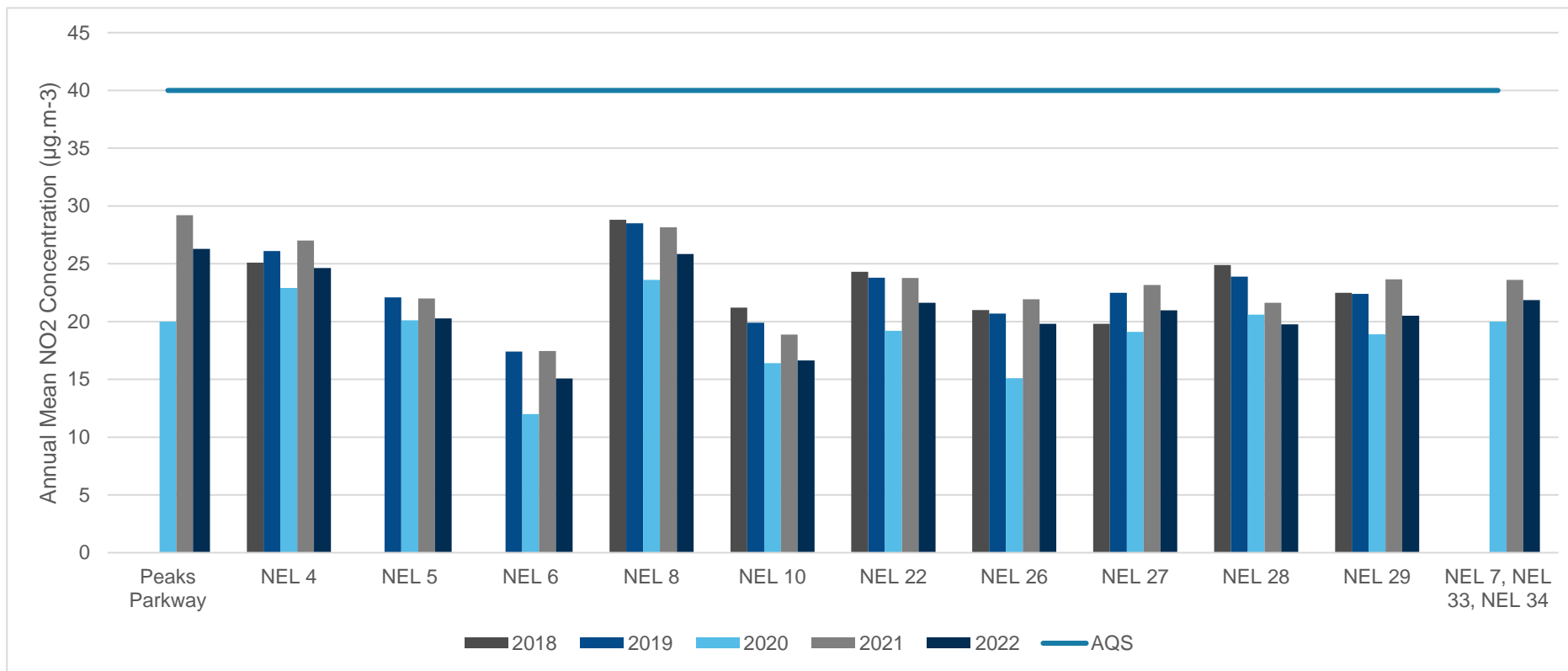
**Figure A.1 – Trends in Annual Mean NO<sub>2</sub> Concentrations in Immingham**



**Figure A.2 – Trends in Annual Mean NO<sub>2</sub> Concentrations in Grimsby**



**Figure A.3 – Trends in Annual Mean NO<sub>2</sub> Concentrations in Wider North East Lincolnshire**



**Table A.5 – 1-Hour Mean NO<sub>2</sub> Monitoring Results, Number of 1-Hour Means > 200µg/m<sup>3</sup>**

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) <sup>(1)</sup>	Valid Data Capture 2022 (%) <sup>(2)</sup>	2018	2019	2020	2021	2022
AURN	518277	415116	Urban Background	93.5	93.5	0 (27.5)	0	0	0	0
Cleethorpe Road	527767	410414	Roadside	92.6	92.6	-	0	0	0	0
Peaks Parkway	527540	408080	Kerbside	100	100	-	-	0	0	0

**Notes:**

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

Exceedances of the NO<sub>2</sub> 1-hour mean objective (200µg/m<sup>3</sup> 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%).

## Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO<sub>2</sub> 2022 Diffusion Tube Results (µg/m<sup>3</sup>)

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
NEL 1	526838	409261	45.5	37.4	41.5	34.6	32.6	29.4	25.7	34.2	30.9			42.3	35.4	28.1	-	
NEL 2	527095	409367	51.3	40.7	46.1	33.0	40.7	36.7	38.3	38.7	38.5			43.2	40.7	32.3	-	
NEL 3	527100	409400	40.7	31.8	46.9	35.8	30.5	28.1	31.7	32.2	34.0			40.9	35.3	28.0	-	
NEL 4	526583	408047	42.6	31.3	32.0	26.2	28.5	24.9	25.1	27.4	30.6			41.9	31.1	24.6	-	
NEL 5	524350	407765	36.7	20.0	38.8	20.4	19.5	17.8	missing	21.2	22.3			33.1	25.5	20.3	-	
NEL 6	527748	404396	21.3	13.5	27.0	21.2	15.0	12.5	18.4	20.0	20.9			20.2	19.0	15.1	-	
NEL 8	527403	408666	41.2	28.1	39.4	29.9	26.6	missing	30.1	30.2	29.4			38.3	32.6	25.9	-	
NEL 9	527665	410164	32.7	20.8	30.7	18.6	17.1	16.5	17.3	19.4	20.2			26.8	22.0	17.5	-	
NEL 10	523284	409883	31.0	18.2	24.8	18.5	18.4	14.6	17.3	18.2	21.3			27.3	21.0	16.6	-	
NEL 11	527761	410425	50.0	54.4	61.0	42.8	44.0	42.5	49.2	44.3	40.3			46.6	-	-	-	Triplicate Site with NEL 11, NEL 12 and NEL 13 - Annual data provided for NEL 13 only
NEL 12	527761	410425	55.1	47.6	56.3	39.7	46.2	40.3	43.0	41.4	39.6			49.4	-	-	-	Triplicate Site with NEL 11, NEL 12 and NEL 13 - Annual data provided for NEL 13 only
NEL 13	527761	410425	52.7	45.5	57.6	39.2	44.3	43.4	42.2	41.9	38.6			48.9	46.3	36.7	-	Triplicate Site with NEL 11, NEL 12 and NEL 13 - Annual data provided for NEL 13 only
NEL 14	527754	410445	47.9	36.0	45.8	41.0	37.9	29.4	missing	35.1	41.3			42.6	39.7	31.5	-	
NEL 15	527789	410438	42.0	33.7	52.2	42.6	32.2	31.3	missing	39.9	38.4			42.3	39.4	31.3	-	
NEL 16	527693	410413	52.6	9.1	36.2	33.9	33.9	33.8	28.8	33.0	37.0			44.8	34.3	27.2	-	
NEL 17	528725	410102	41.0	33.6	47.1	31.3	35.9	35.6	missing	missing	33.3			40.7	37.3	28.1	-	
NEL 18	528171	410338	58.2	45.2	35.8	37.3	39.0	30.6	missing	missing	38.0			48.0	41.5	31.2	-	
NEL 19	527165	409995	40.2	31.0	31.2	26.4	missing	26.2	24.7	30.6	33.5			41.5	31.7	25.2	-	
NEL 20	527182	410092	44.9	38.3	40.3	29.2	30.1	29.0	31.6	33.2	30.9			44.9	35.2	28.0	-	
NEL 21	526077	410124	39.3	24.9	38.5	28.8	25.1	22.3	23.4	27.9	29.9			39.6	30.0	23.8	-	
NEL 22	524666	408814	missing	missing	34.2	missing	24.8	missing	22.5	22.4	25.7			31.2	26.8	21.6	-	
NEL 23	519193	415279	40.4	14.8	37.6	29.4	21.5	19.9	21.7	28.3	26.7			33.1	27.3	21.7	-	
NEL 24	517543	414312	22.2	8.2	30.6	17.0	15.2	19.2	15.4	17.5	16.5			21.6	18.3	14.6	-	

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
NEL 25	518108	414533	34.3	14.1	24.9	23.7	20.2	15.6	17.9	21.1	22.1			27.8	22.2	17.6	-	
NEL 26	528891	408078	29.4	23.0	31.8	25.7	23.1	23.0	21.5	24.3	21.2			26.6	25.0	19.8	-	
NEL 27	529532	406835	34.3	25.6	33.2	19.7	20.7	23.0	23.6	22.8	25.5			35.9	26.4	21.0	-	
NEL 28	527716	404516	34.5	25.2	30.7	16.7	21.8	22.0	21.4	22.1	22.4			32.3	24.9	19.8	-	
NEL 29	526465	406334	31.5	26.3	21.9	26.0	22.9	22.9	23.4	25.1	27.0			31.5	25.9	20.5	-	
NEL 30	527181	409513	37.2	29.2	48.7	32.5	20.1	28.1	31.3	33.5	36.2			39.1	33.6	26.7	-	
NEL 31	527183	409647	39.0	26.1	44.5	23.1	25.9	24.3	26.0	23.8	29.1			39.9	30.2	23.9	-	
NEL 32	527189	409621	32.7	27.5	46.2	27.1	23.4	25.2	31.0	29.8	32.3			34.4	31.0	24.6	-	
NEL 7	527540	408080	31.3	23.6	40.0	27.6	17.1	18.9	23.8	25.0	24.1			33.6	-	-	-	Triplicate Site with NEL 7, NEL 33 and NEL 34 - Annual data provided for NEL 34 only
NEL 33	527540	408080	34.5	24.7	44.7	28.4	19.0	19.4	22.9	21.7	25.2			36.1	-	-	-	Triplicate Site with NEL 7, NEL 33 and NEL 34 - Annual data provided for NEL 34 only
NEL 34	527540	408080	38.7	27.2	40.5	29.0	20.3	18.0	22.8	26.3	26.7			34.9	27.5	21.9	-	Triplicate Site with NEL 7, NEL 33 and NEL 34 - Annual data provided for NEL 34 only

All erroneous data has been removed from the NO<sub>2</sub> 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 East Lincolnshire Council confirm that all 2022 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

#### Notes:

Exceedances of the NO<sub>2</sub> annual mean objective of 40µg/m<sup>3</sup> are shown in **bold**.

NO<sub>2</sub> annual means exceeding 60µg/m<sup>3</sup>, indicating a potential exceedance of the NO<sub>2</sub> 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 East Lincolnshire During 2022

The North East Lincolnshire Council Environmental Protection department reviewed over 660 planning applications during 2022.

Air quality assessments were requested from ten developments in 2022 including:

- DM/0066/22/PREAPP – Louth Rd, New Waltham
- DM/0202/22/FUL – Poplar Road Business Units Cleethorpes
- DM/0178/22/PREAPP - Land Adjacent to Matthew Telford Park, Grimsby
- Pre-App – TD034-22 – New School, Waltham
- DM/0261/22/PREAPP – Hain Dainels Group, Lakeside, Healing
- DM/0844/22/SCR – Port Of Immingham Lockside Road, Immingham Docks, Immingham
- DM/0379/22/PREAPP - Land off Louth Road, Scartho
- Pre-App – Land at and adj Grimsby Ice Factory
- DM/0709/22/SCR – Screening Acknowledgement
- DM/0168/20/PREAPP – Preapp at Former Pleasure Island Theme Park

In addition, air quality assessments were submitted for ten developments in 2022, including:

- DM/0873/21/FUL – Doughty Road Depot, Grimsby, DN32 0LL
- Pre App – Beacon Academy - AQ Feasibility Study
- DM/0068/22/OUT – Church Lane, Humberston
- DM/1240/21/FUL – Louth Road, New Waltham
- DM/0522/21/REM – Fieldhead Road, Laceby
- DM/0528/22/CND – Mathew Telford Way, Scartho
- DM/1149/21/FUL – Scartho Top sub phases 2CQ and 2D
- DM/0969/22/SCR – Moody Lane - Tyre Pyrolysis - still pending consideration
- DM/0979/22/FUL – Freshney Place, Grimsby

- Environmental Impact Assessment Scoping Report – Immingham Green Energy Terminal
  - The Immingham Green Energy Terminal is a proposal by Associated British Ports to construct and facilitate the operation by multiple users of a multi-user liquid bulk jetty, which would be located on the eastern side of the Port of Immingham.

## Development Consent Orders

### Humber Zero Projection

Humber Zero is a large-scale decarbonisation project that aims to remove up to 8 million tonnes of carbon dioxide per year from the Immingham Industrial Cluster by 2030. The project is being advanced in partnership by Phillips 66 and VPI Immingham who own/operate the Humber Refinery and VPI Immingham combined heat and power (CHP) plant. The first phase of the project will involve the development of post-combustion carbon capture plants for the Humber Refinery's Fluid Catalytic Cracker (FCC) stack and two gas turbines and auxiliary boilers at the VPI Immingham CHP plant (see indicative plan below). AECOM has been appointed to undertake the Environmental Impact Assessment (EIA) for these developments and is currently preparing an EIA Scoping Report.

### V Net Zero Pipeline

Proposal for a new pipeline from Immingham to the former gas terminal at Theddlethorpe in Lincolnshire. It relates to a carbon capture scheme. It will be submitted to the Planning Inspectorate for a DCO under the NSIP process

### Immingham Eastern Ro-Ro Terminal Development

Associated British Ports (ABP), the owner and operator of the Port of Immingham is proposing to construct a new roll-on/roll-off (Ro-Ro) facility within the Port. The new Terminal will be designed to service the embarkation and disembarkation of principally commercial and automotive traffic, possibly with provision for a small element of passenger use during quiet periods. The proposed development will involve marine works within the Humber Estuary and landside works on the existing statutory port estate. The proposed development, which will be taken forward as a Nationally Significant Infrastructure Project (NSIP) will be known as the Immingham Eastern Ro-Ro Terminal.

## **Additional Air Quality Works Undertaken by North East Lincolnshire During 2022**

North East Lincolnshire Council has not completed any additional works within the reporting year of 2022.

### **QA/QC of Diffusion Tube Monitoring**

The diffusion tubes used during 2022 were supplied and analysed by SOCOTEC Didcot and were prepared using the 50% TEA in acetone preparation method. SOCOTEC Didcot, a UKAS accredited laboratory, participate in the AIR-PT scheme for NO<sub>2</sub> diffusion tube analysis and Annual Field Intercomparison Exercise. These provide strict criteria relating to performance that participating laboratories must meet, thereby ensuring that the reported NO<sub>2</sub> concentrations are of a high calibre. In the first two rounds of results during 2022, running from January – June (AIR-PT AR049 and AR050), SOCOTEC Didcot were awarded a score of 100% – the percentage score is an indication of the results deemed satisfactory based upon the z-score of  $< \pm 2$ . At the time of writing this report, the AIR-PT results for June 2022 onwards were not available. For all observations during 2022, the precision of NO<sub>2</sub> diffusion tubes supplied by SOCOTEC Didcot was classified as ‘good’ for all but three. The precision is an indication of the laboratory’s performance and consistency in the preparation, analysis and handling of the diffusion tubes (full details of the precision results are available [here](#)).

For the months of 2022 in which data was obtained (January – December, with the exception of October/November), all diffusion tubes were deployed in line with the national monitoring calendar ( $\pm 2$  days either side of the changeover date). Therefore, no single diffusion tube site was exposed beyond the 4-5 week recommendation of LAQM TG(22), providing an overall high level of data capture for 2022.

### **Diffusion Tube Annualisation**

Annualisation is required for any site with data capture less than 75% but greater than 25%. Table C.1 details the annualisation factor calculations undertaken for three sites in 2022. Annualisation was performed by calculating an average annualisation factor using from three automatic background monitoring stations that are within a 50 mile radius. The selected sites with sufficient data capture were all part of the AURN and included: Immingham Woodlands Avenue (Urban Background), Hull Freetown (Urban Background)

and Sheffield Devonshire Green (Urban Background) and Sheffield Tinsley (Urban Background). Data capture at Sheffield Tinsley (Urban Background) was not included in calculations as data capture was below 85%.

**Table C.1 – Annualisation Summary (concentrations presented in  $\mu\text{g}/\text{m}^3$ )**

Site ID	Annualisation Factor Immingham Woodlands	Annualisation Factor Hull Freetown	Annualisation Factor Sheffield Tinsley	Annualisation Factor Sheffield Devonshire Green	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
NEL 17	0.9104	0.9664	<85% data capture therefore not used	0.9670	0.9479	37.3	35.4
NEL 18	0.9104	0.9664		0.9670	0.9479	41.5	39.4
NEL 22	0.9637	1.0841		1.0042	1.0173	26.8	27.3

### Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG22 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from  $\text{NO}_x/\text{NO}_2$  continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

North East Lincolnshire Council have applied a local bias adjustment factor of 0.79 to the 2022 monitoring data, which is derived from the two co-location studies that were conducted in 2022. Triplicate diffusion tubes were co-located with the automatic monitoring stations at Cleethorpes Road and Peaks Parkway. Each of the sites had good data capture, both for the automatic monitoring station and the triplicate diffusion tubes. The national bias adjustment factor for diffusion tubes supplied by SOCOTEC Didcot using the 50% TEA in acetone preparation method was 0.76 in 2022 (based on 26 studies). Therefore, North East Lincolnshire Council have applied the locally derived adjustment factor to the 2022 data, not only due to good data capture, but also because this is the more conservative approach. A summary of bias adjustment factors used by North East Lincolnshire Council over the past five years is presented in Table C.2. Calculations of the local factor are shown in Table C.3.

**Table C.2 – Bias Adjustment Factor**

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	Local	n/a	0.79
2021	Local	n/a	0.88
2020	National	03/21	0.77
2019	National	03/20	0.75
2018	National	03/19	0.76

The local bias adjustment factor was calculated utilising the two triplicate monitoring locations within the North East Lincolnshire authority area in 2022.

**Table C.3 – 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	10	10	-	-	-
Bias Factor A	0.67 (0.62 - 0.73)	0.97 (0.82 - 1.19)	-	-	-
Bias Factor B	49% (37% - 62%)	3% (-16% - 22%)	-	-	-
Diffusion Tube Mean ( $\mu\text{g}/\text{m}^3$ )	46.3	28.0	-	-	-
Mean CV (Precision)	4.7%	7.0%	-	-	-
Automatic Mean ( $\mu\text{g}/\text{m}^3$ )	31.0	27.2	-	-	-
Data Capture	98%	98%	-	-	-
Adjusted Tube Mean ( $\mu\text{g}/\text{m}^3$ )	31 (29 – 34)	27 (23-33)	-	-	-

**Notes:**

A combined local bias adjustment factor has been used to bias adjust the 2022 diffusion tube results.

**NO<sub>2</sub> Fall-off with Distance from the Road**

All monitoring locations are representative of exposure therefore no NO<sub>2</sub> fall-off with distance calculations were undertaken in 2022.

**Automatic Monitoring**

Air quality measurements from the Cleethorpes Road and Peaks Parkway automatic monitoring stations are validated and ratified by Air Quality Data Management (AQDM) to the standards described in LAQM TG.22. Regular calibrations with certified gas standards

are used to measure the zero and sensitivity. Ratification of the data generally occurs at three, six or twelve month intervals; however, unexpected faults can be identified during any routine servicing or independent audits which are often carried out at six month intervals.

The Immingham Woodlands Avenue automatic monitoring station is part of the AURN operated by Bureau Veritas. The AURN have appointed LSO's and servicing is conducted by Acoem UK on a six monthly basis. Audits are conducted by Ricardo-AEA Ltd annually. Live and historic data is available through the Defra [website](#).

### **Automatic Monitoring Annualisation**

All automatic monitoring locations within North East Lincolnshire Council recorded data capture of greater than 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.

### **NO<sub>2</sub> Fall-off with Distance from the Road**

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO<sub>2</sub> concentration at the nearest location relevant for exposure has been estimated using the NO<sub>2</sub> fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO<sub>2</sub> concentrations corrected for distance are presented in Table B.1. No automatic NO<sub>2</sub> monitoring locations within North East Lincolnshire Council required distance correction during 2022.



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

Figure D.1 – Map of Monitoring Sites in Immingham

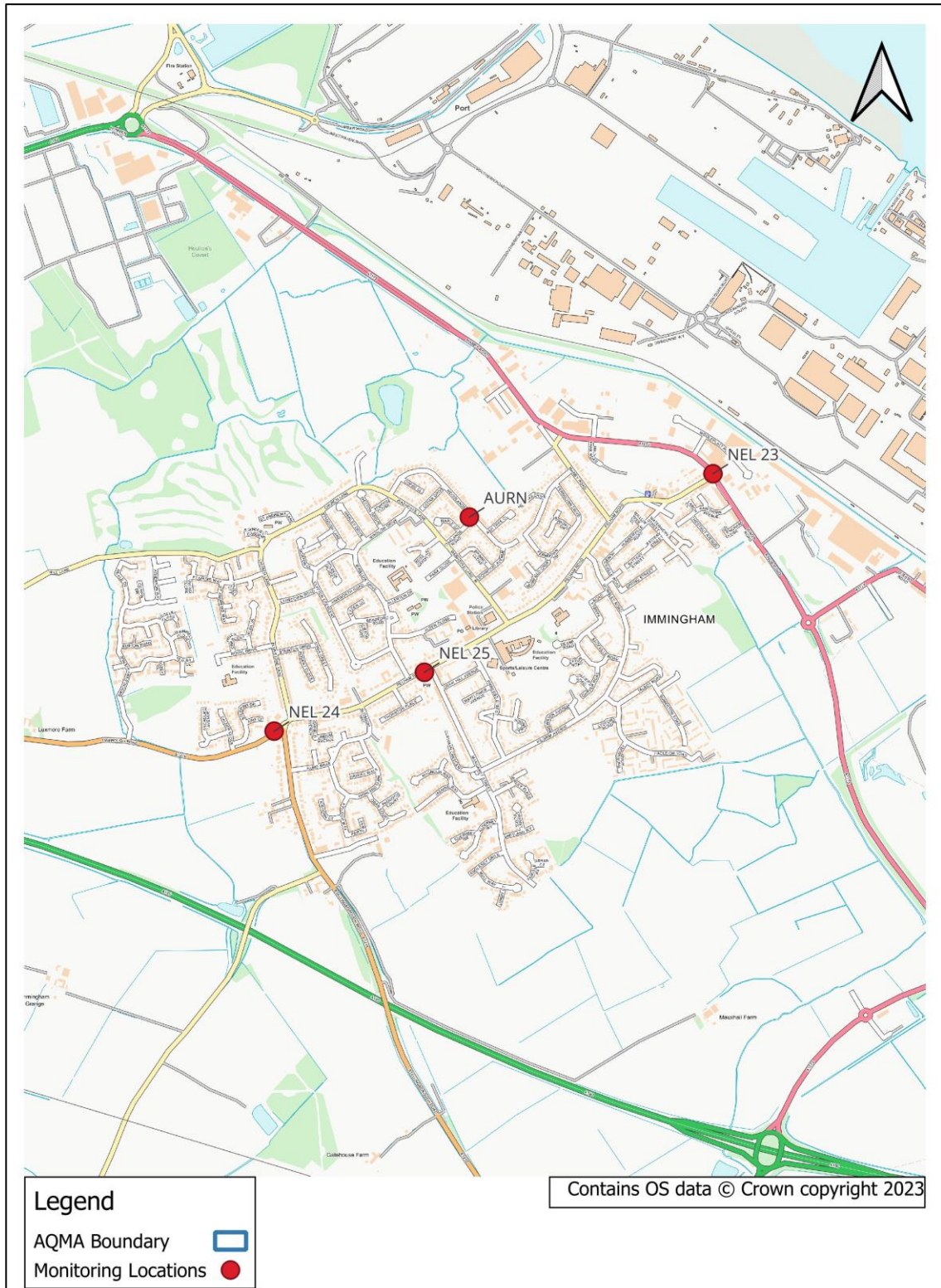




Figure D.2 – Map of Monitoring Sites in Grimsby AQMA

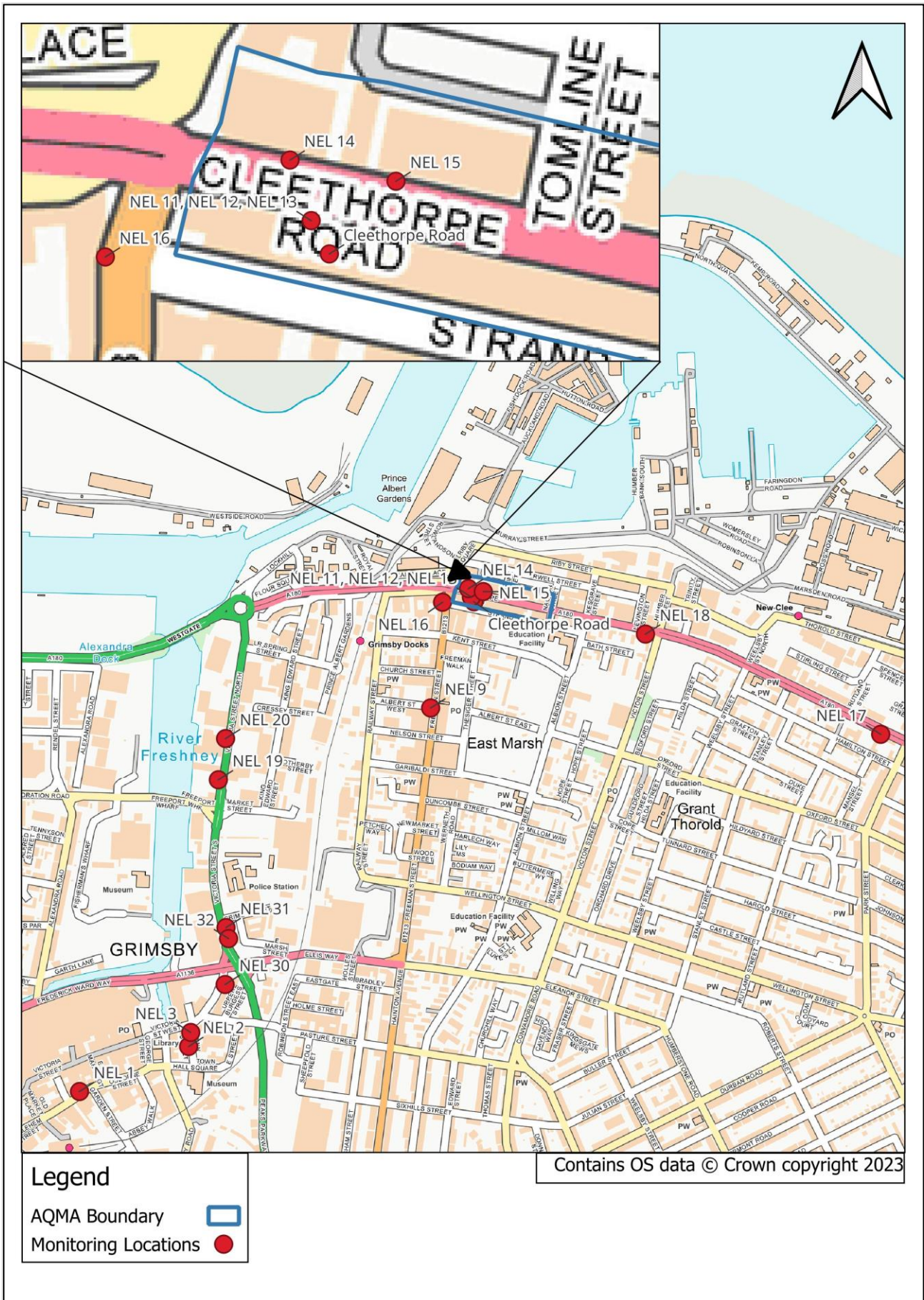
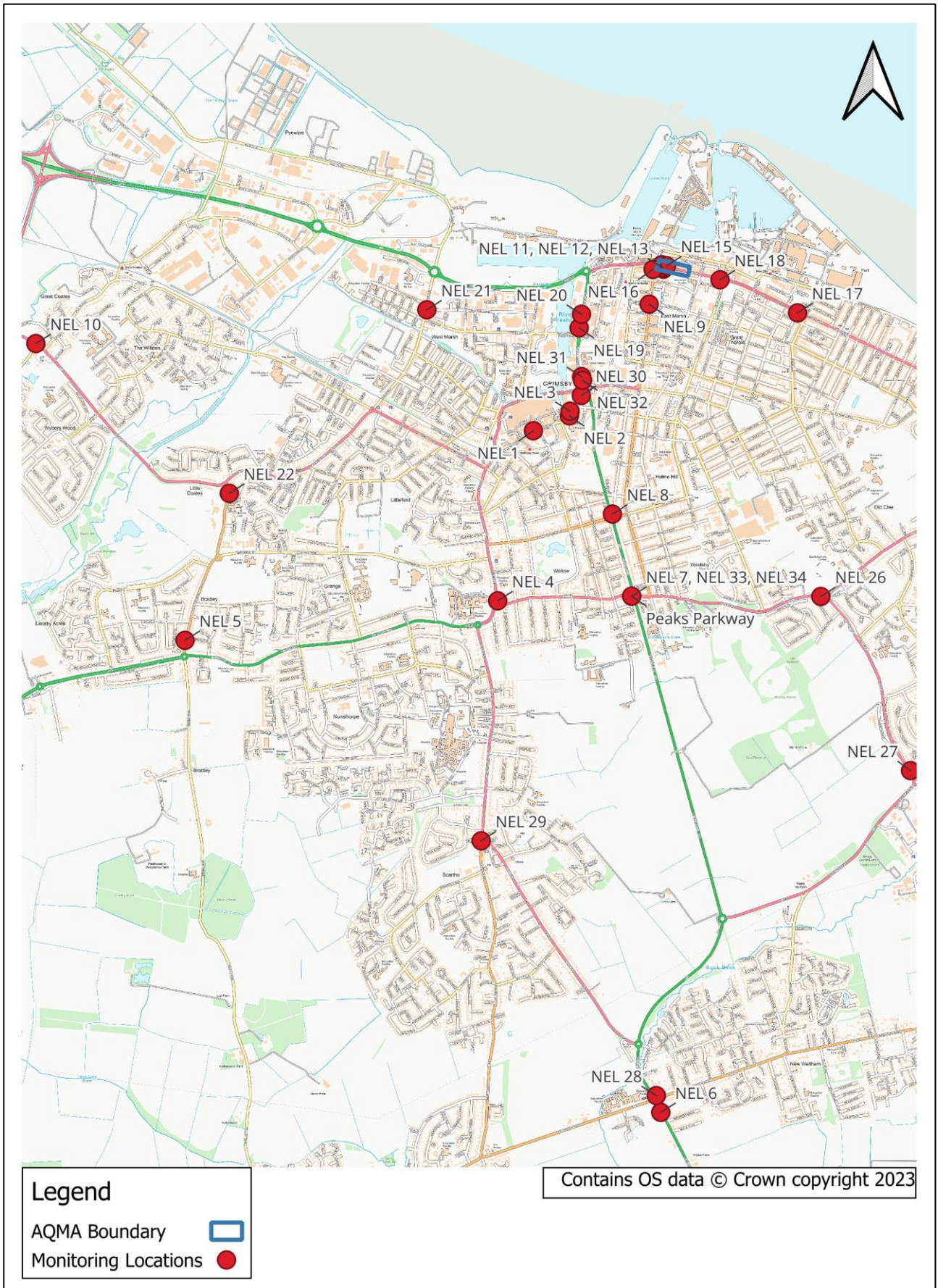




Figure D.3 – Map of Monitoring Sites in Wider Grimsby



## Appendix E: Summary of Air Quality Objectives in England

**Table E.1 – Air Quality Objectives in England<sup>7</sup>**

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

<sup>7</sup> The units are in microgrammes of pollutant per cubic metre of air (µg/m<sup>3</sup>).

## 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
LAQM	Local Air Quality Management
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Nitrogen Oxides
PM <sub>10</sub>	Airborne particulate matter with an aerodynamic diameter of 10µm or less
PM <sub>2.5</sub>	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO <sub>2</sub>	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.
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- Defra. Air quality appraisal: damage cost guidance, January 2023
- Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018
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