2025 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

June 2025

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Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health, Public Protection Department of Kirklees Council with the support and agreement of the following officers and departments:

- Energy and Climate Change team
- Electric Vehicle Infrastructure team
- Public Health
- Transport Strategy
- Highways
- Environmental Health (Pollution and Noise Control Team)
- Planning
- Major Projects

This ASR has been approved by Rachel Spencer-Henshall, Deputy Chief Executive and Executive Director for Public Health and Corporate Resources

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Executive Summary: Air Quality in our area

Air Quality in Kirklees

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.

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

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

Table ES 1 - Description of key pollutants

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

Kirklees has a population of approximately 440,000 and is one of the larger local authority districts in England. The main population centres are Huddersfield, along with Dewsbury and Batley in North Kirklees. The air quality issues within Kirklees primarily involve emissions from the road network connecting the various communities in the district, along with emissions from traffic which travel between the West Yorkshire conurbation along the M62 and Greater Manchester. Emissions from industrial and domestic sources are still of importance however, and continue to be subject to the relevant regulation, where appropriate.

Previous assessment of the district's air quality revealed the breaching (exceedance) of health based air quality standards (objectives) at several locations. To date Kirklees has identified two primary airborne pollutants of concern. These are nitrogen dioxide (NO_2) gas and particulate matter (fine inhalable particles referred to PM_{10} and $PM_{2.5}$ particles). Nitrogen dioxide is strongly associated with traffic emissions and raised concentrations of this gas previously resulted in formal declaration of nine of Kirklees' ten air quality management areas (AQMAs), due to the breaching (exceedance) of the annual average objective (air quality standard) for this polluting gas, the other being declared due to exceedance of the 24-hour mean objective for PM_{10} particles.

NO_2 gas concentrations have be generally declining over the past few years and this welcome reduction means that we are now in a position to commence revocation (formal removal) of several of our AQMAs and are currently in the consultation phase of this process. This is discussed further in this report and the process for revocations will start later this year. We will continue to monitor to ensure that improvements in air quality are maintained.

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[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 harmful 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.

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.

The Council acknowledged the important links between climate change, the council's Climate Emergency and the cross-cutting nature of the workstreams between air quality and climate change. The councils' Climate Change Action Plan[6] was published in late 2022, with improved air quality acknowledged as key co-benefit of actions taken to reduce greenhouse gas emissions.

In 2024 NO_2 gas concentrations continued to decline in many areas, however, certain hotspots remain, and new diffusion tube sites added to the network in 2024 have identified new locations of exceedance and near-exceedance of the legal air quality standard (annual mean objective for NO_2) in AQMAs 9 and 10.

In addition to working towards compliance with legal objectives in our AQMAs we have also considered the wider public health impact of fine inhalable particles (referred to as PM_{10} and $PM_{2.5}$ particles), as approximately one in twenty deaths in Kirklees and West Yorkshire is attributable to this pollutant. In 2024 we worked with the West Yorkshire Combined Authority (WYCA) and the West Yorkshire local authorities on a project in order to increase our understanding of $PM_{2.5}$ particle pollution in the region.

A study was commissioned to understand the sources of non-road particle pollution and test various mitigation scenarios for reduction of these emissions. This study was completed in 2024, due to available staffing resources, this information has not been reviewed in 2025 and we expect to report on this work in the 2026 Annual Status Report. This work will inform the updating of the Council's Air Quality Action Plan.

We continue to regulate polluting emissions from domestic and industrial sources, undertake active travel initiatives and develop our electric vehicle charge infrastructure within the district. We continue to assess new development for air quality impact and

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

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

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

request mitigation when necessary. We have updated the Council's air quality webpage to enable users to learn more about air quality and actions that can be taken to improve it. We have links to real time monitoring data on the webpage, so residents can make informed decisions during periods of poor air quality.

Conclusions and priorities

From analysis of 2024 air quality data, we conclude that the annual mean NO_2 air quality objective was exceeded at three locations representative of relevant exposure within one of our AQMAs: AQMA 9. Outside of this area, monitoring indicates that the rest of Kirklees complied with the air quality objectives.

Real-time data for NO_2, PM_{10} and $PM_{2.5}$ for 2024, indicated compliance with the objectives at the one real-time monitoring location in the district.

We have begun the process of revoking three AQMAs (AQMA 1, AQMA 2, and AQMA 4), and amending the boundary of three AQMAs (AQMA 3, AQMA 7, and AQMA 10) due to continuing compliance with legal objectives. We are following internal governance processes and expect this process to be finalised by late August 2025.

There is a risk of exceeding objectives within our remaining AQMAs, indicating that further measures are required. These AQMAs were either close to the legal objectives in 2024 or they had exceeded in recent years or required additional monitoring at specific locations to determine whether the AQMA can be revoked.

Our revised Air Quality Action Plan will take account of the planned revocation and amendment of AQMAs, and primarily focus on those AQMAs still exceeding or at risk of exceeding the air quality objectives.

Kirklees Council has taken forward several measures during the current reporting year of 2025 in pursuit of improving local air quality. Kirklees Council's priorities for the coming year are:

- Complete planned revocation of three AQMAs, and amendments of 3 AQMAs.
- Updating our existing Air Quality Action Plan 2019-2024, including formal consultation. Defra expect completion by September 2025.
- Extend the regional PM2.5 monitoring network through the Public Particulate Information Improvement Project (PIIP), enhancing our understanding of particulate matter across the district.
- Develop electric vehicle and infrastructure projects including:
  - trialling innovative ways of installing on street charge points
  - introducing a "try before you buy" project
- Complete the revision of the West Yorkshire Low Emission Strategy
- Support the services delivering actions which improve air quality e.g., active travel, climate change and environmental regulation.
- Ensure that air quality continues to be considered in other strategies and plans.

How to get involved

If you require further information on local air quality, please use the following websites:

Air quality | Kirklees Council

UK Air, Defra's air quality information service

or contact the Council on air.quality@kirklees.gov.uk

We are currently revising our revised Air Quality Action Plan. In 2025, we will be conducting a formal consultation which will enable local stakeholders to contribute and help shape this document.

Local responsibilities and commitment

This ASR was prepared by the Environmental Health, Public Protection Department of Kirklees Council with the support and agreement of the following officers and departments:

Public Protection Department of Kirklees Council

This ASR has been approved by:

Rachel Spencer-Henshall, Deputy Chief Executive and Executive Director for Public Health and Corporate Resources

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1. Local Air Quality Management

This report provides an overview of air quality in Kirklees during 2024. 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 Kirklees 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 Kirklees Council can be found in Table 2.1. The table presents a description of the ten AQMAs that are currently designated within Kirklees. Appendix D: Map(s) of monitoring locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO_2 annual mean of 40 µg/m^3 (AQMA 1, and AQMAs 3-10)
- PM_{10} 24-hour mean of 50 µg/m^3 not to be exceeded more than 35 times a year (AQMA 2)

We are in the consultation stage of amending AQMAs 3, 7 and 10, and of revoking AQMAs 1, 2, and 4 (see monitoring section).

In completing Table 2.1 we have calculated the number of years of compliance with the relevant air quality objectives for the last five-year period (2019-2024 inclusive).

Prior to the COVID-19 pandemic we proposed revocation of AQMAs 1 and 2 in our 2016 ASR and Defra's appraisal agreed with our proposal. However, due to the pandemic, this was not undertaken. A major road scheme is now proposed for the area encompassing AQMA 1 and PM_{10} monitoring in AQMA 2 ceased in 2015. We have therefore discussed the status of these AQMAs with Defra again to establish whether these AQMAs can still be revoked.

In our 2024 ASR (Chapter Three), we set out our reasoning for:

- the revocation of AQMA 4 (in addition to revocation of AQMAs 1 and 2 discussed above);
- amendments to AQMAs 3, 7 and 10;
- explanation of our decisions not to revoke our other AQMAs, even where there is compliance in 2024.

In addition, we provided information on the road scheme for AQMA 1 to Defra along with the historic data for AQMA 2.

Defra's subsequent response is included below:

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*"Based on the reported monitoring **the Council is advised that AQMA 1 and AQMA 4 must be revoked** as they have been compliant for five years. These recommendations align with the Council's plans. No PM_{10} monitoring was undertaken with AQMA 2 in 2023. The Council have been in contact with Defra and have been **advised to revoke AQMA 2**. It is recommended to follow Defra's advice. Based on the monitoring results, **the Council is advised to start considering plans to revoke AQMA 3** as measured NO_2 concentrations have been compliant (10% below the objective) between 2020 and 2023. However, **the Council are not required to revoke currently**. The Council believe that current monitoring is not representative of the whole AQMA 3, therefore, additional monitoring locations were added to the network and the Council is planning to adjust the AQMA 3 boundaries to make it smaller. **AQMA 5, AQMA 6, AQMA 7, AQMA 9 and AQMA 10 cannot be revoked.** This partly differs from the Council's plans. AQMA 5 has not been compliant in the last five years and, therefore, cannot be revoked yet. This aligns with the Council's plans. AQMA 6 has only been compliant for one year and therefore, cannot be revoked yet. This is different to the Council's plans to revoke AQMA **6**. While NO_2 concentrations have been below 40 µg/m^3 in the last five years, they have been within 10% of 40 µg/m^3. Therefore, the Council is **advised to wait for compliance to be achieved in 2022, 2023 and 2024 before considering plans to revoke AQMA 6**. AQMA 7 has only been compliant for one year. The Council are planning to amend AQMA 7 to adjust the AQMA boundaries to make it smaller where compliance has been achieved in the last five years. AQMA 9 has not been compliant, and AQMA 10 has been compliant for one year. Again, the Council is planning to amend AQMA 10 to adjust the AQMA boundaries to make it smaller where compliance has been achieved in the last five years. **The Council is advised to wait for compliance to be achieved in 2022, 2023 and 2024 before considering plans to revoke AQMA 8**."*

Table 2.1 Air Quality Management Area declared

Table 2.1 Details of Air Quality Management Areas declared

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 at declaration	Level of exceedance in current year	Number of years compliant with Air Quality Objective	Name and date of AQAP publication	Web link to AQAP
AQMA 1 Bradley	Declared 17/10/2008	NO_2 Annual Mean	The designated area incorporates the Leeds Road (A62) - Bradley Road (A6107) junction	NO	73 µg/m^3	35.6 µg/m^3	Five	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council
AQMA 2 Scouthill (to be revoked)	Declared 27/02/2009	PM_{10} 24 Hour Mean	The designated area incorporates part of Huddersfield Road (A644) in Scouthill	NO	43 Days	n/a	n/a	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council

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 at declaration	Level of exceedance in current year	Number of years compliant with Air Quality Objective	Name and date of AQAP publication	Web link to AQAP
AQMA 3 Ainley Top (to be amended)	Declared 30/10/2017	NO_2 Annual Mean	The designated area incorporates Halifax Road (A629), Lindley Moor Road Bradley Road (A643), Warren House Lane and Stirling Wood Close, which is in close proximity to the Ainley Top Roundabout at Birchencliffe	YES	44 µg/m^3	38.0 µg/m^3	Five	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council
AQMA 4 Birkenshaw (to be revoked)	Declared 30/10/2017	NO_2 Annual Mean	The designated area incorporates Bradford Road (A651), Whitehall Road East (A58), Carlton Court, Grove Terrace, Swincliffe	YES	45 µg/m^3	26.9 µg/m^3	Five	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council

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 at declaration	Level of exceedance in current year	Number of years compliant with Air Quality Objective	Name and date of AQAP publication	Web link to AQAP
			Crescent, Milford Grove, Tetley Drive and Manor Park Gardens, which is in close proximity to the M62 and A651- A58 Roundabout at Birkenshaw						
AQMA 5 Eastborough	Declared 30/10/2017	NO_2 Annual Mean	The designated area incorporates Leeds Road (A653), Dewsbury Ring Road (A638), Wakefield Road (A638), Highgate Road, Highgate Terrace, Bank Street and Old Bank Road, which is in close proximity	NO	60 µg/m^3	38.1 µg/m^3	One	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council

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 at declaration	Level of exceedance in current year	Number of years compliant with Air Quality Objective	Name and date of AQAP publication	Web link to AQAP
			to Dewsbury Town Centre						
AQMA 6 Edgerton	Declared 30/10/2017	NO_2 Annual Mean	The designated area incorporates Edgerton Road (A629) and Blacker Road, which is in close proximity to Huddersfield Town Centre	NO	54 µg/m^3	32.6 µg/m^3	Five (two years compliant below 10% of the AQO)	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council
AQMA 7 Liversedge (to be amended)	Declared 30/10/2017	NO_2 Annual Mean	The designated area incorporates Huddersfield Road (A62), Bradford Road (A638), Wakefield Road (A638),	NO	45 µg/m^3	38.2 µg/m^3	Two	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council

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 at declaration	Level of exceedance in current year	Number of years compliant with Air Quality Objective	Name and date of AQAP publication	Web link to AQAP
			Wormald Street and Well Street, which is in Liversedge						
AQMA 8 Outlane	Declared 30/10/2017	NO_2 Annual Mean	The designated area incorporates New Hey Road and Round Ings Road, which is in close proximity to the M62 at Outlane	YES	54 µg/m^3	33.0 µg/m^3	Five	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council
AQMA 9 Huddersfield Town Centre	Declared 30/10/2017	NO_2 Annual Mean	The designated area incorporates roads bordering and within the Huddersfield Ring Road	NO	55 µg/m^3	49.2 µg/m^3	One	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council

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 at declaration	Level of exceedance in current year	Number of years compliant with Air Quality Objective	Name and date of AQAP publication	Web link to AQAP
AQMA 10 Thornton Lodge	Declared 30/10/2017	NO_2 Annual Mean	The designated area incorporates Manchester Road	NO	47 µg/m^3	38.9 µg/m^3	Five	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	Air quality | Kirklees Council

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

☒ Kirklees Council confirm that all current AQAPs have been submitted to Defra.

2.2 Progress and impact of measures to address Air Quality in Kirklees

Defra's appraisal of last year's ASR concluded the following, where the actions taken are displayed in each bullet point following:

- "It should be noted that the number of diffusion tube monitoring sites does not match with the number in tables A.2 and A.4 and within the text. In the tables are 120 monitoring locations, in the text is says the Council has 104 monitoring locations in 2023."
    - The total numbers are reported clearly in this year's ASR.
- "There appear to be some inconsistencies regarding the declaration year of some of the AQMAs in Table 2.1,"
    - The discrepancy is acknowledged and, it appears that the LAQM Portal showed the effective date, rather than declaration date. The Council has contacted the LAQM Portal admin team for clarification. The response from the helpdesk read that "the AQMA declaration date on the LAQM portal should match the date the AQMA comes into effect". We have reported declaration date as the date the order came into effect.

- "Furthermore, the current exceedances for some AQMAs seem to be incorrect. For example, AQMA 6 has been reported to be compliant for five years, however, based on the reported monitoring concentrations, this AQMA has only been compliant for a year. Please double check whether the current exceedances are correct before publishing the ASR as this will also impact the Council's plans in regards to revoking AQMA 6. At the moment AQMA 6 cannot be revoked. Please refer to the text above for further details also regarding the other AQMAs."
    - The box guidance accompanying Table 2.1 sets out that the "Level of Exceedance = Highest pollutant concentration and/or number of exceedances at point of relevant exposure, i.e. following NO_2 fall off with distance correction (if applicable)."
    - Therefore, the "Number of Years Compliant with Air Quality Objective" was interpreted to be reflective of the number of year's compliant at point of relevant exposure.
    - As set out in the 2023 ASR "There is one diffusion tube (tube number K3) located in this AQMA (see map D5 in Appendix D), however this is considered to be representative of worst-case exposure, and whilst distance corrected concentrations are below the annual mean."
    - In this year's ASR, this interpretation has been clarified in the text accompanying Table 2.1.
    - In terms of revocation of AQMA 6, as summarised in last year's ASR "We therefore interpret the [paragraphs 3.54 and 3.57 of LAQM.TG (22)] guidance as meaning that revocation should not yet be undertaken, as only 2020 (pandemic year) and 2023 diffusion tube data (bias adjusted, followed by annualisation and distance correction where appropriate) was below 36

μg/m^3, although concentrations have been below the objective for a consecutive five-year period, in this case the period 2019 – 2024. On this basis therefore, **it is our intention <u>not</u> to revoke this AQMA following submission and approval by Defra of this ASR**. We will continue to monitor within and surrounding this AQMA and in 2024 located an additional two diffusion tubes adjacent to the AQMA."

- "Figure A.25 is missing the concentrations of 2023. This should be added before publishing the ASR."
    - This has been actioned for this year's ASR.

- "In Table B.1 the bias adjustment factor is missing in the column heading. This should be added before publishing the ASR."
    - These have been corrected in this year's ASR.

- "It is noted that the Council have calculated the distance correction for the monitoring sites K6, K16 and K13 by not using the diffusion tube data processing tool. Those three sites did not require distance correction in 2023 as the reported NO_2 concentration was below 36 μg/m^3. It is recommended to remove these sites from Table C.4 to avoid confusion before publishing the ASR."
    - This has been actioned for this year's ASR.

- "It is recommended to include a brief summary of the recorded $PM_{2.5}$ concentrations in chapter 2.3 to highlight the situation of $PM_{2.5}$ within the Council and/or show positive impacts of the $PM_{2.5}$ measures put in place in next year's ASR."
    - This has been actioned for this year's ASR.

- "It is recommended that the figures only show diffusion tube locations once. For example, if a diffusion tube location was included for the AQMA figure, then it should not be shown again in the figure outside of the AQMA or in the different geographical areas to make it easier to highlight potential exceedances outside of the AQMA."
    - Maps have been added to Appendix D

- "Table A.2 is missing the distance to relevant exposure for some monitoring sites, therefore, no distance correction is done by the diffusion tube data processing tool. Should a distance to the relevant exposure not be applicable, it is recommended to state this in the table with N/A to confirm that the gaps in the table are no mistakes in next year's ASR."
    - Distance to relevant exposure has been added for all sites

- "The justification of using the national bias adjustment factor is missing. It is assumed that no local bias adjustment factor was calculated due to the technical issues of the Council-owned continuous monitoring sites. This should be included in next year's ASR if still applicable."

    - The justification was provided in last year's ASR on page 136: "Kirklees Council have applied a national bias adjustment factor of 0.77 to the 2023 monitoring data, as no data are available from local monitoring to calculate a local bias adjustment, due to the cessation of the monitoring in 2023 at the Council's roadside monitoring stations."
    - A similar justification is provided in this year's ASR.

- "It is recommended to include the comments of last year's ASR to highlight that the Council have considered them and to show improvements made in next year's ASR."
    - The comments are included in full for this year's ASR and improvements have been made accordingly.

- "Good quality maps have been provided in the ASR showing the location of the monitoring locations and the AQMA boundaries. This is commended."
    - No action needed

- "Clear discussion has been provided for the Council's priorities for the coming year and for the measures expected to be completed. This is commended."
    - No action needed

- "Overall, the ASR was very detailed with plenty discussion of trends and actions taken forward by the Council. This is very welcomed."
    - No action needed

Kirklees has taken forward a number of direct measures during the current reporting year of 2024 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1.

Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

More detail on these measures can be found in the Air Quality Action Plan (AQAP). As mentioned previously, a new AQAP is currently under development.

Key completed measures within the current AQAP are:

- Completed delivery of OLEV (Office for Low Emission Vehicles) funded West Yorkshire Strategic Rapid Charger network for taxis and the general public (17 chargers within Kirklees).
- The ECO Stars Fleet Recognition Scheme.
- West Yorkshire regional $PM_{2.5}$ source apportionment exercise to determine non-road $PM_{2.5}$ emission sources within Kirklees and West Yorkshire.
- Procurement of $PM_{2.5}$ sensors to determine $PM_{2.5}$ and concentrations within Kirklees and West Yorkshire.
- Upgrade of the of the Cycle Offset Optimisation technique (SCOOT) Traffic Management System within AQMA 1 in 2023.

Additionally, the following road improvement schemes have commenced:

- **M606 Chain Bar Roundabout Improvement Scheme:** Commencing in June 2024 and completed by September 2024, this project added an extra lane, upgraded traffic signals, and introduced new pedestrian and cycle facilities. The enhancements aimed to reduce congestion, improve journey times, and promote active travel, thereby potentially improving air quality in the area.

- **Queensgate Improvement Scheme (Huddersfield Ring Road)**: Starting in June 2024, this £750,000 investment focused on resurfacing roads, upgrading traffic signals, and improving pedestrian crossings along Queensgate and Shorehead. The project aimed to enhance safety and traffic flow, which could contribute to better air quality by reducing vehicle idling and promoting smoother traffic movement.

- **Holmfirth Town Centre Access Plan**: As part of the Holmfirth Blueprint, work began in July 2024 to improve the town centre's accessibility. Key initiatives included introducing a 20mph speed limit, creating wider footways, and enhancing cycling infrastructure. These changes aim to reduce vehicle emissions and promote active travel, contributing to improved air quality in the town centre.

The following measures have been delayed due to regional work:

- Development of a local EV strategy due to ongoing development of a regional EV strategy (WYCA).
- Update of the West Yorkshire Low Emissions Strategy due to work to enhance the PM2.5 evidence base.

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

- **Consultation on the A62 to Cooper Bridge Corridor Improvement Scheme**: In late 2024, Kirklees Council reopened consultations for proposed improvements at the Cooper Bridge roundabout. The plans included options for road widening, new cycle lanes, and pedestrian enhancements. These measures are intended to alleviate congestion and improve air quality by facilitating more efficient traffic flow and encouraging sustainable transport modes.

Kirklees Council anticipates that the measures stated above and in Table 2.2 – Progress on measures to improve Air Quality

Table 2 will achieve compliance in several AQMAs.

Whilst the measures stated above and in Table 2.2 – Progress on measures to improve Air Quality

Table 2will help to contribute towards compliance, we anticipate that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the remaining AQMAs (3, 5, 6, 7, 8 and 9).

Table 2.2 – Progress on measures to improve Air Quality

Table 2.2 – Progress on measures to improve Air Quality

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
G.1	Adoption of the West Yorkshire Low Emissions Strategy (WYLES)	Policy Guidance and Development Control	Low Emissions Strategy	2015	2025	Kirklees Environmental Health	Air Quality Grant	YES	Funded	£10k - 50k	Implementation	NO2 & PM	See Appendix F	Active	Currently adopted within the authority and integrated into Kirklees Council policy and work instructions. This document is currently in the process of revision to take account of the updating of the West Yorkshire Air Quality Strategy and Environment and Climate Plan, and also inform the emerging regional Local Transport Plan. These documents will in turn inform the review of the Council's Air Quality Action Plan. This work is to be undertaken in 2025/2026.
G.2	Kirklees Council - workplace Active travel	Promoting travel alternatives	Workplace Travel Planning	2018	2030	Public Health in consultation with Transport Strategy	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	Previously implemented in 2009. Frequency of review and the actual plans are currently under review to ensure they remain relevant and include changes in technology & behaviour since previous iteration. Conclusions to be implemented and comms plan devised to promote actions within the plans. Once new plans have been adopted, ongoing regular review and promotion will be required to ensure this action is still relevant. Data for evaluation for this measure to be collected from Employee Travel Survey Results. Development of plans to support staff to make sustainable journeys whilst undertaking council business In late 2024 Kirklees Council's Environmental Health team undertook a public engagement on the issue of air quality within the district. The purpose was to understand existing levels of

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															awareness and opinions amongst residents surrounding this issue. The information provided is intended to help to inform a future action plan to improve air quality in the district.
G.56	**Project to engage with public on solid fuel regarding compliance into UK Clean Air Strategy**	**Public Information**	**Other**	**TBC**	**TBC**	**Kirklees Environmental Health**	**Source of funding to be confirmed**	**NO**	**Not Funded**		**Planning**	**NO2 & PM**	**See Appendix F**	**Proposed**	**The plan for this project is to devise and run a comms project for both the domestic and commercial sector to promote clean air and smokeless solid fuel practices. This is a future project currently going through project planning phase**
G.3	Kirklees Sustainable Travel to School Strategy	Promoting travel alternatives	School Travel Plans	2020	Ongoing within schools	Public Health / Economy and Infrastructure	Council Budget / Active Travel England / West Yorkshire Combined Authority	NO	Funded	< £10k	Planning	NO2 and PM	See Appendix F	The Council is delivering the "modeshift stars" initiative with local schools, promoting cycling and walking to and from schools. Currently 38 local schools are "active" within the scheme, as part of an initial target of 50. The Council has also received Active Travel Funding to undertake a "Schools Streets" scheme at 5 local schools in 2023/24	Previously implemented in 2005. Committee set up to review the policy, construction process, pre-existing documents and implementation to reflect changes in school operations, in technology and behaviour. Conclusions to be implemented and comms plan devised to promote actions within the plans. Currently under review. Once new plans have been adopted, ongoing regular review and promotion will be required to ensure this action is still relevant.

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G.4	Bikeability training provided to school children	Promoting travel alternatives	Promotion of cycling	2010	Ongoing	Kirklees Public Health	Council Budget / Active Travel England / West Yorkshire Combined Authority / DfT Access Fund	NO	Funded	£100k - £500k	Implementation	NO2 & PM	See Appendix F	This scheme is now operational after being put on hold during the pandemic, working with School Games Organisers placed within local schools who co-ordinate delivery. https://www.kirklees.gov.uk/beta/food-exercise-and-sport/cycling-training.aspx	This scheme is an ongoing project to provide access and training to children on the use of cycling with the long term goals to promote cycling as a leisure activity and also a mode of transport.
G.5	City Cycle Grant	Promoting travel alternatives	Promotion of cycling	2016	2020	Kirklees Public Health / West Yorkshire Combined Authority	Grant	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Completed	Completed and no longer operational
G.6	Green Parking Permit allowing free parking for ULEV Vehicles within Council owned car parks.	Promoting Low Emission Transport	Priority parking for LEV's	2008	2019	Kirklees Economy and Infrastructure	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	In 2024 charges were introduced, but at a reduced cost for ULEV vehicles compared to ICE vehicles	Currently this scheme is available for Kirklees residents and workers. This action is designed to reduce the cost of Electric Vehicles ownership and to increase the uptake of electric vehicle ownership within the domestic market. Further information can be found at Apply for a green parking season ticket | Kirklees Council
G.7	Service level agreements across West Yorkshire for ULEV Parking permits to allow free parking across the region	Promoting Low Emission Transport	Priority parking for LEV's	2019	Ongoing within the district	Kirklees Environmental Health	Estimated to be Council Budgets	NO	Partially Funded	< £10k	Planning	NO2 & PM	See Appendix F	Concept	This action is designed to reduce the cost of Electric Vehicles ownership and to increase the uptake of electric vehicle ownership within the domestic market. Further information can be found at Apply for a green parking season ticket | Kirklees Council

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G.8	City Car Club ran within Kirklees district	Alternatives to private vehicle use	Car Clubs	2009	Ongoing	Kirklees Economy and Resilience	3rd Party Business	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	City Car Club is currently available to local residents to use. The scheme reduces vehicle ownership while also providing access to a vehicle when required. Booking of the car is done via an available "app", with use of e-bikes a recent development.
G.9	Finance & Promote Car Sharing Website	Promoting Travel Alternatives	Other	2007	2024	Kirklees Economy and Infrastructure	Local Transport Plan	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Active	Car Club and Car Share
G.10	E.V Fleet Feasibility Study for council fleet	Promoting Low Emission Transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	2019	Ongoing	Kirklees Operational Service	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	There are two parts to this work. Working with the Energy savings Trust (EST), there has been a feasibility assessment of the fleet and development of a forward plan. Work is ongoing to assess charging infrastructure requirements	Internal document, which will steer internal fleet purchasing options and help introduction of charging facilities at council depots. Delivery targets to be determined from outcome of survey. In 2024, the Council updated its vehicle replacement programme - this will be reported in next years' ASR and form part of the Council's AQAP.

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G.11	Conversion of applicable council fleet to electric vehicles	Promoting Low Emission Transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	2019	Ongoing within the district	Kirklees Operational Service	Council Budget Additional funding from the Cabinet.	NO	Funded	>£10 million	Implementation	NO2 & PM	See Appendix F	It is estimated that there are now over 100 EVs (full EVs and hybrids) within the council fleet, including the procurement of 35 Electric vans which were introduced in 2021/22. Due to current charging infrastructure limitations, a home charging scheme is being piloted to support service operations for up to 25 electric vans. As an ongoing commitment, we continue to trial new EV's as they become available on the market to assess their suitability for our operations. To date, this has included an electric refuse vehicle, 3.5t panel vans, cars and sweepers.	Delivery targets to be determined from outcome of survey outlined in measure G.10 It is estimated that there are now over 100 EVs (full EVs and hybrids within the council fleet, including the procurement of x 35 Electric vans which were introduced in 2021/22. Due to current charging infrastructure limitations, a home charging scheme is being piloted to support service operations for up to 25 electric vans. In 2024, the Council updated its vehicle replacement programme. This will see the replacement of over 200 vehicles from 2025 to 2031.

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G.12	Kirklees Bike to Work Scheme	Promoting Travel Alternatives	Promotion of cycling	2017	2024	Kirklees Public Health	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	This scheme is an ongoing project to provide assistance to funding purchases with the long term goals to promote cycling as a leisure activity and also a mode of transport. Grant accessed to purchase 3 push bikes for staff Active travel in Kirklees Council. The grant continues to be promoted by West Yorkshire Combined Authority to workplaces in the Kirklees district. A salary sacrifice scheme is now in place for Kirklees employees to purchase bikes.
G.13	Update Kirklees Air Quality Strategy	Policy Guidance and Development Control	Other Policy	2018	No longer applicable	Kirklees Environmental Health	Council Budget	NO	Funded	£10k - 50k	No longer applicable	NO2 & PM	See Appendix F	No longer applicable	Kirklees Council originally adopted an Air Quality Strategy in 2006 then updated in 2019. Due to available resources, a decision has been taken not to review the Air Quality Strategy, as this is not a statutory requirement whilst there are declared AQMAs within Kirklees and alternatively, an AQAP is required. There will continue to be air quality monitoring and a strategic overview of the whole of the Kirklees district within the review of the AQAP, and not just a focus on the remaining AQMAs.
G.14	Assess planning applications in accordance with procedures in the WYLES Planning Guidance Document and require the relevant mitigation included on development	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2015	Ongoing	Kirklees Planning & Environmental Health	Council Budget	NO	Funded	£10k - 50k	Implementation	NO2 & PM	See Appendix F	Active	This document is currently used to assess all planning applications and integrated into Local Plan policy documents As such all planning applications will be assessed against the West Yorkshire Low Emission Strategy Planning Technical Guidance Document and mitigation requirements for each application will be determined according to criteria outlined within the aforementioned document. The planning guidance is available at Air Quality & Emissions Technical Planning Guidance Currently reviewing the document.

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G.15	Create a Green Procurement Toolkit	Policy Guidance and Development Control	Sustainable Procurement Guidance	2019	Ongoing within the district	Kirklees Procurement	Estimated to be Council Budgets	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Proposed	The Green Procurement Toolkit is a key outcome from action G.1. A pre-requisite Procurement Guidance document was included part of the West Yorkshire Low Emission Strategy and is to be used to facilitate the creation of a toolkit that ensures a number of environmental impacts is a key consideration in procurement exercises. WYLES contains green procurement. WYLES Procurement Guidance Document is available at; West Yorkshire Low Emission Procurement Guidance Vehicle / Transport Procurement
G.16	Subsidised Bus/Rail Card for Kirklees Council Staff	Promoting Travel Alternatives	Workplace Travel Planning	Pre 2006	Ongoing within the district	Kirklees Operational Services	West Yorkshire Combined Authority Travel Plan Network	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	The passes are made available in accordance with Council Travel plans, action G.2 and because the Council is a member of the travel plan network available to businesses in the West Yorkshire Region (see action G.43). As part of the travel plan network, discounted Bus/Rail Cards are available for Kirklees Council employees to purchase. The Council also have company rail cards, allowing officers to use public transport in their duties as a council officer. This mode of transport is preferred for low millage trips or town centre meetings and is a primary tool to reduce the councils fleet emissions.
G.17	Kirklees Policy on Employee Transport (Employee Handbook)	Policy Guidance and Development Control	Other policy	2015	Ongoing Process as funding becomes available	Kirklees Operational Services	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Completed	This is the primary policy document to control employee travel both as part of their commute or within their working capacity. The document outlines best practice for travel options within the workplace and also promotes alternative commute options in accordance with council travel plans, action G.2. As such, the document recommendations continue to be relevant and in accordance with the council's ambitions to reduce emissions.

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G.18	Retro-fitting Applicable vehicles within the Bus Fleet with Emissions Abatement Equipment	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	2013 & 2018	2020	West Yorkshire Combined Authority & Kirklees	Clean Bus Technology Fund	NO	Funded	£1 million - £10 million	Implementation	NO2 & PM	See Appendix F	Completed	Bus fleets within the district are key for model shift and vehicle number controls at the AM and PM peaks. As such it is important that the bus fleet remains a transport option available to the public, but also does incorporate relevant technology to ensure lowest emissions possible. The Clean Bus Technology Fund provides financial incentive to private bus operators to continue to improve their own fleet. Therefore, the Council will continue to seek funding within this sector to assist with a full conversion of all Euro V & Euro IV buses within the Kirklees district. Previously, through partnership working with West Yorkshire, we have achieved the following; 2013 - £1m CBTF retrofit of 119 School Buses were retrofitted in 2014/15 and branding added to sides of the buses to promote pollution reduction2018 - £4.1m CBFT plan to retrofit 300 Buses within WY.
G.19	Electric Vehicle Strategy	Policy Guidance and Development Control	Other policy	2019	Ongoing within the district	Kirklees Environmental Health	Local Transport Plan	NO	Funded	£10k - 50k	Planning	NO2 & PM	See Appendix F	Active In May 2025 plans were approved to install EV charging points in at least 20 council run car parks. The council is exploring on-street charging solutions and establishing an Electric Vehicle Centre of Excellence.	The strategy is being created to determine the infrastructure needs within the Kirklees District and to outline an approach to facilitate the move from the combustion engine towards Electric vehicle in both the domestic and commercial sectors within the district. It is hoped to complete the Strategy by the end of 2024 with this being dependent on completion and approval of the emerging WYCA EV Strategy, which will overarch and inform the eventual completion of the draft Kirklees Strategy.
G.20	West Yorkshire ECO-Stars Scheme	Vehicle Fleet Efficiency	Fleet efficiency and recognition schemes	2016	2020	Kirklees Environmental Health	Local Transport Plan	NO	Funded	£50k - £100k	Completed	NO2 & PM	See Appendix F	Complete	The WY ECO Stars scheme is now complete. A decision has to be taken regionally whether to pursue further funding to continue the scheme. This issue will be addressed in the revision of the Council's AQAP.

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G.21	West Yorkshire Electric Vehicle Taxi Scheme	Promoting Low Emission Transport	Taxi emission incentives	2018	2026	West Yorkshire Combined	OLEV Taxi Grant	NO	Funded	£100k - £500k	Implementation	NO2 & PM	See Appendix F	Active	Kirklees Council have previously installed 34 Rapid Charging Bays within Kirklees, these being 17 Taxi Bays and 17 Public Bays. These have now been transferred to another operator who is undertaking repairs and installing a further 3 bays, with the aim to be fully operational by the end of 2024. Review of taxi use is expected to undertake in 2025 to determine future use.
G.22	West Yorkshire Low Emission Strategy Officer	Other	Other	2019	2019	Kirklees Environmental Health	Air Quality Grant	YES	Funded	£50k - £100k	Completed	NO2 & PM	See Appendix F	Complete	Work now complete with drafting of the West Yorkshire Low Emission Strategy and this officer is no longer employed
G.23	Joint Strategic Assessment for Air Quality	Policy Guidance and Development Control	Other policy	2018	2031	Kirklees Public Health	Council Budget	NO	Funded	< £10k	Completed	NO2 & PM	See Appendix F	Complete	Currently the strategy adopted within the authority and integrated into Kirklees Council policy and work instructions. This is a 10 year policy document. Available at Joint Strategic Needs Assessment for Air Quality. This will be reviewed in due course following passing of the Environment Act 2021 and will align with the Council's revised Air Quality Action Plan

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G.24	Corporate Carbon Reduction Targets	Other	Other	2020-2021	2021	Kirklees Economy and Infrastructure	Council Budget	NO	Funded	< £10k	Completed	Primary Target: CO2	See Appendix F	Completed	Kirklees Council has declared a Climate Emergency and in the process of constructing an action plan to achieve CO2 reduction goals. Prior to this Kirklees Council has been working towards CO2 targets outlined in target column. This is an ongoing process with aim of constant reduction, targets of which are subject to change as a result Climate Emergency Board decisions. 2010 target of 40% reduction due to be reported on for 18/19 in 20. These targets have now been achieved. The forthcoming revision of the Councils' Air Quality Action Plan (2019-2024) will take account of the Councils revised Net Zero / Climate Ready targets for 2038. https://www.kirklees.gov.uk/beta/climate-emergency/pdf/kirklees-climate-change-action-plan.pdf
G.25	West Yorkshire Energy Accelerator Project	other	other	TBC	Once adopted, use of the SPD would be an ongoing activity	Kirklees Economy and Infrastructure	Source of funding to be confirmed	NO	Not Funded	< £10k	Completed	Secondary reductions in NO2 & PM	See Appendix F	Completed	Kirklees Council has declared a Climate Emergency and in the process of constructing an action plan to achieve CO2 reduction goals. This project will contribute towards achieving the targets set out in the Climate Emergency process. The project also has the potential to reduce industrial emissions covered in the Air Quality Objectives. Air Quality and Carbon reduction have the shared aim of reducing emissions and Kirklees Council are committed to partnership working to reduce both pollutants rather than individual focus. The Council continues to work closely with WYCA and the regional Energy Hub to access equivalent schemes and funding opportunities due to the air quality and climate change co-benefits.

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G.26	Air Quality to be included in a relevant Supplementary Planning Guidance Document	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020	2021	Kirklees Planning & Environmental Health	Council Budget	NO	Funded	< £10k	Aborted	Primary Target: CO2 Secondary reductions in NO2 & PM	See Appendix F	Aborted	Kirklees Council adopted its Local Plan in 2019, which is now due for updating. The update will take account of national guidance which now does not require SPDS within updated Local Plans. Air Quality will be major consideration of this update to ensure following Plan adoption, Air Quality will continue to be fully considered for new development. This will be strengthened by the update of the WYLES planning guidance
G.27	Trialling Hybrid and E.V Bin Wagon	Promoting Low Emission Transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	2020	2019	Kirklees Commercial, Regulatory & Operational Services	Council Budget	NO	Funded		Implementation	NO2	See Appendix F	E-RCV – In 2022, order placed for an electric RCV. The purchasing of this vehicle is to enable the Council to thoroughly test this new EV technology on our operations, providing our own datasets to analyse the vehicle's performance; to assist with making informed business decisions in the future. This vehicle is now operational and is being trialled.	Upon completion of the study, a report will be constructed and shared with other within the industry.
G.28	Feasibility Study on use of E.V Mobile Maintenance Equipment	Promoting Low Emission Transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	2019	Ongoing activity once implement	Kirklees Commercial, Regulatory & Operational Services	Council Budget	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Active	Internal document, which will steer purchasing options and help introduction of E.V M.M. E's. Delivery targets to be determined from outcome of survey.

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G.29	Feasibility of delivery of Council Officer Car Lease Scheme and delivery (limiting the available options by emission output)	Promoting Low Emission Transport	Public Vehicle Procurement -Prioritising uptake of low emission vehicles	2020	2024	Kirklees Commercial, Regulatory & Operational Services	Estimated to be Council Budgets	NO	Partially Funded	< £10k	Planning	NO2 & PM	See Appendix F	Proposed	Collaborative working between Transport services and Environmental Health to determine viability of providing low emission transport to employees within the local authority
G.30	Grey Fleet Telematics Trial	Promoting Low Emission Transport	Company Vehicle Procurement -Prioritising uptake of low emission vehicles	2018	Ongoing within the district	Kirklees Commercial, Regulatory & Operational Services	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active Trial	Currently trialling a dongle that plugs into the vehicle cigarette lighter port and track via GPS and reports to an app. Initially used to data gather and support future projects to reduce grey millage fleet miles. Analysis of the data will allow the authority to identify short journeys and potentially promote use of public transport
G.31	Master naught Telematics System	Vehicle Fleet Efficiency	Other	2017	2019	Kirklees Commercial, Regulatory & Operational Services	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active - Master Naught now replaced by "Fleet clear" (which includes an EV suite). This also promotes operational efficiencies, assisting with emission reduction.	Use of the Fleet clear data allows the Authority to promote better driving and has already shown a reduction in fleet miles and fuel consumption. Further use of the telematics system can be used for identifying training needs. As such, use of the telematics system is an ongoing process within the lifespan of this action plan.

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G.32	Pool Bike Feasibility Study	Promoting Travel Alternatives	Promotion of cycling	2019	2024	Kirklees Public Health	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active, Operational Plan being developed	Kirklees Council public health have set up a pilot project of pool bikes to promote model shift option for shorter journeys. Exploring the viability of pool bike usage as part of a council fleet Kirklees Active Travel Staff Group established prior to COVID-19 to develop feasibility of pool bike implementation. Public Health engaged with third sector provider to explore options for establishing a pool bike library/ bike loan library, bike training and bike maintenance service for Kirklees Council and extend to other anchor organisations /businesses. WYCA provide the City Connect webpage to assist the active travel agenda.
G.33	Robust Travel Survey to determine better travel plans internally	Other	Other	2019	2022	Kirklees Public Health	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	Kirklees Council Internal travel survey for all council employees to help better inform further decision making and influence future projects. Last staff travel survey undertaken in 2023 and are undertaken annually
G.34	Installation of pollution sensor technology within our AQMAS in conjunction with recognised monitoring to demonstrate validity of new devices	Traffic Management	Other	2019	2024	Kirklees Council UTC & Environmental Health	Council Budget	NO	Funded	£10k - 50k	Completed	NO2 & PM	See Appendix F	Complete	This study will be used as part of a rationalisation project to provide the most accurate, cost effective monitoring network to assist the Council to safeguard residents and the environment. Initial use of the monitoring equipment has been trialled.

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G.35	Engagement within the district with regional plans on alternative Low Emission Fuel Sources	Promoting Low Emission Plant	Other measure for low emission fuels for stationary and mobile sources	2020	Ongoing	Kirklees Environmental Health	Council Budget	NO	Funded	< £10k	Completed	NO2 & PM	See Appendix F	Completed	Ongoing regional work exploring introduction of low emission fuel sources into West Yorkshire This is a future project currently going through project planning phase Kirklees continue to be engaged with WYCA LCR Energy Strategy and delivery plan (now superseded by the WYCA Climate Change Plan) Going forward, this will be considered within the forthcoming Air Quality Action Plan revision, particularly around the roles of electric vehicles, public transport and active travel
G.36	Review how Environmental Health delivers regulatory requirements of the Clean Air Act	Policy Guidance and Development Control	Other policy	2020	2030	Kirklees Environmental Health	Council Budget	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Proposed	Kirklees District is currently a smoke control area and investigates complaints & enforces where required. The process will be reviewed to put the Council in a good position for future changes to solid fuel legislation. This process is an ongoing iterative process and planned changes to the Clean Air Act will need to be included into future working practices, as a result of the passing of the Environment Act 2021.
G.37	Implementation of the Medium Combustion Plant Directive through the planning process	Promoting Low Emission Plant	Other measure for low emission fuels for stationary and mobile sources	2018	2020	Kirklees Environmental Health / Environment Agency	Environment Agency / Council budgets	NO	Funded	< £10k	Implementation	PM	See Appendix F	Active	Kirklees Council to work with Environment Agency to discharge requirements of the Medium Combustion Plan Directive staggered process

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G.38	Zoning project to identify errant Environmental Permitting businesses	Other	Other	2019	Active	Kirklees Environmental Health	Council Budget	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Proposed	Kirklees Council routinely inspects businesses requiring permits as prescribed in the Environmental Permitting Regulations. This measure is a piece of work that aims to identify businesses that require permits, but currently do not possess one.
G39	Kirklees Walking and Cycling Strategic Framework	Promoting Travel Alternatives	Promotion of walking	2018	2030	Public Health	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	This is a policy document to outline the council's ambition to promote walking and cycling and also contain a number of measures to assist in achieving the aim. Use of this document will be an ongoing process. - Kirklees walking and cycling framework The framework will eventually sit under the Council's proposed Transport Strategy.
G.40	Kirklees Neighbourhood Housing Solid Fuel Policy	Policy Guidance and Development Control	Other policy	2018	Ongoing	Kirklees Neighbourhood Housing	KnH Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	Policy prohibits installation of solid fuel stoves. Chimneys are blocked up when gas fires are removed in order to prevent solid fuel use. Completion date has been set as ongoing because of the continuous nature of the action.
G.41	West Yorkshire Travel Plan Network	Policy Guidance and Development Control	Other policy	2016	Ongoing review process of strategy as funding becomes available	West Yorkshire Combined Authority	West Yorkshire Combined Authority Budget	NO	Funded	£50k - £100k	Implementation	NO2 & PM	See Appendix F	Active	West Yorkshire Travel Plan network visit local businesses and assist with improving employee travel option and promote model shift. Revisits and frequent promotions to members of the network once assessment has been conducted. AQMA areas are a priority for business engagement. Completion date has been set as ongoing because of the continuous nature of the action. This project is a continuous, though subject to funding requirements. More information can be found at The Travel Plan Network/

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G.42	Development of a Comms Strategy to promote air quality, modal shift and successful emission reduction projects	Public Information	Other	2019	Ongoing	Kirklees Environmental Health Kirklees Communications and Marketing	Estimated to be Council Budgets	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Revision of the Council's air quality webpage - https://www.kirklees.gov.uk/beta/crime-and-safety/air-quality.aspx	Once the strategy is developed, further targets can be formulated to measure the success of promoting air quality within the district. More costly methods of promotion may not be viable at time on inception but can be considered as funding becomes available.
G.43	Collaborative working with NHS Trusts within District	Other	Other	2019	Ongoing	Kirklees Environmental Health NHS Trusts	Council Budget	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Active, there has been no progress in the last 12 months	Kirklees Council has 2 NHS Trust, Mid Yorkshire and Huddersfield Calderdale Trust. As a key partner in the district the Council will work with them to promote / deliver low emission projects and policy Require a continued engagement programme
G.44	Collaborative working with University of Huddersfield	Other	Other	2019	Ongoing	Kirklees Environmental Health University of Huddersfield	Council Budget	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Active	Kirklees Council has already begun to develop a number of projects with the university. As a key partner in the district the Council will continue to work with them to promote / deliver low emission projects and policy Require a continued engagement programme
G.45	Collaborative working with Commercial Bus Companies within the district	Other	Other	2019	Ongoing	Kirklees Environmental Health WYCA Local Bus Companies	Council Budget	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Active	Kirklees Council has already begun to develop a number of projects with the bus partners and the combined authority. As a key partner in the district the Council will continue to work with them to promote / deliver low emission projects and policy Require a continued engagement programme. In 2024, the WY Mayor, WY buses were brought back under local control (franchising). Our forthcoming revised AQAP will consider this.

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G.46	Collaborative working with National Highways	Other	Other	2019	Ongoing	Kirklees Environmental Health, National Highways	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	As a key partner in the district the Council will work with them to promote / deliver low emission projects and policy. Two of our AQMAs (AQMA 4, Birkenshaw and AQMA 8, Outlane), are directly affected by emissions from the M62 motorway, whilst others are located close to, or impact by traffic accessing the strategic road network. National Highways will be consulted on revocation plans for these AQMAs.
G.47	De-centralised Energy Use	policy Guidance and Development Control	Other policy	TBC	TBC	Kirklees Economy and Infrastructure	Source of funding to be confirmed	NO	Not Funded	< £10k	Planning	NO2 & PM	See Appendix F	Proposed	The plan for this project is to undertake studies into future energy needs and how de-centralised energy supply will impact on emissions. This is a principle as opposed to a project, eg HEAT Network is one project, longer term we need to move to local energy sources rather than on the grid and another could be new housing developments getting their energy from ground source heat pumps. Working with planners to include details in their SPD. Decarbonisation of heat generation networks will also have air quality co-benefits

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G.48	Smart Systems to manage energy use within Local Authority Buildings	Promoting Low Emission Plant	Public Procurement of stationary combustion sources	TBC	TBC	Kirklees Economy and Infrastructure	Source of funding to be confirmed	NO	Not Funded	< £10k	Planning	Primary Target: CO2	See Appendix F	Proposed	The plan for this project is to integrate smart technology into council buildings to reduce energy usage. This is a future project currently going through project planning phase. Have Building Energy Management systems (BEMS) in all corporate buildings - needs funding for someone to manage - should be self-financing. Going forward, this action may be "refreshed" to take account of ongoing developments in this field and seek appropriate funding. The Council now has an Energy Task Force to consider these issues with the aim of reducing energy use across the Council estate.
G.49	Study the impact of Green Infrastructure	Other	Other	TBC	TBC	Kirklees Environmental Health	Local Transport Plan	NO	Not Funded		Planning	Primary Target: CO2	See Appendix F	Concept, there has no progress with this over the last 12 months	Planning Stage begun in 2020 to work in partnership with West Yorkshire. The plan for this project is to undertake a study looking into different vegetation and the impact of green screening along roadsides. This project includes analysing the viability of Moss Trees. This is a future project currently going through project planning phase
G.50	Generate a pollution based calculation similar to that currently used in carbon reduction calculations	Other	Other	TBC	TBC	Kirklees Economy and Infrastructure	Source of funding to be confirmed	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Proposed, there has no progress with this over the last 12 months	The plan for this project is to create an easier process for calculating emission impacts from projects and schemes. WYCA carbon impact methodology is being developed - should standardise the calculation for transport schemes. Aim for compatible methodology to be used or all emissions. Exploratory discussions were held with a provider in 2022 regarding a proposed scheme, but the Council could not commit to this at that time.

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G.51	Research gathering to inform development of neighbourhood plans as part of Local Plan integration	Other	Other	TBC	TBC	Kirklees Planning	Source of funding to be confirmed	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Proposed, there has no progress with this over the last 12 months	The plan for this project is to collect data that can be used to inform the development of the Council's neighbourhood plans This is a future project currently going through project planning phase
G.52	Development Clusters Research and Solution Systems	Other	Other	TBC	TBC	Kirklees Planning	Source of funding to be confirmed	NO	Not Funded		Aborted	NO2 & PM	See Appendix F	Aborted due to Local Plan revision	The plan for this project is to collect data that can be used to inform the development of the Council's Development Clusters This is a future project currently going through project planning phase. Require Environmental Health to propose schemes/clusters so they can be evaluated, and an SPD drawn up to enable the funding to be drawn from the planning process
G.53	Feasibility Study of current Traffic Model and identify further highways improvement projects	Traffic Management	Other	TBC	TBC	Kirklees Economy and Infrastructure	Source of funding to be confirmed	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Proposed, there has no progress with this over the last 12 months	The plan for this project is to review the traffic model, validate and make improvements where required. This is a future project currently going through project planning phase. Linked to developing a forward plan of schemes. Intention to form part of Kirklees transport strategy
G.54	Voluntary Clean Air Zone Feasibility Study	Policy Guidance and Development Control	Low Emissions Strategy	TBC	TBC	Kirklees Environmental Health	Source of funding to be confirmed	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Proposed, there has no progress with this over the last 12 months	The plan for this project is to undertake a feasibility assessment to determine the costs and impacts of both a Chargeable and Non-Charging Clean Air Zone.
G.55	Study into the impact of topography onto clean bus technology	Traffic management	Other	TBC	TBC	Kirklees Environmental Health	Source of funding to be confirmed	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Proposed, there has no progress with this over the last 12 months	The plan for this project is to undertake a research project that looks into the impact topography on ULEV Bus Technology. This is a future project currently going through project planning phase

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G.56	**Project to engage with public on solid fuel regarding compliance into UK Clean Air Strategy**	**Public Information**	**Other**	**TBC**	**TBC**	**Kirklees Environmental Health**	**Source of funding to be confirmed**	**NO**	**Not Funded**		**Planning**	**NO2 & PM**	**See Appendix F**	**Proposed**	**The plan for this project is to devise and run a comms project for both the domestic and commercial sector to promote clean air and smokeless solid fuel practices. This is a future project currently going through project planning phase**
G.57	Feasibility study into changing internal governance and decision making to further incorporate air quality	Policy Guidance and Development Control	Other	TBC	TBC	Kirklees Environmental Health	Source of funding to be confirmed	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Proposed, there has no progress with this over the last 12 months	The plan for this project is to undertake an assessment of council working practices and identify areas where improvement could reduce emissions and benefit air quality. This is a future project currently going through project planning phase
G.58	Feasibility Study into On street electric vehicle charging solutions	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2023	TBC	Environmental Health	Source of funding to be confirmed	NO	Not Funded	£1 million - £10 million	Implementation	NO2 & PM	See Appendix F	Active	A bid has been submitted to City Region Sustainable Transport Settlement (CRSTS) which is managed by WYCA, for a project involving innovative ways of installing charge points on our streets on a trial basis and a free loan "try before you buy" for local residents. A Full Business Case is intended to be submitted later this Summer.
G.59	Creation of a delivery plan for Kirklees EV Charging	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2020	2026	Kirklees Environmental Health	Local Transport Plan	NO	Partially Funded	£1 million - £10 million	Planning	NO2 & PM	See Appendix F	Active	This will be contained with the EV Strategy (see G19) and will identify national, regional and local funding sources in order take forward the identified schemes and actions and will involve use of various funding sources such as the CRSTS bid in G58

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G.60	Provision of EV Charging in all communities of Kirklees	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2030	Kirklees Environmental Health	Council Budget	NO	Partially Funded	£1 million - £10 million	Planning	NO2 & PM	See Appendix F	Active	The plan for this project is to provide charging to each council ward to meet ULEV demands. This will be contained within the EV Strategy (see G19).
G.61	Improvements to the Cycling Network, linking all the Kirklees Towns and with neighbouring districts	Transport Planning and Infrastructure	Cycle network	TBC	TBC	Kirklees Economy and Infrastructure	Source of funding to be confirmed	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Proposed	The plan for this project is to maintain the current cycling infrastructure and identify where there are gaps between cycle only routes between the major Kirklees towns. Where towns are not connected, this project aim is to connect them with cycle only infrastructure. This is a future project currently going through project planning phase
G.62	Use of Technology and publicity to incentivise and increase Active travel during commute and business activities	Public Information	Other	TBC	TBC	Kirklees Public Health Environmental Health Transport University of Huddersfield	Source of funding to be confirmed	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Proposed, there has been no progress with this action over the last 12 months	The plan for this project is to work with Huddersfield University and a 3rd party company to develop an app that monitors travel and recommend mode of transport. This is a future project currently going through project planning phase. Partnership with Huddersfield University. Development of this project would require partnership with an appropriate business partner, as yet identified
G.63	Project to promote and incentivise working at home to reduce commuter miles	Promoting Travel Alternatives	Encourage / Facilitate home-working	TBC	TBC	Kirklees Council Environmental Health	Source of funding to be confirmed	NO	Not Funded		Aborted	NO2 & PM	See Appendix F	Aborted, the Council adopted homeworking procedures during the COVID pandemic and has continued with these since. Homeworking was used in some form by	Aborted, the Council adopted homeworking procedures during the COVID pandemic and has continued with these since. Homeworking was used in some form by companies and other organisations during the pandemic

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														companies and other organisations during the pandemic	
G.64	E.V research project to identify appropriate demographics and locations within the district.	Promoting Low Emission Transport	Promoting Low Emission Transport	2022	2026	Kirklees Environmental Health & Public Health	Local Transport Plan	NO	Funded	< £10k	Planning	NO2 & PM	See Appendix F	Completed	A report undertaken in 2023/24 by the Energy Savings Trust is now completed. This will feed into the Kirklees EV Strategy
G.65	Feasibility study into the integration of National and Local UTMC	Traffic Management	UTC, Congestion management, traffic reduction	TBC	TBC	Kirklees UTMC & National Highways	Source of funding to be confirmed	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Proposed, there has been no progress with this action over the last 12 months	Project will look at the feasibility of integrating local and national UTMC, which would allow for whole network reactivity during traffic events. This is a future project currently going through project planning phase
G.66	Feasibility study into the use of anti-idling measures as a control on emissions, giving focus to areas of poor air quality	Traffic Management	Other	2022	2026	Environmental Health	Council Budget	NO	Not Funded	< £10k	Planning	NO2 & PM	See Appendix F	Proposed	Proposal to undertake feasibility study into the introduction of anti-idling, prioritising areas where there is evidence, through monitoring, there are air quality problems.
G.67	E.V Salary Sacrifice Scheme	Promoting Low Emission Transport	Other	2020	2026	Environmental Health	Council Budget	NO	Not Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	Provide affordable E.V's to council staff to benefit grey fleet and domestic traffic. This will be contained within the EV Strategy (see G19). It is anticipated that this will "go live" later in 2024.

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G.68	£1million E.V Infrastructure Project	Transport Planning and Infrastructure	Other	2020	2025	Environmental Health	Council Budget	NO	Funded	£500k - £1 million	Implementation	NO2 & PM	See Appendix F	Active	Install E.V charging infrastructure at strategic locations to promote uptake of E.V. This will be contained within the EV Strategy (see G19) and is intended to be spent in financial year 2024/2025
AQMA1.1	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Managements System within AQMA 1	Traffic Management	UTC, Congestion management, traffic reduction	2013	2013	Kirklees Highways UTC	Council Budget	NO	Funded	£100k - £500k	Completed	NO2 & PM	See Appendix F	Complete	Reduction of pollutants in AQMA 1 of 12ug/m3 and given rise to further works to improve the system. This was stage 1 of a multistage improvement project with the aim to reduce emissions through the use of technology to improve flow at junctions. The SCOOT facility within this AQMA was upgraded in 2023.
AQMA1.2	Feasibility Study to Alter SCOOT to incorporate actual Air Quality pollution levels	Traffic Management	UTC, Congestion management, traffic reduction	2017	2017	Kirklees Highways UTC	Council Budget	NO	Funded	£100k - £500k	Completed	NO2 & PM	See Appendix F	Complete	This project was a pre-requisite for the development of project AQMA.1.3 and resulted in collaborative working with our business partners to develop a virtual emissions model to improve UTMC.
AQMA1.3	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Traffic Management	UTC, Congestion management, traffic reduction	2018	2019	Kirklees Highways UTC / 3rd Party Partner	Council Budget	NO	Funded	£100k - £500k	Completed	NO2 & PM	See Appendix F	Complete	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding
AQMA1.4	Cooper Bridge Road Improvements Project	Traffic Management	Other	2021	2025	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	> £10 million	Planning	NO2 & PM	See Appendix F	Planning	The project is a highways improvement scheme within the AQMA and is currently at outline Business Case Stage
AQMA1.5	Resource Smart Corridor	Traffic Management	UTC, Congestion management, traffic reduction	2020	2025	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	> £10 million	Planning	NO2 & PM	See Appendix F	Planning	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage

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AQMA1.6	Kirklees Northern Orbital Route	Traffic Management	UTC, Congestion management, traffic reduction	No date set	TBC	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Concept	The project is a highways improvement scheme within the AQMA and is a future project currently going through project planning phase
AQMA1.7	Trial of Smart UTMC Technology systems within relevant AQMAs	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded	£100k - £500k	Aborted	NO2 & PM	See Appendix F	Aborted	The project is a Traffic Light improvement scheme within the AQMA and is a future project currently aborted
AQMA2.1	A640 Road improvements (Mirfield to Dewsbury)	Traffic Management	UTC, Congestion management, traffic reduction	Estimated >2021	TBC	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	£1 million - £10 million	Planning	NO2 & PM	See Appendix F	Concept	The project is a highways improvement scheme within the AQMA and is at very early stages. Pre outline business case stage
AQMA2.2	Program of Deep Cleaning to Paths and Road within the AQMA	Traffic Management	UTC, Congestion management, traffic reduction	2014	Ongoing	Kirklees Environmental Health	Council Budget	NO	Funded	£10k - 50k	Implementation	Short Term PM10 Exceedances	See Appendix F	Active	AQMA now compliant after this measure was put into place. Number of exceedance days fell from 36 to 6.
AQMA2.3	Extension of Ravensthorpe Train Station	Alternatives to private vehicle use	Other	2018	2019	West Yorkshire Combined Authority	Central Transport Fund	NO	Funded	£500k - £1 million	Completed	NO2 & PM	See Appendix F	Complete	The project is a Network Rail improvement scheme within the AQMA and is complete
AQMA2.4	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Traffic Management	UTC, Congestion management, traffic reduction	Estimated 2020	2021	Kirklees Highways UTC / 3rd Party Partner	Council Budget	NO	Funded	£100k - £500k	Implementation	NO2 & PM	See Appendix F	Active	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding
AQMA2.5	Kirklees Northern Orbital Route	Traffic Management	UTC, Congestion management, traffic reduction	No date set	TBC	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	£1 million - £10 million	Planning	NO2 & PM	See Appendix F	Concept	The project is a highways improvement scheme within the AQMA and is a future project currently going through project planning phase

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AQMA2.6	Trial of Smart UTMC Technology systems within relevant AQMAS	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded	£100k - £500k	Aborted	NO2 & PM	See Appendix F	Aborted	The project is a Traffic Light improvement scheme within the AQMA and is a future project currently aborted
AQMA3.1	A629 Road improvements as part of Halifax to Huddersfield Road Scheme	Traffic Management	UTC, Congestion management, traffic reduction	2020	TBC	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	£1 million - £10 million	Planning	NO2 & PM	See Appendix F	Proposed	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage, and submission of air quality impact assessments
AQMA3.2	Assessment of Cycling Infrastructure between Ainley Top and Huddersfield Town Centre	Promoting Travel Alternatives	Promotion of cycling	2020	TBC	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	£1 million - £10 million	Planning	NO2 & PM	See Appendix F	Planning	The project is a cycling / highways improvement scheme within the AQMA and is currently at Business Case Stage
AQMA3.3	Feasibility into the development of System Activated Planned Cycles	Traffic Management	UTC, Congestion management, traffic reduction	No set date	TBC	Kirklees UTC	Estimated to be Council Budgets	NO	Funded	£50k - £100k	Planning	NO2 & PM	See Appendix F	Concept	The project is a UTMC improvement scheme within the AQMA and is a future project currently going through project planning phase
AQMA4.1	Study into the impact of speed control along the national highway as an emissions reduction tool.	Transport Planning and Infrastructure	Other	2020	TBC	Environmental Health / National Highways	Council Budget	NO	Funded	£10k - 50k	Planning	NO2 & PM	See Appendix F	Proposed, there has been no progress with this action over the last 12 months	Study into the impact of speed control along the national highway as an emissions reduction tool. This is a future project currently going through project planning phase

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AQMA 4.2	Trial of NOx absorbent material integrated into roundabout design	Traffic Management	UTC, Congestion management, traffic reduction	2020	2020/21	Environmental Health	Council Budget	NO	Funded	£10k - 50k	Completed	NO2 & PM	See Appendix F	Completed	The project is to redesign Whitehall Road East / West roundabout install green infrastructure where applicable into highway design to bring about NO2 concentrations. Roundabout realignment works have now completed
AQMA5.1	Free City Bus for Dewsbury Town Centre	Alternatives to private vehicle use	Other	2006	Ongoing	Kirklees Economy and Infrastructure	Council Budget	NO	Funded	£100k - £500k	Implementation	NO2 & PM	See Appendix F	Active	Dewsbury freetownbus
AQMA5.2	A640 Road improvements (Mirfield to Dewsbury)	Traffic Management	UTC, Congestion management, traffic reduction	Estimated >2021	TBC	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Concept	The project is a highways improvement scheme within the AQMA and is at very early stages. https://www.kirklees.gov.uk/beta/transport-roads-and-parking/mirfield-to-dewsbury-to-leeds.aspx Funding for this project has now been cut due to the current economic situation
AQMA5.4	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Management System	Traffic Management	UTC, Congestion management, traffic reduction	2019	2021	Kirklees Highways UTC	Council Budget	NO	Funded	£500k - £1 million	Completed	NO2 & PM	See Appendix F	Complete	This is stage 1 of a multistage improvement project with the aim to reduce emissions through the use of technology to improve flow at junctions. The system was subsequently refurbished in 2019.
AQMA5.5	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Traffic Management	UTC, Congestion management, traffic reduction	Estimated 2020	TBC	Kirklees Highways UTC / 3rd Party Partner	Council Budget	NO	Funded	£500k - £1 million	Implementation	NO2 & PM	See Appendix F	Active	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding
AQMA5.6	Trial of Smart UTMC Technology systems within relevant AQMAS	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded	£500k - £1 million	Planning	NO2 & PM	See Appendix F	Planning	The project is a Traffic Light improvement scheme within the AQMA and is a future project currently going through project planning phase.

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AQMA 5.7	Installation of Green Screen at Eastborough J&I School	Other	Other	2020	2020/21	Kirklees Environmental Health	Council Budget	NO	Funded	£10k - 50k	Aborted	NO2 & PM	See Appendix F	Aborted	The design of the Green Screen is to improve visual amenity and also provide a barrier between the school playground and the ring road. Further inspection of the site in 2022 highlighted difficulties in potentially installing the green screen
AQMA6.1	A629 Road improvements as part of Halifax to Huddersfield Road Scheme	Traffic Management	UTC, Congestion management, traffic reduction	2020	2021	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	> £10 million	Planning	NO2 & PM	See Appendix F	Planning	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage - https://www.kirklees.gov.uk/beta/transport-roads-and-parking/a629.aspx
AQMA6.2	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Management System	Traffic Management	UTC, Congestion management, traffic reduction	2019	2021	Kirklees Highways UTC	Council Budget	NO	Funded	£500k - £1 million	Completed	NO2 & PM	See Appendix F	Complete	MOVA was originally installed at this junction. Subject to funding there are plans to upgrade at this junction
AQMA6.3	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Traffic Management	UTC, Congestion management, traffic reduction	Estimated 2020	2021	Kirklees Highways UTC / 3rd Party Partner	Council Budget	NO	Funded	£500k - £1 million	Implementation	NO2 & PM	See Appendix F	Planning	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding
AQMA6.4	Trial of Smart UTMC Technology systems within relevant AQMAS	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded	£500k - £1 million	Planning	NO2 & PM	See Appendix F	Planning	The project is a Traffic Light improvement scheme within the AQMA and is a future project currently going through project planning phase.
AQMA7.1	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic	Traffic Management	UTC, Congestion management, traffic reduction	2019	2021	Kirklees Highways UTC	Council Budget	NO	Funded	£500k - £1 million	Completed	NO2 & PM	See Appendix F	Complete	This is stage 1 of a multistage improvement project with the aim to reduce emissions through the use of technology to improve flow at junctions.

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AQMA7.2	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Traffic Management	UTC, Congestion management, traffic reduction	Estimated 2020	2021	Kirklees Highways UTC / 3rd Party Partner	Council Budget	NO	Funded	£500k - £1 million	Implementation	NO2 & PM	See Appendix F	Planning	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding
AQMA7.3	Trial of Smart UTMC Technology systems within relevant AQMAS	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded	£500k - £1 million	Planning	NO2 & PM	See Appendix F	Planning	The project is a Traffic Light improvement scheme within the AQMA and is a future project currently going through project planning phase
AQMA8.1	Study into the impact of speed control along the national highway as an emissions reduction tool.	Transport Planning and Infrastructure	Other	2020	TBC	Environmental Health / National Highways	Council Budget	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Planning	Study into the impact of speed control along the national highway as an emissions reduction tool. This is a future project currently going through project planning phase
AQMA9.1	Free City Bus for Huddersfield Town Centre	Alternatives to private vehicle use	Other	2006	Ongoing	Kirklees Economy and Infrastructure	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	Huddersfield freetownbus
AQMA9.2	Huddersfield Heat Network Scheme	Other	Other	2020	TBC	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	> £10 million	Planned	NO2 & PM	See Appendix F	Active	Currently at Business Case Stage
AQMA9.3	Resource Smart Corridor	Traffic Management	UTC, Congestion management, traffic reduction	2020	TBC	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Not Funded		Planned	NO2 & PM	See Appendix F	Planned	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage

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
AQMA9.4	Huddersfield Southern Gateway Transport Scheme	Traffic Management	UTC, Congestion management, traffic reduction	2021	2025	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	£1 million - £10 million	Planned	NO2 & PM	See Appendix F	Planned	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage. Huddersfield Southern Corridors
AQMA9.5	Huddersfield Ring Road Junction Improvements	Traffic Management	UTC, Congestion management, traffic reduction	2021	2025	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	£1 million - £10 million	Planned	NO2 & PM	See Appendix F	Active	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage Huddersfield Southern Corridors
AQMA9.6	Feasibility Study in to Pedestrianizing Areas of Town Centre for Cycling Access	Promoting Travel Alternatives	Promotion of cycling	2021	TBC	Kirklees Economy and Infrastructure	Council Budget	NO	Not Funded		Planned	NO2 & PM	See Appendix F	Concept	
AQMA9.7	Trans-Pennine Express Improvement Scheme	Alternatives to private vehicle use	Other	2022	TBC	Network Rail, West Yorkshire Combined Authority, Kirklees Council	Central Transport Fund	NO	Funded	> £10 million	Implementation	NO2 & PM	See Appendix F	Active	Currently at Business Case Stage Transpennine Route Upgrade/
AQMA9.8	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Traffic Management	UTC, Congestion management, traffic reduction	Estimated 2020	2021	Kirklees Highways UTC / 3rd Party Partner	Council Budget	NO	Funded	£500k - £1 million	Implementation	NO2 & PM	See Appendix F	Planned	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding
AQMA9.9	Input into the development of the Town Centre Master Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020	2021	Kirklees Environmental Health / Development Control	Council Budget	NO	Funded	< £10k	Implementation	NO2 & PM	See Appendix F	Active	The Huddersfield Blueprint Kirklees Council

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
AQMA9.10	Trial of Smart UTMC Technology systems within relevant AQMAS	Traffic Management	UTC, Congestion management, traffic reduction	2021	2030	Kirklees Environmental Health / UTC	Council Budget	NO	Not Funded		Planning	NO2 & PM	See Appendix F	Planned	The project is a Traffic Light improvement scheme within the AQMA and is a future project currently going through project planning phase
AQMA10.1	Huddersfield Southern Gateway Transport Scheme	Traffic Management	UTC, Congestion management, traffic reduction	2021	2025	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded	£1 million - £10 million	Planned	NO2 & PM	See Appendix F	Active	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage Huddersfield Southern Corridors
AQMA10.2	Install multin-node SCOOT into traffic light system in AQMA	Traffic Management	UTC, Congestion management, traffic reduction	2018	2019	Kirklees Highways UTC	Council Budget	NO	Funded	£500k - £1 million	Completed	NO2 & PM	See Appendix F	Complete	This is stage 1 of a multistage improvement project with the aim to reduce emissions through the use of technology to improve flow at junctions.
AQMA10.3	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Traffic Management	UTC, Congestion management, traffic reduction	Estimated 2020	TBC	Kirklees Highways UTC / 3rd Party Partner	Council Budget	NO	Funded	£500k - £1 million	Implementation	NO2 & PM	See Appendix F	Planning	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding
AQMA10.4	Trial of Smart UTMC Technology systems within relevant AQMAS	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded	£100k - £500k	Planning	NO2 & PM	See Appendix F	Planning	The project is a Traffic Light improvement scheme within the AQMA and is a future project currently going through project planning phase

2.3 $PM_{2.5}$ – Local authority approach to reducing emissions and/or concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[6], 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 than 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

The Public Health Outcomes Frameworks– D1 indicator, Fraction of mortality attributable to particulate air pollution has recently introduced a "new method" of calculation[7]. We will now report these data within this and future ASRs. Mortality in Kirklees is estimated to be 5.2% compared to the England average of 5.2% and a regional average of 5.1% (based on the most recent 2023).

Measured $PM_{2.5}$ concentrations have remained relatively stable at the urban background AURN monitoring site Dewsbury Ashworth Grange (CM1). Annual mean $PM_{2.5}$ concentration have remained at or below 10 µg/m^3 the last three years, decreasing from 8.3 µg/m^3 to 7.4 µg/m^3 in 2023, then in 2024, increasing slightly to 8.0 µg/m^3.

As such, Kirklees Council is taking the following measures to address $PM_{2.5}$:

1. Included $PM_{2.5}$ as key indicator for the Health and Wellbeing Board
2. The entire Council area is a smoke control area, and we continue to enforce smoke control legislation. Between April 2024 and March 2025:
    - we received 47 complaints or enquiries about smoke from domestic chimneys. During this period, we did not service any notices or undertake prosecutions. Warning letters were sent to 35 premises.
    - We received 9 complaints or / enquiries regarding smoke from industrial chimneys.
    - We did not serve any notices or undertake prosecutions. Warning letters were sent to 6 premises.
3. Collaborative working between Public Health, Environmental Health, Planning and Highways to conduct a 2026 baseline Air Quality Model for the whole Kirklees District for $PM_{2.5}$ as part of local plan works.
4. Our current Air Quality Action Plan contains measures which assist in reducing local sources of $PM_{2.5}$, as well as nitrogen oxides gas emissions.
5. A PM2.5 monitor was installed at the Dewsbury Ashworth Grange AURN monitoring site in the Kirklees district in 2022. The data is detailed in this report.
6. We are involved with a regional project involving the WYCA, West Yorkshire local authorities and regional universities to develop a regional $PM_{2.5}$ monitoring network, supported by a website displaying the data and highlighting actions to reduce

[6] Air Quality Strategy – Framework for Local Authority Delivery | Defra August 2023

[7] Public Health Outcomes Framework – Data |Public Health England 2024

emissions and personal exposure. The procurement and installation of thirty monitoring devices for $PM_{2.5}$, across the five West Yorkshire local authorities, has been completed in 2024/25. The proposed dashboard (website) is in the final stages of completion and is expected to be launched by the end of July 2025, giving the public access to the live data on particulate air pollution.

Data from the network will be used to:

- increase public awareness and understanding of the sources and health impacts of particulate air pollution
- provide single point of public access to regional PM data
- provide advice to reduce PM exposure via a dedicated public facing PM information webpage hosted on the WYCA website. A live link to a dedicated particle information data dashboard will be provided. This project also will be reported in more detail in next years' ASR.

3. Air Quality monitoring data and comparison with Air Quality Objectives and national compliance

This section sets out the monitoring undertaken within 2024 by Kirklees and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2020 and 2024 to allow monitoring trends to be identified and discussed.

3.1 Summary of monitoring undertaken

Automatic monitoring sites

Kirklees undertook automatic (continuous) monitoring at one site during 2024. Table A-1 in Appendix A shows the details of the automatic monitoring sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. Appendix A presents automatic monitoring results in Kirklees with automatic monitoring results also available through the UK-Air website.

In 2023 two automatic monitoring sites operated by Kirklees were discontinued due to continued issues with the equipment causing loss or corruption of data. Please see the 2023 ASR for the most recent full reporting of these data[8]. The remaining AURN automatic monitoring site CM1 (Dewsbury Ashworth Grange) site forms part of the Automatic Urban Monitoring Network (AURN). It currently monitors NOx, NO_2, PM_{10}, $PM_{2.5}$, and O_3.

We previously purchased five Zephyr “low-cost” sensors to provide real-time data. Our intention was to begin reporting the data once we had tested and understood the outputs. A new West Yorkshire project funded by Defra (mentioned in Section 2.3 (Local Authority Approach to Reducing Emissions and/or Concentrations) will soon introduce new low-cost sensors and it is hoped that the existing sensors and the analyses of their data will be incorporated into this project. In December 2023, the British Standards Institute published their Code of Practice into the selection, deployment and quality control of low-cost sensor LAQM Annual Status Report 2024 systems in outdoor ambient air[9]. Reporting of the Council’s low-cost sensor data will have due regard for this guidance.

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. Table A-2 in Appendix A presents the details of the non-automatic sites. There were a number of significant changes to the diffusion tube network in 2024, with 58 sites discontinued, and 86 new sites introduced. 32 of the new sites were only

[8] Kirklees Annual Status Report 2023

[9] December 2023, BSI on behalf of Defra, PAS 4023:2023 (Selection, deployment and quality control of low-cost air quality sensor systems in outdoor ambient air – Code of Practice)

introduced very late in 2024, and therefore will be reported in the 2025 results in next year's ASR.

2024 data capture for the entire diffusion tube network was impacted by a changeover in LSO contractor in early 2024, which resulted in February diffusion tubes being out for more than 5 weeks. Additionally, tubes in December 2024 were out for more than 5 weeks. Ultimately this means that it is not possible to report data for February, March or December 2024 for the full diffusion tube network. For 57 sites in the network, January 2024 diffusion tubes were also out for more than 5 weeks, and again, data cannot be reported. Three sites had insufficient data capture to report annual mean concentrations in 2024.

The 2024 diffusion data presented in this report has therefore been annualised for all sites between 25% and 75% data capture. 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.

Maps showing the location of the monitoring sites are provided in Appendix D.

3.2 Individual pollutants

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

3.2.1 Nitrogen Dioxide (NO2)

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 40 µg/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).

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year. In 2024, as with previous years, there have been no exceedances of the hourly NO_2 objective of 200 µg/m^3.

The automatic monitoring results show that CM1 was again compliant with the annual mean and hourly NO_2 objectives in 2024 – there have been no measured exceedances at this site for the last five years for NO_2. Concentrations have remained relatively stable at CM1, with the annual mean NO_2 concentration decreasing slightly from 16.0 µg/m^3 in 2023 to 15.4 µg/m^3 in 2024.

For diffusion tubes, the full 2024 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.

In 2024, there are 101 diffusion tubes sites with valid data for 2024. Of the 101 sites in Table A.4, seven measured an exceedance of the annual mean NO_2 objective of 40 µg/m^3 at the monitoring location (following the application of bias adjustment and annualisation, as required).

From greatest exceedance to smallest, they are:

- **53.1 µg/m^3** at diffusion tube **144** in AQMA 9
- **52.0 µg/m^3** at diffusion tube **145** in AQMA 9
- **48.6 µg/m^3** at diffusion tube **56** in AQMA 9
- **44.8 µg/m^3** at diffusion tube **151** in AQMA 10
- **42.1 µg/m^3** at diffusion tube **77** in AQMA 10
- **41.6 µg/m^3** at diffusion tube **40** in AQMA 5
- **41.6 µg/m^3** at diffusion tube **54** (just outside AQMA 5, 35 Leeds Road, Eastborough, Dewsbury).

There are 10 additional sites measuring within 10% of the objective (>= 36 µg/m^3) in AQMA 2 (diffusion tube 30), AQMA 3 (diffusion tube 133),AQMA 6 (diffusion tube 3), AQMA 7 (diffusion tube 48), AQMA 9 (diffusion tubes 21, 28, and 146), AQMA 10 (diffusion tube 50), and at two locations outside of AQMAs: diffusion tube 32 (Blacker Road, Edgerton) and 35 (Leeds Road, Liversedge).

Following application of NO_2 fall-off with distance from the road corrections, there remain three exceedances of the annual mean NO_2 objective of 40 µg/m^3 at receptor locations which are representative of **relevant exposure**. They are:

- **49.2 µg/m^3** at diffusion tube **144** (in AQMA 9)
- **47.2 µg/m^3** at diffusion tube **145** (in AQMA 9)
- **46.4 µg/m^3** at diffusion tube **56** (in AQMA 9).

There are 11 additional sites measuring within 10% of the objective at a receptor location. These are presented in Table B.1.

The implications for each AQMA are discussed in turn. In doing so, we are applying paragraph 3.57 of LAQM Technical Guidance (TG) 2022, which states:

> *"The revocation of an AQMA should be considered following three consecutive years of compliance with the relevant objective as evidenced through monitoring. Where NO_2 monitoring is completed using diffusion tubes, to account for the inherent uncertainty associated with the monitoring method, it is recommended that revocation of an AQMA should be considered following three consecutive years of annual mean NO_2 concentrations being lower than 36 µg/m^3 (i.e. within 10% of the annual mean NO_2 objective). There should not be any declared AQMAs for which compliance with the relevant objective has been achieved for a consecutive five-year period."*
>
> *Furthermore, in considering intended revision of our current AQAP (2019-2024) we note the following statement taken Defra' LAQM portal regarding three or more years of compliance with the air quality objectives[10]: "Unless a likely exceedance has been identified in the area, Defra does not appraise AQAPs for AQMAs that*

[10] FAQ 142 - Three or more years of compliance with air quality objectives | LAQM (defra.gov.uk)

have been in compliance for five years. Local Authorities are instead advised to revoke the AQMA and develop a local Air Quality Strategy".

Due to the issues with data capture across the diffusion tube network in 2024, we will not make any changes to the AQMAs based on this monitoring year alone.

AQMA 1 – Bradley

This AQMA was declared in 2008 for exceedance of the annual mean objective for NO_2. Within the five-year reporting period of this of this ASR, there has been continued compliance with this objective. Following discussion with the LAQM Helpdesk (who then liaised with Defra), **we are currently in the process of formally revoking AQMA 1**. The conclusions of these discussions were:

"AQMA 1 - With 5 years full compliance and no likely exceedance identified, we recommend that AQMA 1 is revoked. Kirklees should have a local air quality strategy in place to manage the risk of the future road scheme and ensure air quality remains a high-profile issue, thereby enabling a quick response should there

Bias adjusted and annualised results for 2024 confirm continues compliance with the annual mean objective for NO_2, below 10% of the objective limit (<36 µg/m^3), the highest being 35.6 µg/m^3 at diffusion tube 6, located 7.6m from the relevant exposure.

We note paragraph 4.10 of LAQM Policy Guidance (PG) 2022, which states:

"Authorities wishing to revoke or reduce an AQMA can do so following review. For revocation this should demonstrate that air quality objectives are being met and will continue to do so. In other words, they should have confidence that the improvements will be sustained. Further information is provided in the Technical Guidance, but typically this is after three years or more compliance. It is not advisable for the revocation of an AQMA to be based solely upon compliance in a year not representative of long-term trends. For example, compliance being reached in 2020 may not be representative of long-term trends in pollutant concentrations due to the change in activity observed across the UK as a result of COVID-19. Where 2020 is one of many consecutive years of compliance, this may be considered for revocation. If authorities wish to make any changes to AQMAs, whether declaration, amendment or revocation, based upon 2020 data, please contact the LAQM helpdesk to discuss your approach."

We will continue monitoring to evaluate compliance at monitoring locations in and around the AQMA 1 area in future years, with data being reported in future ASRs. Furthermore, in accordance with FAQ 142 of Defra's LAQM portal, **we will not be including this AQMA in our forthcoming revised AQAP.**

AQMA 2 – Ravensthorpe / Scouthill

This AQMA was declared in 2009 due to exceedance of the annual mean objective for PM_{10}. We therefore discuss this AQMA in more detail in section 3.2.2., Particulate Matter (PM_{10}). Of note however are 2024 NO_2 diffusion tube data within this AQMA. In early 2023, we added another diffusion tube within this AQMA, tube 30. Map D11 in Appendix D and the AQMA chart in Appendix A highlight NO_2 diffusion tube monitoring within this AQMA. Tube 30 is representative of façade exposure and the annual mean after annualisation and bias adjustment was 39.9 µg/m^3. Tube 30 is located on an uphill gradient where road traffic emissions are greater. We will continue to monitor at this

location to determine longer term trends. At present, as there is no actual exceedance of the objective, there are no plans to declare an AQMA for exceedance of the annual mean NO_2 objective in this area.

AQMA 3 – Ainley Top

This AQMA was declared in 2017 due to exceedance of the annual mean objective for NO_2. This AQMA is split into two separate areas, as detailed in the Map D2 in Appendix D, these being the areas either side of the Ainley Top roundabout encompassing a section of the A629 Halifax Road to the south-east of the roundabout and the A643 Lindley Moor Road to the west. In 2024 there are four diffusion tubes in or adjacent to the Halifax Road section of the AQMA. These are 133 and 134 (both new in 2024), and 16 and 17 (in previous years there were triplicate co-located tubes here). One tube, 71, is located within the Lindley Moor Road section of the AQMA, at roadside on the westbound carriageway. Distance corrected data for this tube is considered to be representative of annual mean exposure as this section of the AQMA is confined to those residential properties closest to the A643 on the westbound carriageway only.

Data for the five years 2020-2024, as detailed within Table A.4 shows roadside annual mean concentrations all less than 40 µg/m^3, with the inference that receptor façade concentrations will be even lower due to greater distance from the kerb.

We are in the process of formally amending the AQMA boundary to remove the Lindley Moor Road section of the AQMA, which will involve and update to the legal AQMA 3 order. The annual mean NO_2 concentration for 2024 at diffusion tube 71 was 24.0 µg/m^3, corroborating the need for revoking this section.

The A629 Halifax Road section of the AQMA is more complex. Halifax Road leading to the Ainley Top roundabout has a downhill and uphill carriageway. Traffic on the uphill carriageway comes from the direction of Huddersfield town centre.

All residential receptors within this AQMA are located adjacent to the downhill carriageway. Receptors on the uphill carriageway were considered to be sufficiently distant from the roadside for receptor façade concentrations to exceed the annual mean at declaration in 2017. This was determined by an ADMS14 dispersion modelling exercise in support of the detailed assessment recommending declaration of this AQMA (2016 ASR)[11].

We have routinely reported diffusion tube data adjacent to, but just outside (see Map D2 in Appendix D), the AQMA as an indicator of roadside NO_2 on the uphill carriageway. These are tubes 16 and 17. There is insufficient data to report for diffusion tube 16 in 2024, but this site has previously been below the objective for the period 2019-2023. Data within Table A.4 confirms roadside concentrations below the objective for the period 2020-2024 at diffusion tube 17.

Additional monitoring was carried out at two new roadside locations (133 and 134) in roadside locations, after we concluded that we cannot revoke the Halifax Road section of the AQMA until we have undertaken further monitoring using diffusion tubes along the downhill carriageway of Halifax Road. Bias corrected and annualised annual mean NO_2

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concentrations for 2024 were 38.0 µg/m^3 at 133 and 28.9 µg/m^3 at 134. When site 133 was corrected for distance to the nearest exposure, it is estimated that the annual mean NO_2 concentration is 29.5 µg/m^3 at receptor location. Due to the data capture being below 75% for these new sites in 2024, we consider that there is currently insufficient evidence to revoke this section of the AQMA at present, and will wait to consider results for the 2025 monitoring year. We are happy to be guided by Defra / LAQM Helpdesk on the length of monitoring data that would be required in these circumstances to then determine revocation. Map D2 in Appendix D shows the area of the AQMA we will revoke and the area we will retain.

To summarise, we are in the process of revoking the Lindley Moor section of the AQMA following appraisal of this ASR, by amending the AQMA order but retaining the Halifax Road section until sufficient monitoring data has been obtained. Furthermore, in accordance with FAQ 142 of Defra's LAQM portal, we will not be including the Lindley Moor section of the AQMA in our forthcoming revised AQAP. We will continue monitoring to evaluate compliance in future years, with data being reported in future ASRs.

AQMA 4 – Birkenshaw

We are currently in the process of revoking AQMA 4 - Birkenshaw.

This AQMA was declared in 2017 due to exceedance of the annual mean objective for NO_2. As with AQMA 3, AQMA 4 is split into two separate areas, as detailed in the Map D3 in Appendix D, these being the area adjacent to the A651 Bradford Road / A58 Whitehall Road East roundabout, with the second area being adjacent to the M62 motorway and either side of the A651 Bradford Road carriageways. Roadside concentrations for the five year period 2020-2024 all show compliance with the objective and all below 36 µg/m^3 (see Tables A.2 and A.4 in Appendix A, along with the chart in figure A.1 entitled "AQMA 4 – Birkenshaw – Roadside annual mean NO_2 concentrations". All monitoring locations are considered representative of the highest concentrations within both areas of the AQMA.

Following the revocation of AQMA 4, we will continue monitoring to evaluate compliance in future years, with data being reported in future ASRs. Furthermore, in accordance with FAQ 142 of Defra's LAQM portal, we will not be including this AQMA in our forthcoming revised AQAP.

AQMA 5 – Eastborough

This AQMA was declared in 2017 due to exceedance of the annual mean objective for NO_2. Map D4 in Appendix D shows the spatial extent of this AQMA. There was continued exceedance within this AQMA of the annual mean objective for NO_2 at diffusion tube 40 at monitoring site in 2024 (measuring 41.6 µg/m^3). This location has exhibited exceedance at receptor façade between 2020 and 2023. However, when corrected for distance to nearest exposure, the annual mean NO_2 concentration at receptor in 2024 is 38.1 µg/m^3. This is a welcome reduction in annual mean concentrations at receptor façade, which was 50.8 µg/m^3 in 2019.

Just outside of the AQMA boundary, diffusion tube 54 outside 35 Leeds Road, Eastborough, Dewsbury is also in exceedance at monitoring location in 2024 (41.6 µg/m^3). This site is compliant when corrected for distance to nearest exposure (38.8 µg/m^3) but will be kept under review.

We will continue monitoring in this AQMA, and if compliance below 10% of the annual mean objective for NO_2 continues at receptor façade for a further two years, we will consider revocation of this AQMA. For now, **we will retain this AQMA**, and actions to

reduce emissions and concentrations within this AQMA will be proposed in our forthcoming revision of our AQAP.

AQMA 6 – Edgerton

This AQMA was declared in 2017 due to exceedance of the annual mean objective for NO_2. This small AQMA encompasses seven residential properties at the junction of A629 Halifax Road and Blacker within Edgerton, Huddersfield. Whilst roadside concentrations within this AQMA have been greater than 40 µg/m^3 for three of the last five years, receptor façade concentrations for the period 2019 – 2024 have all been below the annual mean objective of 40 µg/m^3.

There are six new diffusion tubes introduced at different points in 2024, one of these, diffusion tube 135 has sufficient data for 2024, in addition to existing diffusion tubes 3 (inside the AQMA,) and 32 (just outside of the AQMA). All three sites with data for 2024 show compliance with the annual mean objective of 40 µg/m^3, and following correction for distance to nearest exposure, all sites have an annual mean concentration below 10% of the objective limit (<36 µg/m^3) in 2024 (see Table A.4a within Appendix A). The chart entitled “AQMA 6 - Edgerton- Roadside annual mean NO_2 concentrations µg/m^3” in figure A.1 (Appendix A) details the data from the one diffusion tube within the AQMA, whilst the chart entitled in figure A.1 entitled “Edgerton area- Roadside annual mean NO_2 concentrations µg/m^3” details data from diffusion tube monitoring adjacent to this AQMA.

Because distance corrected concentrations were above 36 µg/m^3 in 2022 at diffusion tube 3, AQMA 6 is not yet eligible for revocation. We propose to review the 2025 data at diffusion tube 3 and the five additional new sites, before considering revocation of AQMA 6.

On this basis therefore, we will retain this AQMA, and actions to reduce emissions and concentrations within this AQMA will be proposed in our forthcoming revision of our AQAP. Monitoring will continue in this AQMA.

Additionally, of importance to this AQMA is the is the approval of planning permission[12] for a major road scheme for the A629 Halifax Road corridor, which was approved in 2023. This arterial route is the main link between junction 24 of the M62 motorway and Huddersfield town centre, with infrastructure improvements proposed for sections of this link away from the vicinity of this AQMA. The air quality impact assessment in support of the application did highlight a “slight adverse” impact on receptors within this AQMA (annual mean objective for NO_2 – the sensitivity test within the assessment suggested a “moderate adverse” impact).

The assessment predicted an increase of 1.2 µg/m^3 in annual mean NO_2 concentrations, due to an increase in queuing traffic at the Halifax Road / Blacker Road junction in the AQMA post scheme implementation (thought to be due to the overall attractiveness to road users of the link between Huddersfield town centre and junction 24 of the M62 motorway post scheme implementation causing the additional queuing). Following discussions as part of the planning process Kirklees Council Highways Department have installed a MOVA adaptive traffic control system used for signalisation within the AQMA, to reduce congestion and "smooth out” traffic flow to facilitate emission reduction at this

[12] Decision Note (December 2023) for planning application 2021/92734

junction. We will continue to monitor this junction and will provide an update in future ASRs.

AQMA 7 – Liversedge

Map D6 in Appendix D details the geographical extent of this AQMA in Liversedge. This AQMA was declared in 2017 due to exceedance of the annual mean objective for NO_2. This AQMA is split into three separate areas, as detailed in the Map D6. These being the areas:

- A638 Wakefield Road at Flush, Liversedge, at the junction of Wormald Street and Wakefield Road (diffusion tube 48, newly collocated with 179 and 180 (data not available for 2024)).
- A638 Wakefield Road at Frost Hill, Liversedge, approaching the junction with the A62 Leeds Road (diffusion tube 34)
- Junction of A649 Halifax Road and A62 Leeds Road, Mill Bridge, Liversedge (diffusion tube 33)

Each of the three areas has a diffusion tube located within it. Additionally, five new diffusion tubes were added to the areas around the AQMA in 2024, with data yet to be reported. Tube 48 is at receptor façade, whilst tubes 33 and 34 are at roadside – these three tubes are considered to be representative in worse case locations.

Diffusion tubes 33 and 34 roadside concentrations have been below both the annual mean objective of 40 µg/m^3 and the 36 µg/m^3 annual mean value (within 10% of the objective) for the past five years. **Considering paragraphs 3.54 and 3.57 of LAQM.TG (22), we have begun the process of formally revoking the A638 Wakefield Road at Frost Hill and Halifax Road / Leeds Road junction sections of the AQMA**. We will continue monitoring to evaluate compliance in future years, with data being reported in future ASRs. Furthermore, in accordance with FAQ 142 of Defra's LAQM portal, we will not be including the Halifax Road / Leeds Road junction area or the Wakefield Road, Frost Hill section of the AQMA in our forthcoming revised AQAP.

There has been exceedance at receptor façade within the area of the AQMA at the junction of Wormald Street and Wakefield Road (Flush) in 2021 and 2022 (diffusion tube 48 – see Table A.4a in Appendix A). This location has been compliant in 2023 and 2024, though still within 10% of the air quality objective (38.2 µg/m^3 in 2024). In order to understand this small area of exceedance, we located an additional five diffusion tubes in late 2024 to better determine the localised impact of traffic emissions within this section of the AQMA. Data for 2025, along with data from our existing diffusion tube locations will therefore be reviewed within our 2026 ASR. On this basis therefore we will not be revoking this section of the AQMA, and actions to reduce emissions and concentrations within this section of the AQMA will be proposed in our forthcoming revision of our Air Quality Action Plan (AQAP).

Map D6 in Appendix D shows the areas of the AQMA we will revoke and the area we will retain.

AQMA 8 - Outlane

Map D7 in Appendix D details this small AQMA which straddles the eastbound and westbound carriageways of the M62 motorway to the west of Huddersfield. This AQMA was declared in 2017 due to exceedance of the annual mean objective for NO_2. Eleven properties are contained within this AQMA, of which five properties are located to the

north-east of the motorway adjacent to the eastbound carriageway, with the remaining six to the south-west of the motorway adjacent to the westbound carriageway of the motorway. Historically, monitoring has been undertaken adjacent to the westbound carriageway only – diffusion tube 47. This tube is representative of exposure at the residential property nearest to the motorway. In 2019 this tube showed marginal exceedance of the annual mean objective (40.5 µg/m^3), however for the last five years 2020-2024, receptor façade annual mean concentrations have been meeting the objective and also below the 36 µg/m^3 annual mean value (within 10% of the objective).

There is a lack of monitoring data, representative of exposure with regards to the annual mean objective adjacent to the eastbound carriageway. Consequently, in 2024 we located a diffusion tube on the boundary fence of the motorway, closer to the road than the nearby properties within the AQMA. We consider this new tube (diffusion tube 141) to be representative of exposure for those properties adjacent to the eastbound carriageway. In 2024, diffusion tube 141 measured an annual mean of 23.2 µg/m^3 (following bias adjustment and annualisation). Additional tubes 181 and 182 were added in late 2024 in collocation with diffusion tube 141, these will be reported in 2025.

As 2024 has been a year of poor data capture, with less than 75% data capture for diffusion tubes 141, we conclude that further monitoring data is needed from the new tubes located adjacent to the eastbound carriageway before AQMA 8 can be considered for revocation. We are happy to be guided by Defra / LAQM Helpdesk on the length of monitoring data that would be required in these circumstances to then determine revocation.

To summarise, we intend to retain this AQMA until sufficient monitoring data has been collected. We will liaise with Defra / LAQM Helpdesk on the length of monitoring data that would be required in these circumstances to then determine revocation, and on the approach to be taken for inclusion or otherwise within our revised AQMA.

AQMA 9 – Huddersfield Town Centre

Map D8 in Appendix D details this AQMA which encompasses Huddersfield town centre within the ring road due to exceedance of the annual mean objective for NO_2.

There are 21 diffusion tubes within this AQMA, four of which are existing and 17 of which are new in 2024. Of the new sites, eight have sufficient data capture for data to be reported for 2024 (the remainder were introduced to the network in November 2024).

Historically diffusion tube 28 has been the only tube in exceedance in the last few years, the latest being in 2022. In 2024 it remains within 10% of the objective limit (37.9 µg/m^3 at receptor location). However, concentrations at diffusion tube 56 were significantly increased in 2024 at the roadside, exceeding the annual mean NO_2 at 48.6 µg/m^3 following bias adjustment and annualisation. This is a dramatic increase from previous years (all of which are complaint, with 2023 results below 36 µg/m^3). When corrected for distance to nearest relevant exposure, diffusion 56 is still non-compliant (46.4 µg/m^3 at receptor location). It is worth noting that this site had only 50% data capture for 2024 and has been annualised, A comparison of 2024 and 2023 raw monthly means for this site indicates no obvious outliers in the 2024 data available for site 56.

Additionally, there have been exceedances of the annual mean NO_2 objective at two new diffusion tube locations (144 and 145) in 2024, along Westgate and Trinity Street. There were exceedances of 53.1 µg/m^3 and 52.0 µg/m^3 respectively. Diffusion tube 145 is a triplicate diffusion tube with new tubes 183 and 184, however these were introduced in late 2024 therefore data is not yet available. When corrected for distance to nearest relevant

exposure, both 144 and 145 are still in exceedance, at 49.2 µg/m^3 and 47.2 µg/m^3 at respective receptor locations. These sites should be kept under review. The triplicate tubes at site 145, and further new monitoring sites 189, 190 and 191 introduced in late 2024 to this area will allow for further investigation of the exceedance in the next reporting year.

Data from diffusion tube 7 within this AQMA has historically been of interest. This tube is located on Westgate, a street in the middle of the Huddersfield town centre, (see Map D8 in Appendix 9) characterised by street canyons, and bus routes. Roadside concentrations were increasing from 2021-2023, with concentrations in 2022 and 2023 in excess of 40 µg/m^3 (see Table A.4a within Appendix A). This location is not representative of exposure with regard to the annual mean objective, and was discontinued in 2023, with new tube 161 added to the network in its place, at receptor façade, and 144 added on the opposite side of the road.

Data from diffusion tubes 28 and 146 are also of interest in this AQMA – these tubes were within 10% (>36 µg/m^3) of the annual mean NO_2 objective in 2024 following correction for distance to nearest exposure.

Due to exceedance of the objective in 2024 at three monitoring sites, and the emerging situation with the new monitoring sites added in this AQMA, we will retain this AQMA. Actions to reduce emissions and concentrations within this AQMA will be proposed in our forthcoming revision of our AQAP.

AQMA 10 – Thornton Lodge

This AQMA was declared in 2019 due to exceedance of the annual mean objective for NO_2. This AQMA is split into two separate areas, as detailed in the Map D9 in Appendix D, these being the areas:

In the area, there are an estimated:

- 13 residential properties adjacent to the A62 Manchester Road, north-east of the signalised junction with Longroyd Lane (diffusion tube 49).
- 18 residential properties adjacent to the A62 Manchester Road, south-west of the signalised junction with the B6432 St Thomas Road (diffusion tubes 50, 76, 77, 149, 150, 151, 152 (just outside))

There are currently 13 monitoring sites in this area, 8 of which are new in 2024. Of the new sites, 3 were added in early 2024 and results are reported in this report, 5 were added in late 2024 and will be reported in next year's ASR.

Diffusion tube 49 roadside concentrations for the five-year period 2020 – 2024 are below annual mean objective, with highest annual mean concentration being 36.4 µg/m^3 in 2021. This tube is located 3.5 metres from receptor façade, so concentrations will be lower at nearby residential properties within this section of the AQMA**. We are in the process of amending the AQMA order to revoke the section of the AQMA located adjacent to the A62 Manchester Road, north-east of the signalised junction with Longroyd Lane.**

Of the seven sites in and around the A62 Manchester Road, south-west of the signalised junction with the B6432 St Thomas Road section of the AQMA, two were in exceedance of the annual mean NO_2 objective in 2024 following bias adjustment and distance correction. These are diffusion tube 77 measuring 42.1 µg/m^3 at roadside, and diffusion tube 151 measuring 44.8 µg/m^3 at roadside. These tubes are both located on the eastern part of the remaining AQMA, close to the junction of Manchester Road and Springdale Avenue. Additionally, diffusion tube 50 was within 10% of the air quality objective at roadside.

Following distance correction for nearest relevant exposure, diffusion tube 77 is complaint at receptor location, but still within 10% of the objective level (38.9 µg/m^3 at receptor location), and diffusion tube 151 becomes compliant below 10% of the air quality objective. Diffusion tube 50 is complaint below 10% of the air quality objective at receptor location.

As discussed, concentrations within the section of the AQMA adjacent to the A62 Manchester Road, south-west of the signalised junction with the B6432 St Thomas Road are in exceedance the objective. **Due to concentrations within 10% of the objective at one site, and the emerging situation with the new monitoring sites added in this part of the AQMA, we will retain this section of the AQMA (A62 Manchester Road, south-west of the signalised junction with the B6432 St Thomas Road). Actions to reduce emissions and concentrations within the amended AQMA will be proposed in our forthcoming revision of our AQAP.**

To summarise, we are in the process of amending the AQMA order to revoke the section of the AQMA located adjacent to the A62 Manchester Road, north-east of the signalised junction with Longroyd Lane, whilst seeking Defra / LAQM Helpdesk advice on the way forward with the section of the AQMA adjacent to the A62 Manchester Road, south-west of the signalised junction with the B6432 St Thomas Road.

Map D9 in Appendix D shows the area of the AQMA we will revoke and the area we will retain.

The status for each AQMA declared for exceedance of the annual mean NO_2 objective is summarised below:

- **AQMA 1**: Revocation in progress.
- **AQMA 2**: see section 3.2.3
- **AQMA 3**: Amending of the AQMA boundary is in progress, formally revoking the Lindley Moor Section of the AQMA. The A629 Halifax Road section of the AQMA will be retained until sufficient monitoring data have been obtained. (In the A629 Halifax Road section, 2024 monitored concentrations compliant at relevant exposure below 10% of the air quality objective for annual mean NO_2, however new monitoring sites were added to investigate the downhill carriageway of Halifax road, and further data is needed to confirm compliance). Actions for the amended AQMA will be included in the upcoming AQAP.
- **AQMA 4**: Revocation in progress.
- **AQMA 5**: AQMA is retained and actions for AQMA will be included in the upcoming AQAP. Concentrations were compliant at receptor locations for the first time in 2024 at diffusion tube 40, and furthermore, were below 10% of the objective limit. However, three years compliance below 10% of the limit are required for revocation.
- **AQMA 6**: AQMA is retained and actions for AQMA will be included in the upcoming AQAP. Because distance corrected concentrations were above 36 µg/m^3 in 2022 at diffusion tube 3, AQMA 6 is not yet eligible for revocation. We propose to review the 2025 data at diffusion tube 3 and the five additional new sites, before considering revocation of AQMA 6. Additionally, there is a major road scheme “A629 Halifax Road corridor” which may impact concentrations post scheme implementation.
- **AQMA 7**: Amending of the AQMA boundary is in progress, formally revoking A638 Wakefield Road at Frost Hill and Halifax Road / Leeds Road junction sections of the AQMA. In the remaining A638 Wakefield Road at Flush section of the AQMA, there has

been exceedance at receptor façade within the area of the AQMA at the junction of Wormald Street and Wakefield Road (Flush) in 2021 and 2022. Further monitoring has been added to investigate. Actions for the amended AQMA will be included in the upcoming AQAP.

- **AQMA 8**: AQMA is retained and actions for AQMA will be included in the upcoming AQAP. Further monitoring of the eastbound carriageway is needed to determine whether the AQMA can be revoked (new sites have been added to investigate.).
- **AQMA 9**: AQMA is retained and actions for AQMA will be included in the upcoming AQAP. There were exceedances of the annual mean NO_2 objective at three monitoring sites in 2024. Further monitoring has been added to investigate.
- **AQMA 10**: Amending of the AQMA boundary is in progress, formally revoking AQMA located adjacent to the A62 Manchester Road, north-east of the signalised junction with Longroyd Lane. There is a site within 10% of the annual mean NO_2 objective at receptor location in 2024 in the remaining section of the AQMA adjacent to the A62 Manchester Road, south-west of the signalised junction with the B6432 St Thomas Road. New monitoring is already in place to investigate further. Actions for the amended AQMA will be included in the upcoming AQAP.

AQMA amendments and revocations are currently at the consultation stage.

3.2.2 Particulate Matter (PM_{10})

Table A.6 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. Concentrations have remained compliant and relatively stable at CM1 in the last three years that PM_{10} has been measured. In 2024, the annual mean PM_{10} concentration increased slightly from 11.9 µg/m^3 in 2023 to 12.5 µg/m^3 in 2024. There was one exceedance of the PM_{10} 24-hour mean objective of 50 µg/m^3 in 2024, a slight decrease from two in 2023 (exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year).

Table A.2 – 24 hour mean PM10 monitoring results, number of PM10 24 hour means greater than 50µg/m3 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.

AQMA 2 – Ravensthorpe / Scouthill

In 2009, we declared the A644 Huddersfield Road in Scouthill an AQMA due to exceedance of the PM_{10} 24-hour mean objective. Map D11 in Appendix D details the spatial extent of this AQMA. As with AQMA 1 reported earlier, we have been in dialogue with LAQM Helpdesk with regard to potential revocation, despite the lack of recent PM10 monitoring data within this AQMA. The Helpdesk then liaised with Defra. The conclusions of these discussions are:

> *"AQMA 2 - Based on the information provided, we recommend that Kirklees Council proceed with revocation as originally planned in 2016. While passive monitors cannot be used to assess compliance with PM10 objectives, they can be a useful tool to continue to keep the area under review and enable further investigation if concentrations increase. Kirklees Council could also look to include the area as an item in a local air quality strategy or annual status reports, to facilitate a quick response should there be a deterioration in conditions."*

We have therefore begun formal revocation of this AQMA for PM_{10}. Furthermore, in accordance with FAQ 142 of Defra's LAQM portal, we will not be including this AQMA in our forthcoming revised AQAP. This process is currently at consultation stage.

Should opportunity arise, we will seek to monitor to evaluate compliance in future years, with data being reported in future ASRs. This will either be by the use of "low-cost sensor" technology, with appropriate MCERTS certification for the monitoring of particulate matter[13], and used in operation in accordance with latest British Standards Institute Guidance[14]. Alternatively, should significant funding opportunity arise, we will consider the use of reference methods for monitoring.

We continue to monitor NO_2 concentrations within this AQMA using diffusion tubes. Map D.11 in Appendix D shows the locations of the diffusion tubes in this AQMA, and the data are discussed earlier in this section.

3.2.3 Particulate Matter ($PM_{2.5}$)

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

Concentrations have remained relatively stable at CM1 in the last three years that $PM_{2.5}$ has been measured. In 2024, the annual mean $PM_{2.5}$ concentration increased slightly from 7.4 µg/m^3 in 2023 to 8.0 µg/m^3 in 2024.

3.2.4 Sulphur Dioxide (SO_2)

We do not monitor SO_2 in Kirklees.

[13] MCERTS Certified Products: Indicative Ambient Particulate Monitors Archives – CSA Group

[14] PAS 4023:2024 Low-Cost Air Quality Sensor Systems | BSI (bsigroup.com)

Appendix A: Monitoring results

Table A.1 – Details of automatic monitoring site

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	Dewsbury Ashworth Grange	Urban background	424060	421912	NO_2, PM_{10}, $PM_{2.5}$, O_3	No	Chemiluminescent, FIDAS, UV absorption	13	0	2

Notes:

(1) N/A if not applicable

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

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)
3	Triplicate 1 - Junction of Edgerton Road/Blacker Road, Edgerton - Lamp Post 026	Roadside	413504	417439	NO2	AQMA 6	2.0	2.4	No	2.0
5	Outside number 603 Huddersfield Road, Ravensthorpe - Lamp Post 167	Roadside	422442	420380	NO2	No	1.7	1.6	No	2.6
6	Outside 2 Leeds Road, Mirfield, WF14 0BT – Signpost S1	Roadside	417878	421054	NO2	AQMA 1	7.6	4.0	No	2.0
8	Bradford Road, Fartown – Lamp Post 013 – Outside Charmaines	Roadside	414483	417726	NO2	No	13.7	2.0	No	2.0
9	Bradley Road, Bradley -Lamp Post 078	Kerbside	417280	420482	NO2	AQMA 1	13.4	0.7	No	2.0
11	Junction of Chapel Hill/Queensgate, Lamp Post 064 - Outside Home Bargains	Roadside	414359	416277	NO2	AQMA 9	3.5	5.0	No	2.0
12	Whitechapel Road, Cleckheaton – Lamp Post 046	Roadside	417355	425954	NO2	No	24.8	1.0	No	2.5

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	Whitehall Road East, Birkenshaw lamp post 39, by the Halfway House	Roadside	420379	427872	NO2	AQMA 4	2.1	2.6	No	2.0
14	Oastler Avenue, Huddersfield, HD1 4EU (Cul-de sac) – Lamp Post 05	Urban Background	413667	416467	NO2	No	8.0	1.7	No	2.0
17	Roadside 6, Halifax Road, Birchencliffe, HD3 3QP	Other	411715	419032	NO2	AQMA 3	8.0	6.0	No	1.5
18	Outside 6 Huddersfield Road, Birstall - Lamp Post 246	Kerbside	422684	426224	NO2	No	4.2	1.9	No	2.0
19	Opposite Shepherds Boy PH, Huddersfield Road, Scouthill on Telegraph pole 2	Roadside	423563	421014	NO2	AQMA 2	6.5	2.7	No	2.0
20	Rockley Street, Dewsbury - Dead end next to Eastbrough Junior School	Kerbside	424858	421904	NO2	AQMA 5	12.0	2.0	No	2.0
21	Castlegate (Ringroad), Huddersfield - To the rear of Bus Station	Roadside	414149	416686	NO2	AQMA 9	6.9	2.1	No	2.0
22	1257 Leeds Road, Bradley, LC183	Urban Background	417394	420458	NO2	AQMA 1	3.8	1.3	No	2.6
23	Huddersfield Road, Ravensthorpe,	Other	422300	420337	NO2	No	0.7	2.1	No	2.7

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)
	LC159 Milco Supersaver									
24	Lindley Moor Road 1, Lindley - Lamp Post 13 - By Marcus Way	Roadside	409775	418397	NO2	No	6.7	2.2	No	2.0
25	Leeds Road - Roadside 3	Roadside	417255	420360	NO2	AQMA 1	1.5	7.0	No	1.8
28	Southgate (Ring Road), Huddersfield – Lamp Post 019 - Near Oldgate Car Park	Roadside	414752	416699	NO2	AQMA 9	0.1	3.1	No	2.0
29	LC255 Gelderd Road Birstall, by 62a Gelderd Road, opposite Britannia Mills	Roadside	422710	426487	NO2	No	0.0	2.5	No	2.0
30	Huddersfield Road, Scouthill, LC 195 at Ravensfield Road	Roadside	423154	420658	NO2	AQMA 2	0.0	2.1	No	2.8
31	Outside 10 Edgerton Road, Edgerton - BT Pole	Roadside	413400	417495	NO2	No	8.3	2.7	No	2.0
32	Blacker Road, Edgerton - BT Pole Outside Electricity Substation next to Stevenson's Memorials	Roadside	413513	417481	NO2	No	5.0	2.6	No	2.0
33	Junction of Wakefield Road/Huddersfield Road, Liversedge -	Roadside	420728	423669	NO2	AQMA 7	4.3	2.4	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)
	Lamp Post 143 - Outside Fast Track Solutions by Traffic Lights									
34	Frost Hill, Liversedge - Outside Motorspares Shop - Lamp Post 206	Roadside	420845	423770	NO2	AQMA 7	0.3	1.9	No	2.0
35	Outside 45 Leeds Road, Liversedge – Lamp Post 150	Other	420827	423844	NO2	No	9.4	1.9	No	2.0
36	post next to LC85 Huddersfield Road, Mirfield – outside Tesco	Roadside	420398	419777	NO2	No	0.0	2.3	No	2.0
37	Outside 618 Bradford Road, Birkenshaw – Lamp Post 100 - Spatial BK74	Roadside	420356	427810	NO2	AQMA 4	2.5	2.2	No	2.0
38	Whitehall Road West, Birkenshaw on Lamp Post 46	Roadside	420262	427787	NO2	No	18.3	1.0	No	2.0
40	Triplicate 1 - Outside 35 Leeds Road, Eastborough, Dewsbury - Lamp Post 007	Roadside	424922	421973	NO2	AQMA 5	1.2	1.6	No	2.0
41	LC002, Newsome Road below Elm Street, by Kings Mill Court	Roadside	414714	415768	NO2	No	7.7	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) [1]	Distance to kerb of nearest road (m) [2]	Tube co-located with a continuous analyser?	Tube height (m)
42	Outside 39 Leeds Road, Eastborough, Dewsbury - Lamp Post 009	Roadside	424969	422002	NO2	No	5.6	1.9	No	2.0
43	Junction of John Street/Leeds Road, Eastborough, Dewsbury - Lamp Post 014	Roadside	425093	422024	NO2	No	6.0	1.9	No	2.0
44	Caulms Wood Road, Eastborough - On Sign on footpath by Crown PH	Roadside	425179	422116	NO2	No	0.0	1.0	No	2.0
45	LC 008 Trinity Street outside Chiiwala	Roadside	414041	416754	NO2	No	0.0	4.8	No	2.0
46	1 Willow Lane East, Fartown (LC002)- opposite sikh temple	Roadside	414542	417759	NO2	No	0.0	2.3	No	2.0
47	Round Ings Road, Outlane, HD3 3FQ – Lamp Post 008	Other	407942	417261	NO2	AQMA 8	0.0	14.4	No	2.0
48	Triplicate 1 - Flush, Liversedge - Lamp Post 213	Roadside	421044	423670	NO2	AQMA 7	0.0	2.6	No	2.0
49	Manchester Road, Thornton Lodge 2 (opposite The Bridge Pub)	Roadside	413659	416182	NO2	AQMA 10	3.5	3.7	No	2.0
50	Triplicate 1 - Manchester Road,	Roadside	413433	415989	NO2	AQMA 10	1.6	2.5	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)
	Thornton Lodge 1 – Lamp Post 38									
51	71 High Street Heckmondwike - Opposite Grammar School - Lamp post 246	Roadside	421898	423576	NO2	No	4.9	0.5	No	2.0
53	Yates Lane, Milnsbridge – Lamp Post 002	Roadside	411568	415903	NO2	No	1.6	1.7	No	2.0
54	Wakefield Road, Dewsbury - in Layby at bus stop on way to Dewsbury Town Centre from Earlsheaton	Roadside	425186	421568	NO2	No	2.9	5.8	No	1.8
55	Outside Oxfam, Huddersfield Road, Holmfirth	Roadside	414185	408260	NO2	No	3.2	1.7	No	2.0
56	New Wharf Inn PH opposite Riverbank Court, Wakefield Road, Aspley - Planning 1 Tube	Roadside	415009	416420	NO2	AQMA 9	0.8	2.8	No	2.0
58	St Johns Road, Huddersfield - Outside Probation Office – Lamp Post 007 - Planning tubes 3	Roadside	414350	417270	NO2	No	0.9	2.6	No	2.0
60	Towngate Holmfirth at pillar by bikeshed, next to	Roadside	414269	408218	NO2	No	12.9	1.6	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)
	LC 005, grid ref 414269, 408218									
61	LC 33, New Hey Road Marsh, outside Portland House nursery, junction with Reinwood Road	Roadside	412247	417354	NO2	No	10.0	2.5	No	2.0
62	Manor Park Gardens, Birkenshaw - Lamp Post 001	Roadside	420472	427360	NO2	AQMA 4	9.2	1.2	No	2.0
63	White Hall Road West, Birkenshaw - public footpath sign at edge of motorway, near Lamp Post 061	Roadside	419877	427567	NO2	No	7.0	2.9	No	2.0
64	White Hall Road West, Birkenshaw - Lamp Post 059	Roadside	419937	427614	NO2	No	66.4	1.1	No	2.0
65	White Hall Road West, Birkenshaw - Lamp Post 056	Roadside	419981	427623	NO2	No	21.9	3.0	No	2.0
66	Milford Grove, Birkenshaw - Lamp Post 004	Other	420349	427434	NO2	No	12.6	1.3	No	2.0
67	longroyd bridge, lamppost 007, outside 5 The Triangle, Market st	Roadside	413425	416168	NO2	No	0.0	3.3	No	2.0
70	58 Huddersfield Road, Scout Hill - LC199 by airstation	Roadside	423247	420761	NO2	AQMA 2	6.6	3.2	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)
71	Lindley Moor Road 2, near Weatherhill Road, Lindley – Lamp Post 049	Roadside	411007	419190	NO2	AQMA 3	11.6	2.7	No	2.0
75	Blackmoorfoot Road, Thornton Lodge – Lamp Post 4	Roadside	413153	415894	NO2	No	2.7	1.5	No	2.0
76	Manchester Road, Thornton Lodge 3 - Lamp Post 46	Roadside	413198	415957	NO2	AQMA 10	5.0	1.3	No	2.0
77	Triplicate 1 - Manchester Road, Thornton Lodge 4 – lamp post 37	Roadside	413455	416013	NO2	AQMA 10	1.2	2.2	No	2.0
82	1282 Leeds Road, Bradley, LC189	Roadside	417508	420570	NO2	AQMA 1	6.2	1.5	No	2.0
83	13 Bradley Road, Bradley, LC 81	Roadside	417364	420482	NO2	AQMA 1	0.0	4.5	No	2.8
84	5 Oak Road, LC1, Bradley	Roadside	417160	420296	NO2	No	1.7	1.4	No	2.6
85	866 Leeds Road, Bradley, LC174	Roadside	417170	420267	NO2	No	12.3	1.5	No	2.7
88	Huddersfield Road, Birstall Smithies - the greyhound public house - lamppost 231	Roadside	422435	425889	NO2	No	7.5	2.3	No	2.0
89	White hall Road West, Birkenshaw - Lamp Post 076	Roadside	419362	427203	NO2	No	118.1	1.7	No	2.0
94	Leeds Road, Shaw Cross - Lamp post 71	kerbside	426242	423106	NO2	No	2.1	4.1	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)
95	Hollowgate, Holmfirth -Lamp Post 003	Roadside	414170	408118	NO2	No	0.0	1.0	No	2.0
96	Victoria Street, Holmfirth - At traffic lights outside Charlie's	Roadside	414163	408195	NO2	No	1.6	0.7	No	2.6
98	Huddersfield Road, Holmfirth - Lamp Post 138	Roadside	414092	408133	NO2	No	0.8	2.3	No	2.0
101	LC30 outside 159 Trinity Street	Roadside	413495	417139	NO2	No	3.0	4.0	No	2.0
104	Bradley Road, Second telegraph down from entrance to Golf Club	Roadside	415898	420587	NO2	No	12.3	6.8	No	2.0
105	Commercial St/Well Lane, Batley, outside Chum Chee's Diner, Batley - Lamp post 011	Roadside	424513	424139	NO2	Planning	22.4	2.5	No	2.0
106	Commercial Street/Wards Hill junction, Batley - LC001	Roadside	424425	424171	NO2	Planning	42.5	2.2	No	2.0
107	Commercial Street/Market Place/Branch Road junction at zebra crossing, street light on top of beacon, Batley - LC010	Roadside	424259	424289	NO2	Planning	6.9	1.4	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)
133	Outside 222 Halifax Road, Birchencliffe, LC105	Roadside	411689	419100	NO2	AQMA 3	7.0	2.0	No	2.0
134	Triplicate 1 - Halifax Road at Yew Tree Road, outside 214 Halifax Road. LC103	Roadside	411717	419060	NO2	AQMA 3	4.3	2.1	No	2.0
135	Blacker Rd at Edgerton Road, outside 141, LC1	Roadside	413496	417449	NO2	AQMA 6	5.8	4.1	No	2.0
136	Near 1 Edgerton Road, close to Blacker Hill/ Halifax Rd junction. LC025	Roadside	413527	417416	NO2	No	5.8	2.7	No	2.0
137	Near 15 Frost Hill, Millbridge, Liversedge, LC 207	Roadside	420871	423748	NO2	No	4.8	2.0	No	2.0
138	Frost Hill at South St, Liversedge LC209	Other	420926	423728	NO2	No	4.0	2.7	No	2.0
139	Flush, opposite Chapel Street, Liversedge, LC214	Roadside	421087	423659	NO2	No	4.7	2.0	No	2.0
140	517 Flush, Liversedge, LC215	Roadside	421122	423662	NO2	No	0.0	3.2	No	2.0
141	Triplicate 1 - Fence at Round Ings Road, Outlane	Roadside	407912	417316	NO2	AQMA 8	21.6	4.5	No	1.0
142	Chapel Hill near Huddersfield Angling Centre, LC 002	Roadside	414321	416174	NO2	AQMA 9	5.9	1.8	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)
143	outside 33 Queensgate at Zetland Street	Roadside	414718	416451	NO2	AQMA 9	3.9	2.0	No	2.0
144	Outside the Jules Verne PH, Westgate, LC003	Roadside	414403	416735	NO2	AQMA 9	1.4	3.7	No	2.0
145	Triplicate 1 - The Crown PH, Westgate, LC010	Roadside	414266	416736	NO2	AQMA 9	2.1	3.2	No	2.0
146	The Olde Hatte PH, Trinity Street, LC001	Roadside	414222	416731	NO2	AQMA 9	0.0	4.0	No	2.0
147	38 Bath Street at John William St, LC003	Roadside	414237	417157	NO2	AQMA 9	2.5	13.0	No	2.0
148	Triplicate 1 - 5 Southgate, Huddersfield, LC005	Roadside	414689	416866	NO2	AQMA 9	2.0	2.4	No	2.0
149	Manchester Road above Birkhouse Lane, LC045, Thornton Lodge	Roadside	413238	415952	NO2	AQMA 10	18.7	3.7	No	2.0
150	242 Manchester Road, LC 043, Thornton Lodge	Roadside	413286	415959	NO2	AQMA 10	6.3	2.6	No	2.0
151	Below 173 Manchester Road, LC 035, Thornton Lodge	Roadside	413520	416030	NO2	AQMA 10	33.1	2.3	No	2.0
152	Blackmoorfoot Rd, Crosland Moor, above the Griffin, LC002	Roadside	413223	415920	NO2	No	0.0	2.5	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)
153	189 Blackmoorfoot Road at Park Road West Junction, outside Kaay News, LC016	Roadside	412750	415719	NO2	Black Cat dev.	3.5	1.7	No	2.0
154	69 Huddersfield Road at Rowley Lane junction, LC 085	Roadside	418629	414581	NO2	Rowley Ln dev	9.2	2.5	No	2.0
155	1062 Leeds Rd, Chidswell, LC131	Roadside	426831	424147	NO2	Chidswell dev	7.0	3.0	No	2.0
156	976 Leeds Rd, Chidswell, LC107	Roadside	426671	423724	NO2	Chidswell dev	5.1	3.0	No	2.0
157	Triplicate 1- Calder Rd, junctions with Huddersfield Road, Ravensthorpe, LC 017	Roadside	422461	420381	NO2	Dews. Riverside dev	0.9	4.0	No	2.0
158	93 Barnsley Rd, Flockton, at Burnley Buildings, LC057	Roadside	423816	414895	NO2	Flockton dev	0.0	4.0	No	2.0
159	227 Lockwood Pharmacy, LC049 Lockwood Road, Lockwood	Roadside	413659	415215	NO2	No	0.0	3.7	No	2.0
160	Road sign outside Shine Bright Day care & Out of School Club, 21, 23A Leeds Rd, Heckmondwike, Liversedge	Roadside	420775	423783	NO2	No	2.1	2.5	No	2.0
161	22 Westgate, Junction Station	Roadside	414400	416753	NO2	AQMA 9	0.0	4.0	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)
	street and Westgate, CCTV post									
162	15 Yew Green Road, Lockwood, LC01	Roadside	413192	415378	NO2	Planning	0.0	1.6	No	2.0
163	LC04, outside 18 Holly Bank Road, Lindley, opposite George Street	Roadside	411872	418244	NO2	No	3.3	4.0	No	2.0
164	Triplicate 2 (location 40)- Outside 35 Leeds Road, Eastborough, Dewsbury - Lamp Post 007	Roadside	424922	421972	NO2	AQMA 5	1.2	1.6	No	2.0
165	Triplicate 3 (location 40)- Outside 35 Leeds Road, Eastborough, Dewsbury - Lamp Post 007	Roadside	424922	421972	NO2	AQMA 5	1.2	1.6	No	2.0
166	Triplicate 2 (location 148) - 5 Southgate, LC005	Roadside	414689	416866	NO2	AQMA 9	2.0	2.4	No	2.0
167	Triplicate 3 (location 148) - 5 Southgate, LC005	Roadside	414689	416866	NO2	AQMA 9	2.0	2.4	No	2.0
168	Triplicate 2 (location 77)- Manchester Road, Thornton Lodge 4 – lamp post 37	Roadside	413455	416013	NO2	AQMA 10	1.2	2.2	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)
169	Triplicate 3 (location 77)- Manchester Road, Thornton Lodge 4 – lamp post 37	Roadside	413455	416013	NO2	AQMA 10	1.2	2.2	No	2.0
170	LC001 Outcote bank, Manchester Road (by retaining wall)	Roadside	414073	416180	NO2	No	4.0	3.9	No	2.8
171	LC 2 - Edgerton Grove Rd	Roadside	413439	417401	NO2	No	15.2	2.1	No	2.0
172	LC 27 - Edgerton Rd and Edgerton Grove Rd	Roadside	413467	417441	NO2	No	9.2	3.1	No	2.0
173	Triplicate 2 (for location 30) - Huddersfield Road, Scouthill, LC 195 at Ravensfield Road	Roadside	423154	420658	NO2	AQMA 2	0.0	2.1	No	2.8
174	Triplicate 3 (for location 30- Huddersfield Road, Scouthill, LC 195 at Ravensfield Road	Roadside	423154	420658	NO2	AQMA 2	0.0	2.1	No	2.8
175	Triplicate 2 (for location 157) - Calder Rd, junctions with Huddersfield Road, Ravensthorpe, LC 017	Roadside	422461	420381	NO2	Dews. Riverside dev	0.9	4.0	No	2.0
176	Triplicate 3 (for 157)- Calder Rd, junctions with	Roadside	422461	420381	NO2	Dews. Riverside dev	0.9	4.0	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)
	Huddersfield Road, Ravensthorpe, LC 017									
177	Triplicate 2 (for location 134)- Halifax Road at Yew Tree Road, outside 214 Halifax Road. LC103	Roadside	411717	419060	NO2	AQMA 3	1.7	2.1	No	2.0
178	Triplicate 3 (for location 134)- Halifax Road at Yew Tree Road, outside 214 Halifax Road. LC103	Roadside	411717	419060	NO2	AQMA 3	1.7	2.1	No	2.0
179	Triplicate 2 (location number 48)- Flush, Liversedge - Lamp Post 213	Roadside	421044	423670	NO2	AQMA 7	0.0	2.6	No	2.0
180	Triplicate 3 (location number 48)- Flush, Liversedge - Lamp Post 213	Roadside	421044	423670	NO2	AQMA 7	0.0	2.6	No	2.0
181	Triplicate 2 (for location 141) - Fence at Round Ings Road, Outlane	Roadside	407915	417319	NO2	AQMA 8	21.6	4.5	No	1.0
182	Triplicate 3 (for location 141)- Fence at Round Ings Road, Outlane	Roadside	407915	417319	NO2	AQMA 8	21.6	4.5	No	1.0
183	Triplicate 2 (location 145)- The Crown	Roadside	414266	416736	NO2	AQMA 9	2.1	3.2	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)
	PH, Westgate, LC010									
184	Triplicate 3 (location 145)- The Crown PH, Westgate, LC010	Roadside	414266	416736	NO2	AQMA 9	2.1	3.2	No	2.0
185	Triplicate 2 (location 50) - Manchester Road, Thornton Lodge 1 – Lamp Post 38	Roadside	413433	415989	NO2	AQMA 10	1.6	2.5	No	2.0
186	Triplicate 3 (location 50) - Manchester Road, Thornton Lodge 1 – Lamp Post 38	Roadside	413433	415989	NO2	AQMA 10	1.6	2.5	No	2.0
187	Triplicate 2 (Location 3)- Junction of Edgerton Road/Blacker Road, Edgerton - Lamp Post 026	Roadside	413504	417439	NO2	AQMA 6	2.0	2.4	No	2.0
188	Triplicate 3 (Location 3)- Junction of Edgerton Road/Blacker Road, Edgerton - Lamp Post 026	Roadside	413504	417439	NO2	AQMA 6	2.0	2.4	No	2.0
189	LC 004 - New North Parade at railway bridge	Roadside	414247	416775	NO2	AQMA 9	20.2	4.8	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)
190	LC002 - Upperhead Row outside Grieves solicitors	Roadside	414248	416702	NO2	AQMA 9	1.8	5.0	No	2.0
191	LC001 - Henry Street by Ben's Baps	Roadside	414216	416708	NO2	AQMA 9	1.5	5.0	No	2.0
192	LC002 - John William Street outside McDonalds	Roadside	414486	416745	NO2	AQMA 9	4.1	4.6	No	2.0
193	LC006 Kirkgate-outside old Parish. Now called Golaccio	Roadside	414619	416745	NO2	AQMA 9	1.5	2.5	No	2.0
194	Triplicate 2 (location 22) 1257 Leeds Road, Bradley, LC183	Roadside	417394	420458	NO2	AQMA 1	3.8	1.3	No	2.6
195	Triplicate 3 (location 22) 1257 Leeds Road, Bradley, LC183	Roadside	417394	420458	NO2	AQMA 1	3.8	1.3	No	2.6

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.

26 new diffusion tubes were added at existing sites to make triplicate sites, however they were not deployed until October-November 2024. As such, they are included in Table A.2 for completeness, but the results have not been included in the outcomes of the DT data processing tool (Table B.1) due to insufficient data coverage.

Table A.3 – Annual mean NO_2 monitoring results: automatic monitoring ($\mu g/m^3$)

Site ID	X OS grid ref (easting)	Y OS grid ref (northing)	Site type	Valid data capture for monitoring period (%) (1)	Valid data capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM1	424060	421912	Urban background	87.3%	87.3%	15.7	17.1	17.8	16.0	15.4

☐ **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.**

☐ **Where exceedances of the NO_2 annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2024.**

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.

Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

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

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

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

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

Table A.4 – Annual mean NO_2 monitoring results: non-automatic monitoring ($\mu g/m^3$)

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 2024 (%) (2)	2020	2021	2022	2023	2024
3	413504	417439	Roadside	73.6	73.6	36.3	**40.3**	**41.5**	37.2	36.4
5	422442	420380	Roadside	66.0	66.0				30.3	33.2
6	417878	421054	Roadside	66.3	66.3			36.8	34.6	35.6
8	414483	417726	Roadside	15.6	15.6	30.5	33.4	32.7	30.7	31.4
9	417280	420482	Kerbside	58.2	58.2	28.3	21.7	24.6	20.7	24.6
11	414359	416277	Roadside	49.1	49.1	27.7	31.3	32.0	27.9	29.7
12	417355	425954	Roadside	42.9	42.9			16.4	14.6	16.1
13	420379	427872	Roadside	66.0	66.0	23.0	28.2	28.5	24.6	26.9
14	413667	416467	Urban Background	56.6	56.6	13.9	14.5	13.0	12.1	13.9
17	411715	419032	Other	65.5	65.5	29.4	33.8	30.7	22.7	29.1
18	422684	426224	Kerbside	66.0	66.0	32.2	35.8	34.4	30.2	31.6
19	423563	421014	Roadside	66.0	66.0	29.6	35.7	35.4	33.0	35.5
20	424858	421904	Kerbside	7.3	7.3	29.5	33.1	32.3	28.6	26.8
21	414149	416686	Roadside	66.0	66.0	33.4	39.3	37.8	35.7	38.4
22	417394	420458	Urban Background	49.9	49.9				28.7	31.2
23	422300	420337	Other	24.3	24.3				32.5	33.8
24	409775	418397	Roadside	39.9	39.9	27.5	32.3	28.7	25.6	31.8
25	417255	420360	Roadside	66.0	66.0	22.6	24.5	23.8	21.0	23.1
28	414752	416699	Roadside	66.0	66.0	37.6	**41.4**	**41.0**	38.1	38.1
29	422710	426487	Roadside	58.5	58.5				29.6	34.6
30	423154	420658	Roadside	66.0	66.0				38.2	39.9
31	413400	417495	Roadside	73.6	73.6	17.1	25.0	24.6	21.6	21.8
32	413513	417481	Roadside	73.6	73.6		36.1	38.1	35.2	37.9
33	420728	423669	Roadside	66.0	66.0	26.8	31.4	30.2	27.7	29.3

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 2024 (%) (2)	2020	2021	2022	2023	2024
34	420845	423770	Roadside	66.0	66.0	29.9	30.5	33.6	30.3	33.1
35	420827	423844	Other	66.0	66.0	34.7	**44.3**	**44.7**	38.8	38.2
36	420398	419777	Roadside	66.0	66.0				24.7	25.6
37	420356	427810	Roadside	56.9	56.9	21.3	25.7	26.4	22.3	25.8
38	420262	427787	Roadside	56.1	56.1	27.3	33.3	36.6	31.0	30.1
40	424922	421973	Roadside	66.0	66.0	**42.1**	**50.2**	**47.5**	**43.0**	**41.6**
41	414714	415768	Roadside	58.0	58.0				24.0	29.1
42	424969	422002	Roadside	58.8	58.8	34.7	37.9	33.7	30.3	32.5
43	425093	422024	Roadside	66.0	66.0	33.1	39.0	36.3	31.5	32.8
44	425179	422116	Roadside	66.0	66.0	24.9	30.1	31.0	27.7	28.8
45	414041	416754	Roadside	65.5	65.5					29.3
46	414542	417759	Roadside	73.6	73.6	29.2	22.5	21.3	30.5	32.7
47	407942	417261	Other	73.6	73.6	32.0	34.4	32.8	30.2	33.0
48	421044	423670	Roadside	66.0	66.0	38.1	**41.2**	**43.0**	38.0	38.2
49	413659	416182	Roadside	73.6	73.6	33.1	36.4	33.6	32.4	33.7
50	413433	415989	Roadside	73.6	73.6	33.1	39.8	**40.6**	37.4	37.0
51	421898	423576	Roadside	48.0	48.0	28.6	30.0	31.2	28.5	33.2
53	411568	415903	Roadside	73.6	73.6	24.6	30.6	28.0	23.7	27.3
54	425186	421568	Roadside	56.9	56.9					**41.6**
55	414185	408260	Roadside	41.2	41.2	23.8	25.2	25.7	23.2	27.5
56	415009	416420	Roadside	48.8	48.8	30.3	37.4	36.1	34.8	**48.6**
58	414350	417270	Roadside	64.7	64.7	34.9	37.4	35.9	32.5	30.9
60	414269	408218	Roadside	66.0	66.0					20.0
61	412247	417354	Roadside	57.4	57.4					25.6
62	420472	427360	Roadside	66.0	66.0	22.1	25.5	26.2	22.5	21.8
63	419877	427567	Roadside	58.0	58.0	24.3	26.7	24.1	23.1	26.8
64	419937	427614	Roadside	66.0	66.0				28.2	33.2

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 2024 (%) (2)	2020	2021	2022	2023	2024
65	419981	427623	Roadside	48.8	48.8	28.4	32.6	34.9	30.4	25.9
66	420349	427434	Other	58.0	58.0	19.8	18.7	18.0	16.8	17.7
67	413425	416168	Roadside	66.3	66.3					22.3
70	423247	420761	Roadside	57.1	57.1	33.4	32.9	31.4	29.9	31.6
71	411007	419190	Roadside	73.6	73.6	22.6	28.8	24.1	23.3	24.0
75	413153	415894	Roadside	64.7	64.7	25.5	28.9	27.1	26.1	24.6
76	413198	415957	Roadside	54.4	54.4	25.4	28.9	27.1	25.9	26.6
77	413455	416013	Roadside	73.6	73.6	33.2	**42.6**	**41.9**	38.2	**42.1**
82	417508	420570	Roadside	73.6	73.6					34.0
83	417364	420482	Roadside	66.3	66.3					25.8
84	417160	420296	Roadside	73.6	73.6					20.1
85	417170	420267	Roadside	73.6	73.6					26.3
88	422435	425889	Roadside	48.8	48.8				25.1	34.6
89	419362	427203	Roadside	15.9	15.9	23.2	27.5	28.2	25.5	21.0
94	426242	423106	kerbside	66.0	66.0	25.5	33.5	32.2	28.9	29.5
95	414170	408118	Roadside	66.0	66.0	21.0	24.0	22.6	20.6	21.8
96	414163	408195	Roadside	49.6	49.6				27.7	32.0
98	414092	408133	Roadside	66.0	66.0	19.7	22.2	21.3	21.3	22.9
101	413495	417139	Roadside	73.6	73.6					28.1
104	415898	420587	Roadside	58.2	58.2	17.4	19.9	21.2	19.3	20.6
105	424513	424139	Roadside	88.9	66.0					22.6
106	424425	424171	Roadside	77.8	58.0					21.2
107	424259	424289	Roadside	88.9	66.0					28.6
133	411689	419100	Roadside	88.9	66.0					38.0
134	411717	419060	Roadside	77.8	57.1					28.9
135	413496	417449	Roadside	55.6	41.8					35.8
136	413527	417416	Roadside	88.9	66.0					30.0

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 2024 (%) (2)	2020	2021	2022	2023	2024
137	420871	423748	Roadside	88.9	66.0					25.4
138	420926	423728	Other	88.9	66.0					25.1
139	421087	423659	Roadside	88.9	66.0					24.6
140	421122	423662	Roadside	77.8	57.1					22.5
141	407912	417316	Roadside	88.9	66.0					23.2
142	414321	416174	Roadside	77.8	57.1					34.6
143	414718	416451	Roadside	77.8	57.1					28.9
144	414403	416735	Roadside	77.8	56.9					**53.1**
145	414266	416736	Roadside	88.9	66.0					**52.0**
146	414222	416731	Roadside	77.8	59.0					37.9
147	414237	417157	Roadside	88.9	66.0					22.0
148	414689	416866	Roadside	88.9	66.0					29.9
149	413238	415952	Roadside	88.9	66.0					25.2
150	413286	415959	Roadside	77.8	56.9					30.6
151	413520	416030	Roadside	77.8	58.8					**44.8**
152	413223	415920	Roadside	88.9	66.0					32.0
153	412750	415719	Roadside	88.9	66.0					32.9
154	418629	414581	Roadside	88.9	66.0					15.8
155	426831	424147	Roadside	88.9	66.0					16.8
156	426671	423724	Roadside	88.9	66.0					27.0
157	422461	420381	Roadside	88.9	66.0					34.7
158	423816	414895	Roadside	88.9	66.0					19.0
159	413659	415215	Roadside	77.8	39.9					29.9
160	420775	423783	Roadside	88.9	66.0					30.4
161	414400	416753	Roadside	88.9	66.0					32.0
162	413192	415378	Roadside	77.8	58.5					30.9

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

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

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

Notes:

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

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

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

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

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

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

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

Figure A.1 – Trends in annual mean NO_2 concentrations

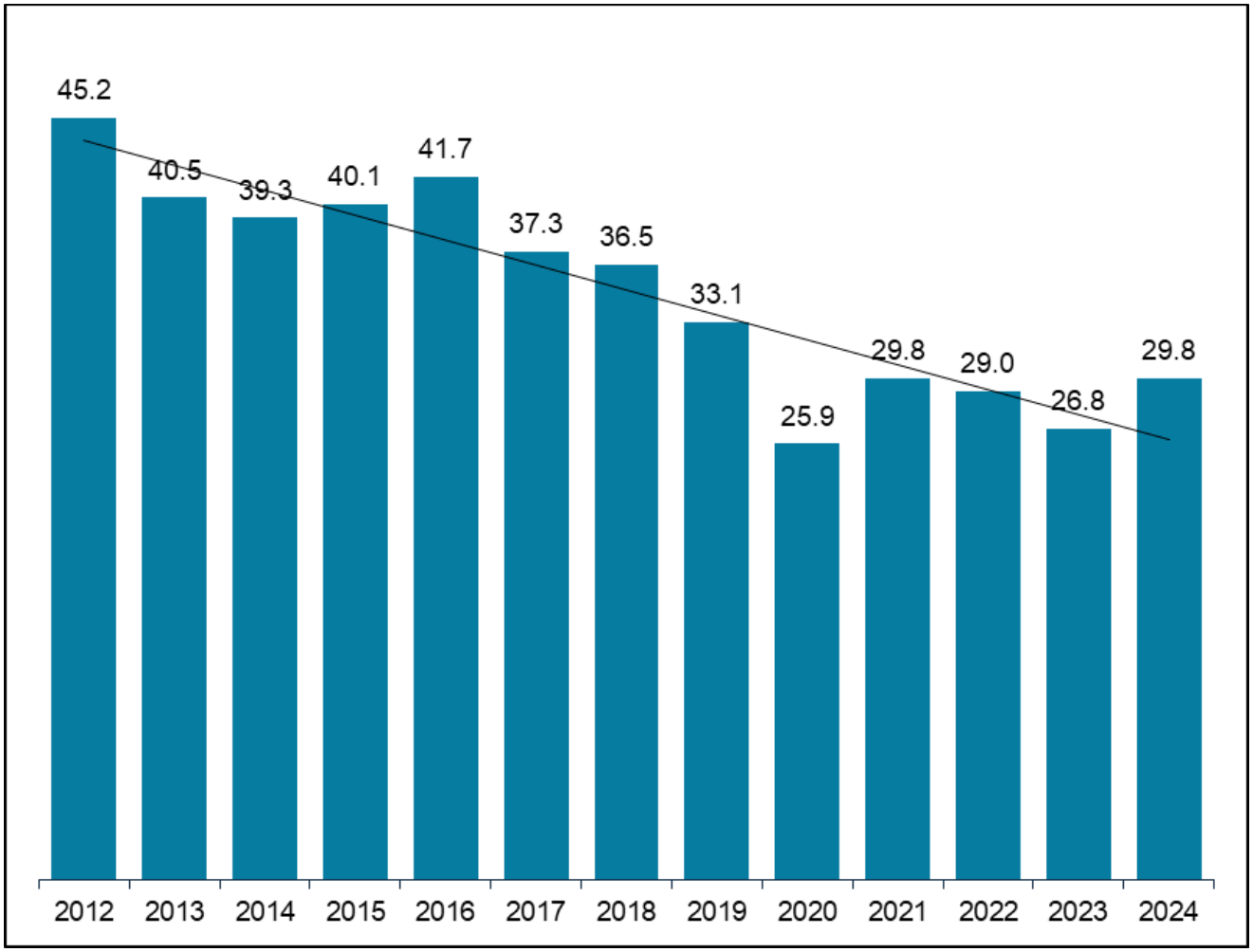

Figure A.1 shows trends in annual mean NO_2 concentrations in micrograms per cubic metre (µg/m^3) measured by diffusion tubes in Kirklees from 2012 to 2024, as averages across the network. Overall, between 2012 and 2024, average annual mean concentrations have reduced. There is a noticeable increase in 2024, which is likely due to the significant changes to the monitoring network, with 52 new diffusion tubes added to the network – many of which have been added to hotspot locations to further investigate exceedances.

Figure A.2 – Percentage improvement changes in annual mean NO_2 concentrations

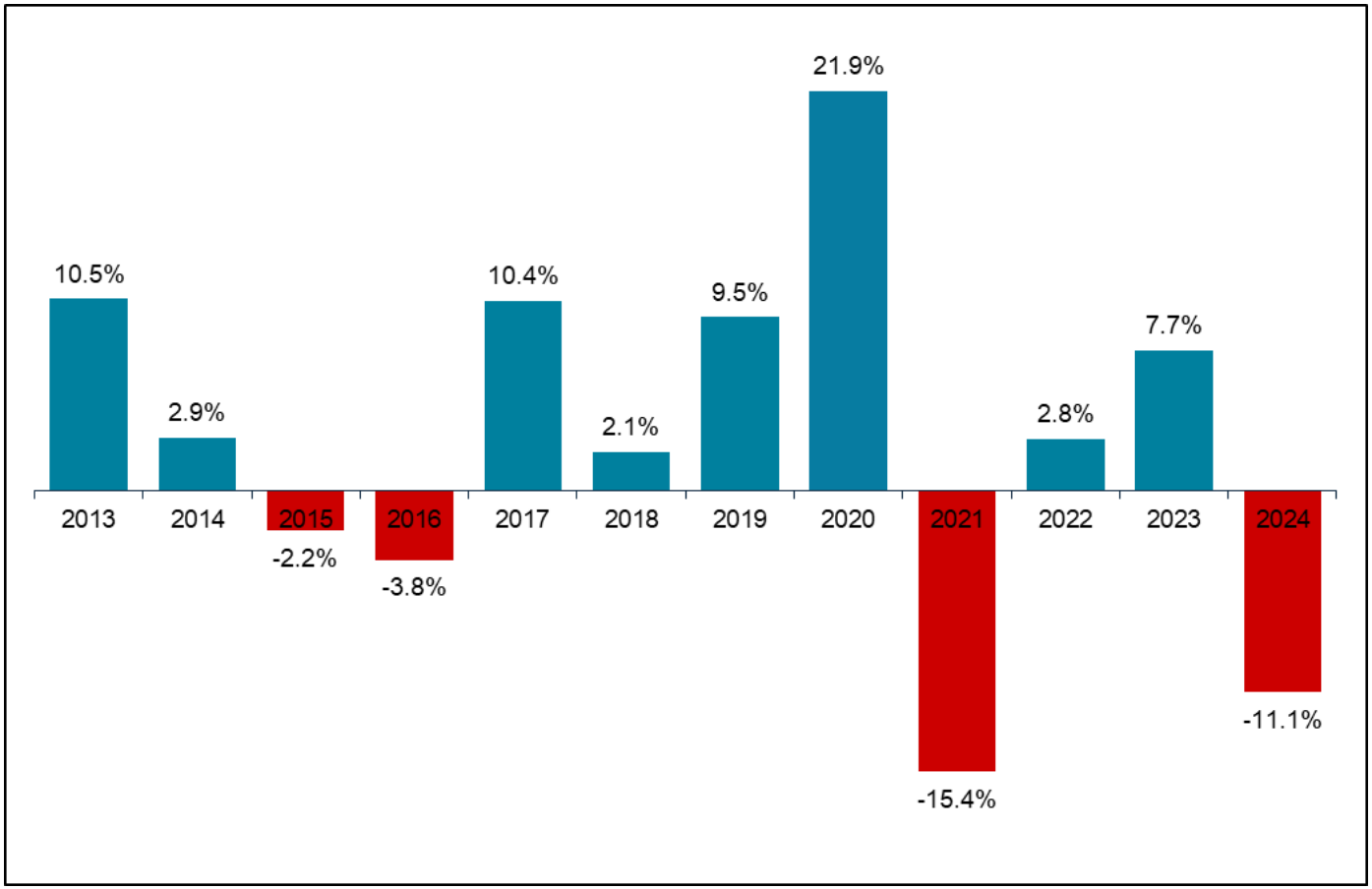

Figure A.2. shows percentage changes in annual mean NO_2 concentrations measured by diffusion tubes in Kirklees from 2012 to 2024, where a positive percentage change represents a reduction in annual mean NO_2 concentrations (represented by blue bars), whilst a negative percentage change represents an increase in annual mean NO_2 concentrations from one year to the next.

Figure A.3 – Trends in annual mean NO_2 concentrations, AQMA 1

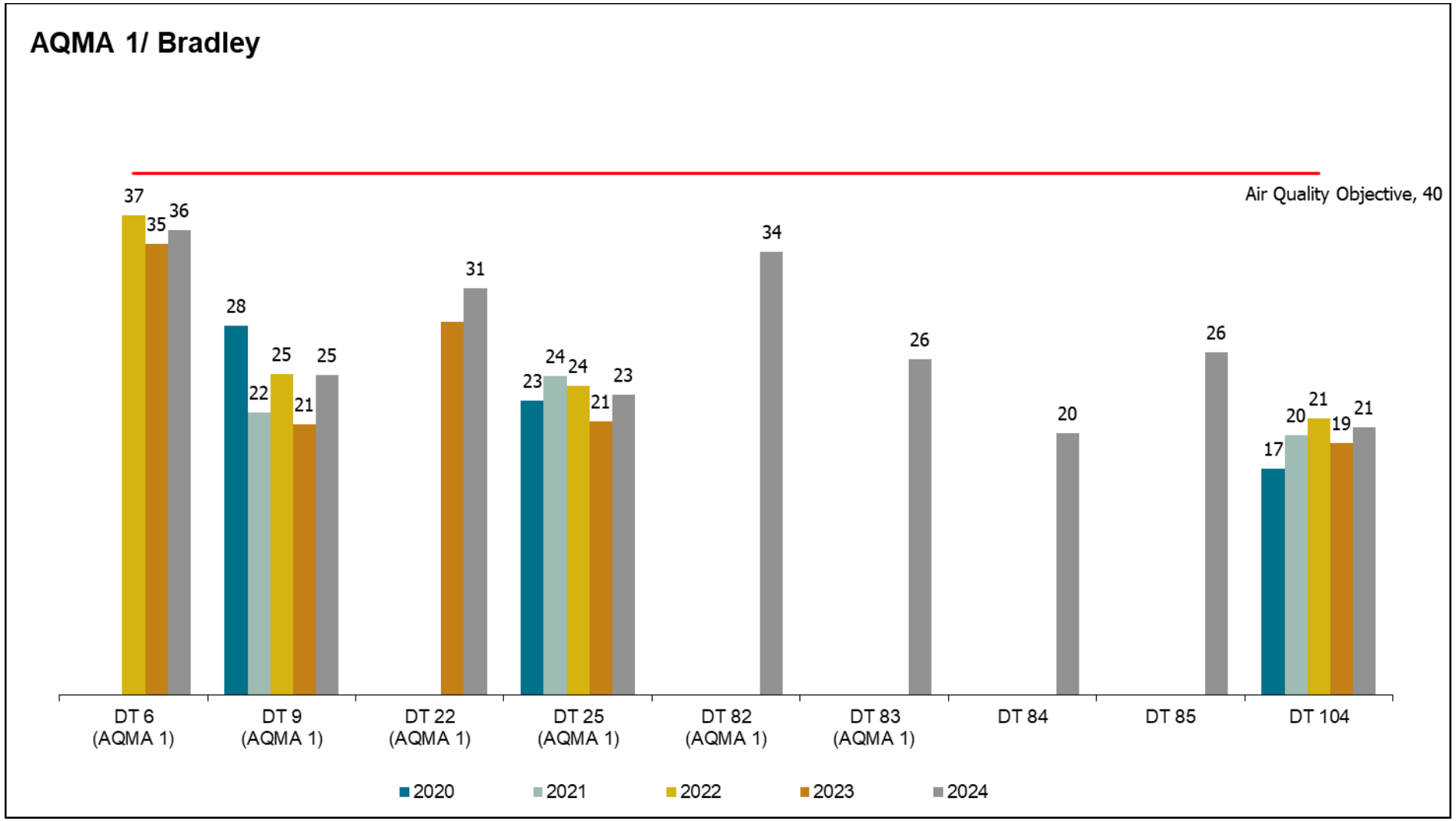

Figure A.3. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 1 and the Bradley area. There are no exceedances in the period 2020 to 2024. DT refers to the diffusion tube ID number.

Figure A.4 – Trends in annual mean NO_2 concentrations, AQMA 2

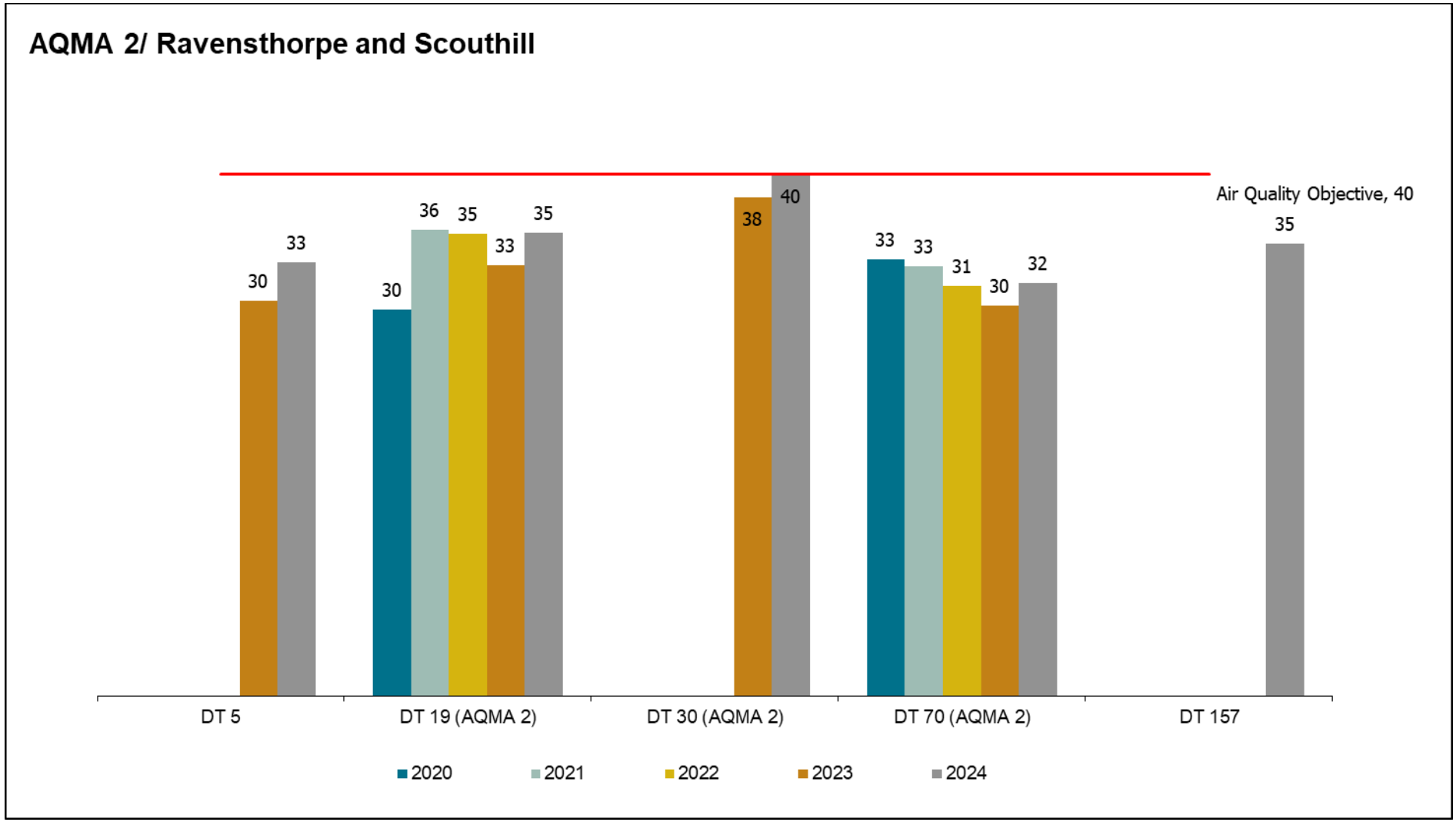

Figure A.4. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 2 and the Ravensthorpe and Scouthill area. There are no exceedances in the period 2020 to 2024. DT refers to the diffusion tube ID number

Figure A.5 – Trends in annual mean NO_2 concentrations, AQMA 3

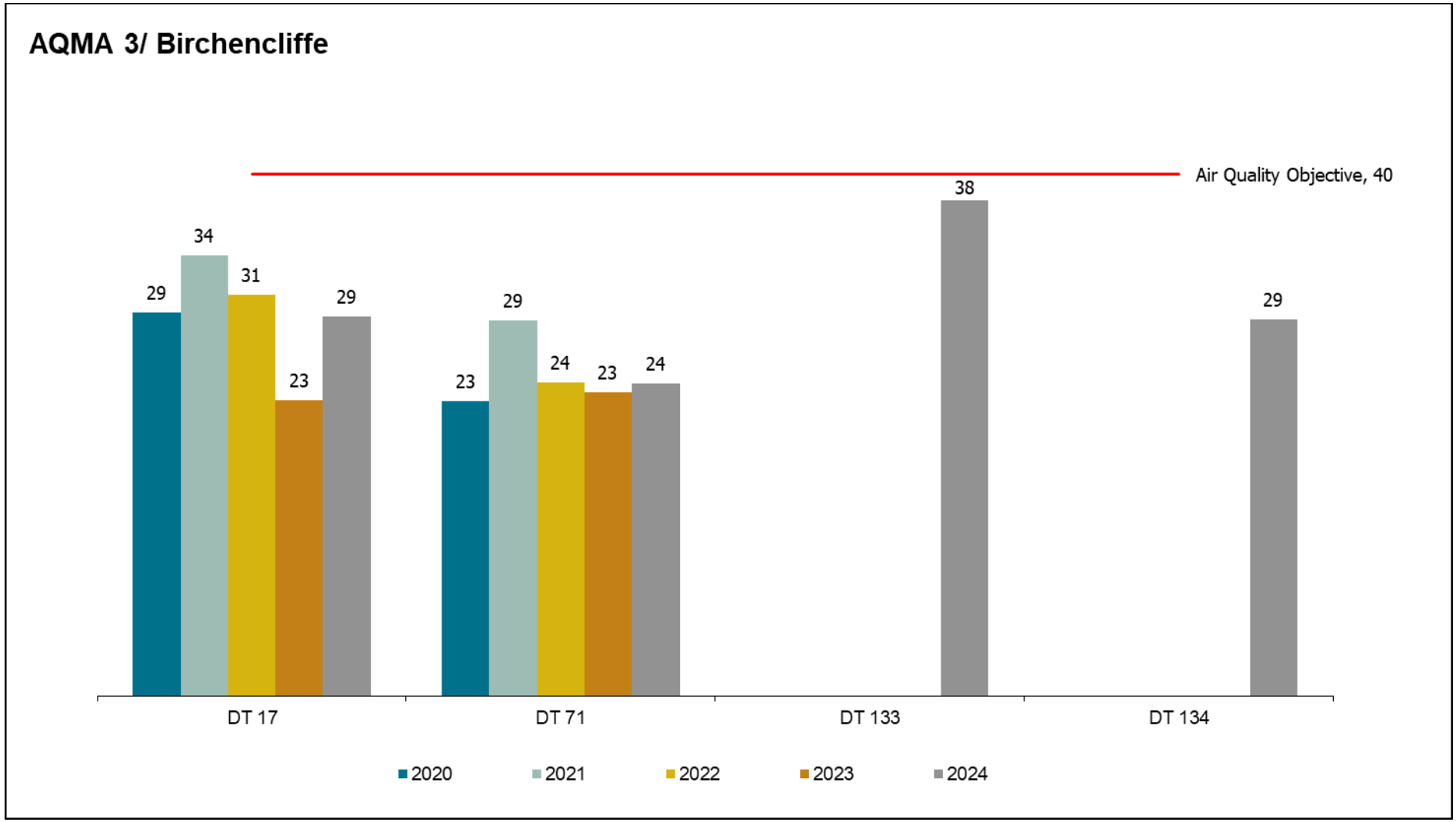

Figure A.5. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 3 and the Birchencliffe area. There are no exceedances in the period 2020 to 2024. DT refers to the diffusion tube ID number

Figure A.6 – Trends in annual mean NO_2 concentrations, AQMA 4

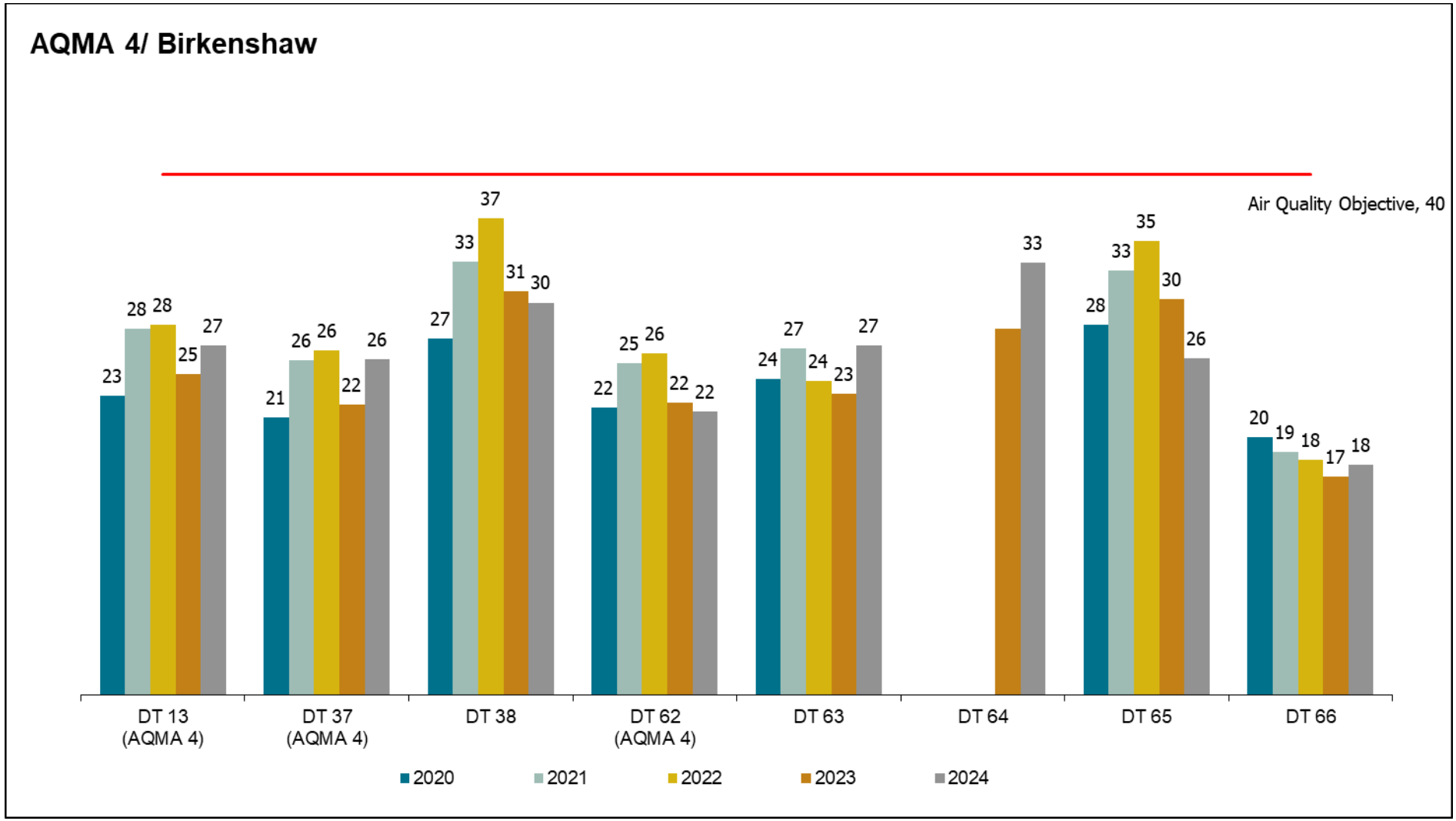

Figure A.6. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 4 and the Birkenshaw area. There are no exceedances in the period 2020 to 2024. DT refers to the diffusion tube ID number

Figure A.7 – Trends in annual mean NO_2 concentrations, AQMA 5

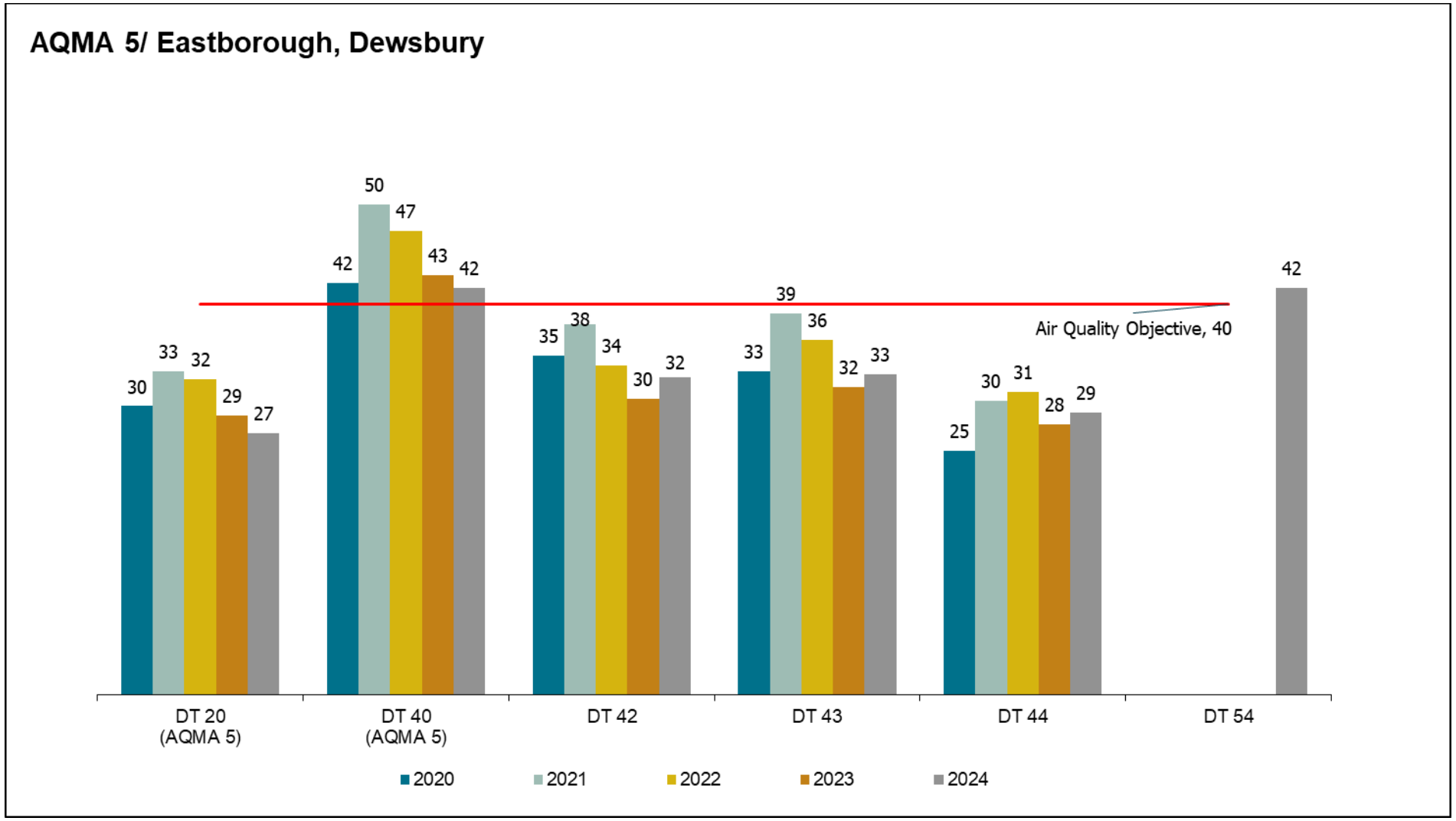

Figure A.7. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 5 and the Eastborough and Dewsbury area. There are two sites in exceedance in the period 2020 to 2024: DT40 (2020-2024) and DT54 (2024 only). DT refers to the diffusion tube ID number

Figure A.8 – Trends in annual mean NO_2 concentrations, AQMA 6

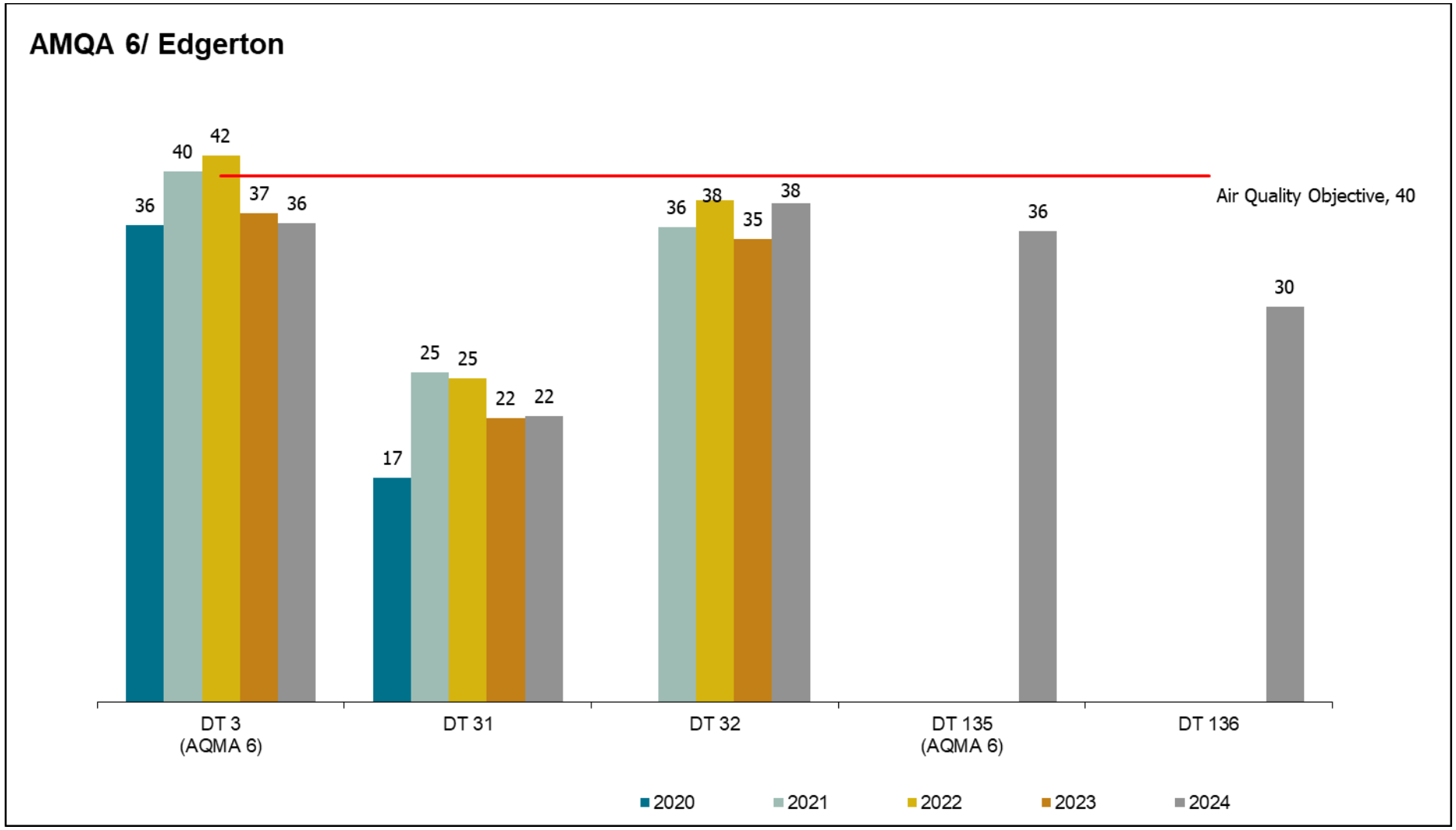

Figure A.8. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 6 and the Edgerton area. There is one site in exceedance in the period 2020 to 2024: DT3 (2022 only). DT refers to the diffusion tube ID number

Figure A.9 – Trends in annual mean NO_2 concentrations, AQMA 7

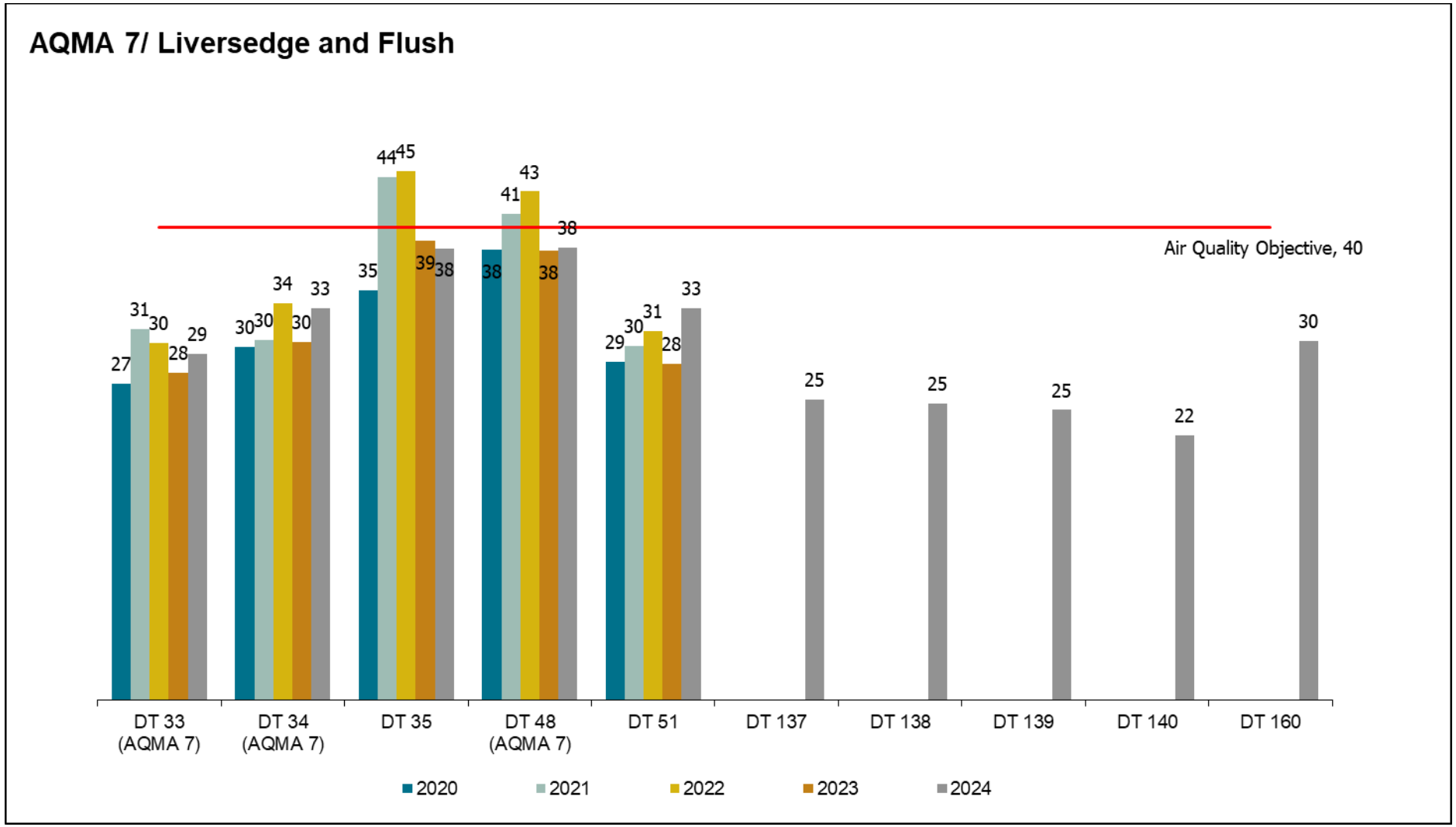

Figure A.9. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 7 and the Liversedge and Flush area. There are two sites in exceedance in the period 2020 to 2024: DT35 and DT48 (2021-2022). DT refers to the diffusion tube ID number.

Figure A.10 – Trends in annual mean NO_2 concentrations, AQMA 8

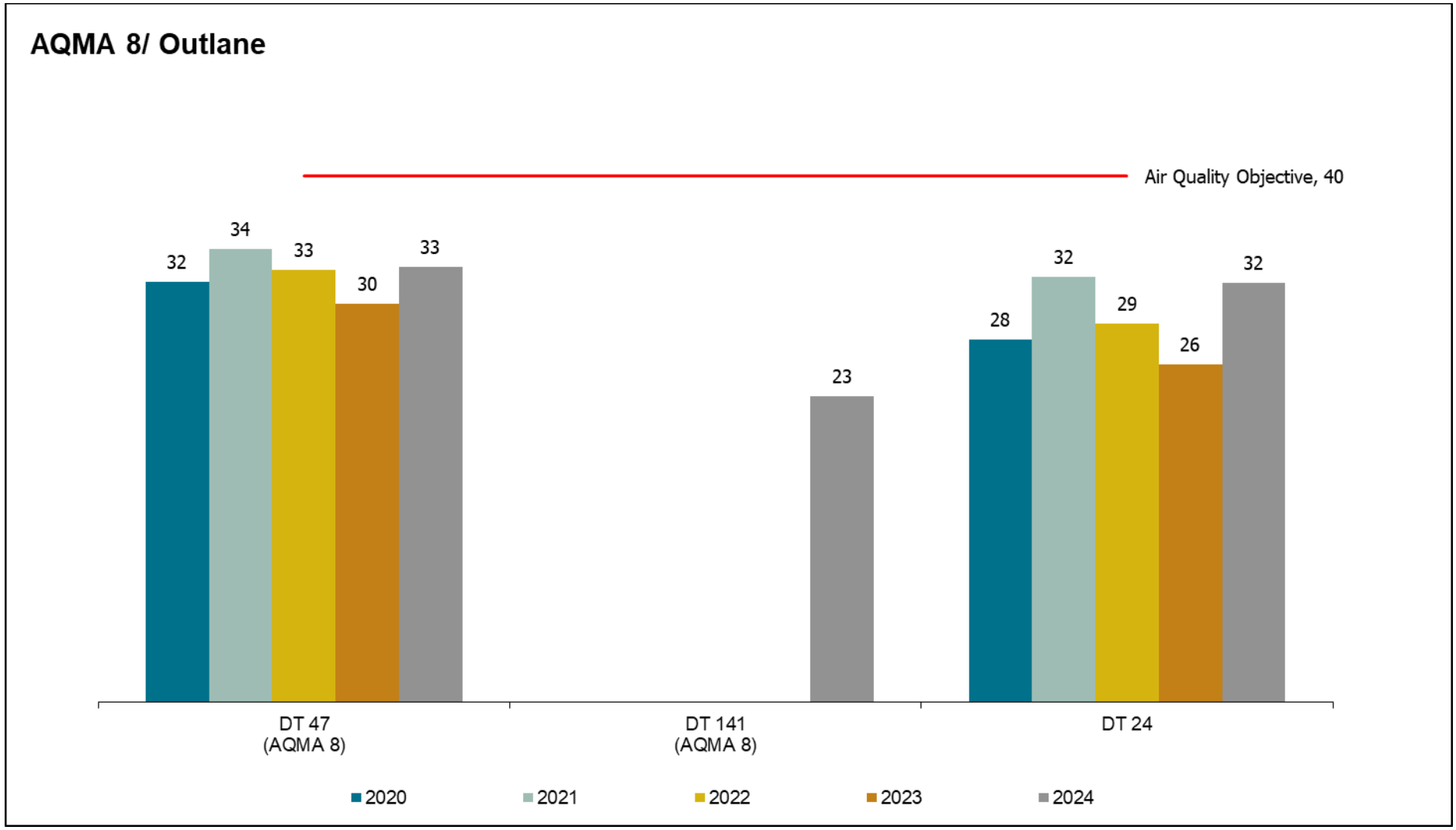

Figure A.10. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 8 and the Outlane area. There are no sites in exceedance in the period 2020 to 2024: DT35 and DT48 (2021-2022). DT refers to the diffusion tube ID number

Figure A.11 – Trends in annual mean NO_2 concentrations, AQMA 9

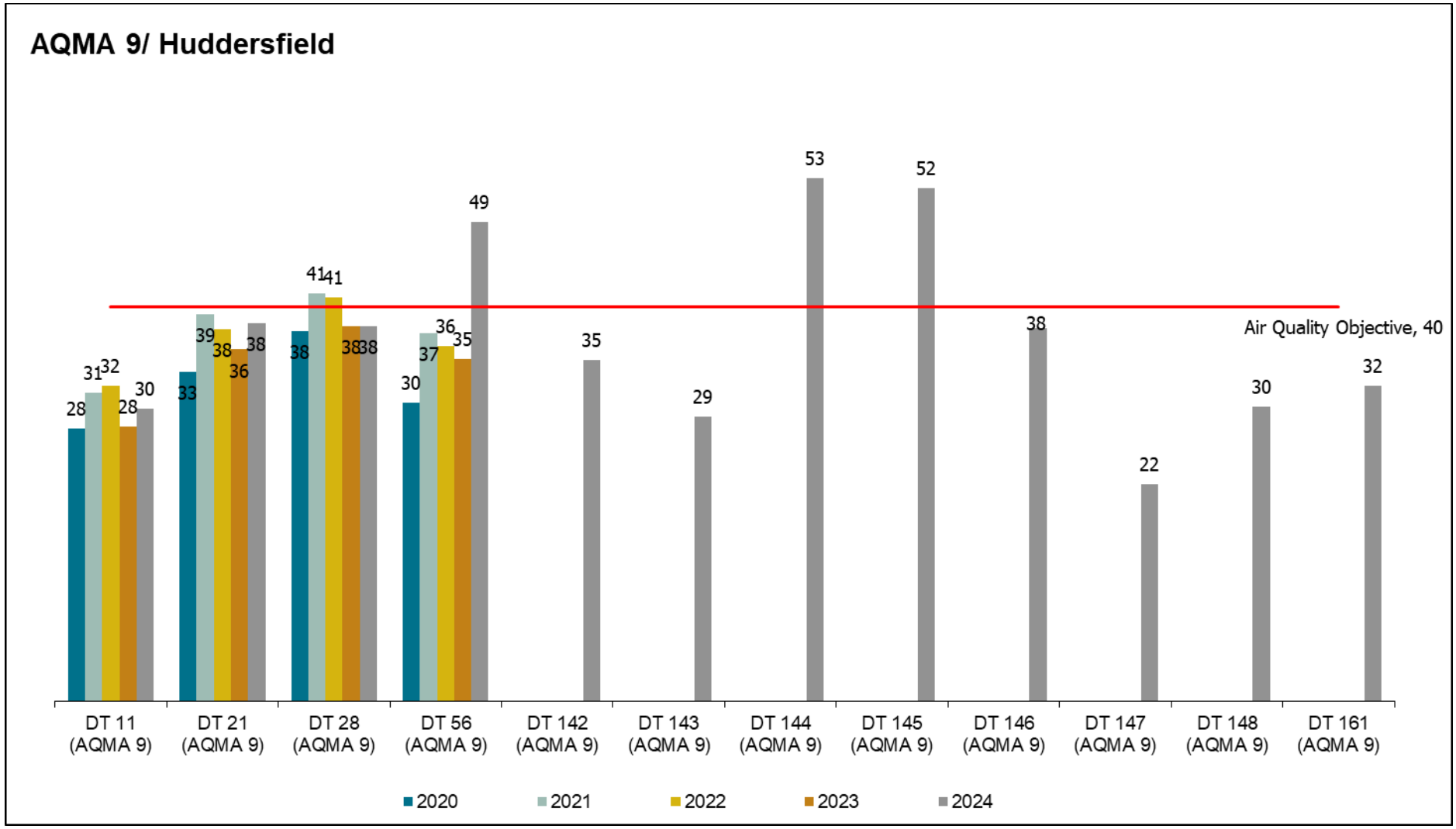

Figure A.11. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 9 and the Huddersfield area. There are four sites in exceedance in the period 2020 to 2024: DT 28 (2021-2022), and DT56, DT144 and DT145 (2024). DT refers to the diffusion tube ID number.

Figure A.12 – Trends in annual mean NO_2 concentrations, AQMA 10

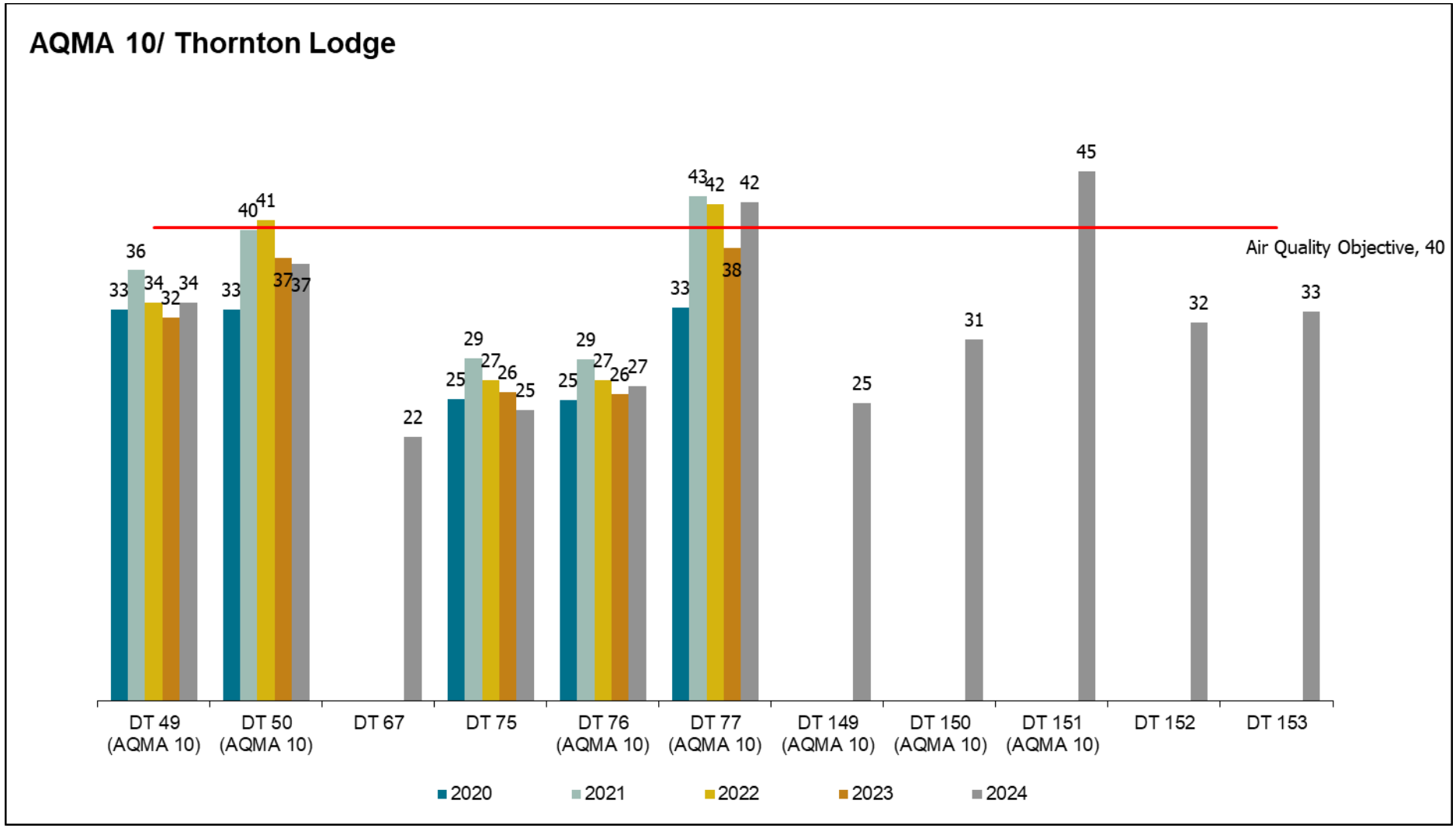

Figure A.12. This chart shows current roadside NO_2 annual mean concentrations between years 2020 to 2024 at all stations in AQMA 10 and the Thornton Lodge area. There are three sites in exceedance in the period 2020 to 2024: DT50 (2022), DT145 (2021, 2022 and 2024) and DT151 (2024). DT refers to the diffusion tube ID number.

Table A.5 – 1 Hour mean NO_2 monitoring results, number of 1hour means greater than 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 2024 (%) (2)	2020	2021	2022	2023	2024
CM1	424060	421912	Urban background	87.3	87.3	0	0	0	0	0

Notes:

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

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

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

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

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

Table A.6 – Annual mean PM_{10} monitoring results ($\mu g/m_3$)

Site ID	X OS grid ref (easting)	Y OS grid ref (northing)	Site type	Valid data capture for monitoring period (%) (1)	Valid data capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM1	424060	421912	Urban background	90.1	90.1	-	-	12.6	11.9	12.5

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

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.

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

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

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

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

Table A.2 – 24 hour mean PM_{10} monitoring results, number of PM_{10} 24 hour means greater than 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 2024 (%) (2)	2020	2021	2022	2023	2024
CM1	424060	421912	Urban background	90.1	90.1	-	-	0 (20)	2	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%).

Table A.8 – Annual mean $PM_{2.5}$ monitoring results ($\mu g/m^3$)

Site ID	X OS grid ref (easting)	Y OS grid ref (northing)	Site type	Valid data capture for monitoring period (%) (1)	Valid data capture 2024 (%) (2)	2020	2021	2022	2023	2024
CM1	424060	421912	Urban background	90.1	90.1	-	-	8.3	7.4	8.0

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

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.

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

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

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

Appendix B: Full monthly diffusion tube results for 2024

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 (0.88)	Annual mean: distance corrected to nearest exposure	Comment
3	413504	417439	38.8	Err	Err	27.4	38.7	46.8	36.7	40.1	34.1	43.1	43.9	Err	39.1	36.4	32.6	
5	422442	420380	Err	Err	Err	30.3	32.6	33.3	31.5	32.3	41.8	40.7	34.8	Err	34.6	33.2		
6	417878	421054	51.7	Err	Err	Err	37.8	38.5	36.3	33.2	40.3	36.7	45.5	Err	39.7	35.6		
8	414483	417726	39.9	Err	Err	Err	Err	31.7	Err	Err	Err	Err	Err	Err	35.7	31.4		Insufficient data capture
9	417280	420482	29.9	Err	Err	Err	23.7	20.0	22.7	19.4	24.1	30.8	Err	Err	24.3	24.6		
11	414359	416277	Err	Err	Err	40.0	Err	Err	29.1	24.7	29.5	33.7	44.9	Err	33.3	29.7		
12	417355	425954	Err	Err	Err	13.3	13.2	Err	12.8	13.2	Err	21.6	Err	Err	14.9	16.1		
13	420379	427872	Err	Err	Err	26.2	27.3	26.2	25.2	26.5	26.9	30.0	35.4	Err	28.0	26.9		
14	413667	416467	21.3	Err	Err	13.1	Err	10.3	10.0	9.3	16.0	17.3	Err	Err	13.7	13.9		
17	411715	419032	32.0	Err	Err	23.5	26.2	29.6	28.4	26.7	27.8	29.7	Err	Err	28.0	29.1		
18	422684	426224	Err	Err	Err	29.9	35.6	28.2	27.6	29.0	38.7	35.1	39.6	Err	32.9	31.6		
19	423563	421014	Err	Err	Err	40.0	39.0	40.0	34.1	28.8	42.8	36.6	36.9	Err	36.9	35.5		
20	424858	421904	Err	Err	Err	30.4	Err	Err	Err	Err	Err	Err	Err	Err	30.4	26.8		Insufficient data capture
21	414149	416686	Err	Err	Err	44.1	38.7	36.8	38.1	34.4	44.1	43.5	42.1	Err	40.0	38.4	30.5	
22	417394	420458	Err	Err	Err	Err	Err	31.1	36.0	29.6	32.8	41.4	40.3	Err	35.2	31.2		
23	422300	420337	Err	Err	Err	39.5	40.7	34.9	Err	Err	Err	Err	Err	Err	38.4	33.8		
24	409775	418397	Err	Err	Err	24.1	37.5	34.7	30.6	Err	Err	Err	37.6	Err	33.2	31.8		
25	417255	420360	Err	Err	Err	21.1	25.7	20.9	21.1	18.8	27.3	26.9	31.1	Err	24.0	23.1		
28	414752	416699	Err	Err	Err	38.9	38.2	40.6	38.2	39.0	36.4	42.7	42.5	Err	39.7	38.1	37.9	
29	422710	426487	Err	Err	Err	35.7	35.6	38.1	Err	34.3	36.6	35.0	44.0	Err	36.9	34.6		
30	423154	420658	Err	Err	Err	39.5	44.7	43.6	38.7	35.7	48.2	41.9	42.0	Err	41.6	39.9		
31	413400	417495	27.7	Err	Err	19.3	21.0	21.6	22.7	18.8	20.9	30.0	28.7	Err	23.4	21.8		
32	413513	417481	46.7	Err	Err	36.4	40.0	42.7	40.7	35.3	42.1	41.8	42.6	Err	40.8	37.9	30.7	
33	420728	423669	Err	Err	Err	27.9	30.6	27.5	27.9	25.1	35.0	34.7	36.5	Err	30.5	29.3		
34	420845	423770	Err	Err	Err	34.2	36.2	31.3	30.1	29.6	38.1	36.5	41.0	Err	34.5	33.1		
35	420827	423844	Err	Err	Err	38.4	42.4	41.5	34.2	36.0	39.4	42.1	44.3	Err	39.8	38.2	27.8	
36	420398	419777	Err	Err	Err	21.4	23.2	26.7	27.7	22.7	22.2	31.2	38.0	Err	26.7	25.6		
37	420356	427810	Err	Err	Err	24.9	23.1	22.9	24.0	21.9	21.4	Err	34.9	Err	24.7	25.8		
38	420262	427787	Err	Err	Err	31.4	36.3	32.2	31.5	Err	32.9	32.8	36.9	Err	33.5	30.1		
40	424922	421973	Err	Err	Err	46.8	49.4	48.7	48.8	44.3	46.5	50.6	11.4	Err	43.4	**41.6**	38.9	
41	414714	415768	Err	Err	Err	26.6	26.8	25.3	24.5	22.5	31.0	29.4	Err	Err	26.4	29.1		
42	424969	422002	Err	Err	Err	Err	33.1	29.7	32.2	28.2	34.9	41.9	45.8	Err	35.0	32.5		
43	425093	422024	Err	Err	Err	33.9	34.7	31.4	28.5	28.5	37.0	40.1	39.7	Err	34.2	32.8		
44	425179	422116	Err	Err	Err	25.1	28.4	32.3	33.2	23.7	31.8	31.2	36.2	Err	30.1	28.8		
45	414041	416754	34.8	Err	Err	28.9	34.4	Err	24.8	22.1	41.7	37.0	38.1	Err	32.5	29.3		
46	414542	417759	36.1	Err	Err	34.0	33.3	34.5	33.8	30.4	31.2	40.9	42.0	Err	35.1	32.7		
47	407942	417261	39.4	Err	Err	30.6	31.7	41.6	39.1	37.4	32.7	34.4	32.8	Err	35.6	33.0		
48	421044	423670	Err	Err	Err	31.4	37.1	34.5	36.1	37.7	40.3	47.2	53.1	Err	39.8	38.2		
49	413659	416182	50.2	Err	Err	33.6	33.7	34.4	28.3	26.8	41.8	39.5	40.7	Err	36.2	33.7		
50	413433	415989	52.4	Err	Err	39.0	39.1	35.8	33.7	36.4	38.0	39.9	44.5	Err	39.8	37.0	33.8	

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 (0.88)	Annual mean: distance corrected to nearest exposure	Comment
51	421898	423576	Err	Err	Err	28.8	30.6	34.5	30.5	Err	32.5	34.3	Err	Err	32.0	33.2		
53	411568	415903	37.4	Err	Err	29.9	26.3	28.1	27.0	20.5	31.3	34.2	32.3	Err	29.4	27.3		
54	425186	421568	Err	Err	Err	37.5	36.7	42.7	42.9	36.9	37.3	Err	45.6	Err	39.9	**41.6**	38.1	
55	414185	408260	Err	Err	Err	27.8	24.9	Err	Err	26.4	27.1	Err	33.3	Err	27.8	27.5		
56	415009	416420	Err	Err	Err	40.0	41.4	37.9	34.8	30.8	44.7	Err	Err	Err	37.9	**48.6**	**46.4**	
58	414350	417270	32.2	Err	Err	21.8	Err	36.8	36.3	34.0	36.4	39.5	36.9	Err	34.4	30.9		
60	414269	408218	Err	Err	Err	20.7	20.3	18.1	18.9	15.8	23.9	24.2	25.5	Err	20.8	20.0		
61	412247	417354	30.0	Err	Err	Err	Err	32.3	29.1	24.1	27.1	32.7	33.4	Err	29.7	25.6		
62	420472	427360	Err	Err	Err	17.1	20.2	23.1	21.0	21.6	15.2	28.2	33.2	Err	22.7	21.8		
63	419877	427567	Err	Err	Err	25.9	28.9	Err	34.9	17.7	30.4	31.5	34.8	Err	28.8	26.8		
64	419937	427614	Err	Err	Err	29.2	32.6	38.9	29.3	33.0	29.9	39.0	43.2	Err	34.6	33.2		
65	419981	427623	Err	Err	Err	Err	28.7	30.8	19.8	Err	26.4	35.1	38.7	Err	30.2	25.9		
66	420349	427434	Err	Err	Err	15.9	15.1	15.4	15.0	15.0	13.6	21.6	Err	Err	16.1	17.7		
67	413425	416168	24.4	Err	Err	Err	26.0	21.1	22.0	17.6	32.9	27.4	29.6	Err	24.9	22.3		
70	423247	420761	Err	Err	Err	33.2	Err	33.3	31.3	28.4	35.7	38.7	38.8	Err	34.1	31.6		
71	411007	419190	29.6	Err	Err	22.3	27.4	23.4	22.9	20.4	31.1	28.6	27.4	Err	25.8	24.0		
75	413153	415894	30.6	Err	Err	30.1	Err	23.8	22.1	22.0	18.4	36.1	35.0	Err	27.4	24.6		
76	413198	415957	40.7	Err	Err	25.4	25.7	21.7	24.3	Err	30.1	Err	32.5	Err	28.5	26.6		
77	413455	416013	55.6	Err	Err	44.2	42.7	41.3	40.0	34.3	51.4	44.1	58.4	Err	45.3	**42.1**	38.9	
82	417508	420570	25.0	Err	Err	31.4	34.1	40.6	39.1	35.1	35.4	45.8	40.6	Err	36.6	34.0		
83	417364	420482	29.2	Err	Err	Err	27.5	23.5	27.3	20.8	32.1	34.6	36.2	Err	28.7	25.8		
84	417160	420296	29.3	Err	Err	20.7	22.5	19.2	20.0	19.2	21.6	23.7	18.7	Err	21.6	20.1		
85	417170	420267	17.5	Err	Err	29.4	25.8	26.1	27.6	23.3	35.9	30.4	40.3	Err	28.3	26.3		
88	422435	425889	Err	Err	Err	27.9	30.2	22.8	25.6	23.8	32.6	Err	Err	Err	26.9	34.6		
89	419362	427203	Err	Err	Err	Err	24.3	Err	Err	Err	23.3	Err	Err	Err	23.9	21.0		Insufficient data capture
94	426242	423106	Err	Err	Err	28.5	29.9	28.5	30.8	25.0	32.9	31.9	39.8	Err	30.7	29.5		
95	414170	408118	Err	Err	Err	22.3	22.0	20.4	19.7	18.2	25.7	26.2	27.7	Err	22.7	21.8		
96	414163	408195	Err	Err	Err	Err	32.9	31.8	31.5	27.4	35.1	Err	32.6	Err	31.7	32.0		
98	414092	408133	Err	Err	Err	24.4	24.0	20.6	25.1	18.0	29.2	27.0	24.5	Err	23.9	22.9		
101	413495	417139	27.5	Err	Err	29.6	30.3	35.0	29.3	25.0	29.1	25.7	41.7	Err	30.2	28.1		
104	415898	420587	20.4	Err	Err	Err	17.1	20.3	19.4	20.6	18.9	24.9	Err	Err	20.3	20.6		
105	424513	424139	-	-	-	21.6	21.9	20.4	22.0	20.4	24.8	29.4	28.0	Err	23.6	22.6		
106	424425	424171	-	-	-	20.1	21.4	Err	18.9	16.4	22.1	29.8	31.0	Err	22.8	21.2		
107	424259	424289	-	-	-	25.7	30.9	29.9	28.2	22.5	27.8	34.2	39.5	Err	29.8	28.6		
133	411689	419100	-	-	-	38.2	42.8	26.2	43.1	39.3	46.9	40.3	40.7	Err	39.6	38.0	28.0	
134	411717	419060	-	-	-	26.4	Err	45.3	27.8	22.8	34.6	27.9	35.4	Err	31.1	28.9		
135	413496	417449	-	-	-	Err	Err	Err	39.2	38.7	39.9	43.8	50.1	Err	42.3	35.8		
136	413527	417416	-	-	-	32.3	31.6	30.4	25.7	24.2	32.9	35.9	38.3	Err	31.3	30.0		
137	420871	423748	-	-	-	22.2	26.4	20.9	24.3	21.5	27.5	32.3	36.6	Err	26.5	25.4		
138	420926	423728	-	-	-	23.0	25.3	22.6	23.4	21.7	32.0	29.9	32.0	Err	26.1	25.1		
139	421087	423659	-	-	-	22.6	24.2	19.1	19.9	18.4	29.5	33.8	37.6	Err	25.6	24.6		
140	421122	423662	-	-	-	19.0	Err	20.7	21.6	20.6	23.5	28.0	35.5	Err	24.2	22.5		
141	407912	417316	-	-	-	23.8	25.2	16.1	23.2	24.4	27.6	32.0	20.2	Err	24.2	23.2		

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 (0.88)	Annual mean: distance corrected to nearest exposure	Comment
142	414321	416174	-	-	-	28.1	Err	40.5	40.6	31.9	43.8	43.9	32.9	Err	37.3	34.6		
143	414718	416451	-	-	-	30.2	Err	30.5	28.2	22.1	33.9	32.5	42.5	Err	31.1	28.9		
144	414403	416735	-	-	-	47.8	51.1	51.6	53.0	47.4	47.0	Err	58.1	Err	50.8	**53.1**	**49.8**	
145	414266	416736	-	-	-	54.7	53.4	51.0	53.3	49.0	56.9	60.3	56.0	Err	54.2	**52.0**	**47.2**	
146	414222	416731	-	-	-	42.2	38.1	34.1	39.8	36.2	Err	46.4	43.1	Err	39.9	37.9		
147	414237	417157	-	-	-	35.1	20.6	14.9	18.0	17.8	21.7	27.6	29.6	Err	23.0	22.0		
148	414689	416866	-	-	-	28.7	30.0	30.6	29.9	27.8	31.7	33.4	37.8	Err	31.2	29.9		
149	413238	415952	-	-	-	24.2	24.1	23.0	21.5	18.8	28.2	34.3	36.1	Err	26.2	25.2		
150	413286	415959	-	-	-	28.3	29.3	30.1	28.9	23.4	31.5	Err	34.9	Err	29.3	30.6		
151	413520	416030	-	-	-	Err	47.1	50.3	44.6	44.4	53.6	49.4	49.5	Err	48.2	**44.8**	22.6	
152	413223	415920	-	-	-	32.9	34.7	30.2	28.6	25.9	39.9	39.6	36.0	Err	33.3	32.0		
153	412750	415719	-	-	-	34.2	33.3	32.3	31.8	28.2	35.4	40.3	39.7	Err	34.3	32.9		
154	418629	414581	-	-	-	17.5	16.9	14.7	14.9	11.0	18.6	18.5	21.3	Err	16.5	15.8		
155	426831	424147	-	-	-	15.4	17.2	13.7	15.0	11.5	19.6	22.3	25.8	Err	17.5	16.8		
156	426671	423724	-	-	-	25.9	27.9	22.9	23.9	21.4	29.7	34.0	39.8	Err	28.1	27.0		
157	422461	420381	-	-	-	31.9	32.3	40.2	35.5	33.1	37.8	38.3	40.2	Err	36.1	34.7		
158	423816	414895	-	-	-	18.7	19.9	20.3	18.5	16.5	20.6	22.4	22.0	Err	19.8	19.0		
159	413659	415215	-	-	-	33.1	29.8	31.0	26.9	Err	Err	Err	35.2	Err	31.2	29.9		
160	420775	423783	-	-	-	28.2	31.1	31.8	33.0	27.3	29.8	32.1	40.3	Err	31.6	30.4		
161	414400	416753	-	-	-	29.4	32.0	31.5	32.5	30.8	34.0	36.9	39.5	Err	33.3	32.0		
162	413192	415378	-	-	-	29.1	31.9	34.1	Err	27.8	32.6	37.3	37.8	Err	32.9	30.9		
163	411872	418244	-	-	-	8.4	13.2	Err	9.6	8.8	14.7	18.3	20.2	Err	13.3	12.4		
166	414689	416866	-	-	-	-	-	-	-	-	-	Err	41.2	Err	41.2	36.3	33.2	Insufficient data capture
167	414689	416866	-	-	-	-	-	-	-	-	-	Err	43.0	Err	43.0	37.9	34.6	Insufficient data capture
168	413455	416013	-	-	-	-	-	-	-	-	-	-	45.6	Err	45.6	**40.1**	37.1	Insufficient data capture
169	413455	416013	-	-	-	-	-	-	-	-	-	-	50.1	Err	50.1	**44.1**	**40.7**	Insufficient data capture
170	414073	416180	-	-	-	-	-	-	-	-	-	-	34.9	Err	34.9	30.7		Insufficient data capture
171	413439	417401	-	-	-	-	-	-	-	-	-	Err	31.9	Err	31.9	28.1		Insufficient data capture
172	413467	417441	-	-	-	-	-	-	-	-	-	Err	37.7	Err	37.7	33.2		Insufficient data capture
187	413504	417439	-	-	-	-	-	-	-	-	-	Err	44.7	Err	44.7	39.3	35.1	Insufficient data capture

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1. (indicated in the table with "Err")**

☒ **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.**

☒ **Kirklees Council confirm that all 2024 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.

Sites 164, 165, and all sites between 173-195 (except 187) are excluded from Table B.1 due to no valid measurements being taken within 2024.

Appendix C: Supporting technical information / air quality monitoring data QA/QC

New or changed sources identified within Kirklees Council during 2024

There are a number of planning applications for developments which may have an impact on air quality in Kirklees during 2024 and in future monitoring years. They are detailed in Table C.1a below.

The Council's Pollution and Noise Control team are consulted on planning applications that may impact air quality. This is done in accordance with WYLES guidance. As part of the consultation process, they may recommend that Section 106 planning agreements are required to offset the impact, when appropriate. Under the WYLES guidance it may be recommended that damage costs are calculated to offset the impact of the development. It is expected that developers will implement agreed mitigation measures to the value of the calculated damage costs.

All planning applications in Kirklees can be viewed using the online portal.

Table C.1a Summary of ongoing developments with the potential to impact air quality in Kirklees

Planning Application	Development Description	Type	AQMA
Land off Lindley Moor Road, Lindley, Huddersfield, HD3 3SX	Hybrid Planning Application for the erection of an industrial unit for B2 /B8 use, with ancillary office space and associated access, parking, groundworks and landscaping in conjunction with an outline application for mixed use development use class E(b),B2 and B8, with ancillary office space and associated works. This site is under development and will be reported on in future ASRs	Mixed Commercial	3
Various locations - A629, Halifax Road, Huddersfield	Improvement and widening of the A629 to include junction improvements, re-positioning of footways and footway improvements, pedestrian crossing provision, the alteration, demolition and erection of walls, construction of retaining walls, erection of fencing, hard and soft landscaping to include the removal of trees and replacement planting, replacement street lighting, change of use of land to highway and change of use to and formation of car park on land adjoining 103 Halifax Road (within a Conservation Area) Development due to start September 2025, this will be reported on in future ASRs	Road Scheme	3, 6
Land at Owl Lane, Chidswell, Dewsbury	Erection of 260 dwellings with open space, landscaping and associated infrastructure This site is under development and will be reported on in future ASRs	Residential	5
Land east of, Leeds Road, Chidswell,	Outline planning application for demolition of existing dwellings and development of phased, mixed use scheme comprising residential development (up to 1,354 dwellings), employment	Mixed residential	5

Planning Application	Development Description	Type	AQMA
Shaw Cross, Dewsbury	development (up to 35 hectares of B1(part a and c), B2, B8 uses), residential institution (C2) development (up to 1 hectare), a local centre (comprising A1/A2/A3/A4/A5/D1 uses), a 2 form entry primary school including early years provision, green space, access and other associated infrastructure (amended and further information received) Development has not commenced at this site. We continue to monitor in this area, and will be reported on in future ASRs	and commercial	
Land adj. High Street and Challenge Way, Hanging Heaton, Batley	Erection of residential development (55 dwellings) including access and associated infrastructure This development is now complete, and we continue to monitor in this area, and will be reported on in future ASRs	Residential	5
Land south of, Heybeck Lane, Chidswell, Shaw Cross, Dewsbury	Outline application for residential development (Use Class C3) of up to 181 dwellings, engineering and site works, demolition of existing property, landscaping, drainage and other associated infrastructure Development has not commenced at this site. We continue to monitor in this area, and will be reported on in future ASRs	Residential	5
Land off Soothill Lane, Batley	Outline application for residential development of up to 366 dwellings with details of access points only This site is under development and will be reported on in future ASRs	Residential	5
Edgerton Road, Edgerton, Huddersfield, HD3 3AA)	Outline application for residential development comprising of 41 dwellings plus associated works (within a Conservation Area) This site is still under development and will be reported on in future ASRs	Residential	6
Former Kirklees College, New North Road, Huddersfield, HD1 5NN	Hybrid Planning Application for mixed use development - retail/office and 229 residential units (Use Classes C3/ E(a) /B1a). Full Planning permission for the partial demolition of the former Kirklees College, erection of a food retail store and alterations in connection with conversion of grade ii* listed building to offices/apartments and creation of vehicular access from Portland Street, New North Road and Trinity Street. Outline application for erection of (two) buildings (residential apartments - C3 Use) (Listed Building within a Conservation Area) This site is still under development and will be reported on in future ASRs	Mixed residential and commercial	9
Piazza Centre, Princess Alexandra Walk, Huddersfield, HD1 2RS	Demolition of existing Piazza shopping centre; part removal of Queensgate Market; demolition/retention of service tunnels; redevelopment of the site to form new public realm space (including public park and gardens, play areas, public square/outdoor event space); refurbishment and change of use of existing Queensgate Market Hall into food hall (Use Class E (b) sale of food and drink for consumption, mostly, on the premises); refurbishment and extension of existing library and art gallery building to form museum (Use Class F.1); change of use of part existing market hall building and extension to form public library (Use Class F.1); erection of indoor event venue incorporating multi-storey car park below (Sui-Generis); erection of public gallery building (Class F.1); associated infrastructure on land and buildings at Queensgate Market, Huddersfield Library and Art Gallery, and Piazza (and The Shambles) Shopping Centre (part Listed Building/part within a Conservation Area)		9

Planning Application	Development Description	Type	AQMA
	This site is still under development and will be reported on in future ASRs		
Land at, Penistone Road, Fenay Bridge, Huddersfield, HD8 0AW	Erection of 68 dwellings with associated access, parking, open space, landscaping and infrastructure works (including installation of surface water attenuation tank) This site is still under development and will be reported on in future ASRs	Residential	9
Former St Luke's Hospital, Blackmoorfoot Road, Crosland Moor, Huddersfield, HD4 5RQ	Outline application for phased development comprising up to 200 dwellings with associated infrastructure and open space; retail units (open use class A1); accommodation for potential neighbourhood uses (use class A2/D1/D2/sui generis); restaurant/public house (use class A3/A4); and petrol filling station (sui generis) The residential phase of this development is complete. We continue to monitor in this area, and will be reported on in future ASRs	Residential*	10
Land off, Blackmoorfoot Road and Felks Street, Crosland Moor, Huddersfield, HD4 7AD	Outline application (with details of points of access only) for the development of up to 770 residential dwellings (Use Class C3), including up to 70 care apartments (Use Classes C2/C3) with doctors surgery of up to 350 sq m (Use Class D1); up to 500 sq m of Use Class A1/A2/A3/A4/A5/D1 floorspace (dual use), vehicular and pedestrian access points off Blackmoorfoot Road and Felks Stile Road and associated works. This site is still under development and will be reported on in future ASRs	Mixed commercial and residential	10
Land at, Blackmoorfoot Road, Crosland Hill, Huddersfield, HD4 5NU	Hybrid planning application comprising full application for erection of industrial units (use classes E(g)(ii-iii), B2, and B8) in Units 1 and 2, including ancillary offices, mezzanines, landscaping, parking and formation of new access, and outline application with all matters reserved for erection of industrial units (use classes E(g)(ii-iii), B2, and B8). This application is currently under consideration and has not yet been determined	Mixed commercial	10

Additional air quality works undertaken by Kirklees Council during 2024

QA/QC of diffusion tube monitoring

January 2024 data has had to be nulled for 57 sites due to due to changeover dates exceeding the recommended period by 7 or 8 days (+/- 2 days is acceptable, but greater cannot be accepted).

Due to staffing resources there was a late diffusion tube changeovers in February, and no tubes being put out in March due to a change of supplier (see Table B.1).

From April 2024 there was also a change in laboratory used to analyse the samples, from Socotec Didcot to Gradko. This change was in response to abnormal monthly concentrations throughout the 2023 dataset, as discussed in the 2024 Annual Status Report.

The latest round of resting for Socotec and Gradko laboratory testing shows that 100% of results were satisfactory between the periods of January 2024 – October 2024[15].

December 2024 measurements for all sites has had to be nulled for all sites due to changeover dates exceeding the recommended period by 4 days (+/- 2 days is acceptable, but greater cannot be accepted). This was due to bad weather.

As such, the majority of sites only have valid data between April-November. All sites with valid data >25% of the monitoring period required annualisation.

Diffusion tube annualisation

Annualisation is required for any site with data capture less than 75% but greater than 25%. Our Kirklees Council 2024 diffusion tube data have been annualised where required using Defra's Diffusion Tube Data Processing Tool v5.4, following guidance within Chapter 7 of LAQM.TG22: NOx and NO_2 Monitoring, including the procedure laid out in Box 7.10.

In 2024, all diffusion tube data capture was equal to or below 75%. All diffusion tube sites were therefore annualised in 2024.

The four urban background continuous monitoring sites within the region used to calculate the annualisation factors were Leeds Centre, Dewsbury Ashworth Grange, Manchester Piccadilly and Barnsley Gawber. Annualised data are presented in Table C.1 below. The diffusion tubes sites requiring annualisation of 2023 data are listed under Site ID.

Table C.1 – Annualisation summary (concentrations presented in microgrammes per cubic metre)

Site ID	Annualisation Factor Leeds Centre	Annualisation Factor Dewsbury Ashworth Grange	Annualisation Factor Bradford Mayo Avenue	Annualisation Factor Barnsley Gawber	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
3	1.0394	1.0642	1.0843	1.0376	1.0564	39.1	41.4
5	1.0799	1.0961	1.0971	1.0900	1.0908	34.6	37.8
6	0.9976	1.0368	1.0333	1.0180	1.0214	39.7	40.5
9	1.1084	1.1635	1.2175	1.1104	1.1499	24.3	27.9
11	1.0365	1.0219	0.9714	1.0274	1.0143	33.3	33.8
12	1.2334	1.2109	1.2524	1.1903	1.2217	14.9	18.2
13	1.0799	1.0961	1.0971	1.0900	1.0908	28.0	30.5
14	1.1182	1.1855	1.1986	1.1067	1.1522	13.7	15.8
17	1.1501	1.1854	1.2701	1.1240	1.1824	28.0	33.1
18	1.0799	1.0961	1.0971	1.0900	1.0908	32.9	35.9
19	1.0799	1.0961	1.0971	1.0900	1.0908	36.9	40.3
21	1.0799	1.0961	1.0971	1.0900	1.0908	40.0	43.6
22	0.9808	1.0480	0.9620	1.0456	1.0091	35.2	35.5
24	1.0519	1.0907	1.1444	1.0710	1.0895	33.2	36.2
25	1.0799	1.0961	1.0971	1.0900	1.0908	24.0	26.2
28	1.0799	1.0961	1.0971	1.0900	1.0908	39.7	43.3

[15] Summary of Laboratory Performance in AIR NO_2 Proficiency Testing Scheme (February 2023 – February 2025): WASP – Annual Performance Criteria for NO_2 Diffusion Tubes

Site ID	Annualisation Factor Leeds Centre	Annualisation Factor Dewsbury Ashworth Grange	Annualisation Factor Bradford Mayo Avenue	Annualisation Factor Barnsley Gawber	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
29	1.0598	1.0625	1.0694	1.0718	1.0659	36.9	39.4
30	1.0799	1.0961	1.0971	1.0900	1.0908	41.6	45.4
31	1.0394	1.0642	1.0843	1.0376	1.0564	23.4	24.7
32	1.0394	1.0642	1.0843	1.0376	1.0564	40.8	43.1
33	1.0799	1.0961	1.0971	1.0900	1.0908	30.5	33.3
34	1.0799	1.0961	1.0971	1.0900	1.0908	34.5	37.7
35	1.0799	1.0961	1.0971	1.0900	1.0908	39.8	43.4
36	1.0799	1.0961	1.0971	1.0900	1.0908	26.7	29.1
37	1.1736	1.1533	1.2750	1.1418	1.1859	24.7	29.3
38	0.9985	1.0446	1.0116	1.0320	1.0217	33.5	34.2
40	1.0799	1.0961	1.0971	1.0900	1.0908	43.4	47.3
41	1.2320	1.2510	1.3055	1.2118	1.2501	26.4	33.1
42	1.0339	1.0673	1.0431	1.0728	1.0543	35.0	36.9
43	1.0799	1.0961	1.0971	1.0900	1.0908	34.2	37.3
44	1.0799	1.0961	1.0971	1.0900	1.0908	30.1	32.8
45	1.0370	1.0177	1.0429	1.0060	1.0259	32.5	33.3
46	1.0394	1.0642	1.0843	1.0376	1.0564	35.1	37.1
47	1.0394	1.0642	1.0843	1.0376	1.0564	35.6	37.6
48	1.0799	1.0961	1.0971	1.0900	1.0908	39.8	43.5
49	1.0394	1.0642	1.0843	1.0376	1.0564	36.2	38.3
50	1.0394	1.0642	1.0843	1.0376	1.0564	39.8	42.0
51	1.1458	1.2073	1.2116	1.1558	1.1801	32.0	37.7
53	1.0394	1.0642	1.0843	1.0376	1.0564	29.4	31.1
54	1.1736	1.1533	1.2750	1.1418	1.1859	39.9	47.3
55	1.1486	1.0512	1.2149	1.0790	1.1234	27.8	31.2
56	1.4434	1.3733	1.6940	1.3230	1.4584	37.9	55.3
58	1.0012	1.0490	1.0175	1.0137	1.0203	34.4	35.1
60	1.0799	1.0961	1.0971	1.0900	1.0908	20.8	22.7
61	0.9496	1.0164	0.9577	0.9887	0.9781	29.7	29.1
62	1.0799	1.0961	1.0971	1.0900	1.0908	22.7	24.8
63	1.0772	1.0448	1.0537	1.0555	1.0578	28.8	30.5
64	1.0799	1.0961	1.0971	1.0900	1.0908	34.6	37.7
65	0.9356	1.0062	0.9460	1.0040	0.9729	30.2	29.4
66	1.2320	1.2510	1.3055	1.2118	1.2501	16.1	20.1
67	0.9976	1.0368	1.0333	1.0180	1.0214	24.9	25.4
70	1.0398	1.0829	1.0261	1.0686	1.0544	34.1	36.0
71	1.0394	1.0642	1.0843	1.0376	1.0564	25.8	27.2
75	1.0012	1.0490	1.0175	1.0137	1.0203	27.4	27.9
76	1.0216	1.0564	1.1510	1.0087	1.0594	28.5	30.2
77	1.0394	1.0642	1.0843	1.0376	1.0564	45.3	47.9
82	1.0394	1.0642	1.0843	1.0376	1.0564	36.6	38.6
83	0.9976	1.0368	1.0333	1.0180	1.0214	28.7	29.3
84	1.0394	1.0642	1.0843	1.0376	1.0564	21.6	22.8
85	1.0394	1.0642	1.0843	1.0376	1.0564	28.3	29.9
88	1.4434	1.3733	1.6940	1.3230	1.4584	26.9	39.3

Site ID	Annualisation Factor Leeds Centre	Annualisation Factor Dewsbury Ashworth Grange	Annualisation Factor Bradford Mayo Avenue	Annualisation Factor Barnsley Gawber	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
94	1.0799	1.0961	1.0971	1.0900	1.0908	30.7	33.5
95	1.0799	1.0961	1.0971	1.0900	1.0908	22.7	24.7
96	1.1248	1.1251	1.2175	1.1282	1.1489	31.7	36.4
98	1.0799	1.0961	1.0971	1.0900	1.0908	23.9	26.0
101	1.0394	1.0642	1.0843	1.0376	1.0564	30.2	31.9
104	1.1084	1.1635	1.2175	1.1104	1.1499	20.3	23.4
105	1.0799	1.0961	1.0971	1.0900	1.0908	23.6	25.7
106	1.0772	1.0448	1.0537	1.0555	1.0578	22.8	24.1
107	1.0799	1.0961	1.0971	1.0900	1.0908	29.8	32.5
133	1.0799	1.0961	1.0971	1.0900	1.0908	39.6	43.2
134	1.0398	1.0829	1.0261	1.0686	1.0544	31.1	32.8
135	0.9769	0.9750	0.8954	0.9961	0.9609	42.3	40.7
136	1.0799	1.0961	1.0971	1.0900	1.0908	31.3	34.1
137	1.0799	1.0961	1.0971	1.0900	1.0908	26.5	28.9
138	1.0799	1.0961	1.0971	1.0900	1.0908	26.1	28.5
139	1.0799	1.0961	1.0971	1.0900	1.0908	25.6	27.9
140	1.0398	1.0829	1.0261	1.0686	1.0544	24.2	25.5
141	1.0799	1.0961	1.0971	1.0900	1.0908	24.2	26.4
142	1.0398	1.0829	1.0261	1.0686	1.0544	37.3	39.3
143	1.0398	1.0829	1.0261	1.0686	1.0544	31.1	32.8
144	1.1736	1.1533	1.2750	1.1418	1.1859	50.8	60.3
145	1.0799	1.0961	1.0971	1.0900	1.0908	54.2	59.1
146	1.0636	1.0901	1.0689	1.0880	1.0776	39.9	43.0
147	1.0799	1.0961	1.0971	1.0900	1.0908	23.0	25.1
148	1.0799	1.0961	1.0971	1.0900	1.0908	31.2	34.0
149	1.0799	1.0961	1.0971	1.0900	1.0908	26.2	28.6
150	1.1736	1.1533	1.2750	1.1418	1.1859	29.3	34.7
151	1.0339	1.0673	1.0431	1.0728	1.0543	48.2	50.9
152	1.0799	1.0961	1.0971	1.0900	1.0908	33.3	36.3
153	1.0799	1.0961	1.0971	1.0900	1.0908	34.3	37.4
154	1.0799	1.0961	1.0971	1.0900	1.0908	16.5	18.0
155	1.0799	1.0961	1.0971	1.0900	1.0908	17.5	19.1
156	1.0799	1.0961	1.0971	1.0900	1.0908	28.1	30.7
157	1.0799	1.0961	1.0971	1.0900	1.0908	36.1	39.4
158	1.0799	1.0961	1.0971	1.0900	1.0908	19.8	21.6
159	1.0519	1.0907	1.1444	1.0710	1.0895	31.2	34.0
160	1.0799	1.0961	1.0971	1.0900	1.0908	31.6	34.5
161	1.0799	1.0961	1.0971	1.0900	1.0908	33.3	36.4
162	1.0598	1.0625	1.0694	1.0718	1.0659	32.9	35.1
163	1.0772	1.0448	1.0537	1.0555	1.0578	13.3	14.1

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.

Kirklees Council have applied a national bias adjustment factor of 0.88 to the 2024 monitoring data, as no data are available from local monitoring to calculate a local bias adjustment, due to the cessation of the monitoring in 2023 at the Council's roadside monitoring stations. It is important to note that there was a change in laboratories used to analyse the diffusion tubes from April 2024, from Socotec Didcot to Gradko.

The national bias adjustment factor of 0.88 applied to the 2024 data was taken from the National Diffusion Tube Bias Adjustment Factor Spreadsheet v.04/25 for Gradko, 50% TEA in acetone method[16].

Due to a lack of valid measurements for February and March, and for many sites, January also, the decision was made that the Gradko national bias adjustment factor should be applied for the full monitoring year, rather than the 0.78 national bias adjustment factor for Socotec Didcot 50% TEA in acetone, which was only applicable to January data at 28 sites in 2024.

A summary of bias adjustment factors used by Kirklees over the past five years is presented in Table C.2.

Table C.2 – Bias adjustment factor

Monitoring year	Local or national	If national, version of national spreadsheet	Adjustment factor
2024	National – Gradko	04/25	0.88
2023	National – SOCOTEC	03/23	0.77
2022	National – SOCOTEC	03/23	0.76
2021	National - SOCOTEC	04/22	0.78
2020	National - WY Analytical Services	09/19	0.77

NO_2 fall-off with distance from the road

[16] National Bias Adjustment Factor Spreadsheet: Database_Diffusion_Tube_Bias_Factors_v04_25.xlsx

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. Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36 µg/m^3 and the monitoring site is not located at a point of relevant exposure (taking the limitations of the calculator into account).

Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table C.3.

We have adopted a cautious approach when calculating NO_2 fall-off with distance from the road. This calculation requires the use of local background concentrations to derive the final calculated concentration at receptor façade. There are two sources of local background NO_2 concentration data which we can use for Kirklees data, these being the use of data from the AURN monitoring station within Kirklees at Dewsbury Ashworth

Grange: the other being the use of Defra's 1 km grid square data[17]. We have undertaken a comparative exercise using the two datasets for each distance corrected diffusion tube location and applied the data exhibiting the highest concentrations accordingly.

[17] Background Maps | LAQM (defra.gov.uk)

Table C.3 – Non-automatic NO_2 fall off with distance calculations (concentrations presented in microgrammes per cubic metre)

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
3	2.4	4.4	36.4	11.0	32.6	
21	2.1	9.0	38.4	15.6	30.5	
28	3.1	3.2	38.1	15.6	*37.9*	*Predicted concentration at Receptor within 10% the AQS objective.*
32	2.6	7.6	37.9	10.97823	30.7	
35	1.9	11.3	38.2	13.03953	27.8	
40	1.6	2.8	41.6	19.3	*38.9*	*Predicted concentration at Receptor within 10% the AQS objective.*
50	2.5	4.1	37.0	11.3	33.8	
54	5.8	8.7	41.6	14.1	*38.1*	*Predicted concentration at Receptor within 10% the AQS objective.*
56	2.8	3.6	48.6	13.8	**46.4**	*Predicted concentration at Receptor above AQS objective.*
77	2.2	3.4	42.1	11.3	*38.9*	*Predicted concentration at Receptor within 10% the AQS objective.*
133	2.0	9.0	38.0	9.6	28.0	
144	3.7	5.1	53.1	15.6	**49.8**	*Predicted concentration at Receptor above AQS objective.*
145	3.2	5.3	52.0	15.6	**47.2**	*Predicted concentration at Receptor above AQS objective.*
151	2.3	35.4	44.8	11.3	22.6	*Warning: your receptor is more than 20m further from the kerb than your monitor - treat result with caution.*

QA/QC of automatic monitoring

In terms of the automatic monitoring, the only automatic site currently operational in Kirklees is CM1 Dewsbury Ashworth Grange. This urban background site forms part of the Automatic Urban Monitoring Network (AURN). It currently monitors NOx, NO_2, PM_{10}, $PM_{2.5}$, and O_3.

The AURN is the UK's largest automatic monitoring network and is the main network used for compliance reporting against the Ambient Air Quality Directives. A number of organisations are involved in the day-to-day running of the network. Currently, the site is operated by Bureau Veritas. The frequency of calibrations, audit and servicing will therefore be following AURN QA/QC procedures. Calibration gases for the network are supplied by BOC Limited and are provided with a UKAS certificate of calibration by Ricardo Energy & Environment.

Live and historic data for this site is accessible via Defra's UK AIR website. The data presented in this report has been validated and fully ratified by Defra's current contractor, following AURN QA/QC procedures.

PM_{10} and $PM_{2.5}$ monitoring adjustment

A FIDAS monitor is used to monitor PM_{10} and $PM_{2.5}$ at CM1 Dewsbury Ashworth Grange AURN site. As discussed above, we have only reported ratified AURN data within this ASR, so any monitoring adjustment will have been undertaken nationally as part of the AURN data ratification process.

Automatic monitoring annualisation

Annualisation was not required for 2024 AURN data from Dewsbury Ashworth Grange. The data we reported for 2024 (NO_2, PM_{10} and $PM_{2.5}$) had annual data capture rates of 87.3 %, 90.1 % and 90.1 % respectively, therefore it was not required to annualise any monitoring data.

NO_2 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 NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO_2 concentrations corrected for distance are presented in Table A.3.

This has not been calculated for the AURN continuous monitoring station Dewsbury Ashworth Grange, as this is an urban background monitoring station, and the annual mean concentration is below 10% of the annual mean concentration limit for NO_2. Table C.5 – Automatic NO_2 Fall off With Distance Calculations (concentrations in $\mu g/m^3$) has therefore been removed.

Appendix D: Map(s) of monitoring locations and AQMAs

Maps of monitoring locations and the 10 AQMAs within Kirklees have been provided as separate document.

These maps show the latest configuration of monitoring sites by Kirklees Council. As such, several sites that were not operational in 2024 are included.

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[18]

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

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

Appendix F: Table 2.2 Key Performance Indicators

Table 2.2 Key Performance indicators

Measure No	Measure	Key Performance Indicator
G.1	Adoption of the West Yorkshire Low Emissions Strategy (WYLES)	Kirklees Council Target; +Conclusions of WYLES benchmarking project demonstrating full compliance with WYLES Objectives Kirklees Council Target; Delivery of key WYLES objectives; Obj 2. Age of vehicles in bus fleet measured by; +Change in bus fleet composition towards newer Euro Cat Vehicles Obj 3. Electric Vehicle Uptake Measured by increase in the; +Number of newly registered E.V vehicles within Kirklees +Number of E.V's using charging Infrastructure +Number of Green Parking Permits issues within district Obj 4. ECO-Stars Freight Recognition Scheme Measured by increase in; +Number of operators signed up within the district +Number of fleet vehicles included in the scheme +Number of Operators improving their ECO-Star scores after re-visits Obj 6. Taxi Fleet Improvements measured by; +increase in the number of licensed Hybrid / ULEV vehicles +reduction in the age of the vehicles licensed +reduction in number of diesel vehicles licensed
G.2	Kirklees Council - workplace Active travel	West Yorkshire Target: +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: +Increase cycling travel mode by 300% between 2018 baseline and 2030 +Increase walking travel mode by 20% between 2018 baseline and 2030 Kirklees Council Measurable:

Measure No	Measure	Key Performance Indicator
		+Number of employees using sustainable travel modes to commute to work.
G.3	Kirklees Sustainable Travel to School Strategy	West Yorkshire Target: +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: +Increase cycling travel mode by 300% between 2018 baseline and 2030 +Increase walking travel mode by 20% between 2018 baseline and 2030 Kirklees Council Measurable: +Number of employees using sustainable travel modes to commute to work.
G.4	Bike-ability training provided to school children	Kirklees Council Targets: +Increase cycling travel mode by 300% between 2018 baseline and 2030 Kirklees Council Measurable: + Number of children participating in scheme
G.5	City Cycle Grant	Kirklees Council Targets: + Continued use of the scheme, measured by grant uptake +Contributes to the wider target to increase cycling travel mode by 300% between 2018 baseline and 2030 Kirklees Council Measurable: + Number of grant applications
G.6	Green Parking Permit allowing free parking for ULEV Vehicles within Council owned car parks.	Kirklees Council Targets: +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. Kirklees Measurable: + Number of ULEV vehicles registered within Kirklees District

Measure No	Measure	Key Performance Indicator
G.7	Service level agreements across West Yorkshire for ULEV Parking permits to allow free parking across the region	Kirklees Council Targets: +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. Kirklees Measurable: + Number of ULEV vehicles registered within Kirklees District
G.8	City Car Club ran within Kirklees district	Kirklees Council Measurables; + Number of members within the scheme + Number of car trips for Kirklees based cars
G.9	Finance & Promote Car Sharing Website	Kirklees Council Targets: + Increased membership on scheme + Increase number of car shares on system Kirklees Council Measurables; + Number of members on the website + Number of users car sharing
G.10	E.V Fleet Feasibility Study for council fleet	Kirklees Council Targets: +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. + Implementation of further recommendation from study upon completion Kirklees Council Measurables; + Minimum of 27 diesel vehicles to be replaced by 2021 +Number of E.V vehicles within the council fleet

Measure No	Measure	Key Performance Indicator
G.11	Conversion of applicable council fleet to electric vehicles	Kirklees Council Targets: +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. + Implementation of further recommendation from study upon completion Kirklees Council Measurables; + Initial replacement of 27 diesel vehicles with E.V's by 2021
G.12	Kirklees Bike to Work Scheme	Kirklees Council Targets: + Continued use of the scheme, measured by grant uptake +Contributes to the wider target to increase cycling travel mode by 300% between 2018 bassline and 2030 Kirklees Council Measurable: + Number of grant applications
G.13	Update Kirklees Air Quality Strategy	Kirklees Council Measurable: + Adoption of new 5 year Action Plan Update: Due to available resources, a decision has been taken not to review the Air Quality Strategy, as this is not a statutory requirement whilst there are declared AQMAs within Kirklees and alternatively, an AQAP is required. There will continue to be air quality monitoring and a strategic overview of the whole of the Kirklees district within the review of the AQAP, and not just a focus on the remaining AQMAs.
G.14	Assess planning applications in accordance with procedures in the WYLES Planning Guidance Document and require the relevant mitigation	Kirklees Council Targets: +Assess all planning applications in accordance with WYLES Planning Guidance Document + Require developers to integrate air quality mitigation into developments according to size of building project Kirklees Council Measurables; + Number of E.V chargers installed within new developments +Section 106 contributions

Measure No	Measure	Key Performance Indicator
	included on development	+Mitigation measures to the value of the damage costs calculated to offset the impact of air quality
G.15	Create a Green Procurement Toolkit	Kirklees Council Targets: + Integrate Air Quality as a consideration on all procurement exercises across Council + Creation of a Green Procurement Toolkit +Once created, number of procurement exercises assessed against the green procurement toolkit
G.16	Subsidised Bus/Rail Card for Kirklees Council Staff	Kirklees Council Targets: + Increase in the number of short journeys using public transport + Reduction in number of low mileage journeys for grey & council fleet Kirklees Council Measurable: + Number of Bus/Rail Card applications + Number of bookings of the company railcards + Number of trips taken in grey fleet or fleet vehicles that are 1mile or less
G.17	Kirklees Policy on Employee Transport (Employee Handbo0k)	+ Contribute to increase in the number of short journeys using public transport + Contribute to the reduction in number of low mileage journeys for grey & council fleet + Reduce grey fleet mileage + Increase ULEV Council Fleet Mileage year on year from baseline year 2020 Kirklees Council Measurables; +Number of grey fleet miles +Number of Fleet vehicle miles + Number of trips taken using bus/rail cards
G.18	Retro-fitting Applicable vehicles within the Bus Fleet with Emissions Abatement Equipment	West Yorkshire Target; + 300 Buses Retrofitted with Exhaust abatement technology by Dec 2019 Kirklees Council Measurables; +Number of buses Retro-fitted

Measure No	Measure	Key Performance Indicator
G.19	Electric Vehicle Strategy	Kirklees Council Target; + Creation of an Electric Vehicle Strategy for the District by Dec 2020 +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year inline with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. Kirklees Council Measurable: + Creation and adoption of Electric Vehicle Charging Strategy
G.20	West Yorkshire ECO-Stars Scheme	Kirklees Council Targets: + Year 2 target to get 30 new member for the West Yorkshire Scheme + Year 2 target to re-assess 50% of year 1 members (25 re-assessments) Kirklees Council Measurables; +Number of operators signed up within the district +Number of fleet vehicles included in the scheme +Number of Operators improving their ECO-Star scores after re-visits
G.21	West Yorkshire Electric Vehicle Taxi Scheme	Kirklees Council Target; +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. + Implementation of further recommendation from study upon completion + increase in the number of licensed Hybrid / ULEV vehicles + reduction in the age of the vehicles licensed +reduction in number of diesel vehicles licensed+ increase E.V Taxi charger network usage year on year Kirklees Council Measurables; +Installation of 17 Rapid Chargers within Kirklees District by March 2020

Measure No	Measure	Key Performance Indicator
		+ Number of licensed Hybrid / ULEV vehicles +Number of vehicles 8 years or older
G.22	West Yorkshire Low Emission Strategy Officer	Kirklees Council Target; +Conclusions of WYLES benchmarking project demonstrating full compliance with WYLES Objectives Kirklees Council Target; Delivery of key WYLES objectives; Obj 2. Age of vehicles in bus fleet Measured by; +Change in bus fleet composition towards newer Euro Cat Vehicles Obj 3. Electric Vehicle Uptake Measured by increase in the; +Number of newly registered E.V vehicles within Kirklees +Number of E.V's using charging Infrastructure +Number of Green Parking Permits issues within district Obj 4. ECO-Stars Freight Recognition Scheme Measured by increase in; +Number of operators signed up within the district +Number of fleet vehicles included in the scheme +Number of Operators improving their ECO-Star scores after re-visits Obj 6. Taxi Fleet Improvements Measured by; +increase in the number of licensed Hybrid / ULEV vehicles+reduction in the age of the vehicles licensed+reduction in number of diesel vehicles licensed
G.23	Joint Strategic Assessment for Air Quality	Kirklees Council Target; +Continued partnership working between Public Health and Environmental Health + Contribute to the delivery of work streams outlined in KJSA Kirklees Council Measurables; + Adoption of the Strategy
G.24	Corporate Carbon Reduction Targets	Kirklees Council Target; + Reduction of 15,214t CO2 by 2021 Kirklees Council Measurables; + Tonnes of CO2 reduction per year

Measure No	Measure	Key Performance Indicator
G.25	West Yorkshire Energy Accelerator Project	West Yorkshire Target; + Estimated 590kt CO2 reduction focusing on high emission industrial sector Kirklees Council Measurables; + Tonnes of CO2 reduction per year
G.26	Air Quality to be included in a relevant Supplementary Planning Guidance Document	Kirklees Council Targets: +Assess all planning applications in accordance with WYLES Planning Guidance Document + Require developers to integrate air quality mitigation into developments according to size of building project Kirklees Council Measurables; + Number of E.V chargers installed within new developments +Section 106 contributions
G.27	Trialling Hybrid and E.V Bin Wagon	Kirklees Council Target; + Determine the savings / issues around ULEV Bin Wagons +Promote findings within industry Kirklees Council Measurables; + Report on trial impacts
G.28	Feasibility Study on use of E.V Mobile Maintenance Equipment	Kirklees Council Target; + Determine cost savings of E.V M.M.E + Replace appropriate M.M.E with E.V equivalent +Promote findings within industry Kirklees Council Measurables; + Construction of a report outlining viability of E.V M.M.E's + Number of M.M.E's replaced with E.V alternatives.
G.29	Feasibility of delivery of Council Officer Car Lease Scheme and delivery (limiting the available options by emission output)	Kirklees Council Target; + Determine the viability of a Council Officer Lease Scheme with built in ULEV promotion Scheme aim is to contribute to; +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets.

Measure No	Measure	Key Performance Indicator
		Kirklees Council's Measurables; + Number of ULEV Car Leases
G.30	Grey Fleet Telematics Trial	Kirklees Council Targets: +Reduce number of grey fleet miles for the Council year on year. Baseline year is year prior to introduction of telematics system +Contribute to increase in the number of short journeys using public transport + Reduce grey fleet mileage+ Increase ULEV Council Fleet Mileage year on year from baseline year 2020 Kirklees Council Measurables; + Number of vehicle miles + Number of grey mile trips + Number of service car trips
G.31	Master naught Telematics System	Kirklees Council Targets: +Reduction in number of Driver accidents year on year +Reduction in number of speeding / unsafe driving reports year on year +Identify appropriate targeted driver training for safe and eco driving Kirklees Council Measurables; + Number of speeding exceedances +Number of heavy breaking events
G.32	Pool Bike Feasibility Study	Kirklees Council Targets: +Assess pool bike usage +Determine barriers of pool bike system +Promote pool bikes + Contributes to the reduction in number of low mileage journeys for grey & council fleet +Contributes to the wider target to increase cycling travel mode by 300% between 2018 baseline and 2030 Kirklees Council Measurables; + Number of pool bike bookings +Number of miles undertaken on pool bike
G.33	Robust Travel Survey to determine better travel plans internally	Kirklees Council Targets: + Increase the number of completed travel surveys year on year +Collect relevant data to assists with decision making process Kirklees Council Measurables;

Measure No	Measure	Key Performance Indicator
		+ Number of Travel Survey responses + Yearly report on results of travel survey
G.34	Installation of pollution sensor technology within our AQMAS in conjunction with recognised monitoring to demonstrate validity of new devices	Kirklees Council Targets: + Create a report analysing the validity of sensor technology +Analyse cost effectiveness of sensors when measured against existing monitoring tools +Improve accuracy of current AQ monitoring network Kirklees Council Measurables; + Report outlining the issues relating to Sensor Technology
G.35	Engagement within the district with regional plans on alternative Low Emission Fuel Sources	West Yorkshire Target; + Contribute towards regional low emission fuel source projects currently in development
G.36	Review how Environmental Health delivers regulatory requirements of the Clean Air Act	Kirklees Council Targets: + Reduce number of burning / smoking chimney complaints + Increased business engagement +Integrate new Clean Air Act into Kirklees Council work procedures Kirklees Council Measurables; + Number of complaints Smoking Chimney Complaints to Environmental Health
G.37	Implementation of the Medium Combustion Plant Directive through the planning process	Kirklees Council Target; + All plant meeting directive to be registered with relevant authority + Signpost relevant businesses of directive at development control stage Kirklees Council Measurables; + Number of permits issued within the district
G.38	Zoning project to identify errant PPC businesses	Kirklees Council Targets: + Permit all relevant businesses in accordance with the PPC Regulations. Kirklees Council Measurables; + Number of errant PPC businesses identified + Number of areas assessed

Measure No	Measure	Key Performance Indicator
G39	Kirklees Walking and Cycling Strategic Framework	West Yorkshire Target: +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: +Increase cycling travel mode by 300% between 2018 baseline and 2030 +Increase walking travel mode by 20% between 2018 baseline and 2030 + Increase in number of coaches, leaders & volunteers + Improvement in communication with public. Kirklees Council Measurables; +Creation of a policy document around Walking and Cycling
G.40	Kirklees Neighbourhood Housing Solid Fuel Policy	Kirklees Council Targets: + Prohibit installation of solid fuel stoves +Educate residents on the policy Kirklees Council Measurables; +Number of Solid Fuel Stoves within KnH properties
G.41	West Yorkshire Travel Plan Network	West Yorkshire Targets: +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 +Increase number of local businesses registered as members Kirklees Council Measurables; + Number of Kirklees businesses that are members of the Travel Plan Network
G.42	Development of a Comms Strategy to promote air quality, modal shift and successful emission reduction projects	Kirklees Council Targets: +Creation of a Comms Strategy for AQ, incorporating joint messages for Green Streets, Public Health, Carbon Reduction and other linked work streams Kirklees Council Measurables; +Strategy document outlining plans to promote Air Quality +Number of promotion activities
G.43	Collaborative working with NHS Trusts within District	Kirklees Council Targets: + Set up liaison program with NHS Trusts + Increase number of linked work streams with NHS Trusts

Measure No	Measure	Key Performance Indicator
G.44	Collaborative working with University of Huddersfield	Kirklees Council Targets: + Increase number of linked work streams with Huddersfield University
G.45	Collaborative working with Commercial Bus Companies within the district	Kirklees Council Targets: + Set up liaison program with Bus Companies + Increase number of linked work streams with Bus Companies
G.46	Collaborative working with Highways England	Kirklees Council Targets: + Set up liaison program with Highways England + Increase number of linked work streams with Highways England
G.47	De-centralised Energy Use	Kirklees Council Targets: +Contribute towards targets set by Climate Emergency Work Group Kirklees Council Measurables; + CO2 reductions
G.48	Smart Systems to manage energy use within Local Authority Buildings	Kirklees Council Targets: +Contribute towards targets set by Climate Emergency Work Group Kirklees Council Measurable: + CO2 Reductions
G.49	Study the impact of Green Infrastructure	Kirklees Council Target; +To assess the validity of the use of vegetation as a mitigation solution +To determine the best vegetation to reduce air pollution +To assess cost effectiveness of Green Infrastructure +Promote findings within industry Kirklees Council Measurables; + Report determining the impact of Green Infrastructure
G.50	Generate a pollutions based calculation similar to that currently used in carbon reduction calculations	Kirklees Council Target; + Aim to create a simple calculation which will allow the organisation to determine theoretical NO2 / PM10 concentration , which in turn allows firms to set targets similar to Carbon system Kirklees Council Measurable;

Measure No	Measure	Key Performance Indicator
		+ Creation of an easier system for calculating emission impact
G.51	Research gathering to inform development of neighbourhood plans as part of Local Plan integration	Kirklees Council Targets: + Collected dataset of a quality that allows informed development control decisions to be made. Kirklees Council Measurable: + Report containing data to inform neighbourhood plans
G.52	Development Clusters Research and Solution Systems	Kirklees Council Targets: + To collect a dataset of a quality that allows informed development control decisions to be made. Kirklees Council Measurable; + Report containing quality dataset
G.53	Feasibility Study of current Traffic Model and identify further highways improvement projects	Kirklees Council Targets: + Use outcomes from feasibility study to identify other highways improvement projects within the district. Kirklees Council Measurable: + Report outlining the validity and potential improvements to current traffic model
G.54	Voluntary Clean Air Zone Feasibility Study	Kirklees Council Targets: + Full cost analysis measured against impact of implementing non-charging clean air zone. Kirklees Council Measurable: + Report outlining viability of non-charging clean air zone.
G.55	Study into the impact of topography onto clean bus technology	Kirklees Council Targets: + Determine the best bus technology to utilise within the district + Promote findings within industry Kirklees Council Measurable: +Report demonstrating the most appropriate bus technology to deliver a cost effective low emission service within a district with hilly topography

Measure No	Measure	Key Performance Indicator
G.56	Project to engage with public on solid fuel regarding compliance into UK Clean Air Strategy	Kirklees Council Targets: + Reduce number of burning / smoking chimney complaints +Increased business engagement +Reduction in particulate associated with solid fuel Kirklees Council Measurable: + Number of smoking chimney complaints
G.57	Feasibility study into changing internal governance and decision making to further incorporate air quality	Kirklees Council Targets: + Use outcomes from feasibility study to identify policy to integrate AQ within. Kirklees Council Measurable: + Report outlining the validity and potential improvements to current policy to incorporate AQ in decision making
G.58	Feasibility Study into On street electric vehicle charging solutions	Kirklees Council Targets: +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. Kirklees Council Measurable: + Report outlining the viable solutions to provide charging to properties without off-street parking
G.59	Creation of a delivery plan for Kirklees EV Charging	Kirklees Council Targets: +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. Kirklees Council Measurable: + Report outlining the a delivery plan to providing charging network across the district to meet future needs

Measure No	Measure	Key Performance Indicator
G.60	Provision of EV Charging in all communities of Kirklees	Kirklees Council Targets: + Each council ward to have an even spread of charging network per head of population +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. Kirklees Council Measurable: + Number of chargers in each ward
G.61	Improvements to the Cycling Network, linking all the Kirklees Towns and with neighbouring districts	West Yorkshire Target: Contribute to; +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: +Improve pre-existing walking / cycling facilities within district + Connect local towns and neighbouring districts with improved cycling and walking facilities +Increase cycling travel mode by 300% between 2018 baseline and 2030 +Increase walking travel mode by 20% between 2018 baseline and 2030 +Improvement in facilities across the district for cycling and clear links between all towns within the district. Kirklees Council Measurable: +Number of tows connected by cycle network
G.62	Use of Technology and publicity to incentivise and increase Active travel during commute and business activities	Kirklees Council Targets: +Development of an App to collect data and recommend appropriate methods of transport Contribute towards; +Increase cycling travel mode by 300% between 2018 baseline and 2030+Increase walking travel mode by 20% between 2018 baseline and 2030. West Yorkshire Target: +Sustainable travel mode increase from 36% in 2011 to 42% by 2026. Kirklees Council Measurables;

Measure No	Measure	Key Performance Indicator
		+Creation of an App promoting model shift +Number of journeys made by walking / cycling
G.63	Project to promote and incentivise working at home to reduce commuter miles	West Yorkshire Target: +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: +Alter modern way of working and reduction in commuter miles +Support business to operate in a modern way +Promote best practice currently being adopted within Kirklees Council Kirklees Councill Measurable: + Number of walking / cycling trips
G.64	E.V research project to identify appropriate demographics and locations within the district.	Kirklees Council Targets: + Report outlining the best focus for council delivery plan to providing charging network across the district to meet future needs +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. Kirklees Council Measurable: +Report outlining demand for ULEV within the district
G.65	Feasibility study into the integration of National and Local UTMC	Kirklees Council Targets: + Linked UTMC system between HE and Kirklees Council systems +Improved Journey Times +Improved Road user experience Kirklees Council Measurable: +Report outlining requirements to integrate HE UTMC and Kirklees UTMC

Measure No	Measure	Key Performance Indicator
G.66	Feasibility study into the use of anti-adling measures as a control on emissions, giving focus to areas of poor air quality	Kirklees Council Target; +To assess the validity of the use of anti-idling as a mitigation solution +To determine the best / appropriate locations for anti-idling +To assess cost effectiveness of anti-idling enforcement +Creation of a report determining the impact of anti-idling +Promote findings within industry Kirklees Council Measurable: + Report outlining feasibility of anti-idling measures within the district
G.67	E.V Salary Sacrifice Scheme	Kirklees Council Targets: +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. Kirklees Measurable: + Number of ULEV vehicles registered within Kirklees District +Reduce Council's Grey Fleet Emissions
G.68	£1million E.V Infrastructure Project	Kirklees Council Targets: + Each council ward to have an even spread of charging network per head of population +Contributes to wider target to increase in percentage of ULEV registered vehicles within the district year on year in line with national average. + Contributes to wider target to meet the projected IMF target of 30% of registered cars within the district to be ULEV by 2027 + Contributes to wider target for 100% car sales to be ULEV's within by 2040 in line with national government targets. Kirklees Council Measurable: + Number of chargers in each ward

Measure No	Measure	Key Performance Indicator
AQMA1.1	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Managements System within AQMA 1	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA1.2	Feasibility Study to Alter SCOOT to incorporate actual Air Quality pollution levels	Kirklees Council Targets: + Report outlining impact of integrating monitors into UTMC system. Looking at cost, flowtimes and pollutant reduction +Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA1.3	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA1.4	Cooper Bridge Road Improvements Project	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network Kirklees Council Measurable: + Average road speed +AM/PM Queue times

Measure No	Measure	Key Performance Indicator
AQMA1.5	Resource Smart Corridor	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA1.6	Kirklees Northern Orbital Route	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network + Bypass current road network and remove traffic from close proximity to residential properties Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA1.7	Trial of Smart UTMC Technology systems within relevant AQMAS	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA2.1	A640 Road improvements (Mirfield to Dewsbury)	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA2.2	Program of Deep Cleaning to Paths and Road within the AQMA	Kirklees Council Target; + Keep exceedance of daily PM10 below daily AQO Kirklees Council Measurable: + Daily Exceedances of PM10

Measure No	Measure	Key Performance Indicator
AQMA2.3	Extension of Ravensthorpe Train Station	West Yorkshire Targets: + Increased services to train station +Increase in patronage Kirklees Council Measurable: + Number of passengers using Ravensthorpe Station +Number of services stopping at Ravensthorpe Station
AQMA2.4	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA2.5	Kirklees Northern Orbital Route	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network + Bypass current road network and remove traffic from close proximity to residential properties Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA2.6	Trial of Smart UTMC Technology systems within relevant AQMAS	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times

Measure No	Measure	Key Performance Indicator
AQMA3.1	A629 Road improvements as part of Halifax to Huddersfield Road Scheme	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA3.2	Assessment of Cycling Infrastructure between Ainley Top and Huddersfield Town Centre	West Yorkshire Target: Contribute to; +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: Contribute to; + Connect local towns and neighbouring districts with improved cycling and walking facilities +Increase cycling travel mode by 300% between 2018 baseline and 2030 +Increase walking travel mode by 20% between 2018 baseline and 2030 Improvement in facilities across the district for cycling and clear links between all towns within the district Kirklees Council Measurable: + Construction of new Cycling Infrastructure within the district
AQMA3.3	Feasibility into the development of System Activated Planned Cycles	West Yorkshire Target: Contribute to; +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: Contribute to; + Connect local towns and neighbouring districts with improved cycling and walking facilities +Increase cycling travel mode by 300% between 2018 baseline and 2030 +Increase walking travel mode by 20% between 2018 baseline and 2030 Improvement in facilities across the district for cycling and clear links between all towns within the district Kirklees Council Measurable: + Average road speed +AM/PM Queue times

Measure No	Measure	Key Performance Indicator
AQMA4.1	Study into the impact of speed control along the national highway as an emissions reduction tool.	Kirklees Council Targets: +Work with Highways England to implement the recommendations of the study Kirklees Council Measurable: +Creation of a document that determines the impact of speed reduction on the motorway and best method to deliver emissions reduction
AQMA 4.2	Trial of NOx absorbent material integrated into roundabout design	Kirklees Council Target: +Installation off material on roundabout Kirklees Council Measurable: +NO2 Concentrations adjacent to roundabout
AQMA5.1	Free City Bus for Dewsbury Town Centre	West Yorkshire Target: +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: +Increase bus patronage Kirklees Council Measurable: + Number of passengers using service
AQMA5.2	A640 Road improvements (Mirfield to Dewsbury)	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA5.4	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Managements System	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times

Measure No	Measure	Key Performance Indicator
AQMA5.5	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA5.6	Trial of Smart UTMC Technology systems within relevant AQMAS	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA 5.7	Installation of Green Screen at Eastborough J&I School	Kirklees Council Target; +Install a screen to block diffusion of pollutants from ring road Kirklees Council Measurable: +Concentrations within the playground
AQMA6.1	A629 Road improvements as part of Halifax to Huddersfield Road Scheme	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA6.2	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Managements System	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times

Measure No	Measure	Key Performance Indicator
AQMA6.3	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA6.4	Trial of Smart UTMC Technology systems within relevant AQMAS	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA7.1	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Managements System	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA7.2	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA7.3	Trial of Smart UTMC Technology systems within relevant AQMAS	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times

Measure No	Measure	Key Performance Indicator
AQMA8.1	Study into the impact of speed control along the national highway as an emissions reduction tool.	Kirklees Council Targets: +Work with Highways England to implement the recommendations of the study Kirklees Council Measurable: +Creation of a document that determines the impact of speed reduction on the motorway and best method to deliver emissions reduction
AQMA9.1	Free City Bus for Dewsbury Town Centre	West Yorkshire Target: +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: +Increase bus patronage Kirklees Council Measurable: + Number of passengers using service
AQMA9.2	Huddersfield Heat Network Scheme	Kirklees Council Target; +Contribute towards targets set by Climate Emergency Work Group Kirklees Council Measurables; +Number of boilers removed + CO2 reductions
AQMA9.3	Resource Smart Corridor	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA9.4	Huddersfield Southern Gateway Transport Scheme	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network Kirklees Council Measurable: + Average road speed +AM/PM Queue times

Measure No	Measure	Key Performance Indicator
AQMA9.5	Huddersfield Ring Road Junction Improvements	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA9.6	Feasibility Study in to Pedestrianizing Areas of Town Centre for Cycling Access	West Yorkshire Target: Contribute to; +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Targets: Contribute to; + Connect local towns and neighbouring districts with improved cycling and walking facilities +Increase cycling travel mode by 300% between 2018 baseline and 2030 +Increase walking travel mode by 20% between 2018 baseline and 2030 Improvement in facilities across the district for cycling and clear links between all towns within the district Kirklees Council Measurable: + Creation of a document cost analysing benefits of pedestrianizing / cycling only in town centre areas
AQMA9.7	Trans-Pennine Express Improvement Scheme	West Yorkshire Target: Contribute to; +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Measurable: +Number of rail passengers
AQMA9.8	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times

Measure No	Measure	Key Performance Indicator
AQMA9.9	Input into the development of the Town Centre Master Plan	Kirklees Council Targets: +Inclusion of Air Quality within the Town Centre Master Plan Document Contribute towards targets for planning; + Number of E.V chargers installed within new developments +Predicted monetary damage compared against mitigation spend / Section 106 contributions
AQMA9.10	Trial of Smart UTMC Technology systems within relevant AQMAS	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA10.1	Huddersfield Southern Gateway Transport Scheme	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Increased capacity on the road + Redistribution of vehicles on network Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA10.2	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times
AQMA10.3	Kirklees "Virtual Emissions Monitoring Project" to rationale SCOOT system	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times

Measure No	Measure	Key Performance Indicator
AQMA10.4	Trial of Smart UTMC Technology systems within relevant AQMAS	Kirklees Council Targets: + Reduction in queuing times and increased through flow + Reduced stop / start driving style + Increased efficiency in combustion engine process Kirklees Council Measurable: + Average road speed +AM/PM Queue times

4. Glossary of terms

Table G.1 - 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
AURN	Automatic Urban and Rural Network – the UK wide continuous air quality monitoring network, administered by Defra
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
FIDAS	Fine Dust Analysis System
LAQM	Local Air Quality Management
MCERTS	Environment Agency emissions and air quality Monitoring Certification Scheme
NO_2	Nitrogen Dioxide

Abbreviation	Description
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10 microgrammes or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5 microgrammes or less

5. 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.
- Kirklees Council, Air Quality Action Plan, 2019-24, Kirklees Air Quality Action Plan
- Kirklees Council, Air Quality Annual Status Reports, 2020, 2021, 2022, 2023, 2024
- Defra correspondence – appraisal of Kirklees Council 2023 Air Quality Annual Status Report
- Kirklees Council – Air Quality Strategy 2019
- Environment Agency, August 2017, Performance Standards for Indicative Ambient Particulate Monitors, version 4
- United Kingdom Health Security Agency, Public Health Outcomes Framework
- Defra – Environment Act 2021
- Kirklees Council, Climate Change Action Plan for Kirklees 2022
- Public Health Outcomes Framework – “Fingertips”
- BSI, December 2023, PAS 4023:2023 (Selection, deployment and quality control of low-cost air quality sensor systems in outdoor ambient air – Code of Practice)
- Kirklees Council, Ainley Top Detailed Assessment as part of the Kirklees Council Air Quality Annual Status Report, 2016