2022 Air Quality Annual Status Report (ASR)

Version 1.0

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: June 2022

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Executive Summary: Air Quality in Our Area

Air Quality in the Kirklees Council District

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

The mortality burden of air pollution within the UK is equivalent to 28,000 to 36,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

The air quality issues within Kirklees are focused around the road network connecting the towns, and traffic which passes between the West Yorkshire conurbation along the M62 and Greater Manchester.

Kirklees Council have conducted monitoring across the district where these primary roads are in close proximity to relevant human activity. To date Kirklees has identified 2 primary pollutants of concern. They are Nitrogen Dioxide and Particulate Matter.

Beginning March 2020, the UK saw a large number of measures implemented in response the COVID19 pandemic, which has also impacted concentrations observed during the reporting year 2020. In 2020 concentrations have fallen by 10% more than what would be anticipated had the pandemic not occurred, with reduction of between 17-19% occurring and compliance across the district. In 2021, the trends in NO_2 showed an increase of 12 – 15% increase, which could be accredited to a return to normality post COVID-19, though

[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

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

[3] Defra. Air quality appraisal: damage cost guidance, July 2021

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

in most instances areas that had fallen below Air Quality Objectives (AQO) remain in compliance as a result of 2020 concentration drops.

Trends prior to the COVID19 pandemic indicated that the levels of these pollutants have fallen over the previous 5-year period, but health related objectives were still being exceeded within the district.

Kirklees currently has 10 Air Quality Management Areas (AQMAs) within the district, of which the maps are available at https://uk-air.defra.gov.uk/aqma/list and orders are available from the Council's website at https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx.

The Kirklees AQMA's are;

- Bradley, Huddersfield
- Scouthill, Dewsbury
- Birchencliffe, Huddersfield
- Birkenshaw, Bradford
- Eastborough, Dewsbury
- Edgerton, Huddersfield
- Liversedge / Heckmondwike
- Huddersfield Town Centre
- Outlane, Huddersfield
- Thornton Lodge, Huddersfield

Prior to the COVID19 pandemic, 5-year trends for NO_2 indicated that the levels fell significantly between 2012 & 2013 within the Kirklees District and stagnated between 2014 to 2016, but since 2016 there has been a gradual fall year on year. Over that five-year period, it had been observed that NO_2 concentration have fallen by 13% across the district and that falling concentration trends were slightly higher within the AQMA's at 15-19%.

With data showing increases this year, it re-enforces conclusions in the 2021 report that concentrations may increase as measures are removed and society returns to a pre-pandemic model, with the introduction of some new emission sources as a result of some behaviour changes which is legacy from the pandemic.

Notwithstanding this, concentrations in some areas were still exceed AQO which indicated further works were required in addition to improvements in vehicle engine technology and fleet turnover in order to bring about compliance.

Actions to Improve Air Quality

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

The 2019 Clean Air Strategy[5] sets out the case for action, with goals to reduce exposure to harmful pollutants. The Road to Zero[6] sets out the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

In 2019, Kirklees Council adopted a new Air Quality strategy and 5-year Action Plan focusing on both districtwide measures and also specific to AQMA's.

Kirklees Council is a Metropolitan authority and controls all local authority duties. As part of the LAQM process and more specifically delivery of the action plan, Kirklees Council work in partnership with the West Yorkshire Combined Authority (WYCA) and the other 4 West Yorkshire Authorities on a regional project basis and at a local level works with Highways England, Environment Agency and key anchor institutions such as The NHS Trusts, Huddersfield University and Kirklees Neighbourhood Housing, which was key in the construction of the action plan and will continue to be key to deliver the actions.

Actions to Improve Air Quality Kirklees Council has taken forward a number of measures during the current reporting year of 2021 in pursuit of improving local air quality.

Prior to the pandemic, NO_2 concentrations had fallen by between 15-19% within the AQMA's over the previous 5-year period, which is above the district average of 13% and a testament to the successful delivery of the previous plan and current schemes within the new plan.

[5] Defra. Clean Air Strategy, 2019

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

The council acknowledged the important links between Climate Change, the council's Climate Emergency and the cross-cutting nature of the workstreams. As such Kirklees Council created an Air Quality, Energy & Climate Change team to deliver on these priority agendas and increased resource availability in order to achieve the council's ambition.

Whilst the council saw compliance in 10 of the 10 Kirklees AQMA's, the impact of COVID19 measures and uncertainties surrounding recovery roadmaps mean that decisions on compliance are limited. 2021 concentrations rose by 12-15% within AQMA's in Kirklees, resulting in only 6 of the 10 AQMA's complying with AQO's.

None-compliance was observed in the following AQMAs.

- Birkenshaw, Bradford
- Eastborough, Dewsbury
- Liversedge / Heckmondwike
- Huddersfield Town Centre

Notwithstanding this, Kirklees Council currently have permission from previous ASR submissions to revoke AQMA 2 in Scouthill and will be doing so.

In 2020 Kirklees Council continued to work undertake partnership working, both local and regionally to bring about reductions and the Air Quality team have taken the lead on delivery of Electric Vehicle Charging Infrastructure within the district. The key measures in 2021 were:

- Birkenshaw Roundabout Scheme

  £40k project to install a skirt around the roundabout to improve flow and reduce stop-starts, whilst also installing Green Infrastructure to maximise improvement

- Increase monitoring tools Available to council (Diffusion Tubes / Sensors)

  £60k to purchase sensors and further diffusion tubes to understand current concentrations within the council district.

- Procurement £1m capital Public E.V Charging scheme & £1m towards electrification of council's own fleet

  In January 2019, Kirklees Council declared a Climate Emergency and as part of that, allocated £2m for Electric vehicle schemes. This capital budget is

split into 2 elements, one million for the council's own and the other million for a strategic public charge network

- Development of update to West Yorkshire Low Emission Strategy (WYLES) document

  With 2019, a West Yorkshire Low Emissions Officer appointed to evaluate the progress of the WYLES. In 2020 the officers worked on a regional basis to create and deliver a WYLES action plan. Final WYLES update Document due 2022

- Purchased Multiple Emission Sensor Technology to evaluate accuracy and effectiveness

In 2020, Kirklees Council had receipt of 5 Zephyr Sensors in April. These were deployed at strategic location / as part of to evaluate their effectiveness within the field. Upon completion for this piece of work, the authority deployed the monitors tactically and undertook evaluation. Following completion 2020 evaluations the council have undertook review of other technologies available to address local needs, specifically around $PM_{2.5}$

Conclusions and Priorities

From analysis of 2021 Air Quality data Kirklees Council reports that there have been exceedances of the Annual NO_2 Air Quality Objectives (AQO)

Real-time data is not available at this time for 2021, though it is noted that no Diffusion Tubes exceeded the 60µg/m^3 threshold for likely exceedance of hourly AQO.

In addition to this, $PM_{2.5}$ concentration data is not available locally, though national mapping notes that concentration are compliant with existing objectives.

Falls in 2020 of 17-19%, of which 10% was estimated to be a result of COVID19 pandemic, have not continued to be observed. Nor has previous trends of 7-9% year on year falls occurred. 2021 increase of 12-15% appear to reflect return to societal norms and concentrations associated with this type of activity.

As was observed in the 2020 report, positive concentrations in the short term, followed by increases as society returns to normality demonstrates the importance of sustainable roadmaps to recovery and the need for smarter ways of working to avoid further increases in concentrations, in the event society returns to a fully pre-pandemic model, with some

behaviour changes because of the pandemic, which may negatively impact concentrations.

The reductions as a result of the pandemic have not been sufficient to bring about wholesale compliance and there are still a number of areas across the district which do not meet the AQO. This indicates that further measures are needed to ensure the increases in 2021 are an outlier and it must also be noted that the assumptions around the turnover in fleet bringing about required reductions should be treated with caution.

Kirklees Council has taken forward several measures during the current reporting year of 2021 in pursuit of improving local air quality. Kirklees Council's priorities for the coming year are;

Directorate Priority

- Improve Air Quality around Schools/Town Centres/AQMAs and increase knowledge about air quality and links with public health/active travel.

Other Air Quality Team Priorities

- Continue to monitor the impact of COVID19, including lockdown and recovery
- Delivery of E.V Projects
- Finish Delivery of the Air Quality Capital Budgetary Projects.

Whilst the measures stated above and in **Error! Reference source not found.** will help to c ontribute towards compliance, Kirklees Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the councils current 9 AQMA's.

Local Engagement and How to get Involved

If you wish to get information for air quality, please use the following websites:

http://www.kirklees.gov.uk/community/noisePollution/pollution.aspx

https://uk-air.defra.gov.uk/

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

Local Responsibilities and Commitment

This ASR was prepared by the Air Quality, Water & Electric Vehicle Charging Team of Kirklees Council with the support and agreement of the following officers and departments:

Energy & Climate Change Team

Public Health

Highways

Environmental Health

Planning

This ASR has been approved by:

Martin Wood
Head of Public Protection
Environmental Strategy and Climate Change
Environment and Climate Change
Kirklees Council

If you have any comments on this ASR, please send them to the Air Quality & Electric Vehicle Charging Team at:

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Telephone; 01484 221000

Email; air.quality@kirklees.gov.uk

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1 Local Air Quality Management

This report provides an overview of air quality in Kirklees Council during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

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

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 12 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Kirklees Council can be found in **Error! Reference s ource not found.**. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at;

https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=140

https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

Alternatively, see **Error! Reference source not found.**, which provides for a map of air q uality monitoring locations in relation to the AQMA(s).

With reference to the 2020 ASR Kirklees Council conclusion, which have been accepted by government.

- We are in the process of amending AQMA 1.
- We are in the process of revoking AQMA 2.

Maps for amendments, revocations and new AQMAs are available in Appendix E: Map(s)

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by National Highways?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 1 Bradley TO BE AMMENDED	Declared 17/10/08	NO2 Annual Mean	The designated area incorporates the Leeds Road (A62) - Bradley Road (A6107) junction	NO	73µg/m3	34.7	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx
AQMA 2 Scouthill TO BE REVOKED	Declared 27/02/09	PM10 24 Hour Mean	Now revoked, the designated area incorporated part of Huddersfield Road (A644) in Scouthill	NO	43 Days	n/a	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx
AQMA 3 Ainley Top	Declared 01/11/17	NO2 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	YES	44µg/m3	35.8	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by National Highways?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
			Top Roundabout at Birchencliffe					
AQMA 4 Birkenshaw	Declared 01/11/17	NO2 Annual Mean	The designated area incorporates Bradford Road (A651), Whitehall Road East (A58), Carlton Court, Grove Terrace, Swincliffe Crescent, Milford Grove, Tetley Drive and Manor Park Gardens, which is in close proximity to the M62 and A651- A58 Roundabout at Birkenshaw	YES	45µg/m3	33.8	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by National Highways?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 5 Eastborough	Declared 01/11/17	NO2 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 to Dewsbury Town Centre	NO	60µg/m3	50.2	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx
AQMA 6 Edgerton	Declared 01/11/17	NO2 Annual Mean	The designated area incorporates Edgerton Road (A629) and Blacker Road, which is in close proximity to Huddersfield Town Centre	NO	54µg/m3	40.3	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by National Highways?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 7 Liversedge	Declared 01/11/17	NO2 Annual Mean	The designated area incorporates Huddersfield Road (A62), Bradford Road (A638), Wakefield Road (A638), Wormald Street and Well Street, which is in Liversedge	NO	45µg/m3	44.3	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx
AQMA 8 Outlane	Declared 01/11/17	NO2 Annual Mean	The designated area incorporates New Hey Road and Round Ings Road, which is in close proximity to the M62 at Outlane	YES	54µg/m3	34.4	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx
AQMA 9 Huddersfield Town Centre	Declared 01/11/17	NO2 Annual Mean	The designated area incorporates Roads bordering and within the Huddersfield Ring Road	NO	55µg/m3	42.4	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by National Highways?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 10 Thornton Lodge	Declared 06/06/19	NO2 Annual Mean	The designated area incorporates Manchester Road	NO	47µg/m3	27.4	Air Quality Action Plan for Kirklees Council Version 1.4 Published; Sept 2019	https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

☒ **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 Council

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

Kirklees Metropolitan Council published an Air Quality Action Plan (AQAP) in 2019 that includes air quality improvement measures for the AQMAs and the wider District. The Council have reported a number of actions that have been progressed or implemented in the reporting year, these include an allocated budget for a number of Air Quality Projects such as Intelligent Traffic Light System, Eastborough Green Screen, Birkenshaw Roundabout Scheme and to increase monitoring tools available. In addition the Council received funding for a public electric vehicle charging scheme and electrification of the Council's own fleet, an updated West Yorkshire Low Emission Strategy is being developed and the Council purchased multiple Emission Sensor Technology to evaluate their accuracy and effectiveness in measuring air quality.

The Council's priorities for the coming year include improving air quality around schools, town centres and AQMAs and increase public knowledge about air quality, continue to monitor the impact of COVID-19, deliver the electric vehicle projects and finish delivery of the four air quality projects.

Kirklees Council have reported the fraction of mortality attributable to particulate air pollution with a comparison to the regional and nation averages. In addition, the Council have reported a number of measures being taken to address $PM_{2.5}$, which includes carrying out monitoring of $PM_{2.5}$ in two locations, and have purchased five sensors to increase monitoring capability.

Automatic monitoring of NO_2 and $PM_{2.5}$ has been carried out at two locations. No exceedances of the annual or 1-hour mean AQO for NO_2 or the annual mean AQO for $PM_{2.5}$ in 2020. Non-automatic monitoring of NO_2 has been carried out at 104 sites across the district, including in within the AQMAs. An exceedance was measured at site K40 located within AQMA 5, which measured a concentration of 42.13 µg/m^3. However, when distance corrected to relevant exposure, the concentration falls to 39.6µg/m^3, just below the AQO. The Council have concluded that the COVID-19 restrictions are liekyl to have contributed to the overall improvement in air quality in 2020.

Justification has been provided for the choice of bias adjustment factor however to support the chosen methodology, the version of National Bias Adjustment Factor

Spreadsheet should be reported with a screenshot of the chosen bias adjustment factor. No distance correction methodology or example calculations have been provided for K40.

On the basis of the evidence provided by the local authority, the conclusions reached are accepted for all sources and pollutants. Following the completion of this report, the next step is to submit an Annual Status Report in 2022.

Commentary

The report is well structure, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports.

1. *The Council have reviewed their AQMAs and have revoked one AQMA and amended one AQMA based on monitoring results and comments from previous ASRs. The Council are not considering revoking any further AQMAs at this time due to the increased improvement in air quality caused by COVID-19 restrictions. The Council should continue to monitor in the AQMAs to assess whether exceedances are still likely to occur.*

2. *The AQMA boundaries and the location of monitoring within the AQMAs are clearly shown in the figures. However, it is not clear if RS3 is within an AQMA or not. It is reported in Table A.1 that it is within an AQMA but Map D.1 appears to show it outside the AQMA, this should be clarified. The AQMA that each site falls in should be reported in Table A.1 and A.2.*

3. *There is an error in Table A.1, which reports that PM_{10} was measured at the two automatic sites instead of $PM_{2.5}$. Some highlighted text in Table A.3, this should be checked and removed. '#DIV/0!' and 'N/A' errors in Table B.1. These should be checked an amended as required.*

4. *Appendix F reports the impacts and challenges faced from COVID-19 and the Council have made good use of the impact matrix to assign an impact rating for each challenge.*

5. *Justification has been provided for the choice of bias adjustment factor however to support the chosen methodology; the version of National Bias Adjustment Factor Spreadsheet should be reported with a screenshot of the chosen bias adjustment factor. The distance correction methodology and example calculations should be provided for K40.*

6. *Overall, the Council have provided a detailed report that mostly satisfies the criteria of the relevant reporting standards. The Council should continue their good work.*

Kirklees Council has taken forward a number of direct measures during the current reporting year of 2021 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Measures are included within

Table 2.2, with the type of measure and the progress Kirklees Council have made during the reporting year of 2021 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans, namely The Air Quality Action Plan for Kirklees Council Version 1.4, which is available of the council's website;

https://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

Key completed measures completed in 2021 were;

- Design of Birkenshaw Roundabout Scheme

  £40k project to install a skirt around the roundabout to improve flow and reduce stop-starts, whilst also installing Green Infrastructure to maximise improvement

- Expanded the Green Parking Permit Scheme to allow free parking for hybrids and ULEV's in all council owner car parks.

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

- Development Stage;
  - Create On-street Charging Solution
  - Create Public facing platform / Comm Strategy
  - Developing / restarting Working Groups with key stakeholders (such as Public Health, Active Travel, Anchor Institutions & Councillor Engagement)
  - Eastborough Green Screen

    Install a Green Screen at Eastborough on the boundary of the School to contain road emissions from ring road
- Procurement Stage;
  - £1m Public Strategic E.V Charging Infrastructure project
  - E.V Salary Sacrifice Scheme
- Delivery Stage;
  - Birkenshaw Roundabout Scheme

Redesign of Birkenshaw Roundabout to improve traffic flows, reducing stop starts and improve visual amenity with green infrastructure

- Zephyr Sensor Technology

  Complete assessment of the validity of sensor technology. Then the authority plans to deploy the monitors tactically to evaluate projects, localities previously not assessed for PM and to evaluate impact from large changes to road network.

- Complete delivery of OLEV funded West Yorkshire Strategic Rapid Charger network for Taxi's and General public (17 Chargers within Kirklees)
- Complete updated WYLES document
- Create a School Engagement Program
- Create Anti-idling solution / campaign

Kirklees Council's priorities for the coming year are;

Directorate Priority;

- Improve Air Quality around Schools/Town Centres/AQMAs and increase knowledge about air quality and links with public health/active travel.

Other Air Quality team Priorities

- Continue to monitor the impact of COVID19, including lockdown and recovery
- Delivery of E.V Projects
- Finish Delivery of the Air Quality Capital Budgetary Projects

  The 4 projects are targeted at AQMA's within the district that have recently been declared. The aim is to increase the reduction of NO_2 concentrations within these areas to be parable to the older 2 AQMA's.

Whilst the measures stated above and in **Error! Reference source not found.** will help to c ontribute towards compliance, Kirklees Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the councils current 9 AQMA's.

Kirklees Council worked to implement these measures in partnership with the following stakeholders during 2021:

- Neighbouring local authorities
- The Highways Authority
- Anchor Institutions (NHS Trusts / Universities)
- Public Health
- Highways
- Planning
- Major Projects
- Environmental Health

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Kirklees Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the 9 AQMA’s

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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	Ongoing	Kirklees Environmental Health	Air Quality Grant	YES	Funded			NO2 & PM	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 EV'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	complete	Currently adopted within the authority and integrated into Kirklees Council policy and work instructions. This is a 10-year policy document, of which we are in year 4. Further plans outlined in action G.22 for a review of the documents and how they are used. Funding received from Air Quality Grant. Available at; https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/WYLES-strategy.pdf

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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
													licensed +reduction in number of diesel vehicles licensed		
G.2	Kirklees Council - workplace Active travel	Promoting travel alternatives	Workplace Travel Planning	2018	2030	Public Health	Council Budget	NO	Funded			NO2 & PM	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.	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. Upon conclusion of the review, 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
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	NO	Funded			NO2 and PM	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.	Active	Previously implemented in 2005. Committee set up to review the policy, construction process, pre-existing documents and implementation to reflect changes school operations, in technology and behaviour. Upon conclusion of the review, 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

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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.4	Bike-ability training provided to school children	Promoting travel alternatives	Promotion of cycling	2010	Ongoing	Kirklees Public Health	Council Budget	NO	Funded			NO2 & PM	Kirklees Council Targets; +Increase cycling travel mode by 300% between 2018 baseline and 2030 Kirklees Council Measurable; + Number of children participating in scheme	Active	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 on hold due to COVID-19
G.5	City Cycle Grant	Promoting travel alternatives	Promotion of cycling	2016	Ongoing within the district	Kirklees Public Health	Grant	NO	Funded			NO2 & PM	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	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

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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			NO2 & PM	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	Proposed	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. Looking to adopt 2020

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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			NO2 & PM	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	Concept	Currently scheme G.6 is available for Kirklees residents and workers. This project is to expand on the Kirklees Scheme to improve viability for users who move across district boundaries within West Yorkshire. 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. Builds on the success of our own permitting system and to further promote ULEVs
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			NO2 & PM	Kirklees Council Measurables; + Number of members within the scheme + Number of car trips for Kirklees based cars	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. Comms required to local residents

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G.9	Finance & Promote Car Sharing Website	Promoting Travel Alternatives	Other	2007	2019	Kirklees Economy and Infrastructure	Local Transport Plan	NO	Funded			NO2 & PM	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	Active	Comms required around website Lessons learned study needed?
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			NO2 & PM	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	complete	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. Prior to this study, 27 vehicles were identified to be converted to E.V and should be converted by 2021.

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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	NO	Funded			NO2 & PM	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 EVs by 2021	ongoing	Delivery targets to be determined from outcome of survey outlined in measure G.10 Prior to the study outlined in G.10, 27 vehicles were identified to be converted to E.V and should be converted by 2021. 2018/19 3 EV Vans purchased 2018-21 Transport Capital budget has a commitment to purchase of 24 EV Vehicles.

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G.12	Kirklees Bike to Work Scheme	Promoting Travel Alternatives	Promotion of cycling	2009	2019	Kirklees Public Health	Council Budget	NO	Funded			NO2 & PM	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	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. Due to COVID-19, system has yet be developed to make the bikes available to Kirklees Council staff
G.13	Update Kirklees Air Quality Strategy	Policy Guidance and Development Control	Other Policy	2018	Ongoing process	Kirklees Environmental Health	Council Budget	NO	Funded			NO2 & PM	Kirklees Council Measurable; + Adoption of new 5-year Action Plan	complete	Kirklees Council originally adopted an Air Quality Strategy in 2006. This document has been updated to reflect technology, policy and scientific changes in the Air Quality Sector. This document is in conjunction with the action plan and reviewed periodically in line with Action Plan review process.

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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			NO2 & PM	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	Active	The Planning Guidance document is a key document contained within G.1. 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;https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/WYLES-air-quality-and-emissions-planning-technical-guide.pdf 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	Not Funded			NO2 & PM	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	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 are a key consideration in procurement exercises. WYLES contains green procurement. Does Kirklees want to develop its own and enhance CSR? is there a better way of assessing? WYLES Procurement Guidance Document is available at; https://www.kirklees.gov.uk/beta/crime-and-safety/pdf/WYLES-procurement-guide.pdf

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G.16	Subsidised Bus/Rail Card for Kirklees Council Staff	Promoting Travel Alternatives	Workplace Travel Planning	Pre 2006	Ongoing within the Authority	Kirklees Operational Services	West Yorkshire Combined Authority Travel Plan Network	NO	Funded			NO2 & PM	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	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.

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G.17	Kirklees Policy on Employee Transport (Employee Handbo0k)	Policy Guidance and Development Control	Other policy	2015	Ongoing Process as funding becomes available	Kirklees Operational Services	Council Budget	NO	Funded			NO2 & PM	+ 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	Active	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. Advice contained within the document is to be integrated into a Comms Plan

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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			NO2 & PM	West Yorkshire Target: + 300 buses Retrofitted with Exhaust abatement technology by Dec 2019 Kirklees Council Measurables; +Number of buses Retro-fitted	Active	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. 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.

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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			NO2 & PM	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 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; + Creation and adoption of Electric Vehicle Charging Strategy	Active	Currently Kirklees Council have undertaken a number of E.V charging projects to install chargers and also run a green parking permit to reduce the cost of E.V ownership. The strategy is to be 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

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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			NO2 & PM	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	Active	The West Yorkshire ECO-Stars Scheme is in its second year, providing free advice to Kirklees businesses on how to reduce cost, with the by-product of reducing emissions. This project is funded by the LTP, and the scheme will remain available to businesses while funding is available Current Status; Year 1 - 51 members Year 2 – Success of the scheme to be reviewed to assist with determining viability for Year 3 of Scheme Need to review outputs to understand benefits

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G.21	West Yorkshire Electric Vehicle Taxi Scheme	Promoting Low Emission Transport	Taxi emission incentives	2018	2021	West Yorkshire Combined	OLEV Taxi Grant	NO	Funded			NO2 & PM	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 + Number of licensed Hybrid / ULEV vehicles +Number of vehicles 8 years or older	Active	Currently Kirklees Council have undertaken a number of E.V charging projects to install chargers and also run a green parking permit to reduce the cost of E.V ownership. This project contributes towards the council's ambition towards Electric vehicle adoption in both the domestic and commercial sectors within the district. Estimated installation of 34 Rapid Charging Bays within Kirklees. 17 Taxi Bays and 17 Public Bays

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G.22	West Yorkshire Low Emission Strategy Officer	Other	Other	2019	2019	Kirklees Environmental Health	Air Quality Grant	YES	Funded			NO2 & PM	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 EVs 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	Active	Further plans outlined in action G.22 for a review of the documents and how they are used. Funding received from Air Quality Grant.

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G.23	Joint Strategic Assessment for Air Quality	Policy Guidance and Development Control	Other policy	2018	2031	Kirklees Public Health	Council Budget	NO	Funded			NO2 & PM	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	complete	Currently the strategy adopted within the authority and integrated into Kirklees Council policy and work instructions. This is a 10-year policy document, of which we are in year 4. Available at http://observatory.kirklees.gov.uk/jsna/airquality
G.24	Corporate Carbon Reduction Targets	Other	Other	2020-2021	2021	Kirklees Economy and Infrastructure	Council Budget	NO	Funded			Primary Target: CO2	Kirklees Council Target; + Reduction of 15,214t CO2 by 2021 Kirklees Council Measurables; + Tonnes of CO2 reduction per year	Active	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 - sign off and publicity on hold due to CV19. Next reporting will be for net zero target. 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

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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			Secondary reductions in NO2 & PM	West Yorkshire Target; + Estimated 590kt CO2 reduction focusing on high emission industrial sector Kirklees Council Measurables; + Tonnes of CO2 reduction per year	Active	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. Currently a mechanism project which is at business case stage considering various options where funding could be spent. Has funding from the European Investment Bank - conditions attached and study funding can be redacted. Indicators will be sought upon selection of project identified in feasibility study

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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			Primary Target: CO2 Secondary reductions in NO2 & PM	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	Active	Once the Local Plan is accepted. Kirklees Council planning department to create SPD's. Environmental Health and Planning to work collaboratively to include a robust air quality section which integrates the aims, process and mitigation options outlined in the WYLES Planning Guidance Document.
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			NO2	Kirklees Council Target: + Determine the savings / issues around ULEV Bin Wagons +Promote findings within industry Kirklees Council Measurables; + Report on trial impacts	In Waiting list for Bin Wagon	Kirklees Council are currently on a waiting list to borrow a Dennis Eagle Electric Vehicle Bin Wagon and once acquired, will undertake assessment on real world bin routes to determine viability. Upon completion of the study, a report will be constructed and shared with other within the industry.

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G.28	Feasibility Study on use of EV 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			NO2 & PM	Kirklees Council Target; + Determine cost savings of EV MME + Replace appropriate MME with EV equivalent +Promote findings within industry Kirklees Council Measurables; + Construction of a report outlining viability of EV MMEs + Number of MMEs replaced with EV alternatives.	Active	Internal document, which will steer purchasing options and help introduction of EV MMEs 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	2019	Kirklees Commercial, Regulatory & Operational Services	Estimated to be Council Budgets	NO	Partially Funded			NO2 & PM	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. Kirklees Council's Measurables; + Number of ULEV Car Leases	Proposed	Collaborative working between Transport services and Environmental Health to determine viability of providing low emission transport to employees within the local authority

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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			NO2 & PM	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	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

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G.31	Master naught Telematics System	Vehicle Fleet Efficiency	Other	2017	2019	Kirklees Commercial, Regulatory & Operational Services	Council Budget	NO	Funded			NO2 & PM	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	Active	Use of the Master naught 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	2019	Kirklees Public Health	Council Budget	NO	Funded			NO2 & PM	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	Active	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

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G.33	Robust Travel Survey to determine better travel plans internally	Other	Other	2019	2021	Kirklees Public Health	Council Budget	NO	Funded			NO2 & PM	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; + Number of Travel Survey responses + Yearly report on results of travel survey	Active	Kirklees Council Internal travel survey for all council employees to help better inform further decision making and influence future projects

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G.34	Installation of pollution sensor technology within our AQMA's 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			NO2 & PM	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	Active	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
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			NO2 & PM	West Yorkshire Target; + Contribute towards regional low emission fuel source projects currently in development	Active	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 are engaged fully with WYCA LCR Energy Strategy and delivery plan Regional engagement through WY Green Economy Officers Group WY Carbon Reduction Pathways Project - pathways to net zero target.

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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			NO2 & PM	Kirklees Council Targets; + Reduce number of burning / smoking chimney complaints +I 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	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 such, completion of this action is reliant on the adoption of the new Clean Air Act, which currently does not have a deadline date.
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			PM	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	Active	Kirklees Council to work with Environment Agency to discharge requirements of the Medium Combustion Plan Directive staggered process
G.38	Zoning project to identify errant PPC businesses	Other	Other	2019	Active	Kirklees Environmental Health	Council Budget	NO	Funded			NO2 & PM	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	Proposed	Kirklees Council routinely inspects businesses requiring permits as prescribed in the Pollution Prevention and Control Regulations. This measure is a piece of work that aims to identify businesses that require permits, but currently do not possess one.

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G39	Kirklees Walking and Cycling Strategic Framework	Promoting Travel Alternatives	Promotion of walking	2030	Ongoing	Public Health	Council Budget	NO	Funded			NO2 & PM	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	Proposed	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. This policy document is currently under construction and once completed will the primary policy framework for delivering walking and cycling. Therefore, upon adoption, use of this document will be an ongoing process. Public Health working with internal and external stakeholders to develop place based walking and cycling behaviour change interventions in formal and informal settings. Actions and outcomes will need to be reviewed in the context of COVID-19
G.40	Kirklees Neighbourhood Housing Solid Fuel Policy	Policy Guidance and Development Control	Other policy	2018	Ongoing	Kirklees Neighbourhood Housing	KNH Budget	NO	Funded			NO2 & PM	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	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.

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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			NO2 & PM	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	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.
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			NO2 & PM	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	on hold	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			NO2 & PM	Kirklees Council Targets; + Set up liaison program with NHS Trusts + increase number of linked work streams with NHS Trusts	Active	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

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G.44	Collaborative working with University of Huddersfield	Other	Other	2019	Ongoing	Kirklees Environmental Health University of Huddersfield	Council Budget	NO	Funded			NO2 & PM	Kirklees Council Targets; + Increase number of linked work streams with Huddersfield University	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			NO2 & PM	Kirklees Council Targets; + Set up liaison program with Bus Companies + Increase number of linked work streams with Bus Companies	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
G.46	Collaborative working with Highways England	Other	Other	2019	Ongoing	Kirklees Environmental Health Highways England	Council Budget	NO	Funded			NO2 & PM	Kirklees Council Targets; + Set up liaison program with Highways England + Increase number of linked work streams with Highways England	Active	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.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			NO2 & PM	Kirklees Council Targets: +Contribute towards targets set by Climate Emergency Work Group Kirklees Council Measurables; + CO2 reductions	Active	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, e.g., 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.
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			Primary Target: CO2	Kirklees Council Targets: +Contribute towards targets set by Climate Emergency Work Group Kirklees Council Measurable; + CO2 Reductions	Active	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 in all corporate buildings - needs funding for someone to manage - should be self-financing.

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G.49	Study the impact of Green Infrastructure	Other	Other	TBC	TBC	Kirklees Environmental Health	Local Transport Plan	NO	Not Funded			Primary Target: CO2	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	Active	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 pollutions-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			NO2 & PM	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; + Creation of an easier system for calculating emission impact	Proposed	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.

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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			NO2 & PM	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	Proposed	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			NO2 & PM	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	Proposed	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			NO2 & PM	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	Proposed	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

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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			NO2 & PM	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.	Proposed	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. This is a future project currently going through project planning phase
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			NO2 & PM	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	Proposed	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
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			NO2 & PM	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	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

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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			NO2 & PM	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	Proposed	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	TBC	TBC	Environmental Health	Source of funding to be confirmed	NO	Not Funded			NO2 & PM	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	Active	The plan for this project is to undertake an assessment of current E.V infrastructure and devise a funding plan for delivery for future infrastructure. This is a future project currently going through project planning phase

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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	2021	Kirklees Environmental Health	Local Transport Plan	NO	Partially Funded			NO2 & PM	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	Active	The plan for this project is to undertake an assessment of current E.V infrastructure and devise a funding plan for delivery for future infrastructure. This is a future project currently going through project planning phase

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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	TBC	2021	Kirklees Environmental Health	Council Budget	NO	Partially Funded			NO2 & PM	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	Active	The plan for this project is to provide charging to each council ward to meet ULEV demands. This is a future project currently going through project planning phase - have £1m allocated as part of Climate Emergency

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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			NO2 & PM	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	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

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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			NO2 & PM	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; +Creation of an App promoting model shift +Number of journeys made by walking / cycling	Proposed	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. The bid was never submitted to develop this app. A business partner was needed - couldn't get one in time.

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G.63	Project to promote and incentivise working at home to reduce commuter miles	Promoting Travel Alternatives	Encourage / Facilitate homeworking	TBC	TBC	Kirklees Council Environmental Health	Source of funding to be confirmed	NO	Not Funded			NO2 & PM	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	Proposed	The plan for this project is to run a comm project to promote working from home, both within the council and for 3rd party companies. This is a future project currently going through project planning phase. Project would promote to companies the benefits of working from home, with the added benefit of emissions reduction.

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G.64	E.V research project to identify appropriate demographics and locations within the district.	Promoting Low Emission Transport	Promoting Low Emission Transport	TBC	2021	Kirklees Environmental Health & Public Health	Local Transport Plan	NO	Not Funded			NO2 & PM	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	Active	The piece of work would involve engaging with the community and looking at purchasing trends to identify the E.V market better and would be used to help inform E.V strategy and infrastructure projects. The plan for this project is to conduct research into the demand for ULEVS within the district to better inform delivery of infrastructure. This is a future project currently going through project planning phase.
G.65	Feasibility study into the integration of National and Local UTMC	Traffic Management	UTC, Congestion management, traffic reduction	TBC	TBC	Kirklees UTMC & Highways England	Source of funding to be confirmed	NO	Not Funded			NO2 & PM	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	Proposed	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

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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	TBC	2021	Environmental Health	Council Budget	NO	Not Funded			NO2 & PM	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	Active	Following updates to the legislation from the Environment Bill to undertake feasibility study into the introduction of anti-idling, prioritising areas where there is evidence, through monitoring, there are air quality problems.

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G.67	E.V Salary Sacrifice Scheme	Promoting Low Emission Transport	Other	2020	2021	Environmental Health	Council Budget	NO	Not Funded			NO2 & PM	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	Active	Provide affordable EVS to council staff to benefit grey fleet and domestic traffic

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G.68	£1million E.V Infrastructure Project	Transport Planning and Infrastructure	Other	2020	2022	Environmental Health	Council Budget	NO	Funded			NO2 & PM	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	Active	Install E.V charging infrastructure at strategic locations to promote uptake of EV
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			NO2 & PM	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	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. Other stages of the project are discussed in actions AQMA.1.3 and P.9

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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			NO2 & PM	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	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			NO2 & PM	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	complete	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding

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AQMA1.4	Cooper Bridge Road Improvements Project	Traffic Management	Other	2021	2021	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded			NO2 & PM	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	Active	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	2021	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded			NO2 & PM	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	Active	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	Funded			NO2 & PM	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	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 AQMA's	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded			NO2 & PM	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	Active	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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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			NO2 & PM	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	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			Short Term PM10 Exceedances	Kirklees Council Target; + Keep exceedance of daily PM10 below daily AQO Kirklees Council Measurable; + Daily Exceedances of PM10	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			NO2 & PM	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	complete	The project is a Network Rail improvement scheme within the AQMA and is at delivery stage

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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			NO2 & PM	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	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			NO2 & PM	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	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 AQMA's	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded			NO2 & PM	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	Active	The project is a Traffic Light improvement scheme within the AQMA and is a future project currently going through project planning phase
AQMA3.1	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			NO2 & PM	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	Active	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage

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AQMA3.2	Assessment of Cycling Infrastructure between Ainley Top and Huddersfield Town Centre	Promoting Travel Alternatives	Promotion of cycling	2020	2021	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded			NO2 & PM	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	Active	The project is a cycling / highways improvement scheme within the AQMA and is currently at Business Case Stage

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AQMA3.3	Feasibility into the development of System Activated Planned Cycles	Promoting Travel Alternatives	Promotion of cycling	No set date	TBC	Kirklees UTC	Estimated to be Council Budgets	NO	Funded			NO2 & PM	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	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	2020	Environmental Health / Highways England	Council Budget	NO	Funded			NO2 & PM	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	Active	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			NO2 & PM	Kirklees Council Target: +Installation off material on roundabout Kirklees Council Measurable; +NO2 Concentrations adjacent to roundabout	Active	The project is to redesign Whitehall Road East / West roundabout install green infrastructure where applicable into highway design to bring about NO2 concentrations
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			NO2 & PM	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	Active	
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	Funded			NO2 & PM	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	Concept	The project is a highways improvement scheme within the AQMA and is at very early stages. Pre outline business case stage

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AQMA5.4	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Managements System	Traffic Management	UTC, Congestion management, traffic reduction	2019	2021	Kirklees Highways UTC	Council Budget	NO	Funded			NO2 & PM	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	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. Other stages of the project are discussed in actions AQMA.5.5 and P.9
AQMA5.5	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			NO2 & PM	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	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 AQMA's	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded			NO2 & PM	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	Active	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			NO2 & PM	Kirklees Council Target: +Install a screen to block diffusion of pollutants from ring road Kirklees Council Measurable; +Concentrations within the playground	Active	The design of the Green Screen is to improve visual amenity and also provide a barrier between the school playground and the ring road.
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			NO2 & PM	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	Active	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage
AQMA6.2	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Managements System	Traffic Management	UTC, Congestion management, traffic reduction	2019	2021	Kirklees Highways UTC	Council Budget	NO	Funded			NO2 & PM	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	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. Other stages of the project are discussed in actions AQMA.5.5 and P.9

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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			NO2 & PM	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	Active	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 AQMA's	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded			NO2 & PM	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	Active	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 Managements System	Traffic Management	UTC, Congestion management, traffic reduction	2019	2021	Kirklees Highways UTC	Council Budget	NO	Funded			NO2 & PM	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	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. Other stages of the project are discussed in actions AQMA.5.5 and P.9

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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			NO2 & PM	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	Active	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 AQMA's	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded			NO2 & PM	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	Active	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	2020	Environmental Health / Highways England	Council Budget	NO	Funded			NO2 & PM	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	Active	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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AQMA9.1	Free City Bus for Dewsbury Town Centre	Alternatives to private vehicle use	Other	2006	Ongoing	Kirklees Economy and Infrastructure	Council Budget	NO	Funded			NO2 & PM	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	Active	
AQMA9.2	Huddersfield Heat Network Scheme	Other	Other	2020	2022	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded			NO2 & PM	Kirklees Council Target: +Contribute towards targets set by Climate Emergency Work Group Kirklees Council Measurables; +Number of boilers removed + CO2 reductions	Active	Currently at Business Case Stage
AQMA9.3	Resource Smart Corridor	Traffic Management	UTC, Congestion management, traffic reduction	2020	2021	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded			NO2 & PM	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	Active	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage

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AQMA9.4	Huddersfield Southern Gateway Transport Scheme	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded			NO2 & PM	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	Active	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage
AQMA9.5	Huddersfield Ring Road Junction Improvements	Traffic Management	UTC, Congestion management, traffic reduction	2021	2023	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded			NO2 & PM	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	Active	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage

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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	Funded			NO2 & PM	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	Concept	
AQMA9.7	Trans-Pennine Express Improvement Scheme	Alternatives to private vehicle use	Other	2022	2024	Network Rail, West Yorkshire Combined Authority, Kirklees Council	Central Transport Fund	NO	Funded			NO2 & PM	West Yorkshire Target: Contribute to; +Sustainable travel mode increase from 36% in 2011 to 42% by 2026 Kirklees Council Measurable; +Number of rail passengers	Active	Currently at Business Case Stage

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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			NO2 & PM	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	Active	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			NO2 & PM	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	Active	
AQMA9.10	Trial of Smart UTMC Technology systems within relevant AQMA's	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded			NO2 & PM	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	Active	The project is a Traffic Light improvement scheme within the AQMA and is a future project currently going through project planning phase

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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
AQMA10.1	Huddersfield Southern Gateway Transport Scheme	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Economy and Infrastructure	Central Transport Fund	NO	Funded			NO2 & PM	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	Active	The project is a highways improvement scheme within the AQMA and is currently at Business Case Stage
AQMA10.2	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			NO2 & PM	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	Active	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding
AQMA10.3	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			NO2 & PM	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	Active	Stage 2 of a multistage Air Quality UTMC improvement project. Stage 3 contained within P.9 and awaiting funding

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	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
AQMA10.4	Trial of Smart UTMC Technology systems within relevant AQMA's	Traffic Management	UTC, Congestion management, traffic reduction	2021	2022	Kirklees Environmental Health / UTC	Council Budget	NO	Funded			NO2 & PM	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	Active	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.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

With reference to the Public Health Outcomes Frameworks, specifically D1 - Fraction of mortality attributable to particulate air pollution. Kirklees Council rates in 2019 are estimated to be at 4.9% is below the England average of 5.1%, but above the regional average of 4.8%.

As such, Kirklees Council is taking the following measures to address PM2.5:

- Included PM2.5 as key indicator for the Health and Wellbeing Board
- Collaborative working between Public Health, Environmental Health, Planning and Highways to conduct a 2015 baseline Air Quality Model for the whole Kirklees District for $PM_{2.5}$ as part of local plan works.
- $PM_{2.5}$ monitors have been installed at 2 locations within the district. Due to a database corruption the 2017, Kirklees had to undertake a data recovery exercise. The data that was recovered was of poor quality, attributable in part to the fact that officers were unable to conduct poll of data while the database was corrupted. During 2018 Kirklees Council modernised the data collection system to a web-based collection system, which became active early 2019.
- Kirklees Council has purchased 5 sensors to increase monitoring capability of $PM_{2.5}$ within the district and intend to purchase further sensors
- Kirklees Council have built in sensor monitoring into major road scheme monitoring to allow for better evaluation
- Kirklees Council is a smoke control area and continues to enforce smoke control legislation within the district
- Kirklees Council plan to review current practices under smoke control in order to reflect changing guidance and new legislation, when produced

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

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

This section sets out the monitoring undertaken within 2021 by Kirklees Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2017 and 2021 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

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

Kirklees Council undertook automatic (continuous) monitoring at 2 sites during 2021.

Due to the age of real-time monitors within the district, which resulted in major breakdowns and loss / corruption of data, Kirklees Council undertook the process of modernising the data collection system and equipment in order to prevent this occurring in the future. Conclusion of this process occurred in February 2020 and the real-time monitors have been capturing data since this date. Unfortunately, Kirklees Council is in the process of procuring a maintenance and software contract, which means 2021 data is not available at time of producing the report.

In addition to our real-time monitors, Kirklees Council has purchased 5 Zephyr sensors to provide real-time data. Upon completion of testing and understanding outputs the council will begin reporting the data in appropriate reports / medium.

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

3.1.2 Non-Automatic Monitoring Sites

Kirklees Council undertook non- automatic (passive) monitoring of NO_2 at 104 sites during 2020. **Error! Reference source not found.** in Appendix A shows the details o f the sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g., “annualisation” and/or distance correction), are included in Appendix C.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO_2)

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

For diffusion tubes, the full 2021 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Figure A.1 – Trends in Annual Mean NO_2 Concentrations

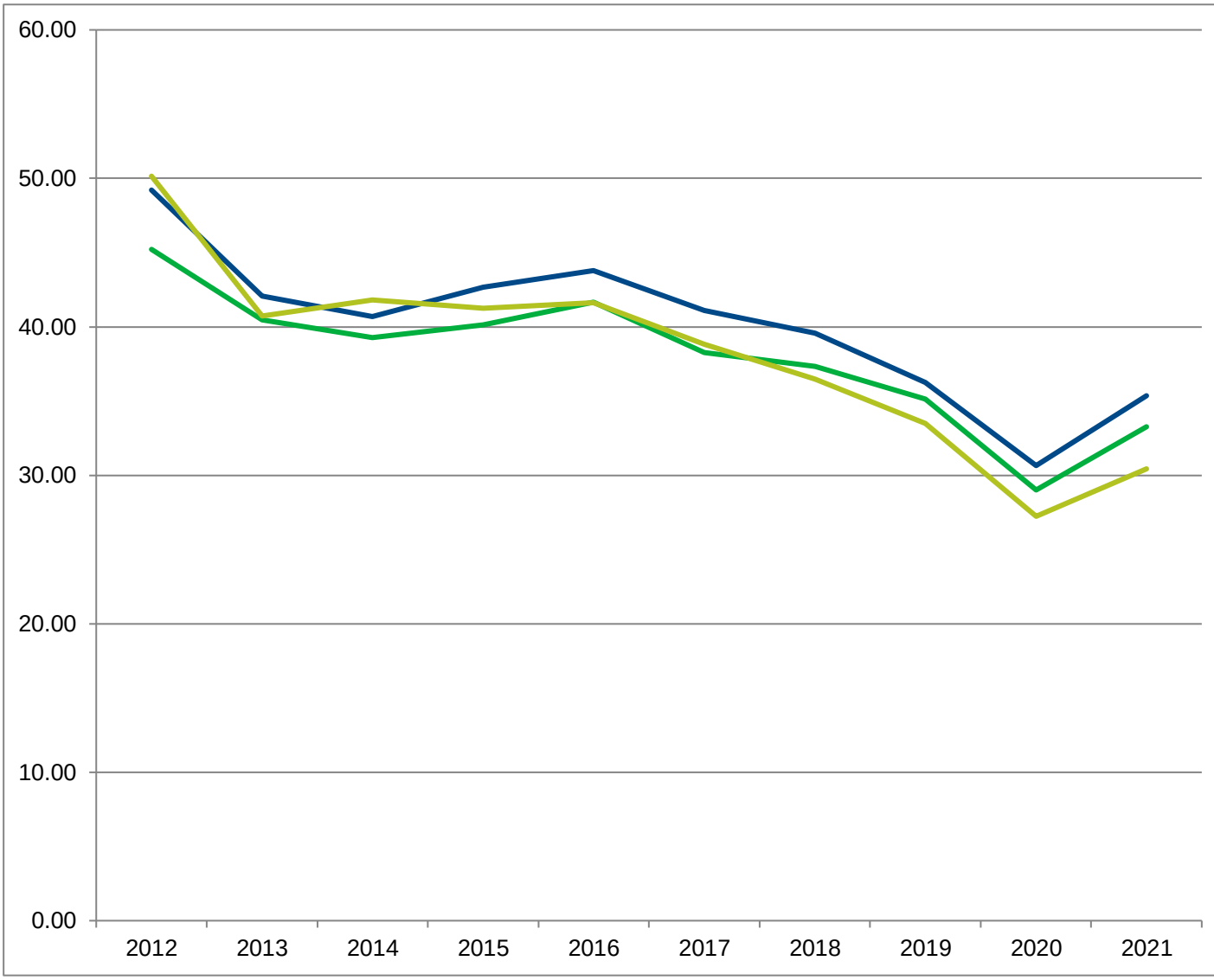


Figure A.2 – Percentage improvement changes in Annual Mean NO_2 Concentrations

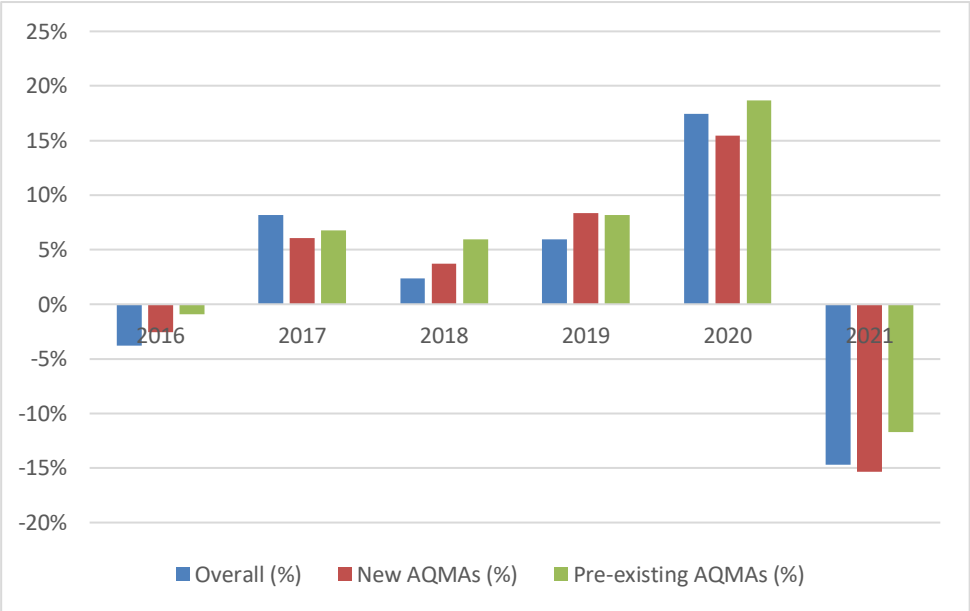


Table A.2b – Percentage reduction of Mean Annual NO_2 concentrations Pre, During & Post Pandemic

	Over 8 years Pre 2020	Over 5 years Pre 2020	2020 (Pandemic)	2021 (Post Pandemic)
Overall (%)	22%	13%	17%	-15%
New AQMAs (%)	26%	15%	15%	-15%
Pre-existing AQMAs (%)	33%	19%	19%	-12%

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 2021, 6 diffusion tube monitoring locations within the Kirklees district exceeded the Annual NO_2 AQO after bias adjustment, annualization and distance correction. These sites were all within AQMA's and have decreased when compared against 2019 data but show an increase due to 2020 pandemic reductions.

Figure A.1 in Appendix A shows concentration trends over the last 9 years for diffusion tube locations. This is supports by Figure A.2 in Appendix A, which shows

percentage change year on year for diffusion tube monitoring locations. The data has been divided into 3 areas, Average of all our diffusion tubes, Average of diffusion tubes within our new AQMAs and Average of diffusion tubes within our longstanding AQMAs.

In accordance with Figure A.2 and Table A.2b in Appendix A, it is noted over the last 5 years the general trend since 2016 is that of falling concentrations across the district in line with an average of 13% over the period 2015-2019, and within AQMA's this was higher at between 14-19%. Using the data, concentrations within Kirklees AQMA's and the district as a whole have fallen year on year 2-8% on average. Table A.2b best shows the potential impact of the Pandemic and post Pandemic. Using the previous trends and 2020 data, it could be estimated that the Pandemic control measures have brought about >10% increase in the reduction in concentrations than what would be expected going on previous year's trends. This 10% reduction also resulted in compliance across all AQMA's and district monitoring sites with both short term and long term AQO. In 2021 increases of 12-15% could indicate returns to pre-pandemic levels as a result of normalising of society, coupled with the remains of pandemic behaviour change such as home delivery and use of personal vehicles over public transport.

As was observed in the 2020 report, positive concentrations in the short term, followed by increases as society returns to normality demonstrates the importance of sustainable roadmaps to recovery and the need for smarter ways of working to avoid further increases in concentrations, in the event society returns to a fully pre-pandemic model, with some behaviour changes because of the pandemic, which may negatively impact concentrations.

As such, Kirklees have treated improvements observed in 2020 with caution and have continued to deliver improvement projects in line with previous conclusions that "*the reductions have not been sufficient to bring about wholesale compliance and there are still a number of areas across the district which do not meet the AQO. This indicates that further measures are needed to ensure this downward trend is not an*

outlier and it must also be noted that the assumptions around the turnover in fleet bringing about required reductions should be treated with caution."

3.2.2 Particulate Matter ($PM_{2.5}$)

Table A.6 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

Due to the age of real-time monitors within the district, which resulted in major breakdowns and loss / corruption of data, Kirklees Council undertook the process of modernising the data collection system and equipment in order to prevent this occurring in the future. Conclusion of this process occurred in February 2020 and the real-time monitors have been capturing data since this date. Unfortunately, Kirklees Council is in the process of procuring a maintenance and software contract, which means 2021 data is not available at time of producing the report.

It is difficult to comment on trends regarding $PM_{2.5}$ due to the lack of data. Nor can Kirklees comment on the impact of the Pandemic on $PM_{2.5}$ concentrations. As such, concentrations are in compliance with UK AQO's in 2020 and further observations are needed to understand whether the results are low as a result of the pandemic or reflective of previous years.

$PM_{2.5}$ concentration data is not available locally, though national mapping notes that concentration are compliant with existing objectives.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
Roadside 3	RS3 - Bradley	Roadside	417255	420360	NO_2; $PM_{2.5}$	YES (1)	Chemiluminescent; Met-One BAM	1.5	7	1.5
Roadside 6	RS6 - Ainley Top	Roadside	411715	419032	NO_2; $PM_{2.5}$	YES (3)	Chemiluminescent; Met-One BAM	10	6	1.5

Notes:

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

(2) N/A if not applicable

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

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)
K1	Dewsbury Bus Station	Other	424506	421535	NO2	NO		0.8	No	2.0
K2	Bus Station - Huddersfield	Other	414214	416504	NO2	YES		4.1	No	2.0
K3	Edgerton Road	Roadside	413504	417439	NO2	YES	2.0	2.4	No	2.0
K4	Princess Street, Batley	Roadside	424464	424395	NO2	NO	4.3	1.8	No	2.0
K5	Huddersfield Road Ravensthorpe	Roadside	422443	420380	NO2	NO	1.6	1.9	No	2.0
K6	Leeds Road - Cooper Bridge	Roadside	417872	421050	NO2	YES	5.2	6.0	No	2.0
K7	Westgate Huddersfield	Urban Centre	414434	416744	NO2	YES	0.5	0.5	No	2.0
K8	Bradford Road Fartown 1	Roadside	414498	417798	NO2	NO	2.5	2.0	No	2.0
K9	Bradley Road	Kerbside	417280	420482	NO2	NO	13.4	0.7	No	2.0
K10	Leeds Road Bradley 1	Roadside	417227	420337	NO2	NO	3.2	2.0	No	2.0
K11	Chapel Hill Huddersfield	Roadside	414359	416277	NO2	YES	3.5	5.0	No	2.0
K12	Leeds Road Bradley 2	Roadside	417335	420412	NO2	NO	3.7	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)
K13	Whitehall Road East	Roadside	420377	427871	NO2	YES	2.1	2.6	No	2.0
K14	Oastler Avenue	Urban Background	413667	416467	NO2	NO		1.7	No	2.0
K15, K16, K17	Ainley Top 3	Other	411715	419032	NO2	YES		6.0	Yes	1.5
K18	Huddersfield Road Birstall	Roadside	422686	426229	NO2	NO	4.2	1.9	No	2.0
K19	Huddersfield Road Scouthill	Roadside	423563	421014	NO2	NO	6.5	2.7	No	2.0
K20	Rockley Street Dewsbury	Roadside	424858	421904	NO2	YES	12.0	2.0	No	2.0
K21	Castlegate Huddersfield	Roadside	414149	416686	NO2	YES	6.9	2.1	No	2.0
K22	Leeds Road Bradley 3	Kerbside	417424	420490	NO2	YES	22.5	0.1	No	2.0
K23	Leeds Road Mirfield 2	Roadside	418483	420978	NO2	NO	14.1	1.6	No	2.0
K24	Lindley Moor Road	Roadside	409775	418397	NO2	NO	6.7	2.25	No	2.0
K25, K26, K27	Leeds Road - RS3 - 3	Other	417255	420360	NO2	NO	1.5	7.0	Yes	1.5
K28	Ring Road Huddersfield	Roadside	414745	416710	NO2	YES	0.1	3.3	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)
K29	Dewsbury Bus Station 2	Other	424425	421499	NO2	NO		2.5	No	2.0
K30	Dewsbury Bus Station 3	Other	424457	421510	NO2	NO		2.5	No	2.0
K31	Blacker Road 1	Roadside	413400	417495	NO2	YES	8.3	2.7	No	2.0
K32	Blacker Road 2	Roadside	413513	417481	NO2	YES	5.0	2.6	No	2.0
K33	Wakefield Rd / Huddersfield Road	Roadside	420727	423668	NO2	YES	4.3	2.4	No	2.0
K34	Frost Hill Liversedge	Roadside	420845	423770	NO2	YES	0.3	1.9	No	2.0
K35	Leeds Road Liversedge	Roadside	420853	423866	NO2	YES	9.4	1.9	No	2.0
K36	Huddersfield Road Mirfield 1	Kerbside	420304	419766	NO2	NO	2.9	0.9	No	2.0
K37	Bradford Road, Birkenshaw	Roadside	420356	427810	NO2	YES	2.5	2.2	No	2.0
K38	Whitehall Road West	Roadside	420222	427764	NO2	YES	18.3	1.0	No	2.0
K39	Bradford Road, Batley	Roadside	424526	424326	NO2	NO	1.7	2.1	No	2.0
K40	Leeds Road Dewsbury	Roadside	424922	421972	NO2	YES	1.2	1.6	No	2.0
K41	Chain Bar Roundabout	Roadside	418285	426630	NO2	NO	12.5	3.4	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)
K42	Leeds Road Dewsbury - 2	Roadside	424969	422002	NO2	YES	5.6	1.9	No	2.0
K43	John Street Dewsbury	Roadside	425093	422024	NO2	YES	6.0	1.9	No	2.0
K44	Calmswood Road Eastborough	Roadside	425179	422116	NO2	NO	Facade	1.7	No	2.0
K45	Bradford Road Fartown 2	Roadside	414483	417726	NO2	NO	5.7	5	No	2.0
K46	Willow Lane East Fartown	Roadside	414402	417806	NO2	NO	Facade	2.2	No	2.0
K47	Roundings Road Outlane	Other	407942	417261	NO2	YES	0.0	14.4	No	2.0
K48	Flush Liversedge	Roadside	421039	423673	NO2	YES	0.0	2.6	No	2.0
K49	Manchester Road Thornton Lodge 2	Roadside	413659	416182	NO2	NO	3.5	3.7	No	2.0
K50	Manchester Road Thornton Lodge 1	Roadside	413414	415981	NO2	NO	1.6	2.5	No	2.0
K51	High Street Heckmondwike	Roadside	421898	423576	NO2	YES	4.9	0.5	No	2.0
K52	Penistone Road Waterloo	Roadside	417627	416472	NO2	NO	7.8	2.4	No	2.0
K53	Yates Lane Milnsbridge	Roadside	411564	415902	NO2	NO	1.6	1.7	No	2.0
K54	Wakefield Road Dewsbury	Roadside	425196	421566	NO2	YES	2.7	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)
K55	Huddersfield Road Holmfirth	Roadside	414187	408264	NO2	NO	3.2	1.7	No	2.0
K56	Wakefield Road Huddersfield	Roadside	415009	416420	NO2	YES		2.8	No	2.0
K57	Cambridge Road 1	Roadside	414291	417281	NO2	YES		2.2	No	2.0
K58	Cambridge Road 2	Roadside	414350	417270	NO2	YES		2.6	No	2.0
K60	Huddersfield Road, Birstall Smithies	Roadside	422435	425889	NO2	NO	7.5	2.3	No	2.0
K61	Bradford Road - Birkenshaw	Roadside	420441	427353	NO2	YES		3.3	No	2.0
K62	Manor Park Gardens - Birkenshaw	Roadside	420472	427360	NO2	YES	9.2	1.2	No	2.0
K63	White Hall Road West 1- Birkenshaw	Roadside	419866	427561	NO2	NO	7.0	2.9	No	2.0
K64	Whitehall Road West 2 - Birkenshaw	Other	419914	427588	NO2	NO		0.1	No	2.0
K65	Whitehall Road West 3 - Birkenshaw	Roadside	419981	427623	NO2	NO		3.0	No	2.0
K66	Milford Grove - Birkenshaw	Other	420349	427434	NO2	YES		1.3	No	2.0
K67	Moor Lane 1 - Birkenshaw	Roadside	421128	427298	NO2	NO		0.4	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)
K68	Grange Road Batley lamp post 10	Roadside	425185	423684	NO2	NO	5.0	4.5	No	2.0
K69	Bradford Road - Cleckheaton - Airstation	Roadside	418237	426555	NO2	NO		1.0	No	2.0
K70	Huddersfield Road - Scouthill - Airstation	Roadside	423236	420752	NO2	YES	6.6	3.2	No	2.0
K71	Lindley Moor Road 2	Roadside	411007	419190	NO2	NO	11.6	2.7	No	2.0
K72	Lindley Moor Road 3	Roadside	410227	418653	NO2	NO	6.6	2.4	No	2.0
K73	Lindley Moor Road 4	Roadside	410080	418568	NO2	NO		1.8	No	2.0
K74	Lindley Moor Road 5	Roadside	410095	418559	NO2	NO	1.7	3.4	No	2.0
K75	Blackmoorfoot Road - Thornton Lodge	Roadside	413153	415894	NO2	NO	2.7	1.5	No	2.0
K76	Manchester Road - Thornton Lodge 3	Roadside	413198	415957	NO2	NO	5.0	1.3	No	2.0
K77	Manchester Road - Thornton Lodge 4	Roadside	413455	416013	NO2	NO	1.2	2.2	No	2.0
K78	Thornton Lodge Road - Thornton Lodge	Roadside	413464	415983	NO2	NO		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)
K79	Gelderd Road, Birstall,	Roadside	423903	427756	NO2	NO		3.0	No	2.0
K80	Grange Road Batley lamp post 22	Roadside	425566	423696	NO2	NO	5.8	4.0	No	2.0
K81	Gelderd Road, Hawthorne House	Roadside	422991	426992	NO2	NO		1.8	No	2.0
K82	Grange Moor	Roadside	422036	415941	NO2	NO	1.7	1.5	No	2.0
K83	Flockton	Roadside	424203	414975	NO2	NO	3.2	1.4	No	2.0
K84	Denby Dale	Roadside	422923	408553	NO2	NO	2.3	1.8	No	2.0
K85	Shepley	Roadside	419380	409777	NO2	NO		1.5	No	2.0
K86	Kings Mill Lane	Roadside	415164	416323	NO2	NO	4.7	4.7	No	2.0
K87	Mill St West Dewsbury lamp post 9	Roadside	424409	421271	NO2	NO	2.4	2.9	No	2.0
K88	Huddersfield Road, Birstall	Roadside	422403	425845	NO2	NO		2.5	No	2.0
K89	Whitehall Road West, Hunsworth	Roadside	419362	427203	NO2	NO		1.7	No	2.0
K90	Whitehall Road West, Hunsworth	Roadside	419262	427060	NO2	NO		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)
K91	Halifax Road, Edgerton	Roadside	412647	418008	NO2	NO	14.0	1.9	No	2.0
K92	Bradford Road, Cleckheaton	Roadside	418656	426078	NO2	NO	3.9	1.8	No	2.0
K93	Wyke Lane, Oakenshaw	Roadside	417501	427802	NO2	NO	Facade	25	No	2.0
K94	Leeds Road, Shaw Cross	Roadside	426242	423106	NO2	NO	2.1	4.1	No	2.0
K95	Hollowgate, Holmfirth	Kerbside	414170	408118	NO2	NO	Facade	1.0	No	2.0
K96	Victoria Street, Holmfirth	Kerbside	414227	408161	NO2	NO		0.8	No	2.0
K97	New Hey Road, Mount	Roadside	409762	418019	NO2	NO		11.5	No	2.0
K98	Huddersfield Road, Holmfirth	Roadside	414092	408133	NO2	NO	0.8	2.3	No	2.0
K99	Owl Lane, Shaw Cross	Roadside	426312	422830	NO2	NO		1.9	No	2.0
K100	Westbourne Road, Marsh	Roadside	412477	417290	NO2	NO	5.5	1.9	No	2.0
K101	Trinity Street, Huddersfield	Roadside	413531	417137	NO2	NO	4.9	2.5	No	2.0
K102	Stocks Bank Road, Mirfield	Roadside	418540	421188	NO2	NO		5.0	No	2.0
K103	Stocks Bank Road, Mirfield	Roadside	419426	420293	NO2	NO	1.0	2.8	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)
K104	Bradley Road, Bradley	Roadside	415810	420554	NO2	NO	12.3	6.8	No	2.0

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
Roadside 3	417255	420761	Roadside	67	67	N/A	N/A	N/A	25.5	N/A
Roadside 6	411739	419007	Roadside	46	46	N/A	N/A	N/A	36.2	N/A

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

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

Notes:

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

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

All means have been "annualised" as per LAQM.TG16 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 (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
K1	424506	421535	Other	100	100.0	**42.5**	**41.1**	**41.0**	**46.0**	**45.1**
K2	414214	416504	Other	100	100.0	**42.3**	39.3	38.5	34.2	**42.4**
K3	413504	417439	Roadside	100	100.0	**61.6**	**51.9**	**42.7**	36.3	**40.3**
K4	424464	424395	Roadside	92.3	92.3	25.2	28.5	27.0	24.2	27.9
K5	422443	420380	Roadside	100	100.0	35.9	35.5	36.1	23.6	27.4
K6	417872	421050	Roadside	100	100.0	**42.6**	36.3	37.9	27.0	34.9
K7	414434	416744	Urban Centre	100	100.0	35.4	38.5	**40.8**	28.9	36.7
K8	414498	417798	Roadside	82.7	82.7	35.5	36.1	36.0	30.5	33.4
K9	417280	420482	Kerbside	82.7	82.7	35.3	27.5	34.4	28.3	21.7
K10	417227	420337	Roadside			37.3	39.3	34.5	28.8	-
K11	414359	416277	Roadside	92.3	92.3	36.5	39.6	35.0	27.7	31.3
K12	417335	420412	Roadside			37.4	38.8	27.3	29.4	-
K13	420377	427871	Roadside	100	100.0	36.1	33.9	31.4	23.0	28.2

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 2021 (%) [2]	2017	2018	2019	2020	2021
K14	413667	416467	Urban Background	100	100.0	21.1	16.2	17.7	13.9	14.5
K15, K16, K17	411715	419032	Other	100	100.0	**40.3**	37.7	36.5	29.4	33.8
K18	422686	426229	Roadside	100	100.0	37.8	37.9	36.8	32.2	35.8
K19	423563	421014	Roadside	90.4	90.4	33.0	38.8	31.6	29.6	35.7
K20	424858	421904	Roadside	100	100.0	35.7	34.0	28.4	29.5	33.1
K21	414149	416686	Roadside	92.3	92.3	**40.1**	**42.5**	34.7	33.4	39.3
K22	417424	420490	Kerbside	100	100.0	**41.4**	**40.6**	33.4	22.7	34.7
K23	418483	420978	Roadside	100	100.0	**40.2**	38.5	35.3	31.7	36.0
K24	409775	418397	Roadside	100	100.0	**50.2**	**40.0**	34.1	27.5	32.3
K25, K26, K27	417255	420360	Other	100	100.0	26.4	30.4	27.4	22.6	24.5
K28	414745	416710	Roadside	100	100.0	**55.9**	**43.2**	**46.4**	37.6	**41.4**
K29	424425	421499	Other	100	100.0	**N/A**	**N/A**	**N/A**	24.4	26.5
K30	424457	421510	Other	100	100.0	**N/A**	**N/A**	**N/A**	25.6	31.4
K31	413400	417495	Roadside	100	100.0	32.1	33.8	30.5	17.1	25.0

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 2021 (%) [2]	2017	2018	2019	2020	2021
K32	413513	417481	Roadside	84.6	84.6	**44.2**	**45.9**	35.5	-	36.1
K33	420727	423668	Roadside	100	100.0	**42.7**	34.3	31.1	26.8	31.4
K34	420845	423770	Roadside	59.6	59.6	39.5	38.4	33.6	29.9	30.5
K35	420853	423866	Roadside	100	100.0	**46.2**	**44.4**	**45.3**	34.7	**44.3**
K36	420304	419766	Kerbside	100	100.0	**42.2**	**42.2**	**49.4**	21.1	31.5
K37	420356	427810	Roadside	92.3	92.3	36.1	33.1	31.2	21.3	25.7
K38	420222	427764	Roadside	100	100.0	36.1	37.8	37.1	27.3	33.3
K39	424526	424326	Roadside	100	100.0	36.4	30.5	31.1	26.7	33.6
K40	424922	421972	Roadside	100	100.0	**53.4**	**52.4**	**55.8**	**42.1**	**50.2**
K41	418285	426630	Roadside	100	100.0	39.8	36.4	34.0	26.7	32.0
K42	424969	422002	Roadside	100	100.0	**45.9**	39.6	35.1	34.7	37.9
K43	425083	422022	Roadside	100	100.0	38.6	**42.9**	37.2	33.1	39.0
K44	425179	422116	Roadside	100	100.0	34.4	35.1	30.8	24.9	30.1
K45	414483	417726	Roadside	84.6	84.6	35.7	36.3	36.4	25.1	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 2021 (%) [2]	2017	2018	2019	2020	2021
K46	414402	417806	Roadside	100	100.0	37.1	37.0	34.8	29.2	22.5
K47	407942	417261	Other	100	100.0	**44.1**	**44.9**	**40.5**	32.0	34.4
K48	421039	423673	Roadside	100	100.0	**47.3**	36.1	36.1	38.1	**41.2**
K49	413659	416182	Roadside	100	100.0	38.0	38.1	33.1	33.1	36.4
K50	413414	415981	Roadside	100	100.0	39.2	**45.3**	38.2	33.1	39.8
K51	421898	423576	Kerbside	84.6	84.6	36.0	38.9	34.5	28.6	30.0
K52	417627	416472	Roadside	84.6	84.6	34.6	34.2	30.7	20.9	27.4
K53	411564	415902	Roadside	90.4	90.4	28.3	29.4	**53.7**	24.6	30.6
K54	425196	421566	Roadside	100	100.0	35.0	33.9	32.1	29.4	37.2
K55	414187	408264	Roadside	100	100.0	31.9	34.2	29.9	23.8	25.2
K56	415009	416420	Roadside	100	100.0	39.6	39.5	34.9	30.3	37.4
K57	414291	417281	Roadside	100	100.0	27.2	29.7	22.2	18.5	20.1
K58	414350	417270	Roadside	100	100.0	**41.7**	**44.9**	39.6	34.9	37.4
K60	422435	425889	Roadside	92.3	92.3	**N/A**	**N/A**	**N/A**	22.2	29.0

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 2021 (%) [2]	2017	2018	2019	2020	2021
K61	420441	427353	Roadside	100	100.0	30.2	35.1	29.7	23.2	28.3
K62	420472	427360	Roadside	100	100.0	28.1	31.6	26.4	22.1	25.5
K63	419866	427561	Roadside	100	100.0	**52.1**	33.6	27.3	24.3	26.7
K64	419914	427588	Other	100	100.0	**48.1**	**51.6**	**45.1**	36.5	**42.5**
K65	419981	427623	Roadside	100	100.0	29.4	**44.3**	**41.1**	28.4	32.6
K66	420349	427434	Other	100	100.0	29.0	26.7	24.8	19.8	18.7
K67	421128	427298	Roadside	92.3	92.3	24.8	25.9	24.4	18.7	20.0
K68	425185	423684	Roadside	100	100.0	29.0	27.3	23.6	20.1	23.8
K69	418237	426555	Roadside	100	100.0	31.7	35.3	28.4	21.1	24.6
K70	423236	420752	Roadside	100	100.0	38.9	37.0	31.8	33.4	32.9
K71	411007	419190	Roadside	82.7	82.7	36.9	39.3	30.7	22.6	28.8
K72	410227	418653	Roadside	100	100.0	**43.4**	35.3	32.2	24.3	26.2
K73	410080	418568	Roadside	100	100.0	30.0	**46.7**	34.2	19.4	31.0
K74	410095	418559	Roadside	100	100.0	29.4	30.5	23.7	20.1	21.5

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 2021 (%) [2]	2017	2018	2019	2020	2021
K75	413153	415894	Roadside	100	100.0	32.3	37.8	Insufficient Data	25.5	28.9
K76	413198	415957	Roadside	100	100.0	**46.6**	35.0	28.5	25.4	28.9
K77	413455	416013	Roadside	90.4	90.4	24.2	**46.9**	38.9	33.2	**42.6**
K78	413464	415983	Roadside	100	100.0	**N/A**	28.0	24.1	18.4	21.3
K79	423903	427756	Roadside	100	100.0	**N/A**	**42.5**	Insufficient Data	30.2	33.2
K80	425566	423696	Roadside	100	100.0	**N/A**	**43.3**	24.4	22.7	25.7
K81	422991	426992	Roadside	100	100.0	**N/A**	36.6	29.8	28.4	29.5
K82	422036	415941	Roadside	100	100.0	**N/A**	20.3	17.5	16.1	16.6
K83	424203	414975	Roadside	92.3	92.3	**N/A**	29.4	24.7	18.9	21.6
K84	422923	408553	Roadside	100	100.0	**N/A**	28.4	20.6	18.6	20.6
K85	419380	409777	Roadside	100	100.0	**N/A**	23.9	21.1	16.3	17.5
K86	415164	416323	Roadside	100	100.0	**N/A**	32.6	29.1	22.8	26.3
K87	424409	421271	Roadside	82.7	82.7	**N/A**	37.4	31.3	29.4	32.5
K88	422403	425845	Roadside	100	100.0	**N/A**	**N/A**	**N/A**	24.5	31.1

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 2021 (%) [2]	2017	2018	2019	2020	2021
K89	419362	427203	Roadside	100	100.0	N/A	N/A	N/A	23.2	27.5
K90	419262	427060	Roadside	100	100.0	N/A	N/A	N/A	21.8	27.1
K91	412647	418008	Roadside	84.6	84.6	N/A	N/A	N/A	-	29.0
K92	418656	426078	Roadside	75	75.0	N/A	N/A	N/A	-	21.1
K93	417501	427802	Roadside	100	100.0	N/A	N/A	N/A	23.5	27.3
K94	426242	423106	Roadside	100	100.0	N/A	N/A	N/A	25.5	33.5
K95	414170	408118	Kerbside	82.7	82.7	N/A	N/A	N/A	21.0	24.0
K96	414227	408161	Kerbside	100	100.0	N/A	N/A	N/A	16.8	20.0
K97	409762	418019	Roadside	90.4	90.4	N/A	N/A	N/A	14.0	16.6
K98	414092	408133	Roadside	100	100.0	N/A	N/A	N/A	19.7	22.2
K99	426312	422830	Roadside	100	100.0	N/A	N/A	N/A	18.7	21.4
K100	412477	417290	Roadside	84.6	84.6	N/A	N/A	N/A	17.0	23.1
K101	413531	417137	Roadside	92.3	92.3	N/A	N/A	N/A	22.8	27.1
K102	418540	421188	Roadside	92.3	92.3	N/A	N/A	N/A	18.8	24.4

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 2021 (%) (2)	2017	2018	2019	2020	2021
K103	419426	420293	Roadside	92.3	92.3	**N/A**	**N/A**	**N/A**	19.4	23.3
K104	415810	420554	Roadside	92.3	92.3	**N/A**	**N/A**	**N/A**	17.4	19.9

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

☒ **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.TG16 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

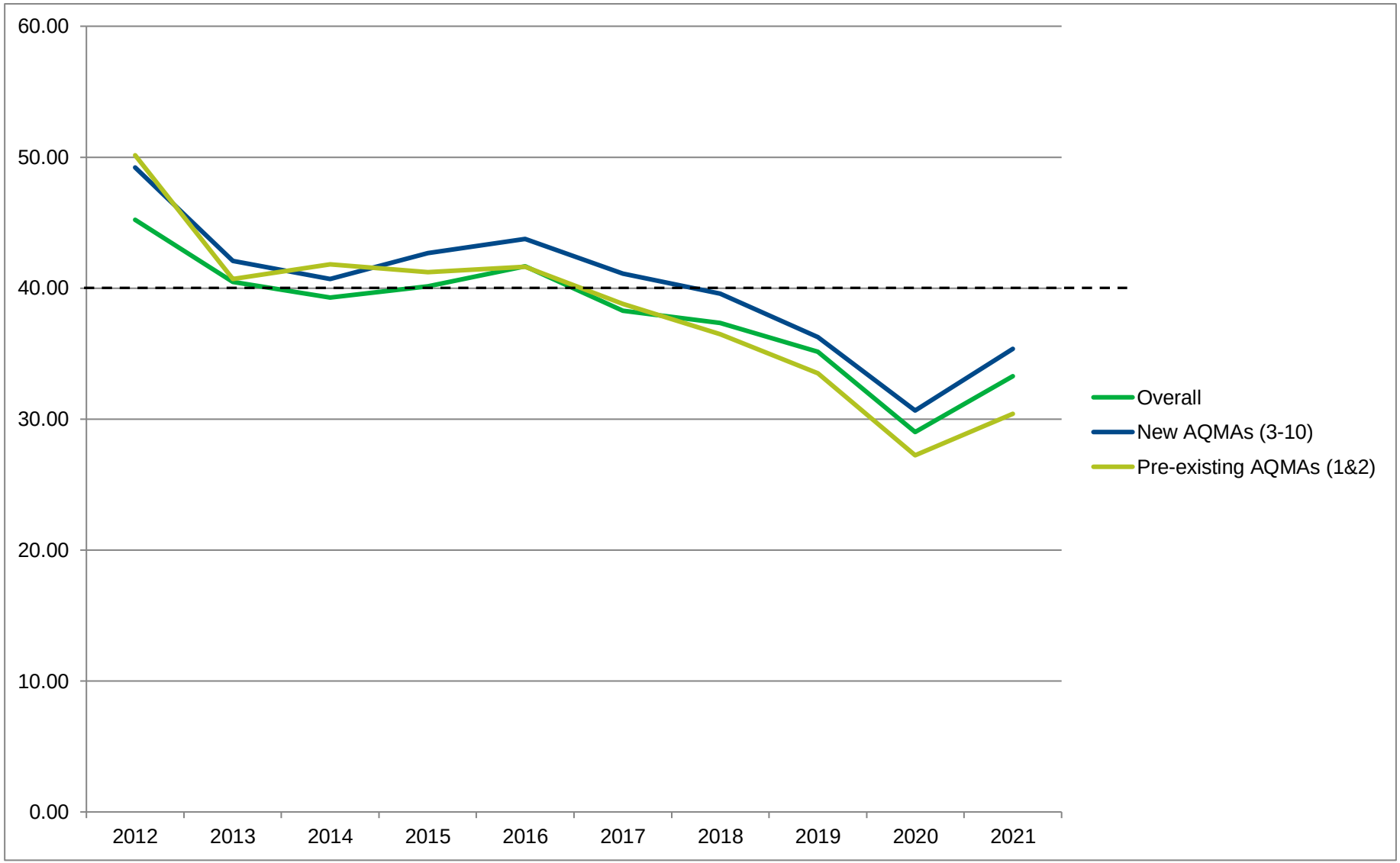


Figure A.2 – Percentage improvement changes in Annual Mean NO_2 Concentrations

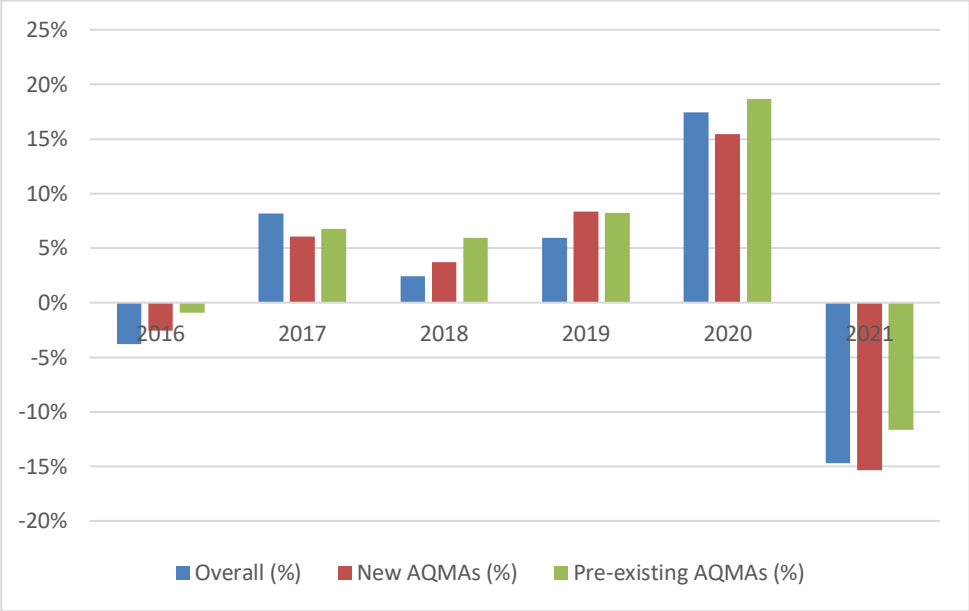


Table A.2b – Percentage reduction of Mean Annual NO_2 concentrations Pre, During & Post Pandemic

	Over 8 years Pre 2020	Over 5 years Pre 2020	2020 (Pandemic)	2021 (Post Pandemic)
Overall (%)	22%	13%	17%	-15%
New AQMAs (%)	26%	15%	15%	-15%
Pre-existing AQMAs (%)	33%	19%	19%	-12%

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
Roadside 3	417255	420761	Roadside	67	67	N/A	N/A	N/A	0	N/A
Roadside 6	411739	419007	Roadside	46	46	N/A	N/A	N/A	0	N/A

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 $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
Roadside 3	417255	420761	Roadside	60	60	N/A	N/A	N/A	12.18	N/A
Roadside 6	411739	419007	Roadside	38	38	N/A	N/A	N/A	9.28	N/A

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

Notes:

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

All means have been “annualised” as per LAQM.TG16 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 2021

Table B.1 – NO_2 2021 Diffusion Tube Results ($\mu g/m^3$)

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 (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
K1	424506	421535	78.8	57.1	58.7	40.8	29.8	55.4	52.4	53.3	67.6	66.1	64.3	69.0	57.8	**45.1**	-	
K2	414214	416504	60.5	54.5	48.1	47.2	48.7	62.3	65.4	37.0	54.1	58.2	61.1	55.5	54.4	**42.4**	-	
K3	413504	417439	57.0	45.7	50.2	43.6	48.3	47.0	41.0	48.1	60.3	61.4	61.8	55.8	51.7	**40.3**	36.6	
K4	424464	424395	45.9	39.6	32.4	32.9		26.3	28.3	27.7	39.4	37.6	43.5	39.2	35.7	27.9	-	
K5	422443	420380	46.8	36.5	31.1	32.7	33.1	30.3	25.2	26.9	42.3	38.0	34.9	44.0	35.2	27.4	-	
K6	417872	421050	53.1	42.5	42.6	45.7	42.1	40.8	43.4	38.2	50.2	40.8	49.2	47.9	44.7	34.9	-	
K7	414434	416744	52.1	43.4	45.6	37.9	47.7	51.2	51.9	38.2	65.4	43.9	35.2	52.1	47.1	36.7	34.9	
K8	414498	417798	52.9	41.0			32.4	36.9	38.6	34.2	48.2	45.3	51.8	47.5	42.9	33.4	-	Altered grid references
K9	417280	420482	39.6	36.8	28.3	24.7	14.1	21.3	24.4	23.0	35.1	30.9			27.8	21.7	-	
K10	417227	420337														-	-	
K11	414359	416277	55.0		34.2	33.0	35.9	32.8	34.7	29.6	44.8	44.9	48.0	48.4	40.1	31.3	-	Altered grid references
K12	417335	420412														-	-	
K13	420377	427871	44.2	40.4	33.0	34.5	30.2	29.7	31.6	28.7	42.0	38.8	37.6	42.6	36.1	28.2	-	
K14	413667	416467	30.1	24.1	16.6	18.0	15.0	13.1	15.6	10.6	20.8	15.1	19.5	25.1	18.6	14.5	-	Altered grid references
K15	411715	419032	45.0	42.9	38.1	30.4	42.9	38.1		39.0	49.7	42.0		47.4	-	-	-	Altered grid references Triplicate Site with K15, K16 and K17 - Annual data provided for K17 only
K16	411715	419032	47.1	38.3	39.4	46.7	39.2	39.2	53.7	36.5	49.6		53.0	48.7	-	-	-	Altered grid references Triplicate Site with K15, K16 and K17 - Annual data provided for K17 only
K17	411715	419032	49.3	44.8	37.7	43.7	40.5	36.1		34.0	52.2	23.7	49.7	47.7	43.3	33.8	-	Triplicate Site with K15, K16 and K17 - Annual data provided for K17 only
K18	422686	426229	53.6	51.7	41.5	44.5	47.0	35.5	40.0	37.2	54.8	45.2	48.9	50.5	45.9	35.8	-	

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 (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
K19	423563	421014	52.5	57.6	44.6	45.1	47.1	44.4	43.0	32.5	59.3		49.5	27.8	45.8	35.7	-	
K20	424858	421904	53.2	38.3	39.6	38.1	35.2	31.8	37.7	32.2	48.6	49.7	52.0	53.0	42.5	33.1	-	Altered grid references
K21	414149	416686	59.4		42.1	53.2	55.9	46.2	48.4	46.6	53.9	49.3	49.7	49.2	50.4	39.3	33.4	
K22	417424	420490	52.4	52.3	38.0	48.5	43.7	37.5	40.3	33.9	49.6	42.3	45.1	50.0	44.5	34.7	-	Altered grid references
K23	418483	420978	61.7	50.0	46.9	45.5	42.9	40.3	41.0	40.1	53.9	45.9	54.3	31.2	46.1	36.0	-	
K24	409941	418471	52.5	37.4	40.3	41.5	38.8	35.3	46.4	37.2	51.6	32.7	42.0	41.7	41.5	32.3	-	Altered grid references
K25	417255	420360	44.1	39.4		35.6	28.7	21.8	22.3	26.1		29.3	33.0	31.4	-	-	-	Altered grid references Triplicate Site with K25, K26 and K27 - Annual data provided for K27 only
K26	417255	420360	40.9	36.7	29.7	29.1	33.4	27.4	25.3	23.8	19.3	30.4	33.3	37.8	-	-	-	Altered grid references Triplicate Site with K25, K26 and K27 - Annual data provided for K27 only
K27	417255	420360	50.5	41.6	27.9	31.5	32.2	26.2	26.6	17.5	37.1	29.6	31.6	41.1	31.4	24.5	-	Altered grid references Triplicate Site with K25, K26 and K27 - Annual data provided for K27 only
K28	414745	416710	65.1	52.7	48.5	50.5	45.6	40.9	46.8	45.5	62.8	55.9	65.0	56.9	53.0	**41.4**	**41.2**	
K29	424425	421499	46.1	1.8	31.4	36.9	37.0	31.3	30.3	22.7	42.1	34.4	46.3	46.8	33.9	26.5	-	
K30	424457	421510	57.3	38.7	32.7	41.1	39.8	34.7	37.3	33.1	46.2	38.1	39.7	44.2	40.2	31.4	-	
K31	413400	417495	41.5	36.4	27.6	33.1	31.8	26.3	26.8	23.8	37.8	33.0	35.5	31.5	32.1	25.0	-	
K32	413513	417481			44.7	45.5	48.9	45.9	38.7	35.0	57.3	51.5	54.6	40.5	46.3	36.1	30.6	
K33	420727	423668	53.4	34.9	40.6	43.6	40.0	32.5	33.6	33.9	44.8	40.4	46.2	38.9	40.2	31.4	-	
K34	420845	423770	56.7	48.7		43.4	43.8					42.3	44.8	39.2	45.6	30.5	-	
K35	420853	423866	61.5	54.8	56.2	55.2	54.5	51.7	53.5	46.9	71.0	60.7	58.4	56.6	56.8	**44.3**	33.3	
K36	420304	419766	50.6	42.0	38.1	42.8	41.2	34.5	39.0	34.6	47.8	33.6	41.7	39.2	40.4	31.5	-	
K37	420356	427810		39.7	31.2	31.2	27.5	26.1	28.7	27.3	38.7	33.9	41.3	37.0	33.0	25.7	-	
K38	420222	427764	34.9	39.3	37.1	42.2	45.6	42.4	51.0	29.5	59.3	45.8	47.4	37.5	42.7	33.3	-	
K39	424526	424326	56.6	48.7	38.3	42.0	40.3	23.9	37.9	36.2	49.5	43.1	51.8	48.5	43.1	33.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
K40	424922	421972	75.5	65.8	56.7	61.3	67.8	60.1	61.3	55.0	71.7	65.4	64.7	66.4	64.3	**50.2**	**46.9**	
K41	418285	426630	44.7	34.1	47.9	34.3	28.0	29.4	36.7	40.0	49.9	44.8	53.6	49.1	41.0	32.0	-	
K42	424969	422002	53.1	53.2	39.9	51.2	42.5	35.0	46.6	43.3	60.0	49.3	51.8	57.6	48.6	37.9	31.8	
K43	425093	422024	63.2	48.4	45.4	41.9	47.9	39.7	42.7	43.1	60.5	52.2	54.9	60.7	50.1	39.0	32.2	
K44	425179	422116	53.1	40.2	36.6	32.3	33.8	33.5	35.3	34.5	47.4	47.1	52.1	17.5	38.6	30.1	-	Altered grid references
K45	414483	417726			37.8	47.4	46.7	39.4	43.1	33.3	50.4	43.0	40.4	43.5	42.5	33.2	-	Altered grid references
K46	414402	417806	40.0	35.7	23.5	30.3	26.5	23.0	24.7	21.1	31.7	25.3	30.2	33.6	28.8	22.5	-	Altered grid references
K47	407942	417261	72.5	31.1	41.6	41.6	31.9	39.0	46.9	34.0	51.7	47.3	55.8	36.4	44.2	34.4	-	
K48	421039	423673	54.2	59.3	51.2	52.1	41.2	49.0	46.8	46.2	66.4	57.8	61.9	47.1	52.8	**41.2**	-	
K49	413659	416182	68.8	44.8	48.9	45.3	39.0	36.8	41.7	39.9	55.5	41.4	44.4	53.2	46.6	36.4	32.5	
K50	413414	415981	67.7	60.5	49.3	39.9	44.2	45.0	30.6	45.1	65.5	54.8	52.5	57.1	51.0	39.8	36.9	
K51	421898	423576			45.3	43.5	32.2	33.1	35.0	14.3	45.5	40.5	46.6	48.0	38.4	30.0	-	Altered grid references
K52	417627	416472			34.0	35.4	38.6	34.1	34.5	28.7	41.9	34.5	37.7	31.6	35.1	27.4	-	
K53	411564	415902	50.8	39.1	36.6	46.0	39.9	33.5	27.5	25.9	44.0		45.9	42.3	39.2	30.6	-	
K54	425196	421566	57.9	47.3	45.4	42.2	50.9	40.3	42.7	39.8	55.7	46.9	52.9	50.5	47.7	37.2	34.2	
K55	414187	408264	45.8	33.5	31.7	30.0	32.0	29.2	28.5	24.7	37.1	32.1	42.5	20.9	32.3	25.2	-	
K56	415009	416420	60.0	49.7	42.6	50.2	47.1	40.4	45.3	37.6	54.4	43.4	55.4	48.9	47.9	37.4	-	
K57	414291	417281	41.8	31.4	24.9	22.7	21.6	16.9	18.5	21.5	27.1	23.4	26.2	33.0	25.8	20.1	-	
K58	414350	417270	62.3	46.4	44.8	39.1	48.9	37.2	41.9	37.1	56.2	54.5	60.1	47.0	48.0	37.4	-	
K60	422435	425889	48.7	34.4	38.0	36.5	34.6		30.8	29.4	41.0	35.7	45.1	35.2	37.2	29.0	-	
K61	420441	427353	47.1	36.9	32.7	34.2	35.2	27.3	32.8	30.1	42.6	36.4	37.6	42.7	36.3	28.3	-	Altered grid references

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 (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
K62	420472	427360	43.3	36.6	30.8	26.1	28.6	20.8	23.9	24.7	33.6	41.9	43.2	38.4	32.7	25.5	-	
K63	419866	427561	50.2	38.8	28.4	37.0	32.4	26.4	27.1	25.6	41.3	29.2	36.5	37.2	34.2	26.7	-	
K64	419914	427588	69.2	51.7	48.5	49.0	55.0	43.5	44.5	45.4	58.6	61.8	63.5	62.7	54.5	**42.5**	-	
K65	419981	427623	55.8	45.4	44.3	39.2	33.8	31.6	34.9	30.5	50.2	43.4	53.8	38.8	41.8	32.6	-	
K66	420349	427434	40.2	25.0	22.8	22.0	16.3	16.2	19.8	15.6	27.2	26.8	27.5	28.4	24.0	18.7	-	
K67	421128	427298	40.5	32.5	23.4	20.3	22.1	17.2	21.0	19.1	30.9	30.1		24.5	25.6	20.0	-	Altered grid references
K68	425185	423684	44.3	30.7	27.0	26.3	27.3	22.2	22.4	24.6	34.3	33.0	38.0	35.9	30.5	23.8	-	Altered grid references
K69	418237	426555	33.4	29.7	33.1	31.9	27.4	24.7	25.8	24.9	32.5	31.1	45.2	38.8	31.5	24.6	-	
K70	423236	420752	55.5	40.6	37.2	38.9	43.4	31.5	40.1	38.0	50.3	44.5	41.0	45.9	42.2	32.9	-	
K71	411007	419190	43.9	40.0	36.7	38.2	31.1	29.6	35.7	31.3	47.0	35.9			36.9	28.8	-	
K72	410227	418653	47.5	31.9	35.3	35.8	31.0	31.4	17.5	27.0	38.0	34.2	44.2	29.7	33.6	26.2	-	
K73	410080	418568	55.2	36.9	36.4	42.8	32.9	30.8	45.0	28.7	48.6	34.4	43.6	41.8	39.8	31.0	-	
K74	410095	418559	36.9	27.6	29.2	30.2	20.9	22.5	19.7	17.2	33.9	23.8	36.3	32.4	27.6	21.5	-	
K75	413153	415894	53.5	39.9	33.1	37.6	37.0	31.0	19.8	30.7	48.5	36.6	39.5	37.8	37.1	28.9	-	
K76	413198	415957	54.6	39.9	32.9	37.8	34.5	24.1	30.9	26.5	41.7	31.7	46.6	43.3	37.0	28.9	-	
K77	413455	416013	79.1	45.9	51.3	50.3	52.2	45.6	46.7	48.6	60.5	53.8	67.3		54.7	**42.6**	39.8	
K78	413464	415983	41.6	29.4	25.4	30.8	22.3	23.1	24.0	19.3	29.7	22.2	30.7	29.7	27.4	21.3	-	
K79	423903	427756	52.3	43.7	38.9	46.4	40.0	34.0	46.3	22.5	60.9	39.7	38.5	47.4	42.6	33.2	-	
K80	425566	423696	43.0	37.0	27.5	27.6	32.5	25.3	27.9	26.1	39.5	35.2	37.8	35.3	32.9	25.7	-	
K81	422991	426992	53.1	40.4	38.1	36.2	31.6	30.9	33.3	33.6	41.5	37.4	36.4	41.6	37.8	29.5	-	
K82	422036	415941	28.1	17.9	18.2	22.8	20.4	18.8	19.7	18.8	24.5	21.2	25.1	19.2	21.2	16.6	-	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
K83	424203	414975	37.1		24.3	29.0	30.0	23.8	25.3	19.7	34.1	26.8	23.8	30.7	27.7	21.6	-	
K84	422923	408553	37.0	27.6	25.9	31.0	19.6	23.8	24.8	19.7	30.9	22.6	28.8	24.8	26.4	20.6	-	
K85	419380	409777	29.7	27.9	22.0	26.0	21.1	19.4	19.5	18.8	27.3	16.7	21.5	19.2	22.4	17.5	-	
K86	415164	416323	45.6	38.1	26.6	33.4	33.1	25.0	29.3	26.8	39.6	33.8	34.5	39.1	33.7	26.3	-	
K87	424409	421271	56.0	47.3	39.6			33.8	37.8	31.7	46.1	40.7	42.9	40.7	41.7	32.5	-	
K88	422403	425845	50.3	40.5	34.1	39.5	37.9	32.2	33.6	33.5	43.0	41.8	44.3	48.1	39.9	31.1	-	
K89	419362	427203	37.8	39.6	33.4	37.3	25.3	26.0	31.4	28.1	43.2	38.9	37.8	44.0	35.2	27.5	-	
K90	419262	427060	39.5	34.4	28.3	36.6	36.0	29.7	29.9	29.7	39.2	34.9	39.9	39.4	34.8	27.1	-	
K91	412647	418008			28.1	42.2	27.1	40.6	44.9	40.6	48.8	34.6	28.9	35.5	37.1	29.0	-	Altered grid references
K92	418656	426078			26.1	27.1	27.3	21.0	25.1	15.9	31.0	31.9	38.1		27.1	21.1	-	
K93	417501	427802	39.4	49.1	27.8	38.4	35.5	29.2	33.2	25.6	41.2	28.7	35.1	37.5	35.1	27.3	30.2	Altered grid references
K94	426242	423106	53.8	47.2	38.3	42.6	42.6	34.2	36.0	34.6	49.1	45.9	48.3	43.0	43.0	33.5	-	
K95	414170	408118	44.0	34.6	28.0	31.7	22.5	25.1	28.4	26.0	36.3	31.2			30.8	24.0	-	Altered grid references
K96	414227	408161	36.5	24.4	22.9	22.1	22.4	21.0	20.4	21.4	28.7	25.5	33.6	29.2	25.7	20.0	-	
K97	409762	418019	29.5	26.6	17.2	21.2	19.1	16.5		17.0	23.8	17.4	22.7	23.5	21.3	16.6	-	
K98	414092	408133	41.8	25.9	27.2	30.8	23.7	27.3	24.5	22.5	31.6	25.1	31.1	30.0	28.5	22.2	-	
K99	426312	422830	37.7	30.7	21.7	33.6	26.5	23.2	27.4	25.3	33.2	24.6	24.3	21.7	27.5	21.4	-	Altered grid references
K100	412477	417290	46.1	32.5	29.4	30.1	26.7		19.8	22.1		25.7	27.7	35.8	29.6	23.1	-	
K101	413531	417137	46.8	34.9	30.0	40.7	35.0	31.8	29.2	29.7		29.4	30.7	44.2	34.8	27.1	-	
K102	418540	421188	43.2	28.6	33.3	31.6	26.9	25.6	27.6	21.5		32.1	41.5	32.8	31.3	24.4	-	
K103	419426	420293	44.9	37.4	29.4	29.9	22.5	19.0	23.0	18.3		28.4	35.4	40.3	29.9	23.3	-	

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 (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
K104	415810	420554	38.9	28.8	23.2	22.7	23.1	17.2	20.1	16.5		30.6	31.8	28.4	25.6	19.9	-	

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

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

☐ **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 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

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

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

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within Kirklees Council During 2021

Kirklees Council has not identified any new sources relating to air quality within the reporting year of 2021.

Additional Air Quality Works Undertaken by Kirklees Council During 2021

Kirklees Council has not completed any additional works within the reporting year of 2021.

QA/QC of Diffusion Tube Monitoring

In 2021 Kirklees Council got their tubes from SOCOTEC. The tubes are prepared using 50% tea: 50% acetone mix.

Diffusion Tube Annualisation

In 2021, Kirklees Council annualised data for NO_2 against 3 AURN Monitoring locations, Leeds Central, Bradford Mayo, Dewsbury Ashworth Grove and York Fishergate.

Details below for Annualisation factors;

Table C.1 Annualisation for Diffusion Tubes with <75% Data Capture

Diffusion Tube ID	Annualisation Factor Bradford Mayo Avenue	Annualisation Factor Dewsbury Ashworth Grove	Annualisation Factor Leeds Centre	Annualisation Factor York Fishergate	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m3)	Annualised Data Simple Annual Mean (µg/m3)
K34	0.9362	0.7710	0.8423	0.8828	0.8581	45.6	39.1

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2021 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.TG16 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 0.78 to the 2021 monitoring data. A summary of bias adjustment factors used by Kirklees Council over the past five years is presented in Table C.2.

Kirklees Council currently have 2 Co-location studies conducted at our monitoring stations, but due to station failures, none of our studies had >75% and are therefore not valid.

In addition to our own scheme, SOCOTEC participate in co-location studies and derive bias adjustment factors for their tubes. The bias adjustment factor for SOCOTEC is 0.78

In 2021, Kirklees Council did not generate a bias adjustment factor from their own studies. Therefore, the national figure for SOCOTEC has been used

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National - SOCOTEC	04/22	0.78
2020	National - WY Analytical Services	09/19	0.77
2019	National - WY Analytical Services	06/18	0.8
2018	National - WY Analytical Services	09/17	0.8
2017	National - WY Analytical Services	06/16	0.75

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 Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

Table C.3 – Fall Off with Distance Calculations

Diffusion Tube ID	Distance (m)		NO_2 Annual Mean Concentration (µg/m^3)		
	Monitoring Site to Kerb	Receptor to Kerb	Bias Adjusted and Annualised	Background	Predicted at Receptor
K1	0.8		45.1		-
K2	4.1		42.4		-
K3	2.4	4.4	40.3	15.5	*36.6*
K7	0.5	1.0	36.7	22.3792	34.9
K21	2.1	9.0	39.3	22.3792	33.4

K28	3.3	3.4	41.4	22.4	**41.2**
K32	2.6	7.6	36.1	15.5	30.6
K35	1.9	11.3	44.3	17.7	33.3
K40	1.6	2.8	50.2	23.9	**46.9**
K42	1.9	7.5	37.9	18.6	31.8
K43	1.9	7.9	39.0	18.4	32.2

K44	1.7	-5.5	30.1	18.4	-
K49	3.7	7.2	36.4	15.3	32.5
K50	2.5	4.1	39.8	16.2	*36.9*
K54	3.2	5.9	37.2	18.5	34.2
K56	2.8		37.4	19.4	-
K58	2.6		37.4	20.5	-

K64	0.1		42.5	23.1	-
K77	2.2	3.4	42.6	15.3	*39.8*
K93	23.7	13.7	27.3	18.0	30.2
K97	12.0	5.0	16.6	17.8	-

QA/QC of Automatic Monitoring

Data ratification is carried out internally by one person (Principal Technical Officer) periodically, normally at monthly intervals. After ratification it is stored on an Excel file in the Kirklees air quality archive.

Data verification is carried out by two staff who have had their competency verified after internal training. Verification takes place twice per day on weekdays, and the of Friday p.m. to Monday a.m. on Monday morning.

Table C.4 Roadside 3 – Bradley Details

Station	**Roadside 3 – Bradley**
Analyser Model	Horiba: APNA-360CE, MET-One BAM
Logging system	Each analyser has a data distribution board and communicates directly via modem for data download twice per day
Calibration Gas	NO,
Routine Calibration	Automatic calibration carried out every 72 hours
Daily zero and span Check	No
Air Conditioning	Yes
Service Contract	Horiba: 2 x 6 monthly service and breakdown/repair call out.

Table C.5 Roadside 6– Ainley Top Details

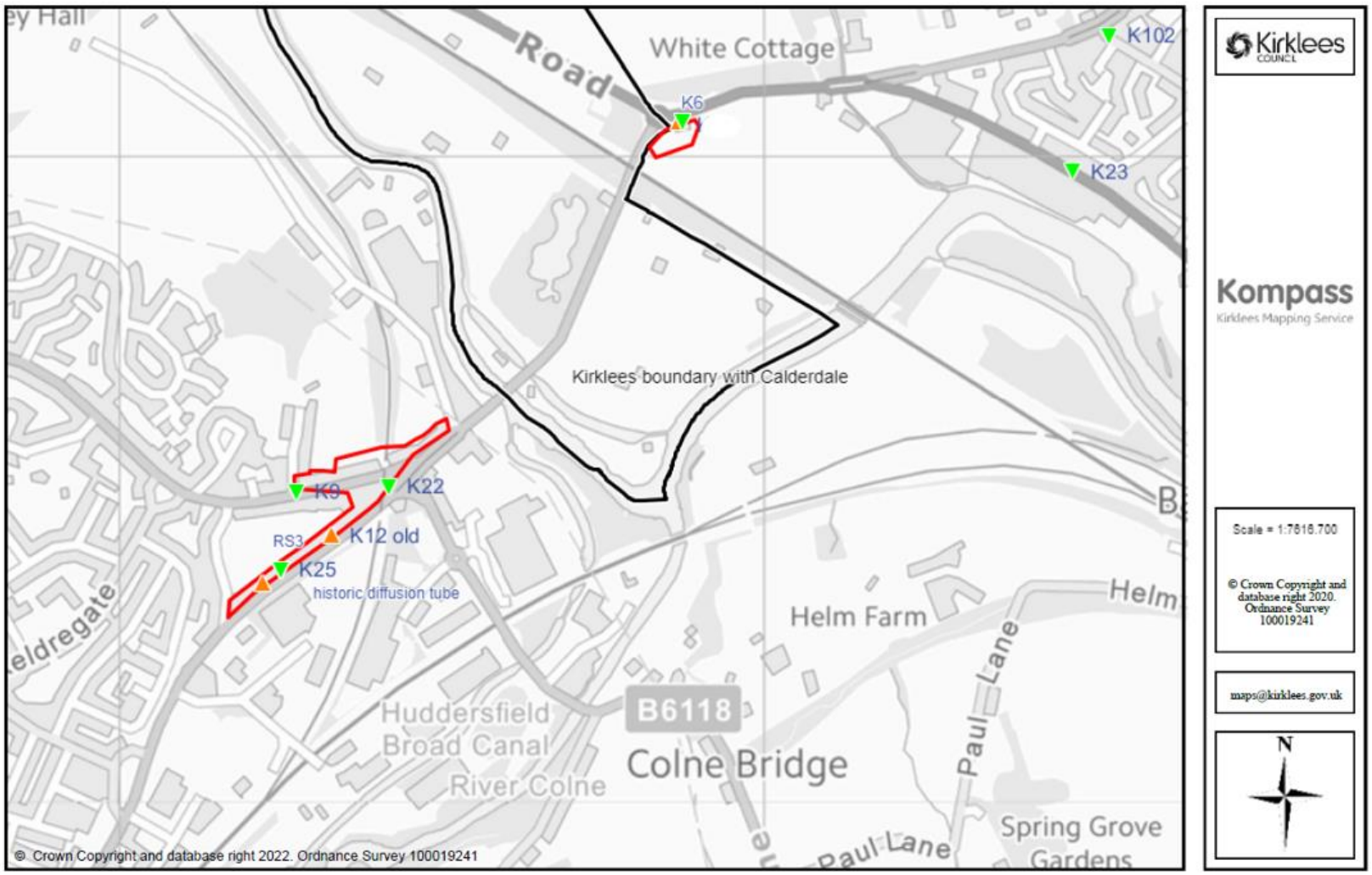
Station	Roadside 6 – Ainley Top
Analyser Model	Horiba: APNA-360CE, MET-One BAM
Logging system	Each analyser has a data distribution board and communicates directly via modem for data download twice per day
Calibration Gas	NO,
Routine Calibration	Automatic calibration carried out every 72 hours
Daily zero and span Check	No
Air Conditioning	Yes
Service Contract	Horiba: 2 x 6 monthly service and breakdown/repair call out.

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

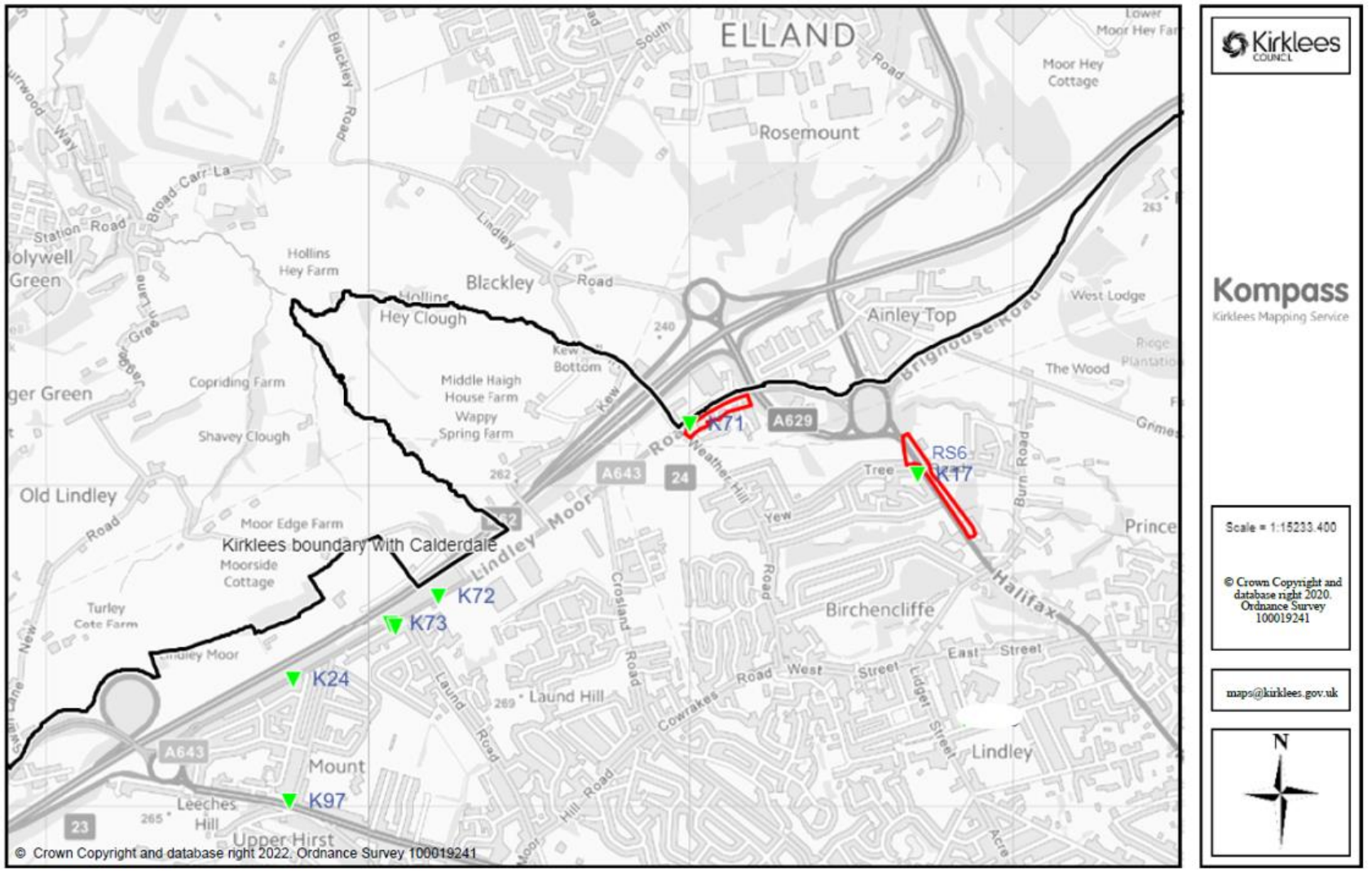
Kirklees Council currently use MET-One Heated Beta Attenuation Monitors for $PM_{2.5}$. In accordance with TG16 paragraph 7.155 a correction factor is not required

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

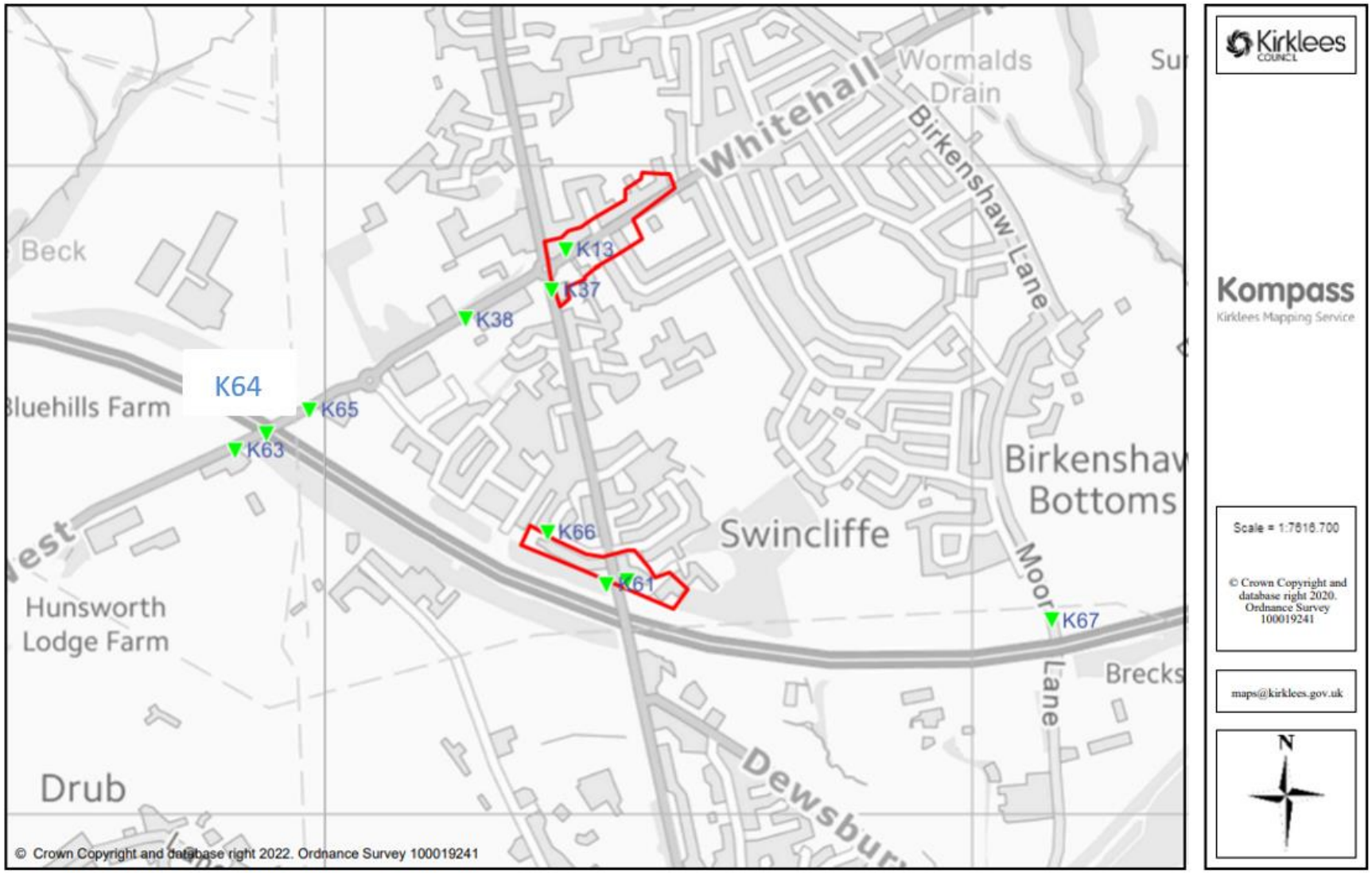
Map D.1 Air Quality Management Area 1 Bradley



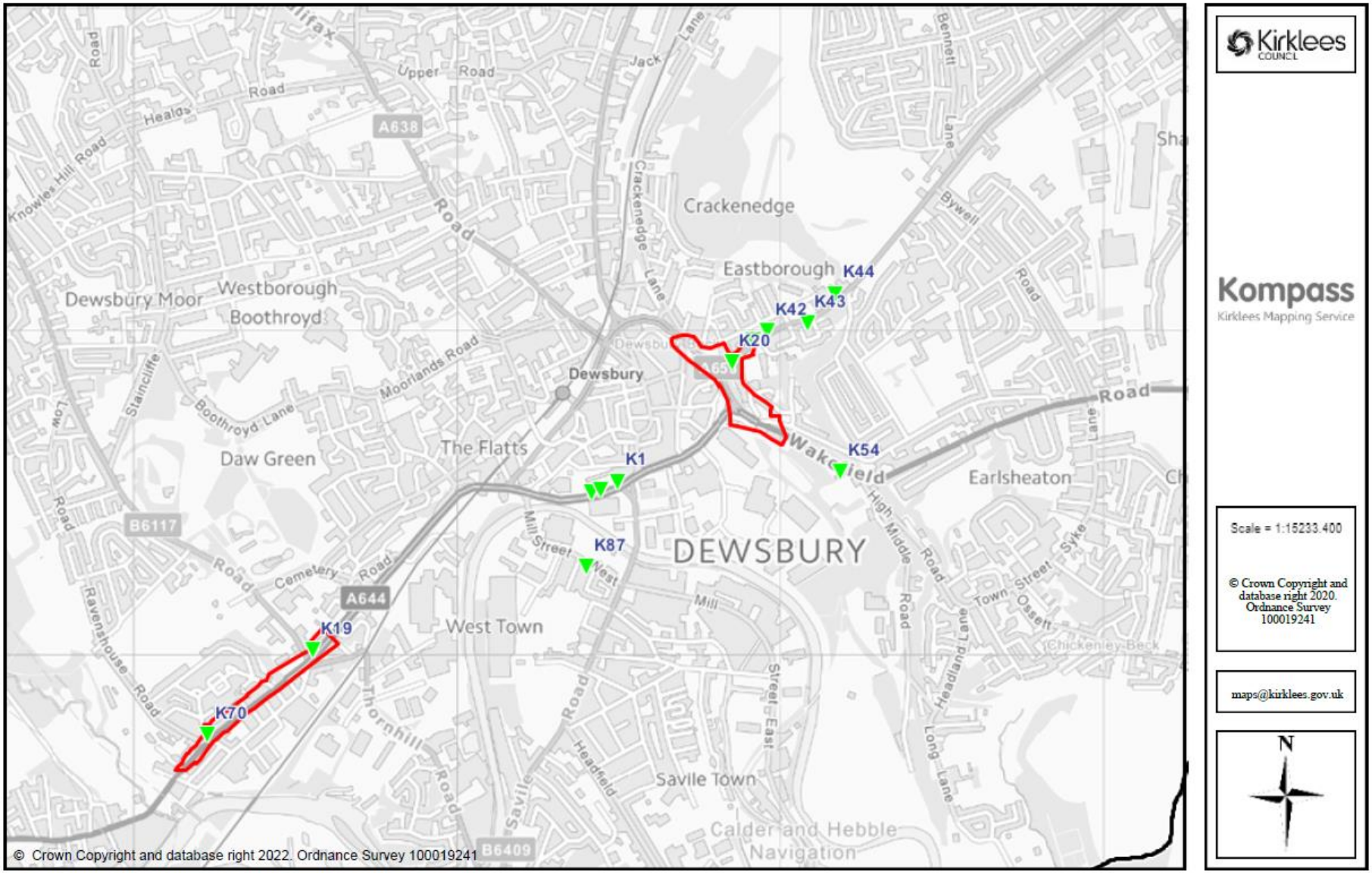
Map D.2 Air Quality Management Area 3 Ainley Top



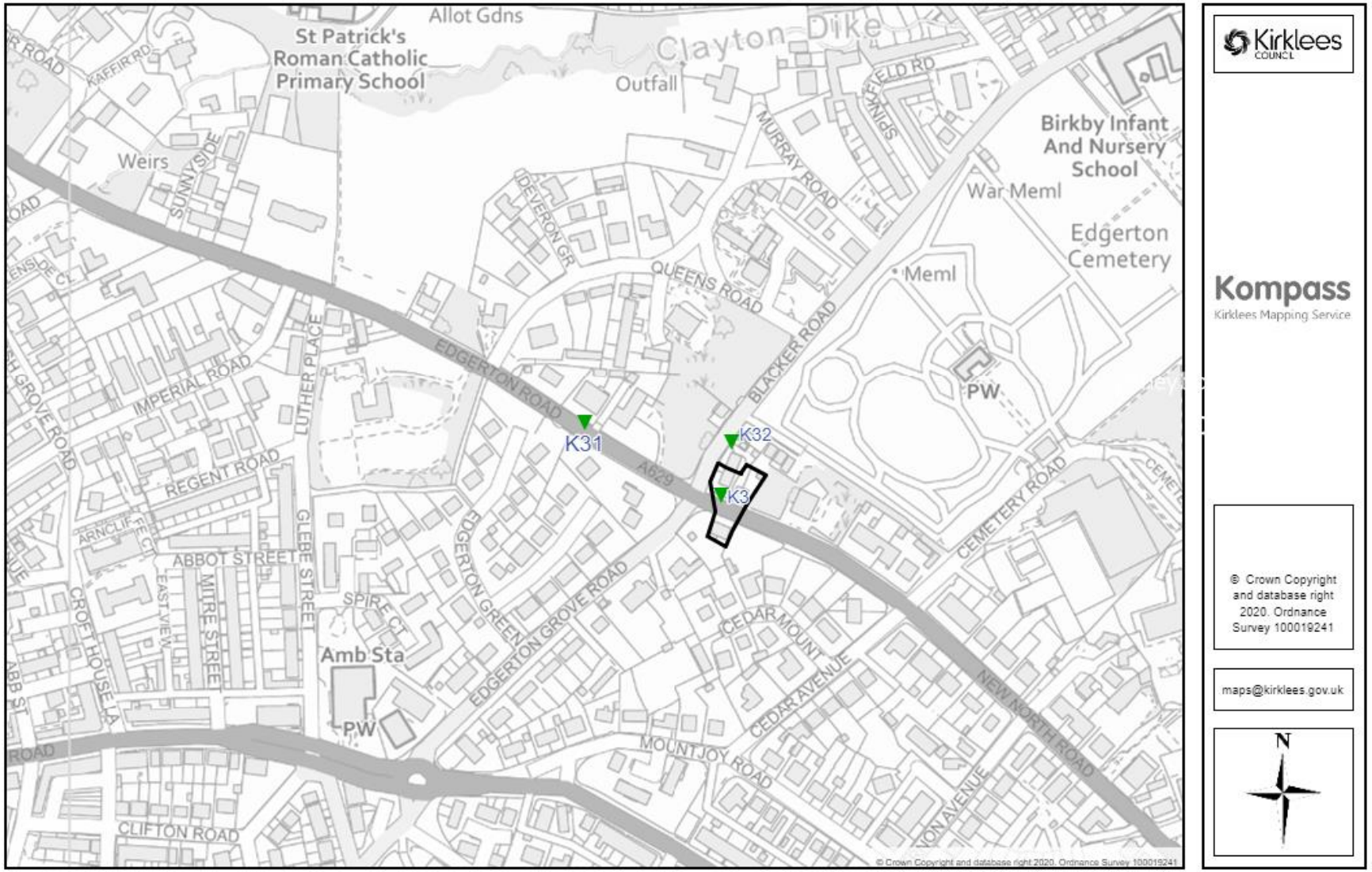
Map D.3 Air Quality Management Area 4 Birkenshaw



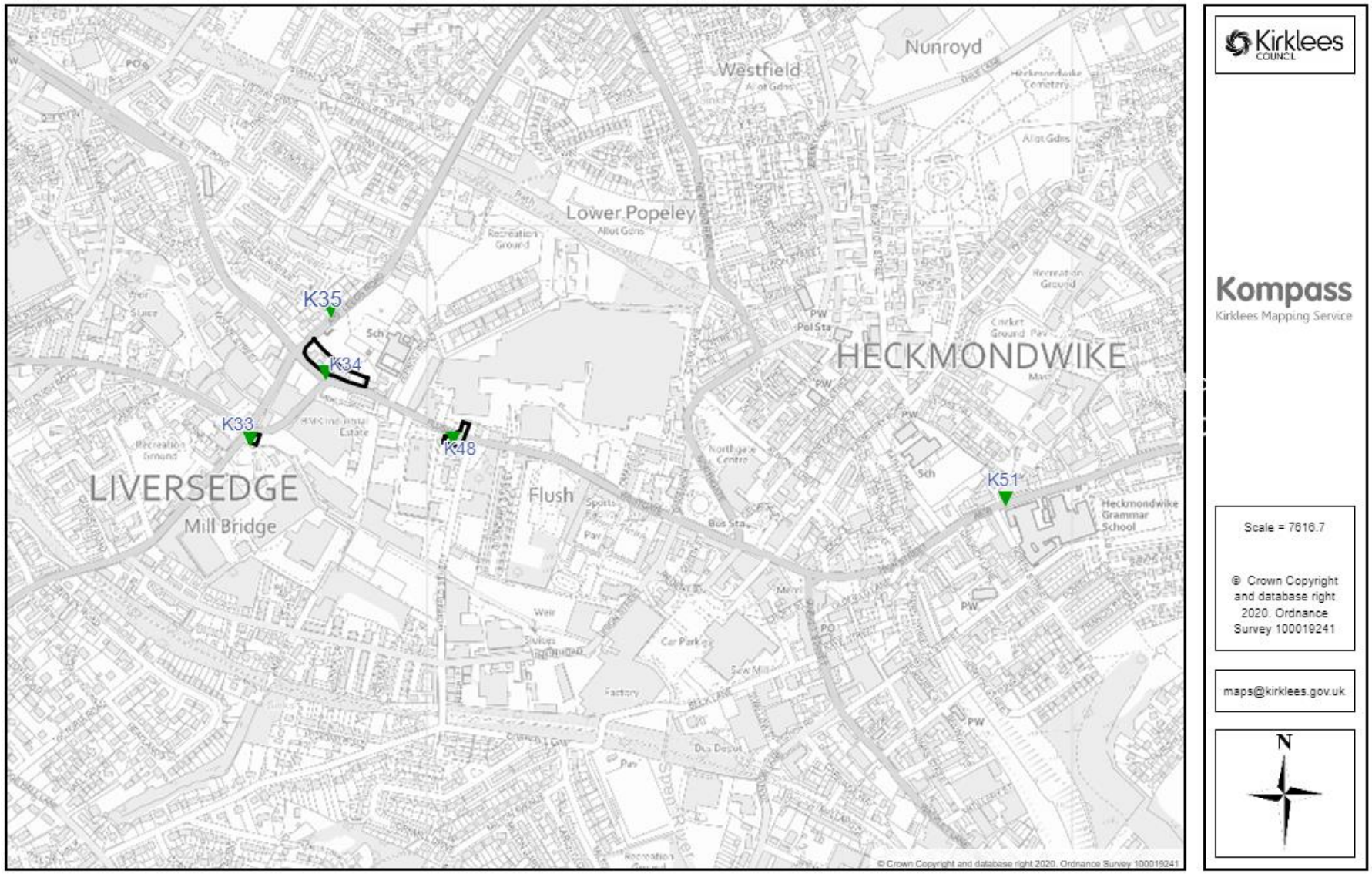
Map D.4 Air Quality Management Area 5 Eastborough



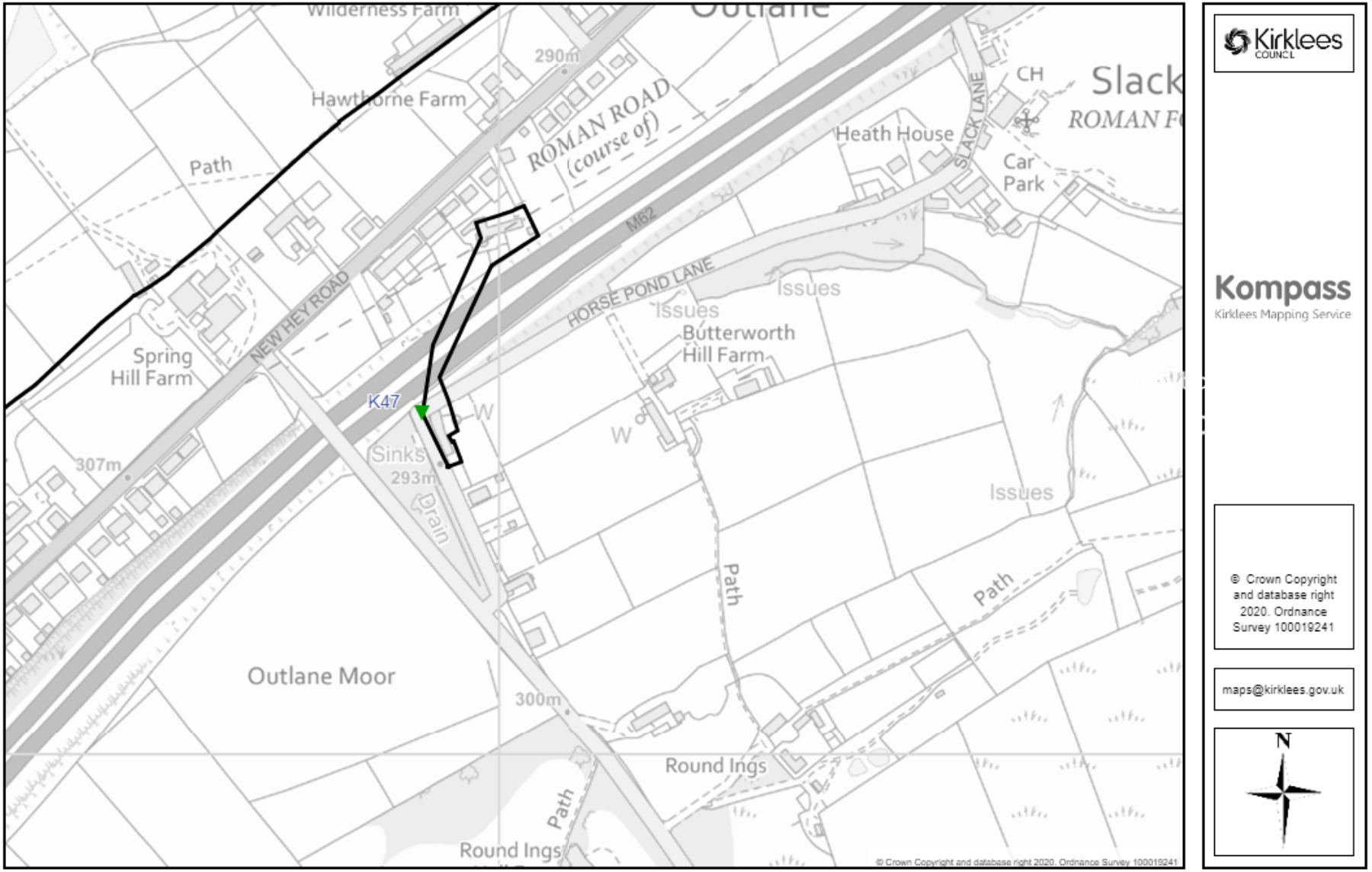
Map D.5 Air Quality Management Area 6 Edgerton



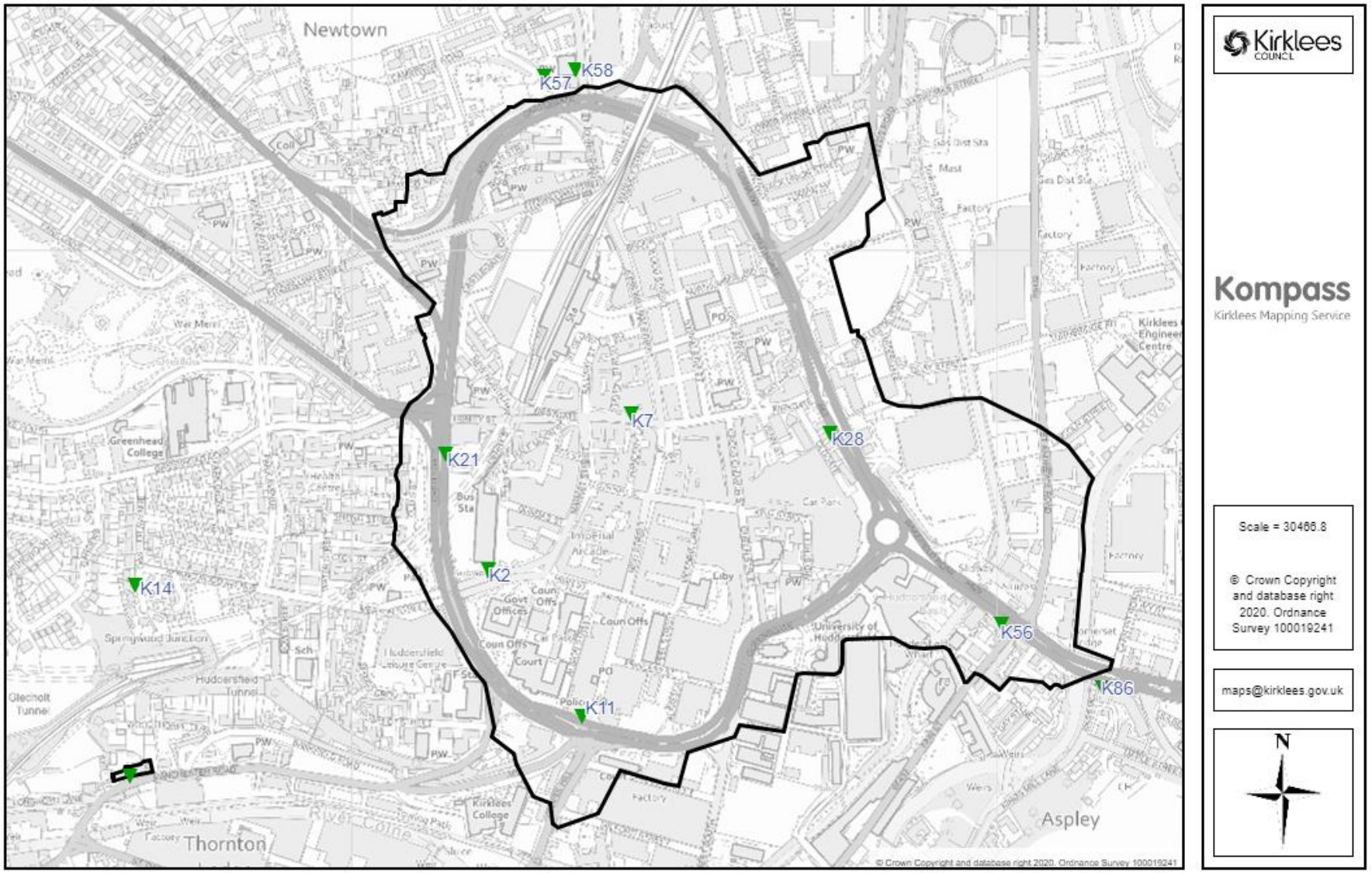
Map D.6 Air Quality Management Area 7 Liversedge



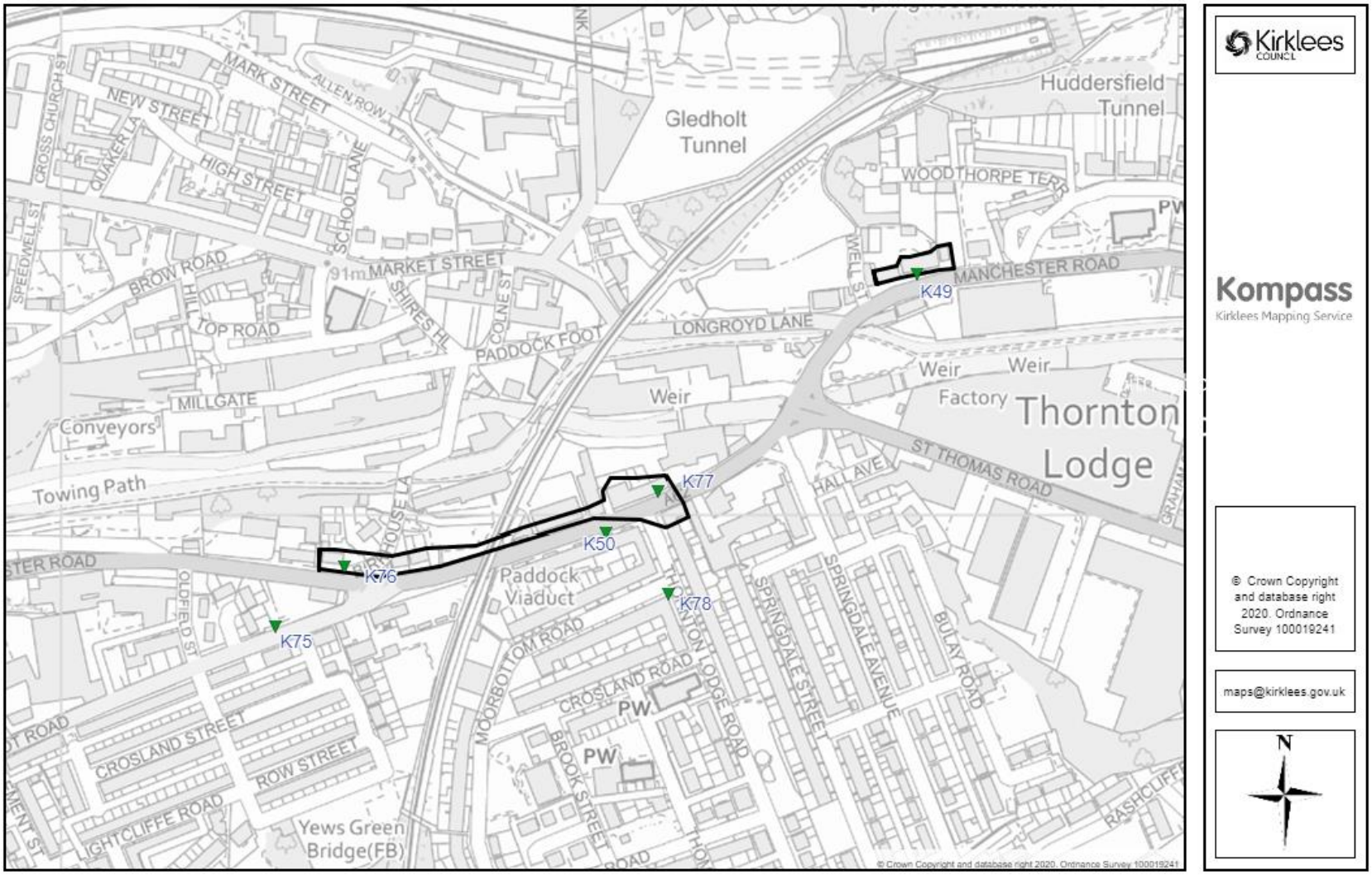
Map D.7 Air Quality Management Area 8 Outlane



Map D.8 Air Quality Management Area 9 Huddersfield Town Centre



Map D.9 Air Quality Management Area 10 Thornton Lodge

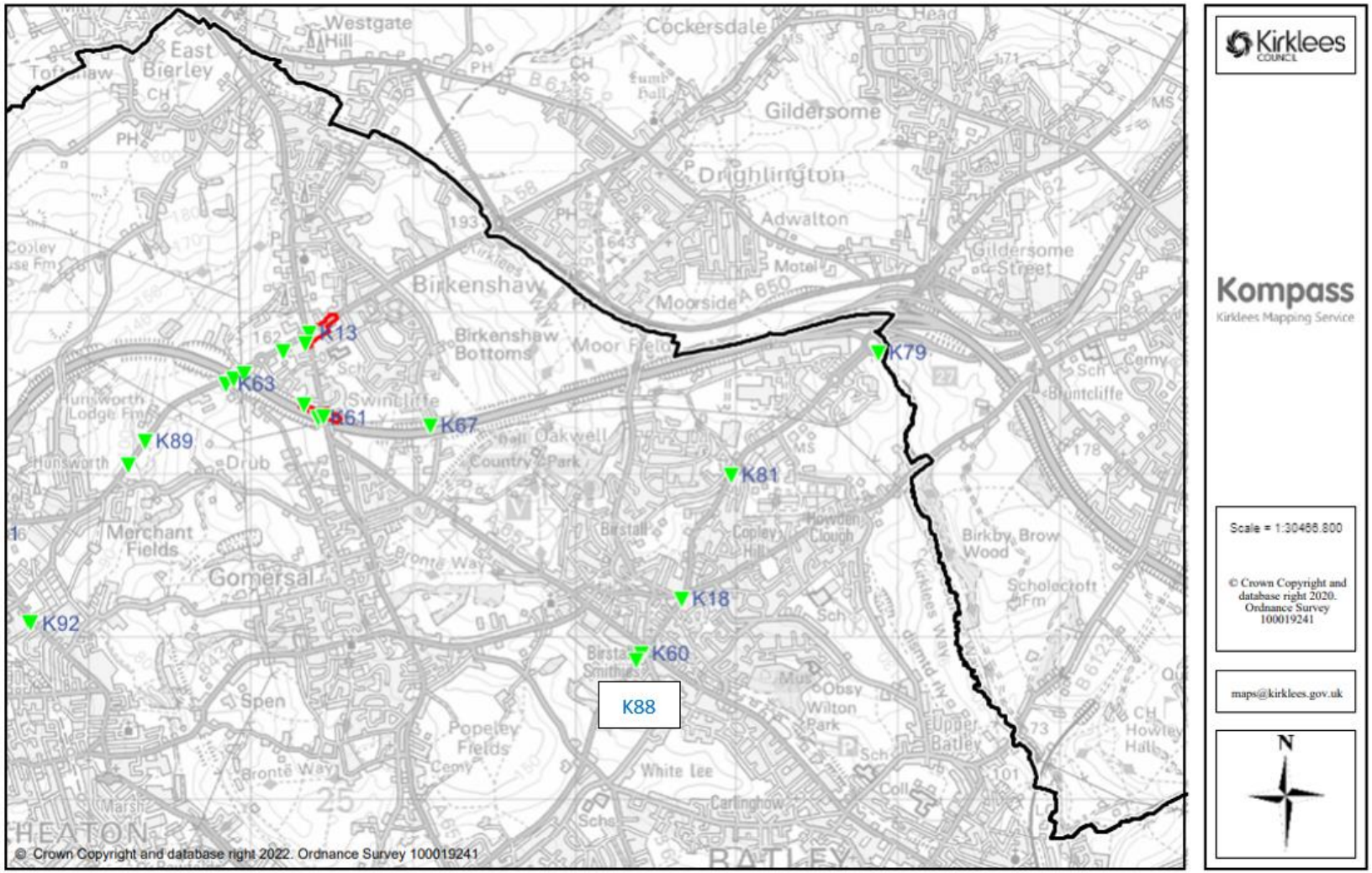


Map D.10 Air Quality Monitoring in Batley

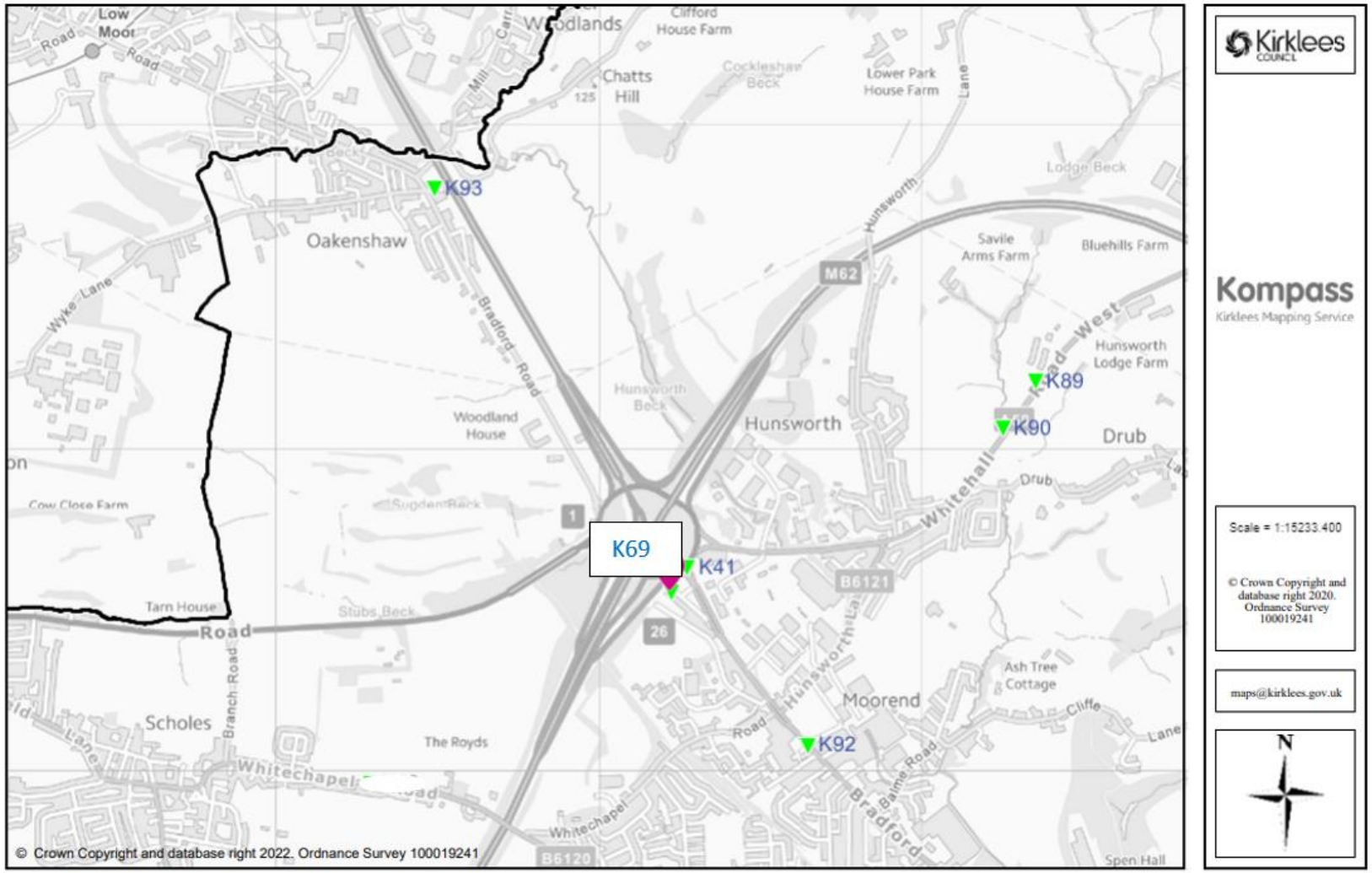
Map D.11 Air Quality Monitoring in Ravensthorpe / Scouthill (AQMA 2)

Map D.12 Air Quality Monitoring in Mirfield

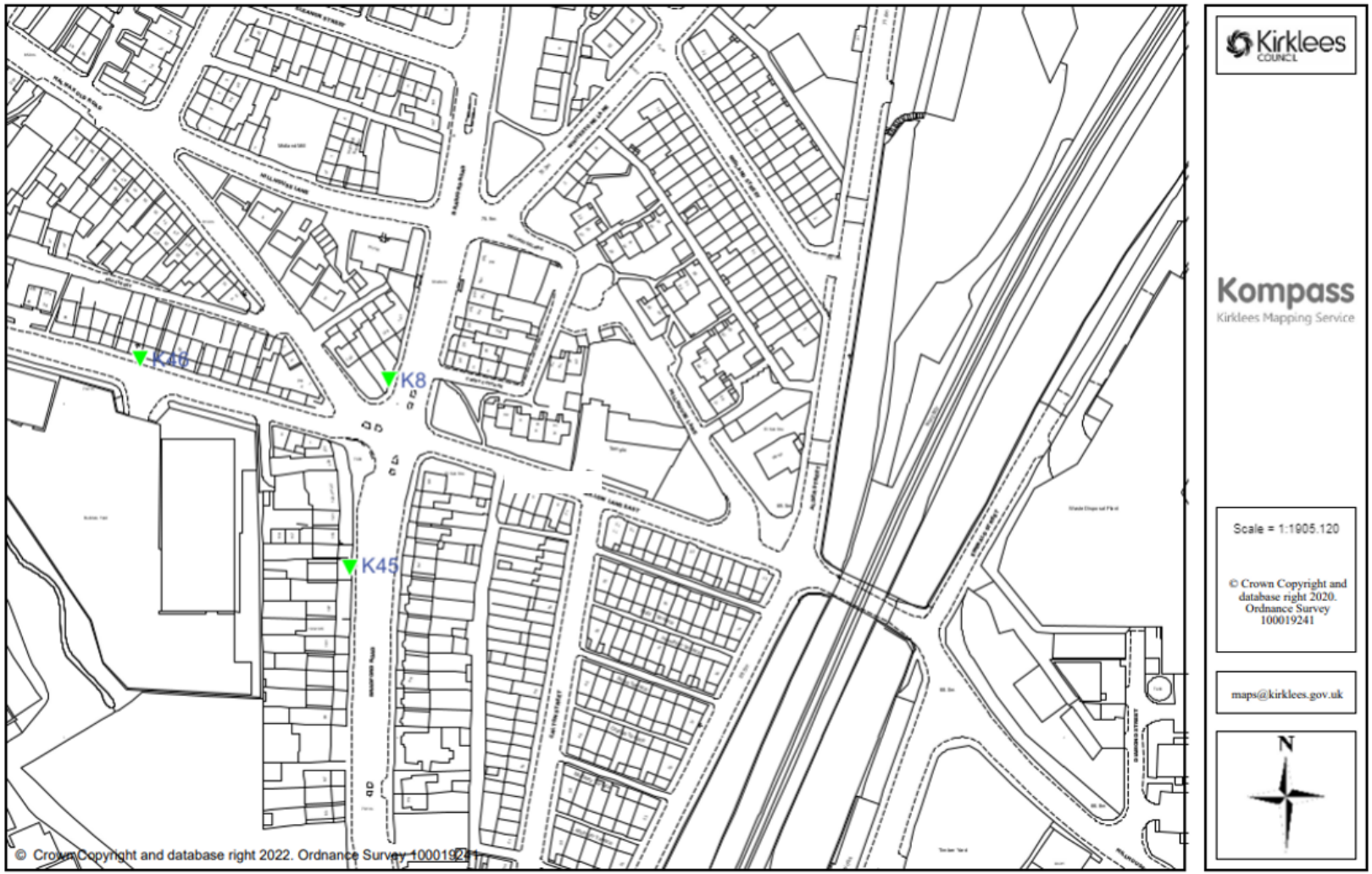
Map D.13 Air Quality Monitoring in Birstall



Map D.14 Air Quality Monitoring in Cleckheaton, Hunsworth & Oakenshaw

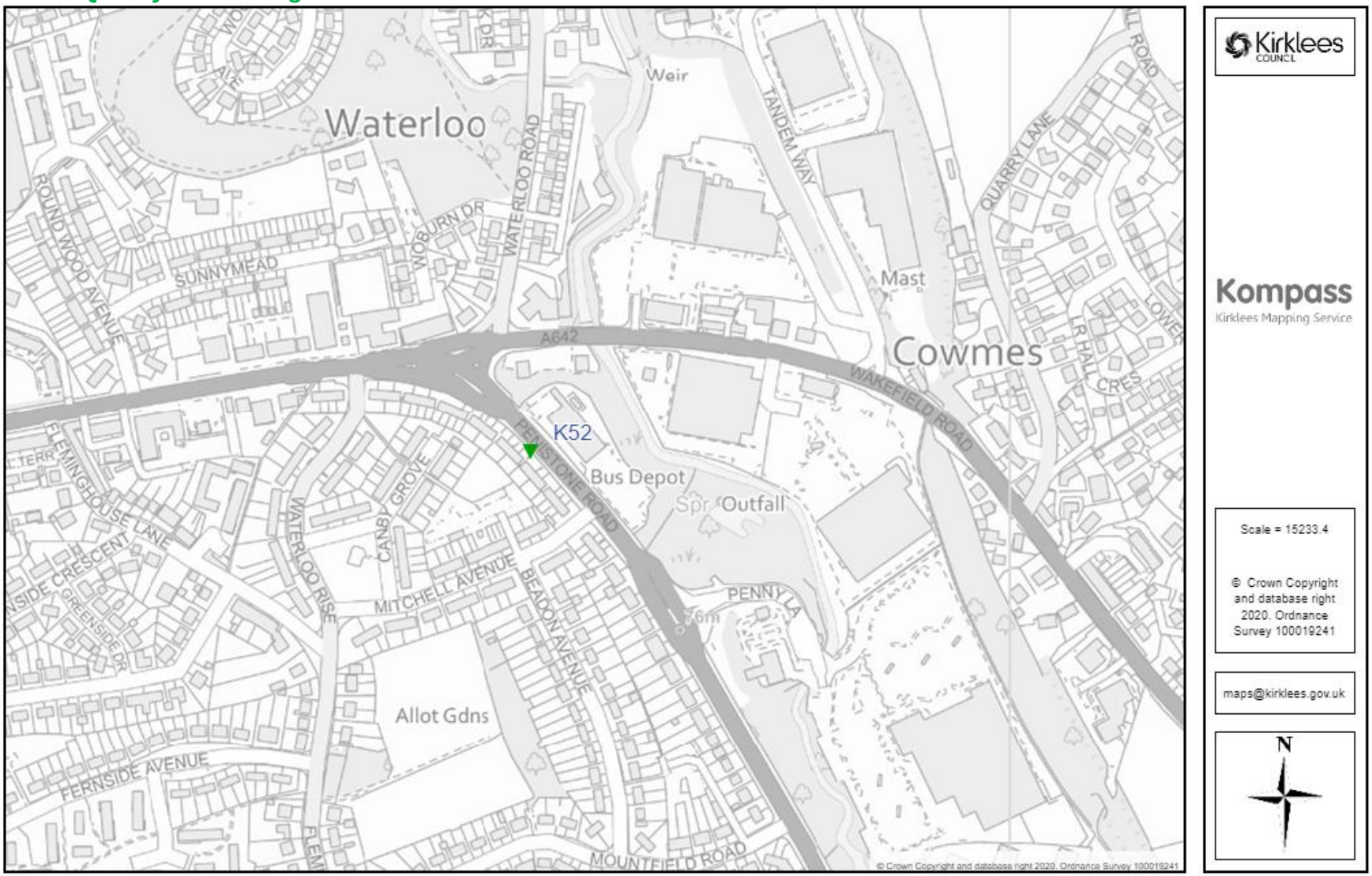


Map D.15 Air Quality Monitoring in Fartown



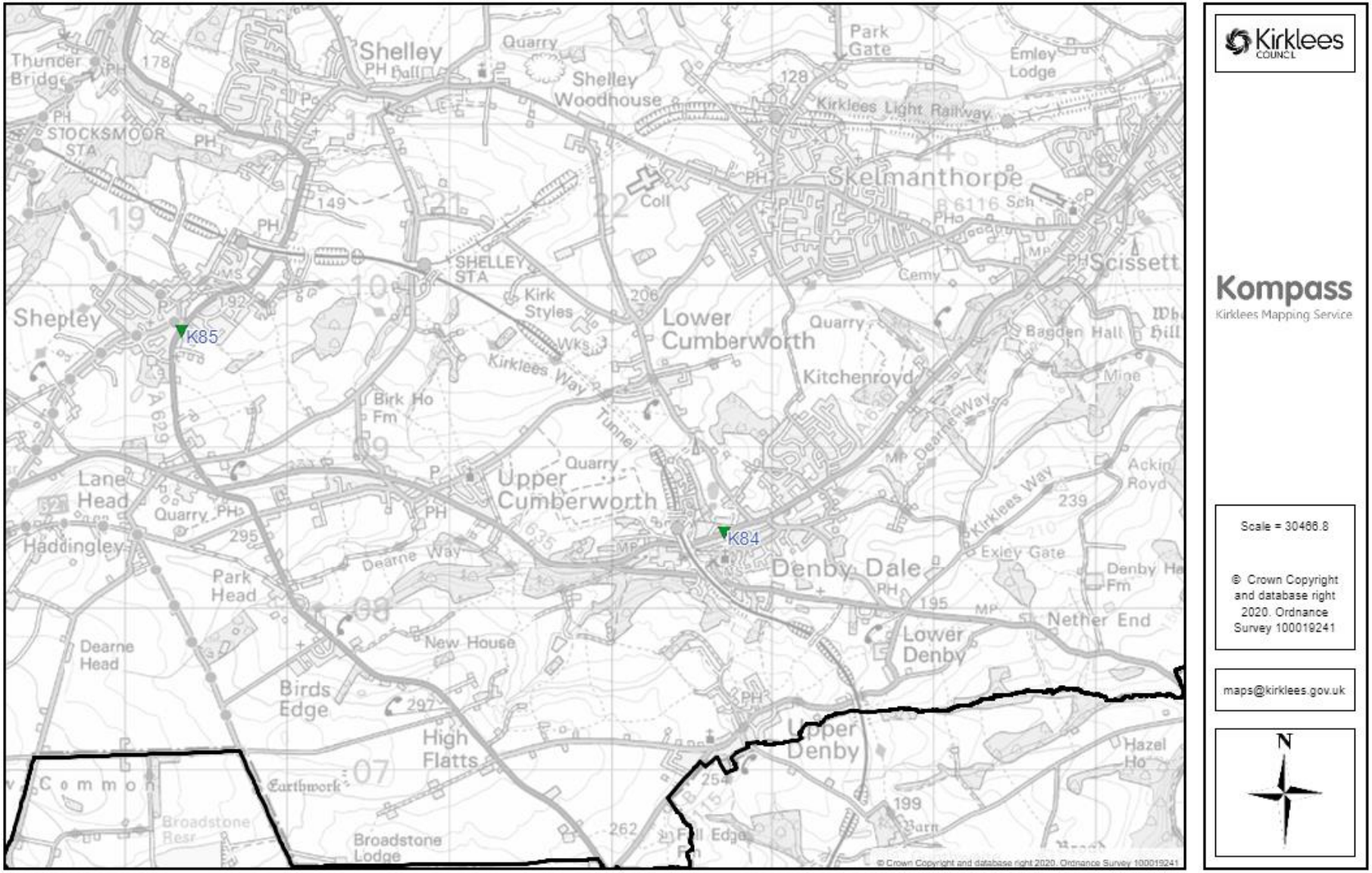
Map D.16 Air Quality Monitoring in Grange Moor and Flockton

Map D.17 Air Quality Monitoring in Waterloo

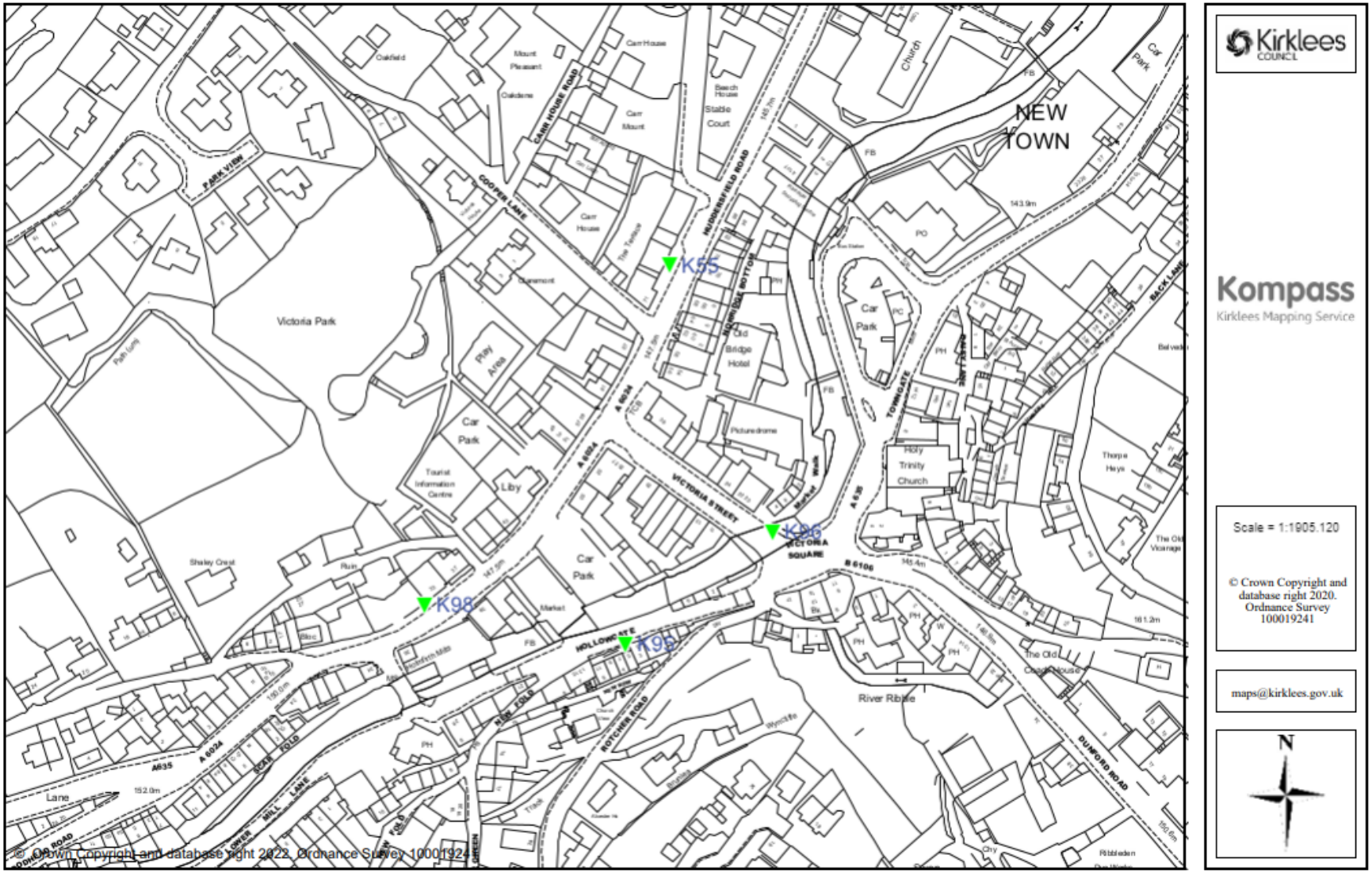


Map D.18 Air Quality Monitoring in Milnsbridge

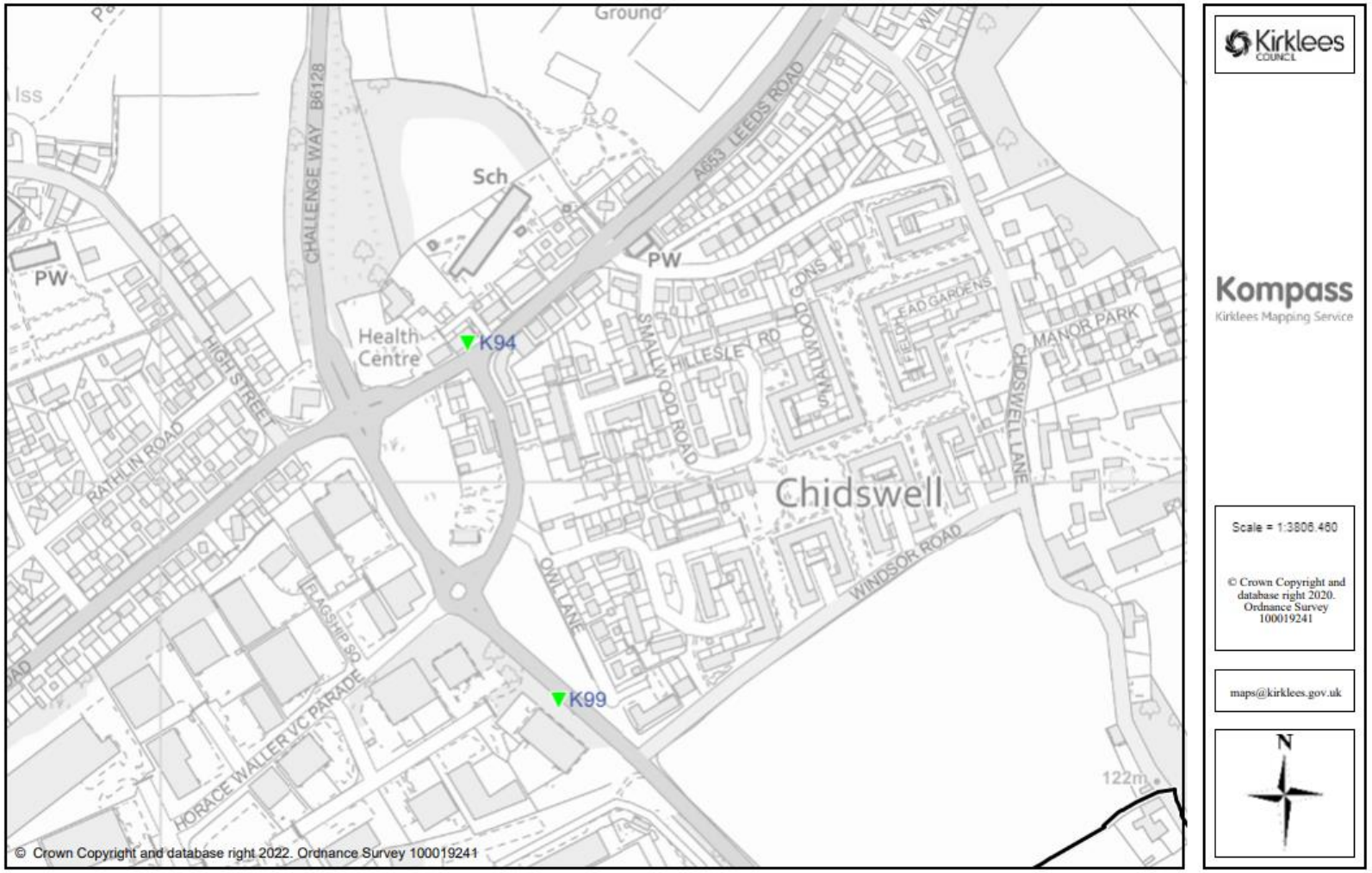
Map D.19 Air Quality Monitoring in Shepley and Denby Dale



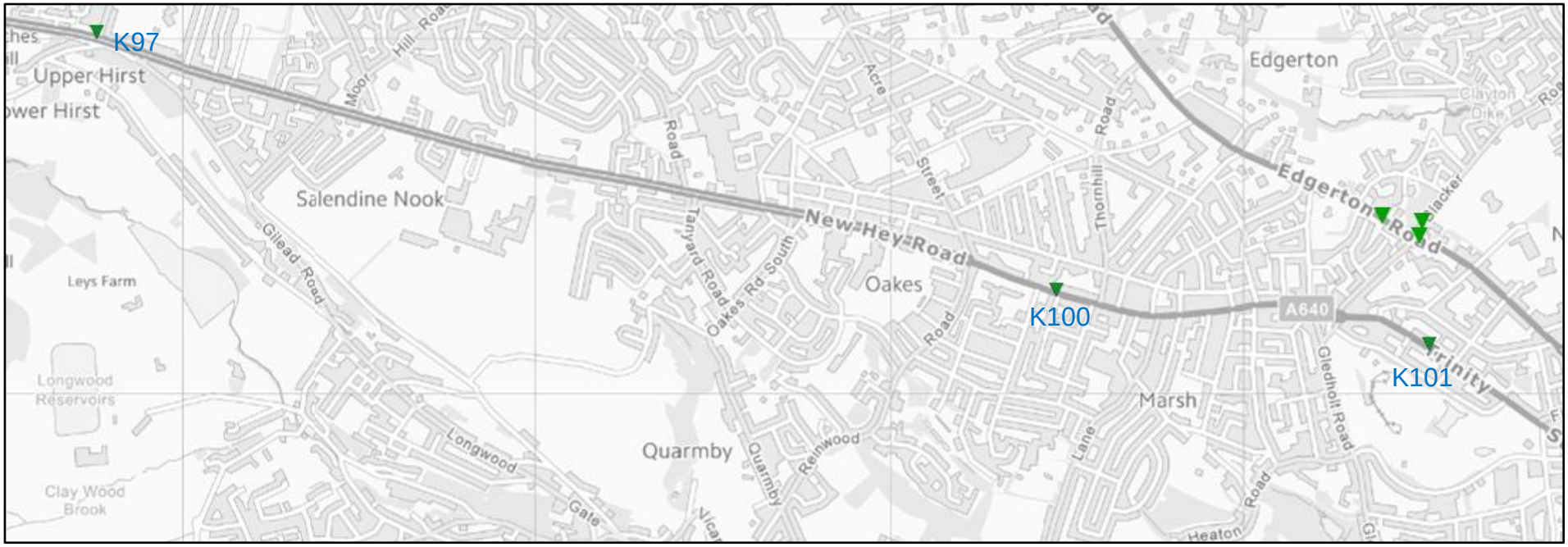
Map D.20 Air Quality Monitoring in Holmfirth



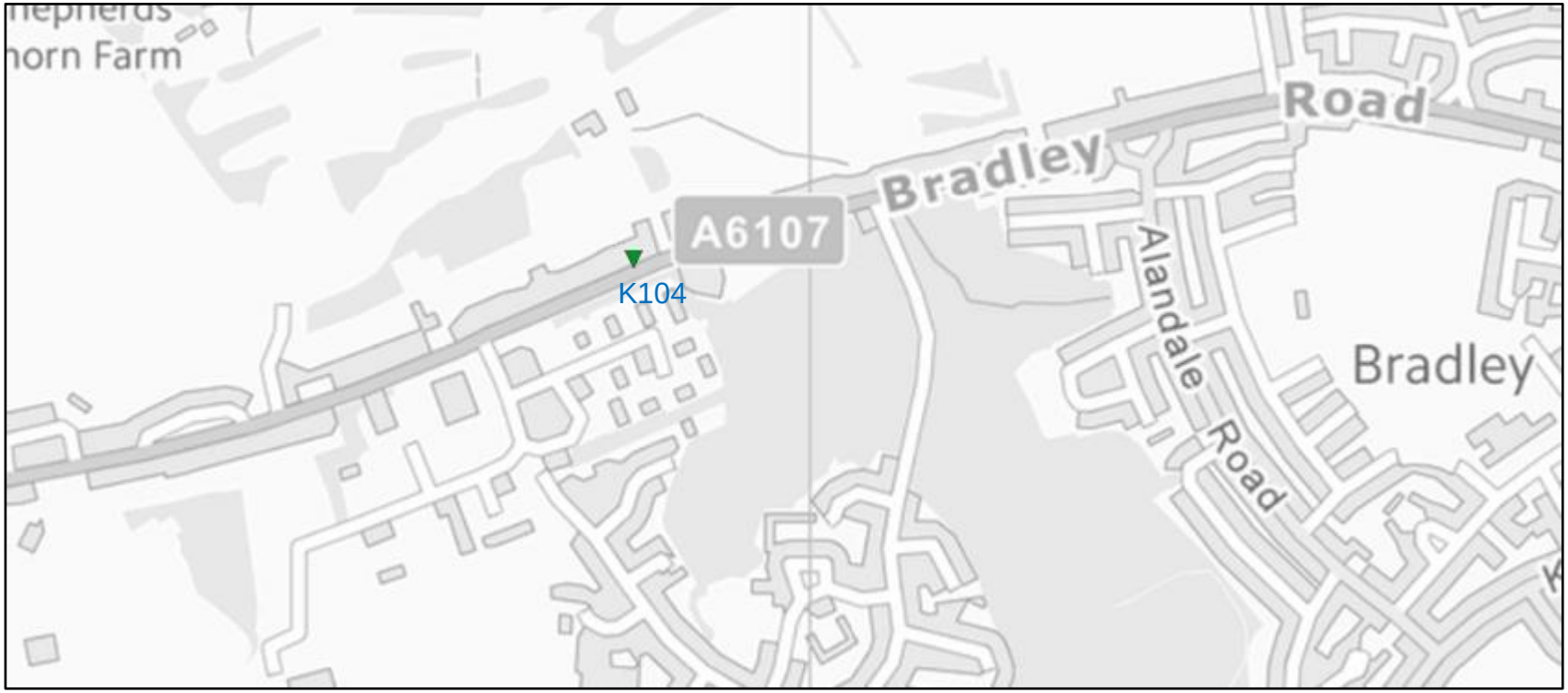
Map D.21 Air Quality Monitoring in Shaw Cross



Map D.22 Air Quality Monitoring in Oakes & Marsh



Map D.23 Air Quality Monitoring in Bradley



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[7]

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

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

Glossary of Terms

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

References

- Local Air Quality Management Technical Guidance LAQM.TG16. April 2021. 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.PG16. May 2016. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Part IV EnvironmentAct1995. (c.25) London: HMSO
- Local Air Quality Management Technical Guidance LAQM TG (16) DEFRA 2016
- Air Quality (England) Regulations 2000. SI 2000/928, London: HMSO
- Air Quality (England) (Amendment) Regulations 2002. SI 2002/3043, London: HMSO