



2019 Air Quality Annual Status Report (ASR)

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

Date: June 2019

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Executive Summary: Air Quality in Our Area

Kirklees is the third largest Metropolitan District in area - it covers 157 square miles or 40,860 hectares and a population of ~404,000. Measured in population terms Kirklees is one of the larger local authorities in England and Wales ranking 11th out of 348 districts. Over one tenth of the district is in the Peak District National Park. The extremes of altitude in Kirklees range from 33m (108 ft) at Thornhill Lees to 582m (1903 ft) at Black Hill.

Manufacturing industry, textiles and engineering still form a proportion of the local economy, the majority of it situated in the Huddersfield and Dewsbury areas and northwards to the M62. The urban areas comprise nine towns including the two larger towns of Huddersfield and Dewsbury.

Air Quality in Kirklees

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³.

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.

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

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

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

Current trends indicate that the levels of these pollutants have fallen over the last 5 years, but health related objectives are still exceeded within the district.

Kirklees currently has 10 Air Quality Management Areas (AQMAs) within the district.

These are;

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

Current 5 year trends for NO₂ indicate that the levels fell significantly between 2012 & 2013 within the Kirklees District, but since that time concentrations have stagnated for 3 years around 45 to 40µg/m³, with falls in concentrations in 2017 and 2018.

Concentrations in some areas still exceed AQO which indicates further work is required in addition to improvements in vehicle engine technology and fleet turnover in order to bring about compliance.

Actions to Improve Air Quality

Kirklees Council has taken forward a number of measures during the current reporting year of 2018 in pursuit of improving local air quality.

Key completed measures are:

- Recruitment of a West Yorkshire Low Emission Strategy (WYLES) delivery officer.
- Creation of Air Quality Strategy

- Creation of a new 5 year Action Plan for the whole district and individual AQMAs
- Procurement of a supplier for electric vehicle charging infrastructure for both taxi and public charging

Kirklees Council in 2018/19, undertook the process to construct an Air Quality Strategy for the district and a 5 year Action Plan, which includes key policies and improvement projects to deliver emissions reductions within the district. The action plan is for the district as a whole and also includes individual plans for each AQMA. This plan is out for consultation, which is due to end mid-July 2019.

Kirklees Council has been successful in securing funding to employ an office to deliver further outcomes from the WYLES Document. This officer started in position in May 2019 and is employed for 2 years. The aim of this role is to benchmark the authorities on current use of the WYLES with 5 key work streams to be focused on, Planning, Procurement, Licensing, EV Strategy and project management.

Kirklees Council, West Yorkshire Combined Authority and the 4 other West Yorkshire local authorities are also currently working on delivering a strategic charging network for electric taxis, with the addition of public charging. The scheme is funded by Office for Low Emission Vehicles (OLEV) and currently the combined authority (WYCA) and West Yorkshire councils are working together with a singular supplier to deliver 88 chargers within West Yorkshire by March 2020, of which 17 are to be installed within the Kirklees district.

Conclusions and Priorities

During the 2017/18 reporting year Kirklees Council priorities for air quality are listed below;

- The AQ Strategy and Action Plan to be accepted by DEFRA.
- Begin to deliver the actions within the action plan
- Continue to Integrate the West Yorkshire Low Emission Strategy into Council Policy

- Work with neighbouring authorities to complete regional public/taxi charging network

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>

<http://www.kirklees.gov.uk/involve/entry.aspx?id=821>

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

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1 Local Air Quality Management

This report provides an overview of air quality in **Kirklees Council** during **2019**. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

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

The statutory air quality objectives applicable to LAQM in England can be found in **Error! Reference source not found.** in Appendix E.

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare an Air Quality Action Plan (AQAP) within 12-18 months setting out measures it intends to put in place in pursuit of compliance with the objectives.

A summary of AQMAs declared by Kirklees Council can be found in Table 2.1.

Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at

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

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

Alternatively, see Appendix D: Map(s) of Monitoring Locations and AQMAs, which provides for a map of air quality monitoring locations in relation to the AQMA(s).

21 June 2019 Kirklees Council declared 1 new AQMA in Huddersfield at Thornton Lodge

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	City / Town	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance (maximum monitored/modelled concentration at a location of relevant exposure)				Action Plan		
						At Declaration		Now		Name	Date of Publication	Link
AQMA 1 Bradley TO BE AMMENDED	Declared 17/10/08	NO2 Annual Mean	Huddersfield	The designated area incorporates the Leeds Road (A62) - Bradley Road (A6107) junction	NO	73	µg/m3	39.3	µg/m3	New Action Plan out for public consultation	Estimated 2019/20	Previous Action Plan available here: http://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	Dewsbury	Now revoked, the designated area incorporated part of	NO	43 Days	Exceedances	N/A	Exceedances	New Action Plan out for public consultation	Estimated 2019/20	Previous Action Plan available here: http://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

				Huddersfield Road (A644) in Scouthill								
AQMA 3 Ainley Top	Declared 01/11/17	NO2 Annual Mean	Huddersfield	The designated area incorporates Halifax Road (A629), Lindley Moor Road, Bradley Road (A643), Warren House Lane and Stirling Wood Close, which is in close proximity to the Ainley Top Roundabout at Birchcliffe	YES	44	µg/m3	38.5	µg/m3	New Action Plan out for public consultation	Estimated 2019/20	Previous Action Plan available here: http://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

AQMA 4 Birkenshaw	Declared 01/11/17	NO2 Annual Mean	Bradford	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	45	µg/m ³	33.9	µg/m ³	New Action Plan out for public consultation	Estimated 2019/20	Previous Action Plan available here: http://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx
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AQMA 5 Eastborough	Declared 01/11/17	NO2 Annual Mean	Dewsbury	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	60	µg/m3	47.2	µg/m3	New Action Plan out for public consultation	Estimated 2019/20	Previous Action Plan available here: http://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx
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AQMA 6 Edgerton	Declared 01/11/17	NO2 Annual Mean	Huddersfield	The designated area incorporates Edgerton Road (A629) and Blacker Road, which is in close proximity to Huddersfield Town Centre. The designated area incorporates Huddersfield Road (A62), Bradford Road (A638), Wakefield Road (A638), Wormald Street and Well Street, which is	NO	54	µg/m3	46.4	µg/m3	New Action Plan out for public consultation	Estimated 2019/20	Previous Action Plan available here: http://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx
AQMA 7 Liversedge	Declared 01/11/17	NO2 Annual Mean	Liversedge	The designated area incorporates Huddersfield Road (A62), Bradford Road (A638), Wakefield Road (A638), Wormald Street and Well Street, which is	NO	45	µg/m3	38.4	µg/m3	New Action Plan out for public consultation	Estimated 2019/20	Previous Action Plan available here: http://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx

AQMA 8 Outlane	Declared 01/11/17	NO2 Annual Mean	Huddersfield	in Liversedge The designat ed area incorpor ates New Hey Road and Round Ings Road, which is in close proximity to the M62 at Outlane The designat ed area incorpor ates Roads borderin g and within the Huddersf	YES	54	µg/m3	44. 9	µg/m3	New Action Plan out for public consulta tion	Estimate d 2019/20	Previous Action Plan available here: http://www.kirklees.gov.uk/ beta/crime-and-safety/air- pollution.aspx
AQMA 9 Huddersfield Town Centre	Declared 01/11/17	NO2 Annual Mean	Huddersfield	in Liversedge The designat ed area incorpor ates New Hey Road and Round Ings Road, which is in close proximity to the M62 at Outlane The designat ed area incorpor ates Roads borderin g and within the Huddersf	NO	55	µg/m3	43. 2	µg/m3	New Action Plan out for public consulta tion	Estimate d 2019/20	Previous Action Plan available here: http://www.kirklees.gov.uk/ beta/crime-and-safety/air- pollution.aspx

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AQMA 10 Thornton Lodge	Declared	NO2 Annual Mean	Huddersfield	field Ring Road The designated area incorporates Manchester Road	NO	47	µg/m3	41.7	µg/m3	New Action Plan out for public consultation	Estimated 2019/20	Previous Action Plan available here: http://www.kirklees.gov.uk/beta/crime-and-safety/air-pollution.aspx
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Kirklees Council confirm the information on UK-Air regarding their AQMA(s) is up to date

2.2 Progress and Impact of Measures to address Air Quality in Kirklees Council

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

The report is well structured, detailed, and provides the information specified in the Guidance following the latest template.

1. The main challenge for Kirklees Council is now to develop an Action Plan to address the pollution exceedances within the 9 AQMAs covering urban areas within Huddersfield, Dewsbury, Bradford and Liversedge.
2. Apart from AQMA 9 covering the central urban area of Huddersfield, all the AQMAs are relatively small areas, representing localised pollution hotspots.
3. It will be important in future reporting that the continued assessment of AQMA status is able to be validated by examination of monitoring results.
4. The current presentation of monitoring results do not enable any clear understanding of AQMA status.
5. There is no consistency in the presentation of location of monitoring sites clearly labelled within AQMA boundaries. This should be addressed in future reports so that the current statuses of each AQMA can be verified from results in maps and tables.
6. From results in Table B.1 it appears there are only 7 results with exceedances in AQMAs, but it is not possible to verify which AQMAs they represent.
7. The Council have made reference to recent work in AQMA 1 of Urban Traffic Control measures at a congested junction leading to improvements in air quality.
8. A new AQAP will be developed in 2018 to include the new AQMAs. It will be important to ensure that the new AQAP includes measures which target air quality improvements in these areas.
9. We support the initiative to extend use of UTC measures to address pollution hotspots in the remaining AQMAs.

10. Source apportionment and vehicle emissions assessments will be required to provide clear determinations of the level of emissions reductions required within each AQMA prior to developing action plan measures.
11. The Council should carefully consider the recommended procedures in Chapter 2 of LAQM TG(16) as a basis for developing the action plan.
12. We continue to recommend the Council review their monitoring programme, and consider relocating some of these diffusion tubes to locations of relevant exposure to validate AQMA hotspots, where monitoring has not yet taken place,
13. The Lindley Moor Road assessment has concluded there should be no AQMA. The labelling for Map E.1 does not make clear which monitoring site is close to the AQMA. On the basis that monitoring site K73 has a result of 43.4 µg/m³, we recommend that further monitoring should take place to verify this decision.
14. We note the results of the Thornton Lodge Assessment and the high level of model uncertainty. We support the designation of an AQMA at this location, and suggest that further monitoring should be carried out to verify the status of the AQMA.
15. The Council should provide details of annualisation and distance corrections in Appendix C, clearly stating the background concentrations used in these calculations, and providing example calculations as necessary.

Kirklees Council has taken forward a number of direct measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2.

The measures in table 2.2 are taken from the current action plan, which is set to be replaced in 2019 by a new 5 year action plan. The new 5 year action plan is currently out for public consultation, due to end mid July 2019. All new actions planned during 2018/19 will be included into the new action plan and progress will be presented in the ASR 2020. Once adopted the new action plan will be available;

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

Key completed measures from 2018 are:

- Creation of Air Quality Strategy
- Creation of 5 year Action Plan
- Employment of WYLES Officer

Kirklees Council's priority for the coming year is to complete the action plan process with DEFRA, adopt the new Action Plan for the district and begin to deliver the new action plan with a focus to improve air quality districtwide and within the AQMAs.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Organisations involved and Funding Source	Planning Phase	Implementation Phase	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Install Split Cycle Offset Optimisation technique (SCOOT) Traffic Management System within AQMA 1	Traffic Management	Other	LA	2013	2013	Reduction in queuing time	Reduction in emissions	Installed	2013	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2020
2	Alter SCOOT to incorporate the actual Air Quality pollution levels	Traffic Management	Other	LA	2015	2016	Reduction in NOx and PM10	Reduction in emissions	Planning stage	2017	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2021
3	Bus priority at lights in AQMA 1	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	LA	2013	2014	Reduction in queuing time for public transport	Reduction in emissions	Implemented scheme	2014	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2022
4	Bradley Junction. Re-model	Transport Planning and	Other	TBC	2014	2019	Reduce congestion	Reduction in emissions	Pre-design stage	2021	These are results of old Action Plan. New Action Plan to be

	one of the busiest Road Junction in Kirklees in AQMA 1	Infrastructure					levels at AM/PM peaks				reported once accepted - likely ASR 2023
5	Ravensthorpe Bypass. Complete by pass of AQMA 2.	Transport Planning and Infrastructure	Other	TBC	2012	2021	Divert traffic away from AQMA 2	Reduction in emissions	Feasibility Study carried out	2026	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2024
6	Cooper Bridge Gyratory proposed in AQMA 1	Transport Planning and Infrastructure	Other	TBC	2014	2019	Reduction in queuing time	Reduction in emissions	Junction designed. Funding sought	2021	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2025
7	Proposed New Junction 24a on M62	Transport Planning and Infrastructure	Other	TBC	2013	2021	Reduction in traffic volume through AQMA 1	Reduction in emissions	Feasibility Study	2023	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2026
8	Bus Lanes approaching AQMA 1	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	LA	2010	2011	Reduction in delays to buses	Reduction in emissions	Bus lane installed	2012	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2027
9	Resource Smart Resource Corridor	Policy Guidance and Development Control	Other policy	TBC	2016	TBC	Reduction of NO2 in AQMA	Reduction in emissions			These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2028

10	Internal Travel Plans	Policy Guidance and Development Control	Other policy	LA	2008	2009	Uptake of sustainable options	Reduction in emissions	Adopted and implemented	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2029
11	Transport Plans for Businesses required	Policy Guidance and Development Control	Other policy	LA	Pre 2006	Pre 2006	Uptake of sustainable options	Reduction in emissions	Asking for plans through planning process	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2030
12	School Travel Plan Framework	Policy Guidance and Development Control	Other policy	LA	2005	2006	Uptake of sustainable options	Reduction in emissions	Schools were encouraged to produce travel plans and funding sought to fund infrastructure requirements	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2031
13	Bikeability in schools. Council staff visited schools giving cycling safety training.	Promoting Travel Alternatives	Promotion of cycling	LA	2009	2010	Increase in cycling	Reduction in emissions	Promoted cycling in schools via education programmes on road safety	2014	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2032
14	Spenn Valley Greenway (Traffic Free Cycleway on former railway line)	Transport Planning and Infrastructure	Cycle network	LA	1998	2000	Increase in cycling	Reduction in emissions	Cycleway implemented	2000	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2033
15	Calder Valley Cycleway (Traffic Free Cycleway on former railway line)	Transport Planning and Infrastructure	Cycle network	LA	2004	2008	Increase in cycling	Reduction in emissions	Cycleway implemented	2008	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2034

16	City Cycle Ambition Grant 2	Policy Guidance and Development Control	Other policy	Grant	2015	2015	Increase in cycling	Reduction in emissions	Bid submitted for cycleway improvements	2016	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2035
17	Free Parking for Electric Vehicles and 50% discount on parking for other ULEV	Promoting Low Emission Transport	Priority parking for LEV's	LA	2007	2008	Uptake of low emission and Ultra Low Emission Vehicles	Reduction in emissions	Scheme is operational	On going	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2036
18	City Car Club	Alternatives to private vehicle use	Car Clubs	LA	2008	2009	Use of club cars	Reduction in emissions	Introduced car club to Kirklees District	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2037
19	Car Sharing Scheme	Promoting Travel Alternatives	Other	LA	2006	2007	Use of website	Reduction in emissions	Contribute to license fee for car sharing website and private subsite for council staff	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2038
20	Local Free Bus around Huddersfield Town Centre and Dewsbury Town Centre	Alternatives to private vehicle use	Other	LA	2005	2006	Bus Patronage	Reduction in emissions	Bus runs in both Huddersfield and Dewsbury	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2039
21	Conversion of Fleet to ULEV where appropriate	Vehicle Fleet Efficiency	Other	LA	2008	2009	Number of fleet changed to EV	Reduction in emissions	We have used an electric transit type van for a number of years and have had the Energy Savings trust review our fleet to see if further swithes to Electric vehicles can be made	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2040

22	Air Quality report to Newspaper	Public Information	Via other mechanisms	LA	Pre 2006	Pre 2006	Awareness of Air Quality amongst the public	Reduction in emissions	Daily Reports sent to newspaper	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2041
23	Bike to work scheme within Council, discount cycle purchase scheme	Promoting Travel Alternatives	Promotion of cycling	LA	2008	2009	Uptake of bikes	Reduction in emissions	Implemented scheme and promoted to workforce	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2042
24	Local sustainable transport fund project to promote modal shift in schools. Dedicated officer visiting schools promoting modal shift	Promoting Travel Alternatives	Other	Grant	2011	2012	Monitor transport options at local schools	Reduction in emissions	Funded officer to go into schools and promote modal shift	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2043
25	Air Quality Strategy	Policy Guidance and Development Control	Other policy	LA	2005	2006	Local policy using Air Quality as a decision factor	Reduction in emissions	Document completed and adopted	2006	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2044
26	Deep Clean in AQMA 2	Other	Other	LA	2013	2014	Reduction in PM10 levels	Reduction in emissions	First deep clean conducted. 2014 reduction in exceedances of daily PM10 in AQMA Planning to conduct clean in 2015	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2045
27	Mote sensing	Vehicle Fleet Efficiency	Testing Vehicle Emissions	Grant	2010	2012	Results from research	Reduction in emissions	Analysed emissions of local traffic		These are results of old Action Plan. New Action Plan to be

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	real-time emissions										reported once accepted - likely ASR 2046
28	Electric Vehicle Charge point Installed in Council Depot	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Grant	2013	2014	Number of fleet changed to EV	Reduction in emissions	Charge point installed in council depot	2014	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2047
29	Trial of EV vehicles as pool car	Promoting Low Emission Transport	Other	LA	2014	2014	Uptake of LEVs	Reduction in emissions	Car was used by various staff to conduct daily works	2014	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2048
30	Smokey Vehicle hotline	Public Information	Other	LA	Pre 2000	Pre 2000	Number of calls received	Reduction in emissions	Customers can call and report vehicles with smokey exhausts	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2049
31	Planning conditions on all applications for sustainable transport	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Grant	2014	2014	Number of conditions on approval	Reduction in emissions	Currently request EV charge points on all new developments	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2050
32	Green Procurement Toolkit	Policy Guidance and Development Control	Sustainable Procurement Guidance	LA	2005	2006	use of toolkit in procurement	Reduction in emissions	Green procurement toolkit created for Low carbon	2015	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2051
33	West Yorkshire Low Emission Strategy	Policy Guidance and Development Control	Low Emissions Strategy	Grant	2012	2013	Policy adopted by Kirklees Council	Reduction in emissions	Strategy document completed in draft form. To go out for review	2015	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2052

34	Hotel EV Charge Point Project. Electric Vehicle Charge points installed in a number of accommodation providers	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	LA	2014	2015	use of the charge points	Reduction in emissions	Applications from hotels. Number of sites installed	2015	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2053
35	Install SCOOT within AQMA 2	Traffic Management	UTC, Congestion management, traffic reduction	LA	2012	2013	Reduction in queuing time	Reduction in emissions	Installed	2013	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2054
36	New links to Greenway (Cycle Path) added through planning	Transport Planning and Infrastructure	Cycle network	LA	2000	2000	Increase cycle routes	Reduction in emissions	Recommended conditions to planning	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2055
37	Subsidised Metro Cards for Staff	Promoting Travel Alternatives	Workplace Travel Planning	LA	Pre 2006	Pre 2006	Promote use of public transport	Reduction in emissions	Scheme is operational	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2056
38	Metro Cards introduced for work journeys	Promoting Travel Alternatives	Workplace Travel Planning	LA	2008	2009	Reduce use of cars for shorter journeys	Reduction in emissions	Metro Cards in use for public transport for council staff to undertake their daily work	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2057
39	Installing EV Charge points into private car parks (three sites, 4	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging,	LA	2015	2015	Usage of charge points	Reduction in emissions	Bid successful and sites identified	2015	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2058

	units installed)		Gas fuel recharging								
40	Congestion performance funding	Traffic Management	UTC, Congestion management, traffic reduction	LA	2011	2012	Number of children going to schools using non private vehicles to access sites	Reduction in emissions	Funded officer to go into schools and promote modal shift	2014	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2059
41	Bus priority at lights in AQMA 1. Gives late buses priority through Air Quality Management Area 1	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	LA	2013	2014	Reduction in queuing time for public transport	Reduction in emissions	Implemented scheme	2014	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2060
42	Bluetooth journey monitoring	Traffic Management	Other	LA	2013	2014	Inform smart traffic management	Reduction in emissions	Ran trial of bluetooth data collection system	2016	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2061
43	Retrofitting of School Buses with Pollution abatement equipment	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	Grant	2013	2013	All school buses now retrofitted and emissions reduced by 90%	Reduction in emissions	All school buses now retrofitted and emissions reduced by 90%	2014	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2062
44	Installation of Rapid Charge Network across West Yorkshire	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging,	TBC	2014	2015	Rapid charge network across West Yorkshire being installed	Reduction in emissions	Sites identified and installation due to begin in next few weeks	2015	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2063

			Gas fuel recharging								
45	Ainley Top Junction improvements	Traffic Management	Other	HA	2012	2014	Reduction in traffic congestion	Reduction in emissions	Extra Lanes installed on Roundabout	2015	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2064
46	A629 Corridor Improvement	Transport Planning and Infrastructure	Other	LA	2013	2018	Reduction in traffic congestion	Reduction in emissions	Bid for funding being prepared	2021	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2065
47	A653 Corridor Improvement	Transport Planning and Infrastructure	Other	LA	2013	2018	Reduction in traffic congestion	Reduction in emissions	Bid for funding submitted	2018	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2066
48	Bus priority at lights in AQMA 2	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	LA	2012	2013	Reduction in queuing time for public transport	Reduction in emissions	Implemented scheme	2013	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2067
49	West Yorkshire ECO-Stars Scheme	Vehicle Fleet Efficiency	Driver training and ECO driving aids	LA	2015/16	2016	Improvement in HGV Fleets	Reduction in emissions	Scheme purchased, Implementation begun	Ongoing	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2068
50	Electric Vehicle Taxi Scheme	Promoting Low Emission Transport	Taxi emission incentives	Grant	2017	2018-2020	Provide taxi charging network across West Yorkshire	Reduction in emissions	Procurement Stage	2020	These are results of old Action Plan. New Action Plan to be reported once

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											accepted - likely ASR 2069
51	Rationalisation of traffic light management system	Traffic Management	UTC, Congestion management, traffic reduction	LA	2017	2018	Determine the best UTC prioritisation to reduce AQ impact	Reduction in emissions	Rationilisation & modelling completed.	2020	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2070
52	Bus Retrofitting Scheme	Vehicle Fleet Efficiency	Vehicle Retrofitting programmes	Grant	2018	2019	Euro IV & V Buses to retrofitted and emissions reduced by 90%	Reduction in emissions	Procurement Stage	2020	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2071
53	WYLES Delivery Officer	Other	Other	Grant	2018	2018	Officer to delivery work under contained within the WYLES	Reduction in emissions	Recruitment Stage	2020	These are results of old Action Plan. New Action Plan to be reported once accepted - likely ASR 2072

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.

Kirklees Council is taking the following measures to address PM_{2.5}:

- Included PM_{2.5} 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.

2.4 Summary of Monitoring Undertaken

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 2018.

Due to a corrupted database Kirklees Council were unable to provide real-time monitoring data for 2016/17. The council worked with our service provider to recover data for 2017. 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. In response to these issues Kirklees Council undertook the process of modernising the data collection system in order to prevent this occurring in the future. Notwithstanding this, passive monitoring was installed at these locations to

ensure we still have an understanding of the conditions in these areas while the orks are undertaken

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.

2.4.1 Non-Automatic Monitoring Sites

Kirklees Council undertook non- automatic (passive) monitoring of NO₂ at 87 sites during 2018. The Council expanded their network in order to review new areas recently identified during the local plan process and nation air quality action plans.

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.

2.1 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, “annualisation” and distance correction. Further details on adjustments are provided in Appendix C.

2.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, “annualisation” and distance correction. Further details on adjustments are provided in Appendix C.

2.2.1 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO₂ annual mean concentrations for the past 5 years with the air quality objective of 40µg/m³.

For diffusion tubes, the full 2018 dataset of monthly mean values is provided in Appendix B.

Due to corrupted database issues and recovered data quality, Kirklees Council are unable to provide real-time monitoring data for 2018.

In light of the lack of available data for the real-time monitors in 2018, diffusion tube data taken at and around these sites should be used to determine the conditions within the AQMA's.

Data obtained from passive diffusion tubes over 2018 have been ratified, annualised in accordance with national guidance and presented in Appendix A.

Figure A.1 in Appendix A shows trends over the last 6 years for diffusion tube locations. The data has been divided into 3 areas, Average of all our diffusion tubes, Average of diffusion tubes within our new AQMA's and Average of diffusion tubes within our longstanding AQMA's.

It is noted that between 2012 and 2013 concentrations within the AQMA's and overall fell by roughly $10\mu\text{g}/\text{m}^3$. Since that time concentration levels have stagnated within the AQMA's 1 and 2, until 2017 when we have noted a fall, of which the fall has continued in 2018. Trends within the new AQMA's and at other non AQMA monitoring locations saw slightly increases by 1 to 2 $\mu\text{g}/\text{m}^3$ until 2017, when levels fell, which is in line with what has been observed within the other AQMA's. The concentrations have continued to fall in 2018. There are still a number of areas across the district which do not meet the AQO. This indicates that further measures are needed to return 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.

In addition to the current 9 Air Quality Management Areas, as part of the ASR 2018, Kirklees Council identified a further 1 area of exceedance, Thornton Lodge. Thornton Lodge has been declared at the 10th AQMA.

In addition to the councils LAQM responsibilities, Kirklees Council was given a Ministerial Directive relating to failures identified by the Pollution Climate Model, which indicated that of EU limit values were in exceedance along Gelderd Lane in Birstall. Kirklees Council is in the process of submitting a formal report in response to this ministerial directive, the contents of which will be published in revised National Action Plans due October 2019.

2.2.2 Particulate Matter (PM₁₀)

Kirklees Council undertook automatic (continuous) monitoring at 2 sites during 2018.

Due to a corrupted database Kirklees Council were unable to provide real-time monitoring data for 2016/17. The council worked with our service provider to recover data for 2017. 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. In response to these issues Kirklees Council undertook the process of modernising the data collection system in order to prevent this occurring in the future.

2.2.3 Particulate Matter (PM_{2.5})

Kirklees Council undertook automatic (continuous) monitoring at 2 sites during 2018.

Due to a corrupted database Kirklees Council were unable to provide real-time monitoring data for 2016/17. The council worked with our service provider to recover data for 2017. 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. In response to these issues Kirklees Council undertook the process of modernising the data collection system in order to prevent this occurring in the future.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In 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	420761	NO ₂ ; PM ₁₀	YES	Chemiluminescent; Met-One BAM	3	3	1.5
Roadside 6	RS6 - Ainley Top	Roadside	411739	419007	NO ₂ ; PM ₁₀	YES	Chemiluminescent; Met-One BAM	8	5	1.5

Notes:

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

(2) N/A if not applicable.

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

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) ⁽¹⁾	Distance to kerb of nearest road (m) ⁽²⁾	Tube collocated with a Continuous Analyser?	Height (m)
1	Dewsbury Bus Station	Other	424506	421535	NO ₂	NO	N	0.8	NO	2
2	Bus Station - Huddersfield	Other	414214	416504	NO ₂	YES	N	4.1	NO	2
3	Edgerton Road	Roadside	413504	417439	NO ₂	YES	Y (2.0)	2.4	NO	2
4	Princess Street, Batley	Roadside	424464	424395	NO ₂	NO	Y (4.3)	1.8	NO	2
5	Huddersfield Road Ravensthorpe	Roadside	422443	420380	NO ₂	NO	Y (1.6)	1.9	NO	2
6	Leeds Road - Cooper Bridge	Roadside	417872	421050	NO ₂	YES	Y (5.2)	6	NO	2
7	Westgate Huddersfield	Urban Centre	414434	416744	NO ₂	YES	Y (0.5)	0.5	NO	2
8	Bradford Road Fartown 1	Roadside	414496	417795	NO ₂	NO	Y (2.5)	2.5	NO	2
9	Bradley Road	Kerbside	417280	420482	NO ₂	NO	Y (13.4)	0.7	NO	2
10	Leeds Road Bradley 1	Roadside	417227	420337	NO ₂	NO	Y (3.2)	2	NO	2
11	Chapel Hill Huddersfield	Roadside	414389	416262	NO ₂	YES	Y (0.1)	5.5	NO	2
12	Leeds Road Bradley 2	Roadside	417335	420412	NO ₂	NO	Y (3.7)	1.8	NO	2
13	Whitehall Road East	Roadside	420377	427871	NO ₂	YES	Y (2.1)	2.6	NO	2
14	Oastler Avenue	Urban Background	413669	416463	NO ₂	NO	N	1.7	NO	2
15	Ainley Top 1	Other	420441	427353	NO ₂	YES	N	3	YES	2

16	Ainley Top 2	Other	420441	427353	NO ₂	YES	N	3	YES	2
17	Ainley Top 3	Other	420441	427353	NO ₂	YES	N	3	YES	2
18	Huddersfield Road Birstall	Roadside	422686	426229	NO ₂	NO	Y (4.2)	1.9	NO	2
19	Huddersfield Road Scouthil	Roadside	423563	421014	NO ₂	NO	Y (6.5)	2.7	NO	2
20	Rockley Street Dewsbury	Roadside	424853	421828	NO ₂	YES	Y (9.5)	1.5	NO	2
21	Castlegate Huddersfield	Roadside	414149	416686	NO ₂	YES	Y (6.9)	2.1	NO	2
22	Leeds Road Bradley 3	Roadside	417418	420479	NO ₂	YES	Y (3.2)	1.5	NO	2
23	Leeds Road Mirfield 2	Roadside	418483	420978	NO ₂	NO	Y (14.1)	1.6	NO	2
24	Lindley Moor Road	Roadside	409941	418471	NO ₂	NO	Y (15.4)	2	NO	2
25	Leeds Road - RS3 - 1	Other	423185	420612	NO ₂	NO	N	6	YES	2
26	Leeds Road - RS3 - 2	Other	423185	420612	NO ₂	NO	N	6	YES	2
27	Leeds Road - RS3 - 3	Other	423185	420612	NO ₂	NO	N	6	YES	2
28	Ring Road Huddersfield	Roadside	414745	416710	NO ₂	YES	Y (0.1)	3.3	NO	2
31	Blacker Road 1	Roadside	413400	417495	NO ₂	YES	Y (8.3)	2.7	NO	2
32	Blacker Road 2	Roadside	413513	417481	NO ₂	YES	Y (5.0)	2.6	NO	2
33	Wakefield Rd / Huddersfield Road	Roadside	420727	423668	NO ₂	YES	Y (4.3)	2.4	NO	2
34	Frost Hill Liversedge	Roadside	420845	423770	NO ₂	YES	Y (0.3)	1.9	NO	2
35	Leeds Road Liversedge	Roadside	420853	423866	NO ₂	YES	Y (9.4)	1.9	NO	2

36	Huddersfield Road Mirfield 1	Kerbside	420304	419766	NO ₂	NO	Y (2.9)	0.9	NO	2
37	Bradford Road, Birkenshaw	Roadside	420356	427810	NO ₂	YES	Y (2.5)	2.2	NO	2
38	Whitehall Road West	Roadside	420222	427764	NO ₂	YES	Y (18.3)	1	NO	2
39	Bradford Road, Batley	Roadside	424526	424326	NO ₂	NO	Y (1.7)	2.1	NO	2
40	Leeds Road Dewsbury	Roadside	424871	421921	NO ₂	YES	Y (1.2)	1.6	NO	2
41	Chain Bar Roundabout	Roadside	418285	426630	NO ₂	NO	Y (12.5)	3.4	NO	2
42	Leeds Road Dewsbury - 2	Roadside	424969	422002	NO ₂	YES	Y (5.6)	1.9	NO	2
43	John Street Dewsbury	Roadside	425083	422022	NO ₂	YES	Y (6.0)	1.9	NO	2
44	Calmswood Road Eastborough	Roadside	425179	422114	NO ₂	NO	Y (-7.2)	1.7	NO	2
45	Bradford Road Fartown 2	Roadside	414480	417720	NO ₂	NO	Y (0.5)	7.2	NO	2
46	Willow Lane East Fartown	Roadside	414546	417759	NO ₂	NO	Y (0)	2.2	NO	2
47	Roundings Road Outlane	Other	407942	417261	NO ₂	YES	Y (0)	14.4	NO	2
48	Flush Liversedge	Roadside	421039	423673	NO ₂	YES	Y (0)	2.6	NO	2
49	Manchester Road Thornton Lodge 2	Roadside	413659	416182	NO ₂	NO	Y (3.5)	3.7	NO	2
50	Manchester Road Thornton Lodge 1	Roadside	413414	415981	NO ₂	NO	Y (1.6)	2.5	NO	2
51	High Street Heckmondwike	Roadside	421904	423580	NO ₂	YES	Y (4.9)	1	NO	2
52	Penistone Road Waterloo	Roadside	417627	416472	NO ₂	NO	Y (7.8)	2.4	NO	2

53	Yates Lane Milnsbridge	Roadside	411564	415902	NO ₂	NO	Y (1.6)	1.7	NO	2
54	Wakefield Road Dewsbury	Roadside	425196	421566	NO ₂	YES	Y (2.7)	3.2	NO	2
55	Huddersfield Road Holmfirth	Roadside	414187	408264	NO ₂	NO	Y (3.2)	1.7	NO	2
56	Wakefield Road Huddersfield	Roadside	415009	416420	NO ₂	YES	N	2.8	NO	2
57	Cambridge Road 1	Roadside	414291	417281	NO ₂	YES	N	2.2	NO	2
58	Cambridge Road 2	Roadside	414350	417270	NO ₂	YES	N	2.6	NO	2
61	Bradford Road - Birkenshaw	Roadside	420422	427349	NO ₂	YES	Y(12.1)	2.1	NO	2
62	Manor Park Gardens - Birkenshaw	Roadside	420472	427360	NO ₂	YES	Y(9.2)	1.2	NO	2
63	White Hall Road West 1- Birkenshaw	Roadside	419866	427561	NO ₂	NO	Y(7.0)	2.9	NO	2
64	Whitehall Road West 2 - Birkenshaw	Other	419914	427588	NO ₂	NO	N	0.1	NO	2
65	Whitehall Road West 3 - Birkenshaw	Roadside	419981	427623	NO ₂	NO	N	3	NO	2
66	Milford Grove - Birkenshaw	Other	420349	427434	NO ₂	YES	N	1.3	NO	2
67	Moor Lane 1 - Birkenshaw	Roadside	421132	427273	NO ₂	NO	N	1.7	NO	2
68	Moor Lane 2 - Birkenshaw	Roadside	421128	427298	NO ₂	NO	N	0.9	NO	2
69	Bradford Road - Cleckheaton - Airstation	Roadside	418237	426555	NO ₂	NO	N	1	NO	2

70	Huddersfield Road - Scouthill - Airstation	Roadside	423236	420752	NO ₂	YES	Y(6.6)	3.2	NO	2
71	Lindley Moor Road 2	Roadside	411007	419190	NO ₂	NO	Y (10.1)	3.5	YES	2
72	Lindley Moor Road 3	Roadside	410227	418653	NO ₂	NO	Y(6.6)	2.4	NO	2
73	Lindley Moor Road 4	Roadside	410080	418568	NO ₂	NO	N	1.8	NO	2
74	Lindley Moor Road 5	Roadside	410095	418559	NO ₂	NO	Y(1.7)	3.4	NO	2
75	Blackmoorfoot Road - Thornton Lodge	Roadside	413153	425894	NO ₂	NO	Y(2.7)	1.5	NO	2
76	Manchester Road - Thornton Lodge 3	Roadside	413198	415957	NO ₂	NO	Y(5.0)	1.3	NO	2
77	Manchester Road - Thornton Lodge 4	Roadside	413455	416013	NO ₂	NO	Y(1.2)	2.2	NO	2
78	Thornton Lodge Road - Thornton Lodge	Roadside	413464	415983	NO ₂	NO	N	2	NO	2
K79	Gelderd Road, Birstall,	Roadside	423903	427756	NO ₂	NO	N	3	NO	2
K80	Grange Road Batley lamp post 22	Roadside	425566	423696	NO ₂	NO	Y(5.8)	4	NO	2
K81	Gelderd Road, Hawthorne House	Roadside	422991	426992	NO ₂	NO	N	1.75	NO	2
K82	Grange Moor	Roadside	422036	415941	NO ₂	NO	Y(1.73)	1.5	NO	2

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K83	Flockton	Roadside	424203	414975	NO ₂	NO	Y(3.22)	1.41	NO	2
K84	Denby Dale	Roadside	422923	408553	NO ₂	NO	Y(2.34)	1.77	NO	2
K85	Shepley	Roadside	419380	409777	NO ₂	NO	N	1.5	NO	2
K86	Kings Mill Lane	Roadside	415164	416323	NO ₂	NO	Y (4.71)	4.71	NO	2
K87	Mill St West Dewsbury lamp post 9	Roadside	424409	421271	NO ₂	NO	Y(2.36)	2.85	NO	2

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ⁽³⁾				
					2014	2015	2016	2017	2018
Roadside 3	Roadside	Automatic	0	0	<u>36.00</u>	39.80	N/A	N/A	N/A
Roadside 6	Roadside	Automatic	0	0	<u>41.70</u>	44.40	N/A	N/A	N/A
K1	Other	Diffusion Tube	100%	100%	<u>46.64</u>	45.34	47.42	42.50	41.13
K2	Other	Diffusion Tube	100%	100%	<u>44.97</u>	46.74	41.58	42.25	39.27
K3	Roadside	Diffusion Tube	83%	83%	<u>47.85</u>	53.70	41.43	61.63	51.92
K4	Roadside	Diffusion Tube	100%	100%	<u>39.95</u>	35.16	32.68	25.20	28.47
K5	Roadside	Diffusion Tube	92%	92%	<u>40.08</u>	41.50	35.60	35.88	35.49
K6	Roadside	Diffusion Tube	100%	100%	<u>38.64</u>	38.94	40.46	42.56	36.33
K7	Urban Centre	Diffusion Tube	92%	92%	<u>42.82</u>	44.81	38.78	35.38	38.55
K8	Roadside	Diffusion Tube	83%	83%	<u>39.99</u>	38.30	33.33	35.50	36.08
K9	Kerbside	Diffusion Tube	100%	100%	<u>41.19</u>	39.21	36.63	35.34	27.47
K10	Roadside	Diffusion Tube	100%	100%	<u>41.25</u>	42.11	43.73	37.31	39.27
K11	Roadside	Diffusion Tube	83%	83%	<u>41.61</u>	42.40	37.79	36.50	39.60
K12	Roadside	Diffusion Tube	100%	100%	<u>40.17</u>	42.57	43.40	37.44	38.80
K13	Roadside	Diffusion Tube	92%	92%	<u>36.86</u>	40.38	36.20	36.13	33.89

K14	Urban Background	Diffusion Tube	92%	92%	<u>18.62</u>	16.34	20.96	21.13	16.22
K15	Other	Diffusion Tube	92%	92%	<u>N/A</u>	38.47	N/A	34.50	37.24
K16	Other	Diffusion Tube	92%	92%	<u>N/A</u>	40.09	N/A	49.13	37.31
K17	Other	Diffusion Tube	100%	100%	<u>N/A</u>	38.51	N/A	37.16	38.47
K18	Roadside	Diffusion Tube	100%	100%	<u>44.77</u>	45.40	41.00	37.81	37.93
K19	Roadside	Diffusion Tube	100%	100%	<u>42.58</u>	39.84	45.20	33.00	38.80
K20	Roadside	Diffusion Tube	92%	92%	<u>39.73</u>	40.68	36.20	35.69	33.96
K21	Roadside	Diffusion Tube	100%	100%	<u>43.94</u>	44.92	45.05	40.13	42.53
K22	Roadside	Diffusion Tube	100%	100%	<u>47.85</u>	43.36	43.88	41.39	40.60
K23	Roadside	Diffusion Tube	92%	92%	<u>42.90</u>	42.63	40.00	40.19	38.47
K24	Roadside	Diffusion Tube	100%	100%	<u>49.01</u>	50.48	49.01	50.18	40.00
K25	Other	Diffusion Tube	100%	100%	<u>22.20</u>	20.39	N/A	28.03	28.47
K26	Other	Diffusion Tube	100%	100%	<u>23.50</u>	20.61	N/A	24.67	31.40
K27	Other	Diffusion Tube	100%	100%	<u>25.06</u>	19.97	N/A	26.58	31.47
K28	Roadside	Diffusion Tube	100%	100%	<u>49.03</u>	54.68	53.13	55.94	43.20
K31	Roadside	Diffusion Tube	83%	83%	<u>32.68</u>	34.96	41.75	32.13	33.76
K32	Roadside	Diffusion Tube	75%	75%	<u>41.83</u>	47.42	45.38	44.19	45.87
K33	Roadside	Diffusion Tube	100%	100%	<u>35.78</u>	33.75	54.80	42.67	34.27

K34	Roadside	Diffusion Tube	100%	100%	<u>35.35</u>	33.21	54.20	39.50	38.40
K35	Roadside	Diffusion Tube	100%	100%	<u>44.02</u>	38.86	72.40	46.19	44.40
K36	Kerbside	Diffusion Tube	92%	92%	<u>40.71</u>	42.49	38.80	42.23	42.18
K37	Roadside	Diffusion Tube	100%	100%	<u>36.18</u>	36.36	30.00	36.06	33.07
K38	Roadside	Diffusion Tube	100%	100%	<u>40.68</u>	38.66	36.00	36.13	37.80
K39	Roadside	Diffusion Tube	100%	100%	<u>42.52</u>	40.40	39.30	36.41	30.47
K40	Roadside	Diffusion Tube	100%	100%	<u>45.24</u>	60.39	54.40	53.44	52.40
K41	Roadside	Diffusion Tube	100%	100%	<u>43.03</u>	45.25	43.50	39.83	36.40
K42	Roadside	Diffusion Tube	100%	100%	<u>47.37</u>	42.99	43.60	45.94	39.60
K43	Roadside	Diffusion Tube	100%	100%	<u>42.82</u>	43.97	43.00	38.59	42.93
K44	Roadside	Diffusion Tube	100%	100%	<u>35.78</u>	36.68	32.20	34.44	35.07
K45	Roadside	Diffusion Tube	33%	33%	<u>36.84</u>	37.45	36.70	35.69	36.26
K46	Roadside	Diffusion Tube	83%	83%	<u>32.08</u>	37.87	39.53	37.13	37.04
K47	Other	Diffusion Tube	100%	100%	<u>42.17</u>	54.16	35.52	44.06	44.93
K48	Roadside	Diffusion Tube	100%	100%	<u>44.62</u>	43.82	64.68	47.3125	36.13
K49	Roadside	Diffusion Tube	100%	100%	<u>38.69</u>	42.71	37.19	38	38.07
K50	Roadside	Diffusion Tube	100%	100%	<u>43.72</u>	45.49	42.08	39.1875	45.27
K51	Roadside	Diffusion Tube	100%	100%	<u>43.65</u>	40.04	55.40	36	38.87

K52	Roadside	Diffusion Tube	100%	100%	<u>35.24</u>	36.23	36.47	34.63636364	34.20
K53	Roadside	Diffusion Tube	100%	100%	<u>32.27</u>	35.07	33.50	28.3125	29.40
K54	Roadside	Diffusion Tube	100%	100%	<u>38.57</u>	39.60	39.00	35	33.87
K55	Roadside	Diffusion Tube	92%	92%	<u>31.76</u>	39.05	33.50	31.875	34.18
K56	Roadside	Diffusion Tube	100%	100%	<u>39.50</u>	39.93	40.00	39.5625	39.47
K57	Roadside	Diffusion Tube	83%	83%	<u>28.81</u>	41.56	46.86	27.1875	29.68
K58	Roadside	Diffusion Tube	83%	83%	<u>39.17</u>	32.35	30.36	41.7125	44.88
K59	Roadside	Diffusion Tube	92%	92%	<u>N/A</u>	N/A	N/A	35.79545455	30.76
K61	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	30.20454545	35.13
K62	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	28.09090909	31.60
K63	Other	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	52.05	33.60
K64	Roadside	Diffusion Tube	92%	92%	<u>N/A</u>	N/A	N/A	48.13636364	51.64
K65	Other	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	29.4	44.27
K66	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	29.04545455	26.67
K67	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	24.75	25.87
K68	Roadside	Diffusion Tube	92%	92%	<u>N/A</u>	N/A	N/A	28.95	27.27
K69	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	31.70454545	35.27
K70	Roadside	Diffusion Tube	92%	92%	<u>N/A</u>	N/A	N/A	38.86363636	37.02

K71	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	36.88636364	39.27
K72	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	43.43181818	35.27
K73	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	30	46.73
K74	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	29.4375	30.53
K75	Roadside	Diffusion Tube	75%	75%	<u>N/A</u>	N/A	N/A	32.25	37.78
K76	Roadside	Diffusion Tube	92%	92%	<u>N/A</u>	N/A	N/A	46.575	34.98
K77	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	24.15	46.93
K78	Roadside	Diffusion Tube	100%	100%	<u>N/A</u>	N/A	N/A	N/A	28
K79	Roadside	Diffusion Tube	33%	33%	<u>N/A</u>	N/A	N/A	N/A	42.5088
K80	Roadside	Diffusion Tube	50%	50%	<u>N/A</u>	N/A	N/A	N/A	43.344
K81	Roadside	Diffusion Tube	50%	50%	<u>N/A</u>	N/A	N/A	N/A	36.612
K82	Roadside	Diffusion Tube	50%	50%	<u>N/A</u>	N/A	N/A	N/A	20.33466667
K83	Roadside	Diffusion Tube	66%	66%	<u>N/A</u>	N/A	N/A	N/A	29.425
K84	Roadside	Diffusion Tube	66%	66%	<u>N/A</u>	N/A	N/A	N/A	28.355
K85	Roadside	Diffusion Tube	58%	58%	<u>N/A</u>	N/A	N/A	N/A	23.86514286
K86	Roadside	Diffusion Tube	58%	58%	<u>N/A</u>	N/A	N/A	N/A	32.58742857
K87	Roadside	Diffusion Tube	33%	33%	<u>N/A</u>	N/A	N/A	N/A	37.412

Diffusion tube data has been bias corrected

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Annualisation has been conducted where data capture is <75%

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

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

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

(3) Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Figure A.1 – Trends in Annual Mean NO₂ Concentrations

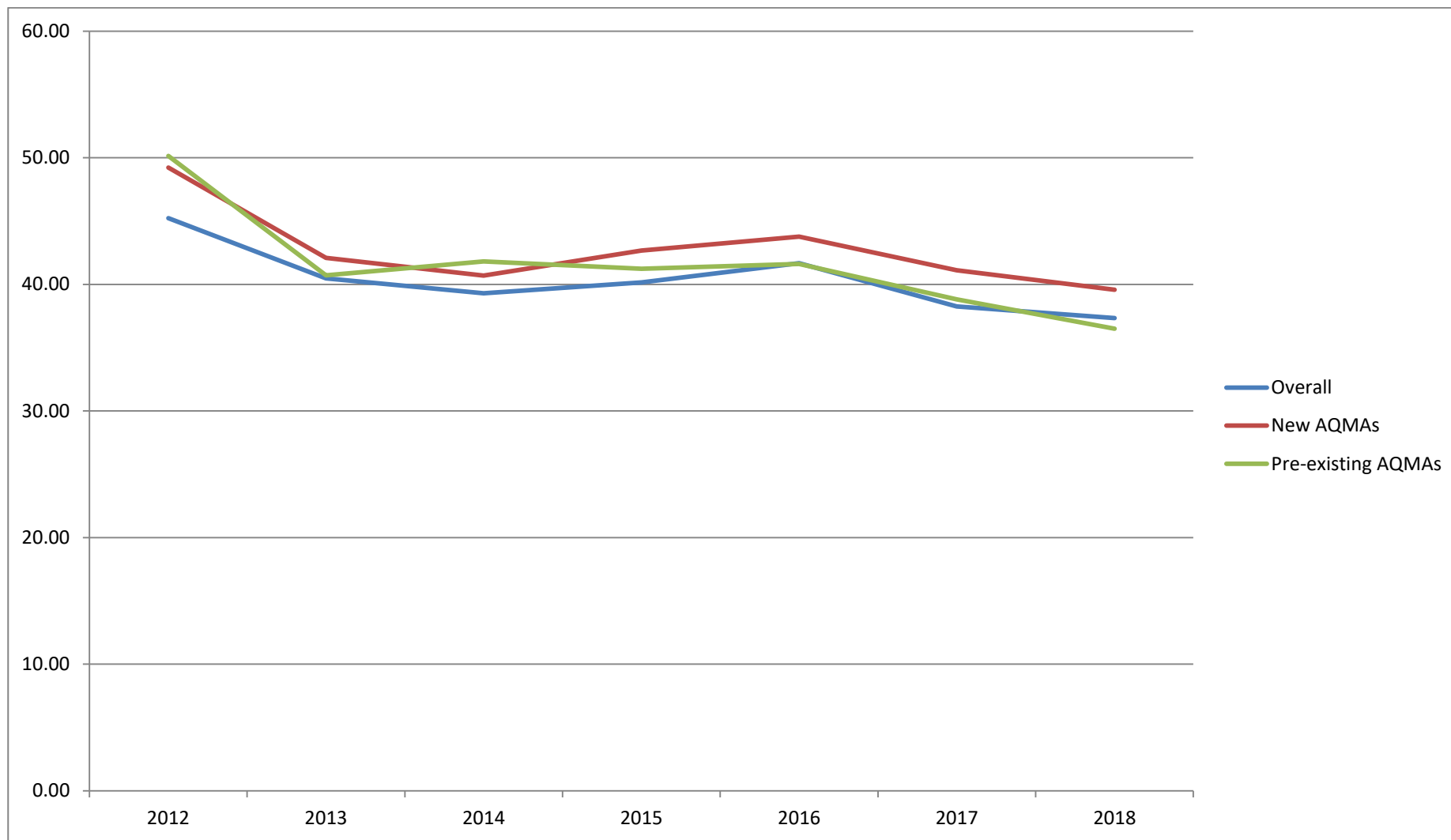


Table A.4 – 1-Hour Mean NO₂ Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	NO ₂ 1-Hour Means > 200µg/m ³ ⁽³⁾				
					2014	2015	2016	2017	2018
Roadside 3	Roadside	Automatic	0	0	2 (139.91)	7 (171.37)	N/A	N/A	N/A
Roadside 6	Roadside	Automatic	0	0	2 (128.0)	0	N/A	N/A	N/A

CLICK HERE THEN PASTE COMPLETED DATA ROWS FROM EXCEL TEMPLATE

Notes:

Exceedances of the NO₂ 1-hour mean objective (200µg/m³ not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM ₁₀ Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2014	2015	2016	2017	2018
Roadside 3	Roadside	0	0	20.12	18.72	N/A	N/A	N/A
Roadside 6	Roadside	0	0	17.13	25.95	N/A	N/A	N/A

Annualisation has been conducted where data capture is <75% (confirm by selecting in box)

Notes:

Exceedances of the PM₁₀ annual mean objective of 40µg/m³ are shown in **bold**.

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

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

(3) All means have been "annualised" as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Table A.5 – 24-Hour Mean PM₁₀ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM ₁₀ 24-Hour Means > 50µg/m ³ ⁽³⁾				
				2014	2015	2016	2017	2018
Roadside 3	Roadside	0	0	20.12	18.72	N/A	N/A	N/A
Roadside 6	Roadside	0	0	17.13	25.95	N/A	N/A	N/A

Notes:

Exceedances of the PM₁₀ 24-hour mean objective (50µg/m³ not to be exceeded more than 35 times/year) are shown in **bold**.

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

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

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

Table A.6 – PM_{2.5} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2018 (%) ⁽²⁾	PM _{2.5} Annual Mean Concentration (µg/m ³) ⁽³⁾				
				2014	2015	2016	2017	2018
Roadside 3	Roadside	0	0	N/A	N/A	N/A	N/A	N/A
Roadside 6	Roadside	0	0	N/A	N/A	N/A	N/A	N/A

Annualisation has been conducted where data capture is <75% (confirm by selecting in box)

Notes:

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

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

(3) All means have been “annualised” as per Boxes 7.9 and 7.10 in LAQM.TG16, valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Appendix B: Full Monthly Diffusion Tube Results for 2018

Table B.1 – NO₂ Monthly Diffusion Tube Results - 2018

Site ID	NO ₂ Mean Concentrations (µg/m ³)												Annual Mean		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (factor) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
K1	62.0	72.0	63.0	58.0	52.0	50.0	32.0	27.0	66.0	21.0	48.0	66.0	51.4	41.1333333	N/A
K2	76.0	53.0	71.0	50.0	42.0	45.0	19.0	33.0	47.0	39.0	56.0	58.0	49.1	39.3	
K3	82	62	78	61	53	TM	TM	59	54	56	73	71	64.9	51.9	46.4
K4	37	49	54	41	30	29	22	28	37	31	39	30	35.6	28.5	
K5	42	67	69	37	33	49	22	39	46	47	TM	37	44.4	35.5	
K6	48	58	66	47	44	46	29	42	44	54	22	45	45.4	36.3	
K7	47	62	67	39	51	TM	40	43	38	55	44	44	48.2	38.5	
K8	34	49	63	44	41	TM	TM	32	38	42	47	61	45.1	36.1	
K9	34	47	46	31	27	33	27	31	30	28	37	41	34.3	27.5	
K10	55	62	66	46	37	48	36	38	38	53	57	53	49.1	39.3	
K11	69	62	68	56	39	45	36	36	45	TM	TM	39	49.5	39.6	
K12	54	61	67	49	43	40	47	39	37	38	52	55	48.5	38.8	
K13	31	57	52	39	39	38	21	45	TM	40	52	52	42.4	33.9	
K14	22	29	34	22	19	14	7	14	18	21	TM	23	20.3	16.2	

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K15	53	48	63	43	49	49	TM	31	49	40	41	46	46.5	37.2	
K16	44	58	61	50	TM	47	18	39	46	46	49	55	46.6	37.3	
K17	51	59	64	54	49	44	22	29	50	47	49	59	48.1	38.5	
K18	54	63	76	51	25	48	20	31	41	41	61	58	47.4	37.9	
K19	56	59	67	52	53	50	26	31	33	49	54	52	48.5	38.8	
K20	49	51	61	47	26	39	30	37	TM	35	47	45	42.5	34.0	
K21	58	74	66	57	56	60	47	35	42	36	56	51	53.2	42.5	35.5
K22	64	62	73	56	44	42	56	38	39	33	54	48	50.8	40.6	34.7
K23	55	63	58	TM	43	47	27	43	38	47	61	47	48.1	38.5	
K24	55	63	66	50	54	48	29	38	42	60	40	55	50.0	40.0	28.2
K25	42	45	50	41	36	31	16	28	22	32	42	42	35.6	28.5	
K26	45	54	49	41	37	36	30	30	26	32	44	47	39.3	31.4	
K27	49	50	49	40	38	42	29	25	23	38	45	44	39.3	31.5	
K28	63	61	69	58	51	35	37	51	58	48	60	57	54.0	43.2	43.2
K31	42	55	56	42	36	TM	TM	33	34	34	48	42	42.2	33.8	
K32	72	60	TM	49	62	TM	TM	48	59	57	56	53	57.3	45.9	37.7
K33	54	48	65	47	42	42	28	28	39	31	54	36	42.8	34.3	
K34	59	59	59	39	55	44	41	40	35	42	53	50	48.0	38.4	
K35	60	70	57	54	67	67	60	37	46	35	56	57	55.5	44.4	32.6
K36	61	67	71	61	56	52	46	39	38	37	52	TM	52.7	42.2	34.2
K37	51	54	76	35	32	40	31	26	42	33	53	23	41.3	33.1	
K38	55	59	59	46	54	53	18	41	39	44	49	50	47.3	37.8	
K39	45	57	63	2	38	43	17	35	34	28	52	43	38.1	30.5	
K40	64	71	77	66	77	58	44	55	76	46	76	76	65.5	52.4	47.2
K41	42	61	59	45	43	44	23	40	48	42	52	47	45.5	36.4	
K42	60	60	59	51	51	46	32	31	42	45	65	52	49.5	39.6	
K43	66	66	66	51	40	49	33	38	54	55	61	65	53.7	42.9	34.7

K44	61	52	55	29	43	42	28	36	38	49	47	46	43.8	35.1	
K45	48	54	54	50	TM	TM	TM	TM	TM	TM	TM	TM	51.5	36.3	
K46	45	58	49	45	32	TM	TM	43	45	53	48	45	46.3	37.0	
K47	71	58	61	45	51	50	38	60	65	72	46	57	56.2	44.9	44.9
K48	57	71	72	41	54	47	26	51	57	56	3	7	45.2	36.1	
K49	55	52	62	54	47	43	27	33	38	54	47	59	47.6	38.1	
K50	67	72	63	62	59	56	25	46	46	60	57	66	56.6	45.3	41.7
K51	61	61	63	62	44	45	28	39	50	54	44	32	48.6	38.9	
K52	51	56	54	45	39	44	27	39	25	48	40	45	42.8	34.2	
K53	44	50	48	45	34	35	24	27	28	58	40	8	36.8	29.4	
K54	46	56	49	39	37	43	27	33	36	46	52	44	42.3	33.9	
K55	48	46	47	39	35	33	29	39	TM	63	44	47	42.7	34.2	
K56	53	55	63	52	55	48	34	43	42	35	51	61	49.3	39.5	
K57	38	45	22	33	26	TM	TM	23	23	70	46	45	37.1	29.7	
K58	82	61	50	56	44	TM	TM	38	57	52	55	66	56.1	44.9	N/A
K59	52	42	54	39	25	20	31	30	36	45	49	TM	38.5	30.8	
K61	58	55	48	42	37	36	29	37	40	44	54	47	43.9	35.1	
K62	65	32	46	41	25	22	33	38	40	37	53	42	39.5	31.6	
K63	58	55	53	42	31	25	22	26	32	77	36	47	42.0	33.6	
K64	90	61	80	66	54	58	35	50	65	TM	88	63	64.5	51.6	N/A
K65	76	58	70	60	37	47	31	48	60	67	44	66	55.3	44.3	N/A
K66	48	42	41	30	20	21	14	22	33	37	42	50	33.3	26.7	
K67	43	48	41	32	22	26	14	27	25	32	40	38	32.3	25.9	
K68	37	42	46	26	21	25	19	TM	26	41	44	48	34.1	27.3	
K69	50	54	76	38	28	31	33	27	34	48	46	64	44.1	35.3	
K70	54	56	60	48	30	41	41	38	37	48	56	TM	46.3	37.0	
K71	50	50	66	51	49	48	40	39	45	59	42	50	49.1	39.3	

K72	41	48	61	38	37	37	45	48	31	66	33	44	44.1	35.3	
K73	55	64	78	58	67	54	53	53	54	71	44	50	58.4	46.7	N/A
K74	43	40	55	31	39	29	31	31	33	51	37	38	38.2	30.5	
K75	47	54	60	49	48	45	36	TM	27	59	TM	TM	47.2	37.8	
K76	48	50	TM	49	42	44	59	23	35	45	40	46	43.7	35.0	
K77	62	68	73	63	58	57	28	39	54	71	64	67	58.7	46.9	43.2
K78	41	43	49	34	34	31	40	23	25	35	38	27	35.0	28.0	
K79	TM	TM	TM	TM	53	50	38	TM	TM	53	TM	52	49.2	42.5	N/A
K80	TM	TM	TM	TM	48	48	TM	TM	29	40	42	51	43.0	43.3	36.7
K81	TM	TM	TM	TM	44	41	TM	33	35	43	TM	47	40.5	36.6	
K82	TM	TM	TM	TM	26	TM	TM	18	14	28	32	33	25.2	20.3	
K83	TM	TM	TM	TM	41	34	29	24	28	33	48	38	34.4	29.4	
K84	TM	TM	TM	TM	39	36	32	23	25	36	40	34	33.1	28.4	
K85	TM	TM	TM	TM	TM	24	28	24	25	27	40	29	28.1	23.9	
K86	TM	TM	TM	TM	TM	43	34	27	35	40	44	46	38.4	32.6	
K87	TM	TM	TM	TM	TM	TM	TM	TM	38	46	57	58	49.8	37.4	

- Local bias adjustment factor used (confirm by selecting in box)
- National bias adjustment factor used (confirm by selecting in box)
- Annualisation has been conducted where data capture is <75% (confirm by selecting in box)
- Where applicable, data has been distance corrected for relevant exposure (confirm by selecting in box)

Notes:

Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.

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- (1) See Appendix C for details on bias adjustment and annualisation.
- (2) Distance corrected to nearest relevant public exposure.

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

Kirklees Council get their tubes from West Yorkshire Analytical Services. The tubes are prepared using 50% tea: 50% acetone mix.

C.1.1 Factor from Local Co-location Studies

Kirklees Council currently have 2 Co-location studies conducted at our monitoring stations, but due to station failures, non of our studies had >75% and are therefore not valid.

C.1.2 Diffusion Tube Bias Adjustment Factors

In addition to our own scheme, West Yorkshire Analytical Services participate in co-location studies and derive bias adjustment factors for their tubes. The bias adjustment factor for West Yorkshire Analytical Service is 0.8

C.1.3 Discussion of Choice of Factor to Use

In 2018, Kirklees Council did not generate a bias adjustment factor from their own studies. Therefore, the national figure for West Yorkshire Analytical Service has been used

C.1.4 Annualisation

In 2018, Kirklees Council annualised data against 3 AURN Monitoring locations, Leeds Central, Bradford Mayo and Barnsley Gawber. Details below for Annualisation factors;

	Actual	Ratio	Corrected
Tube 45	41.20	0.88	36.26
Tube 79	39.36	1.08	42.51
Tube 80	34.40	1.26	43.34
Tube 81	32.40	1.13	36.61
Tube 82	20.13	1.01	20.33
Tube 83	27.50	1.07	29.43
Tube 84	26.50	1.07	28.36
Tube 85	22.51	1.06	23.87
Tube 86	30.74	1.06	32.59
Tube 87	39.80	0.94	37.41

C.3 QA/QC of Automatic Monitoring

Data ratification is carried out internally by one person (Senior Technical Officer) periodically, normally at monthly intervals. After ratification it is stored on an Excel files 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.

Roadside 3 – Hunsworth Lane

Station	Roadside 3 – Hunsworth Lane
Analyser Model	Horiba: APNA-360CE, FH 62 I-R
Logging system	Each analyser has a data distribution board and communicates directly via modem for data download twice per day
Calibration Gas	NO, zero air.
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.

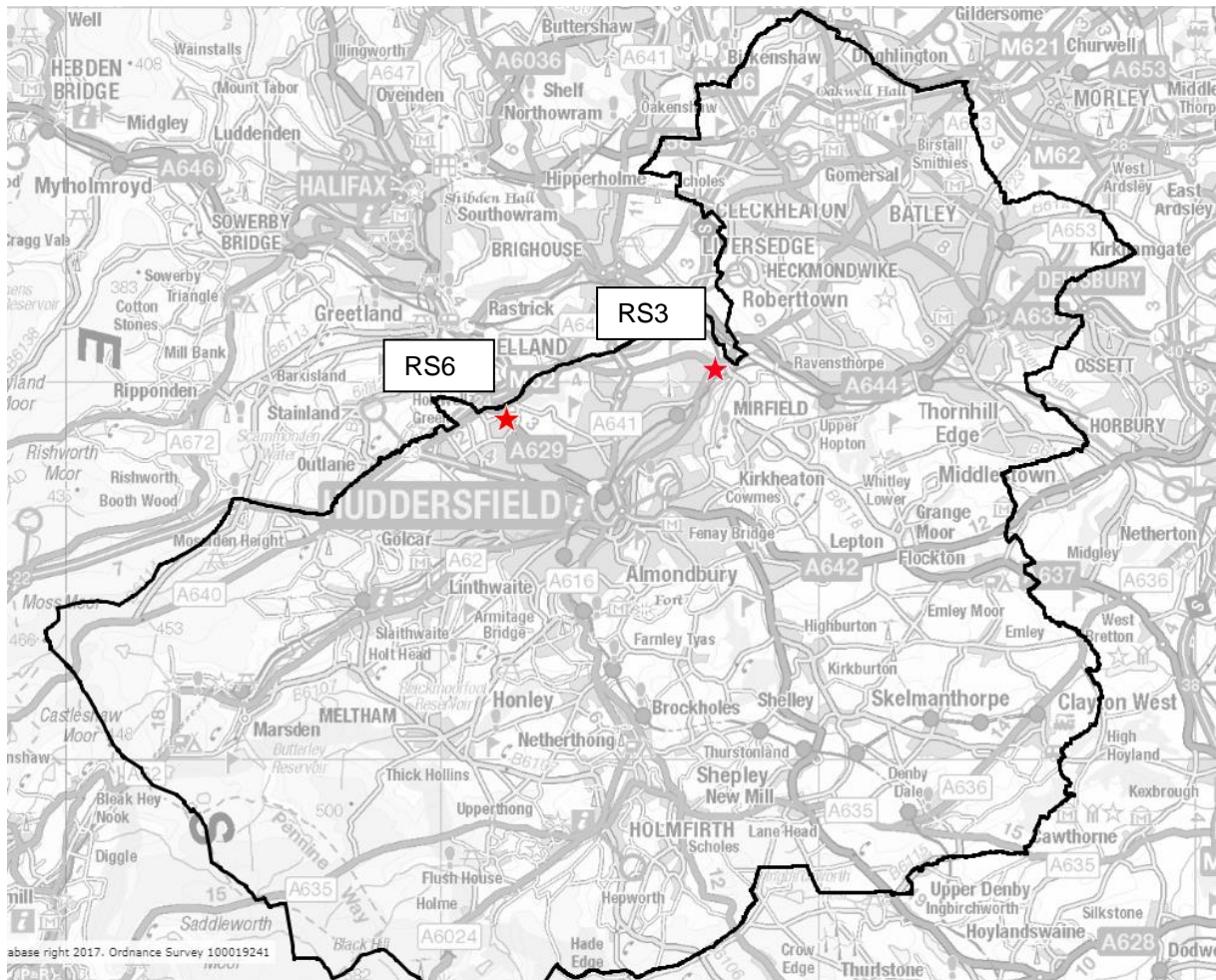
Roadside 6– Ainley Top

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.

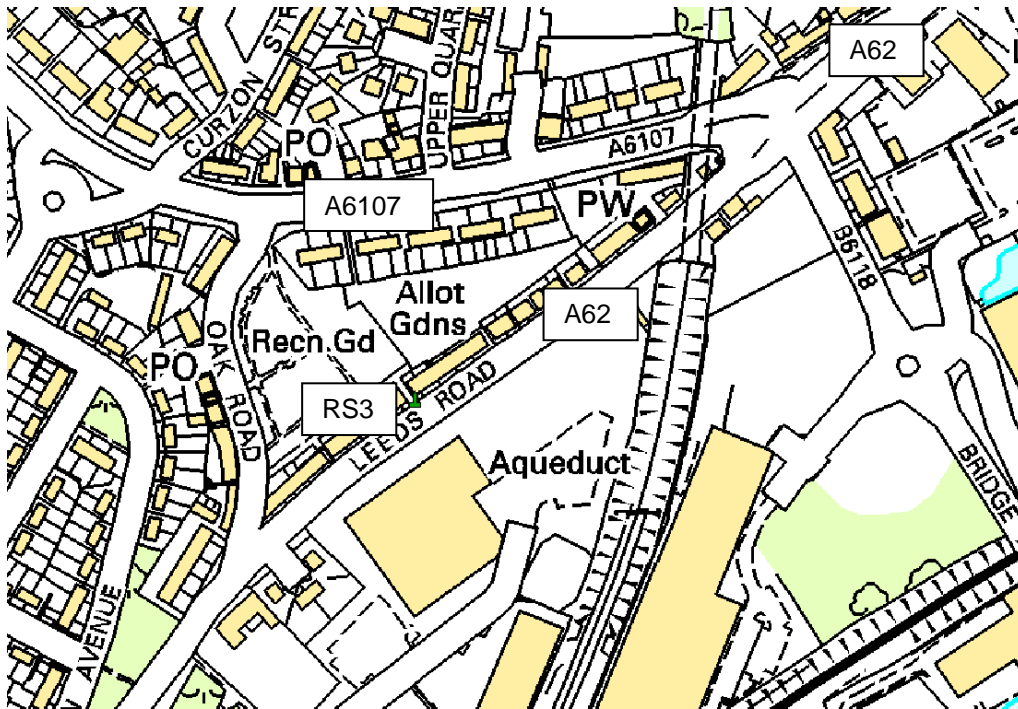
Appendix D: Map(s) of Monitoring Locations and AQMAs

1 Continuous Monitor Sites

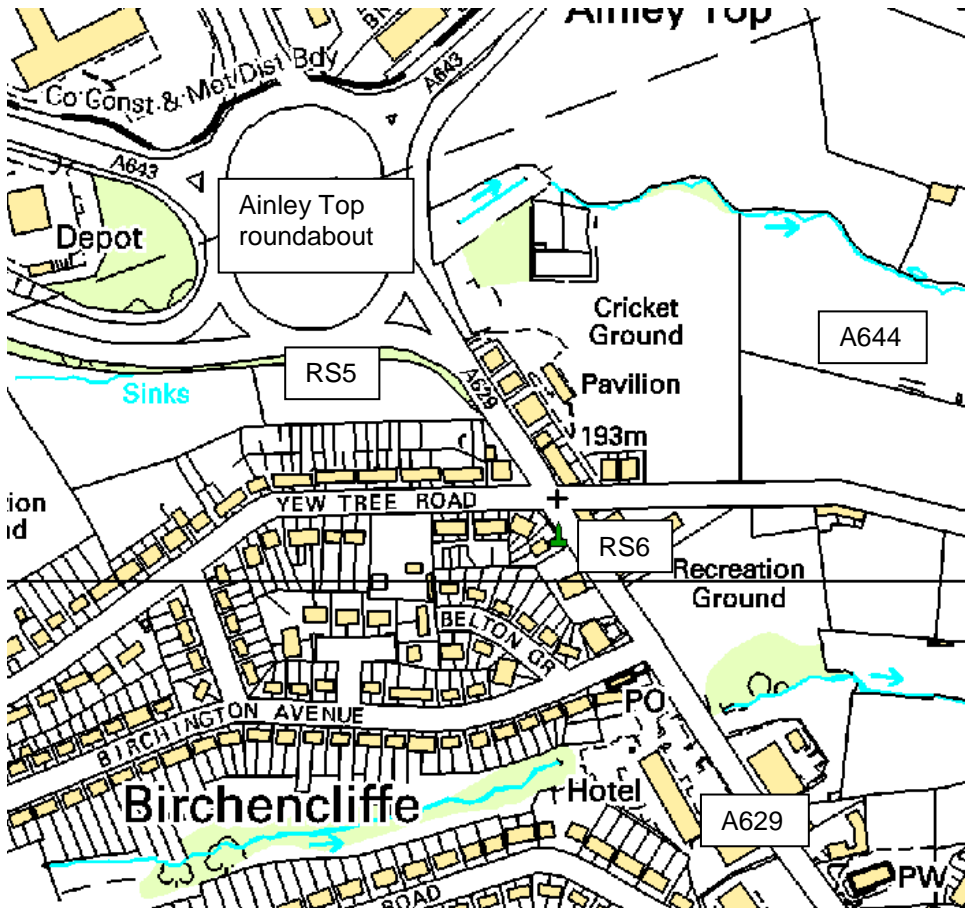
D 1.1 Automatic Monitoring Sites across district



D 1.2 Automatic Monitoring Site New Roadside 3

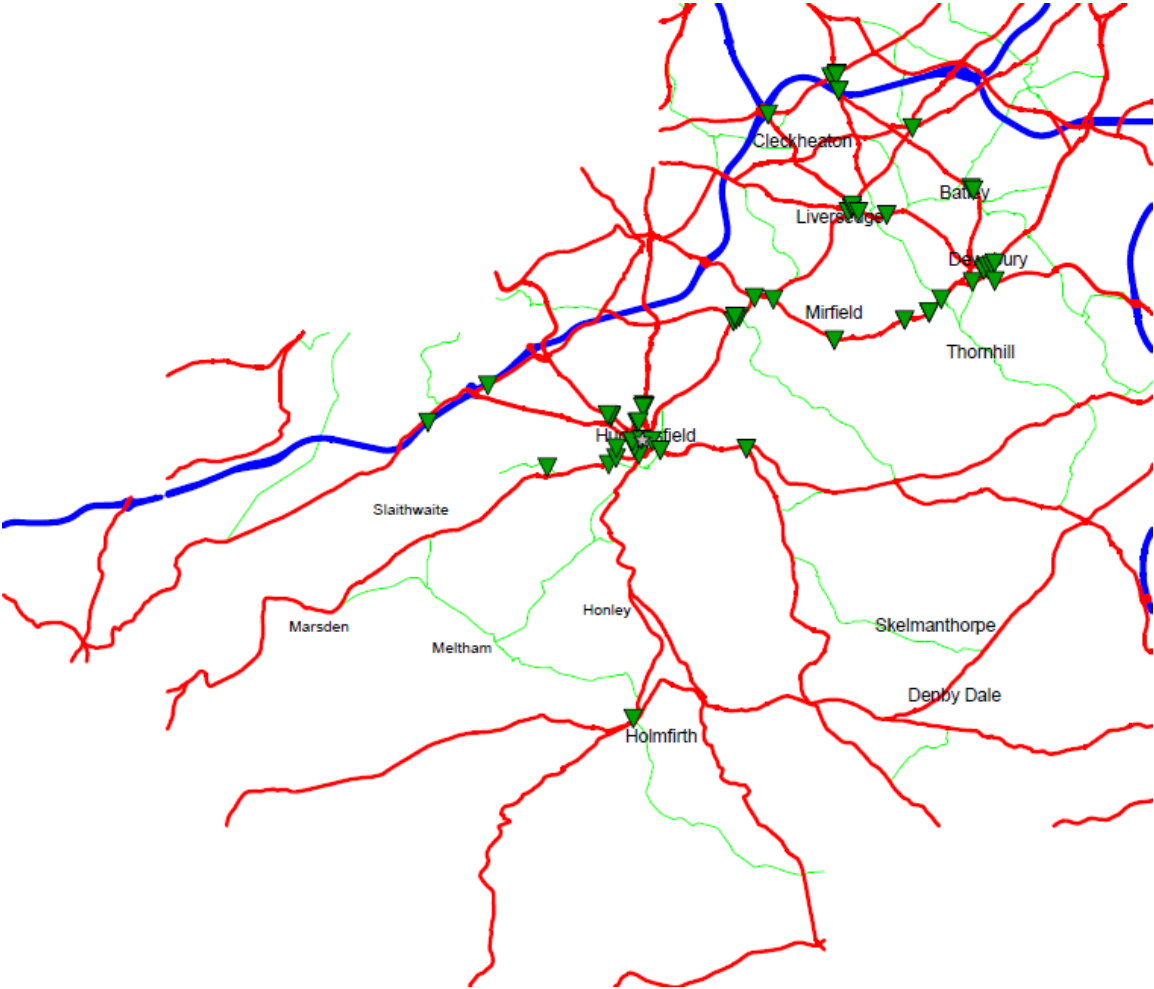


D 1.3 Automatic Monitoring Site Roadside 6

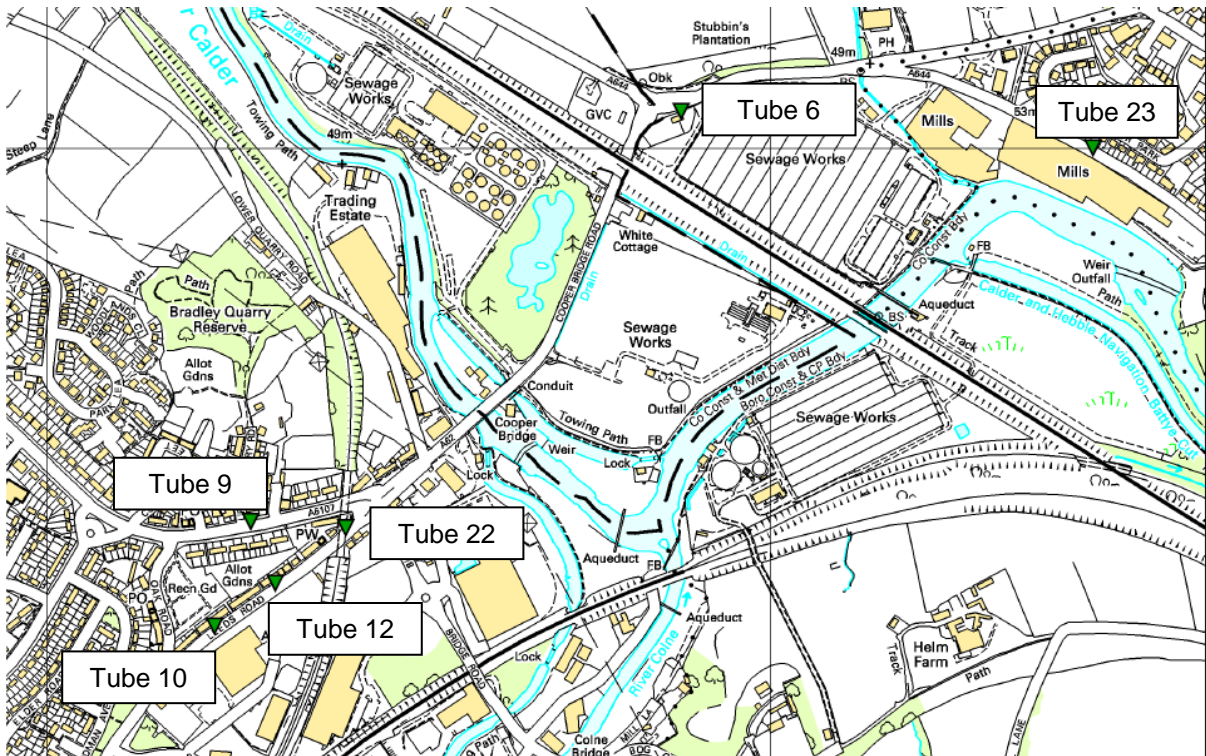


D.2 Passive Monitor Sites

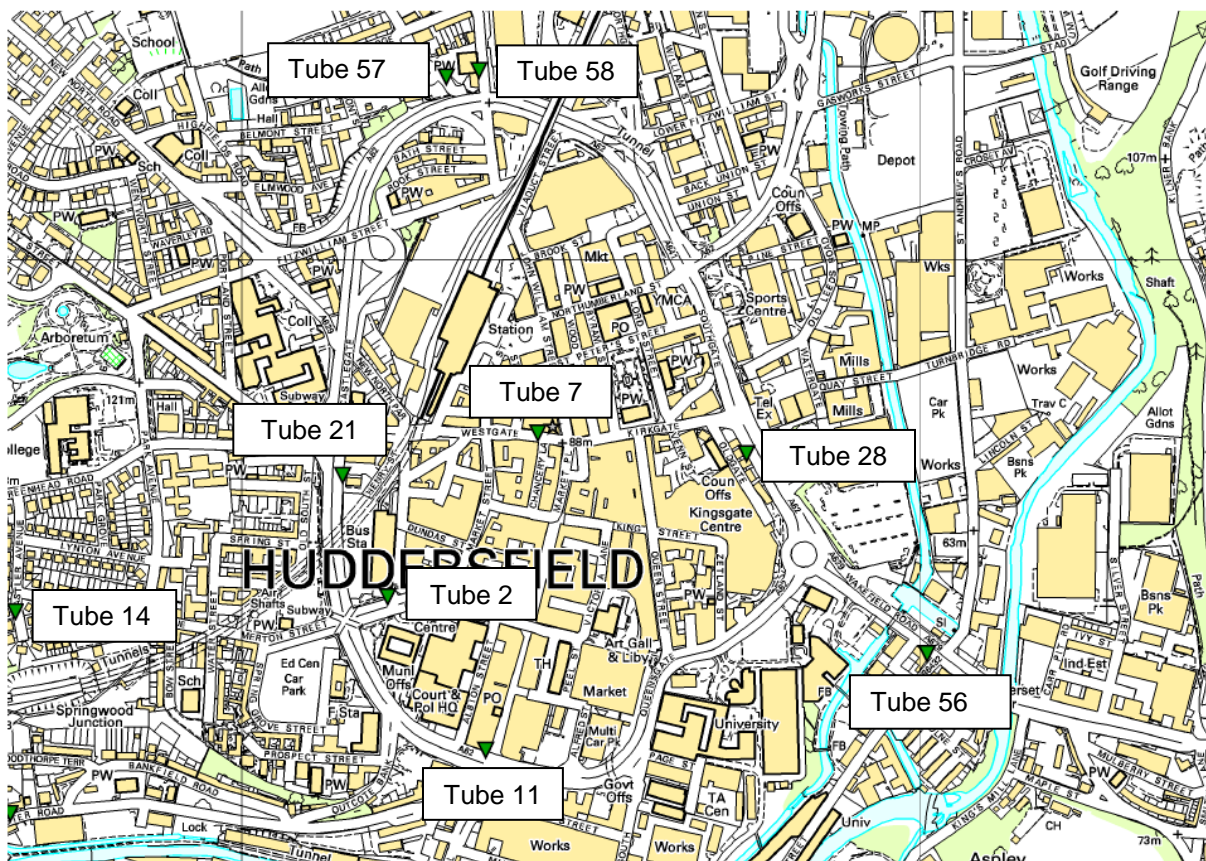
D 2.1 Non-Automatic Monitoring Sites across district



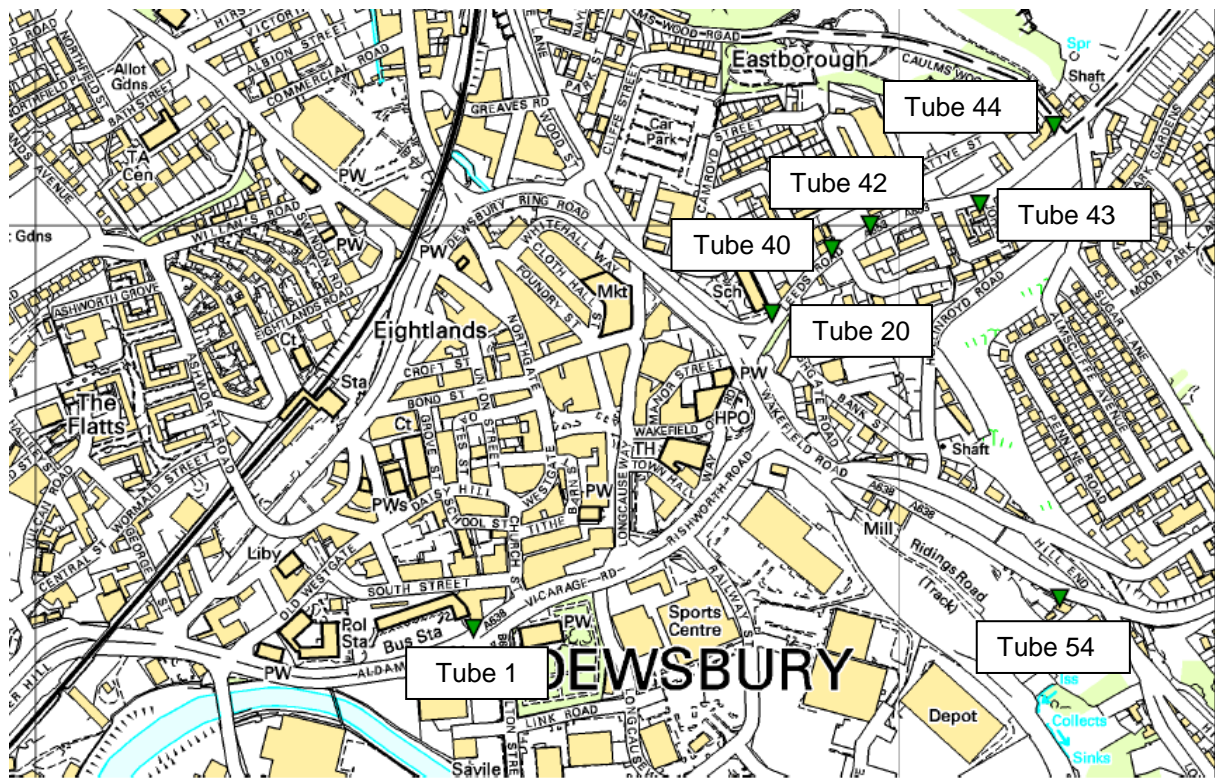
D 2.2 AQMA 1 Bradley diffusion tubes



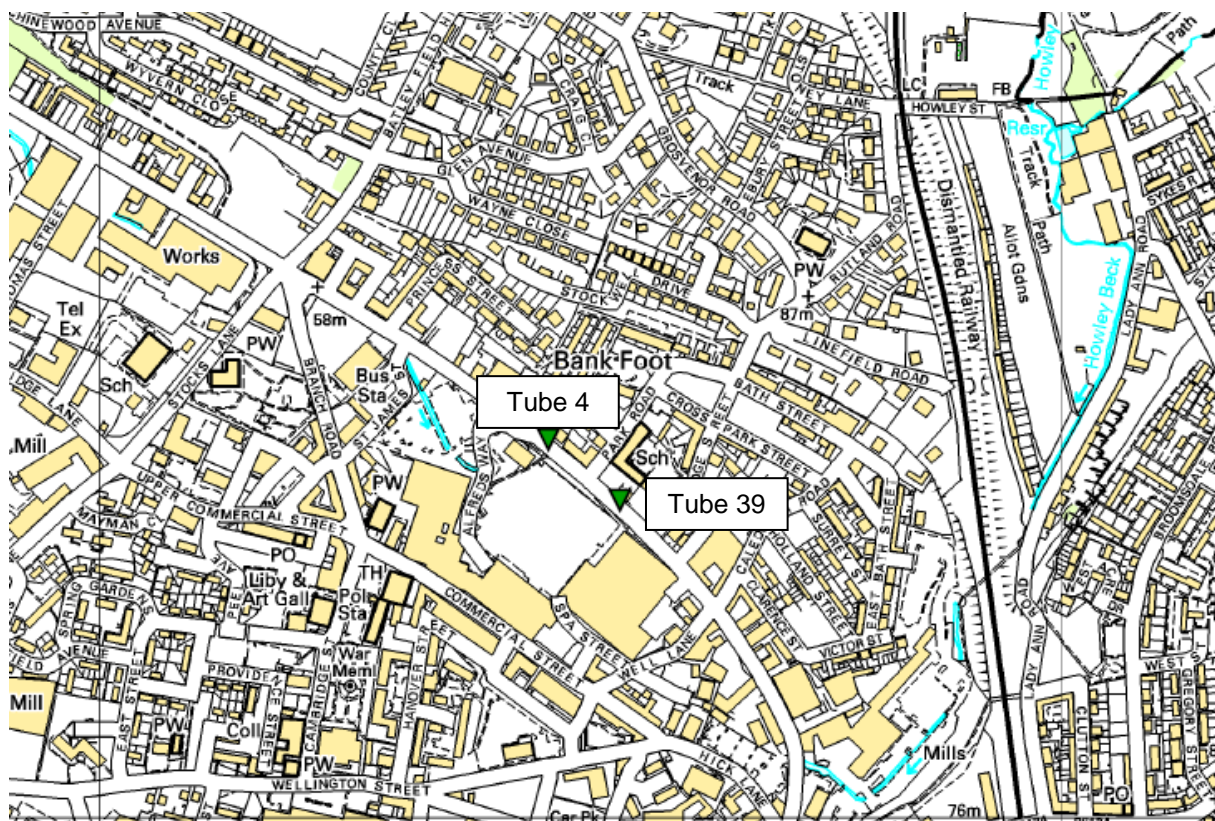
D 2.3 Huddersfield town centre diffusion tubes



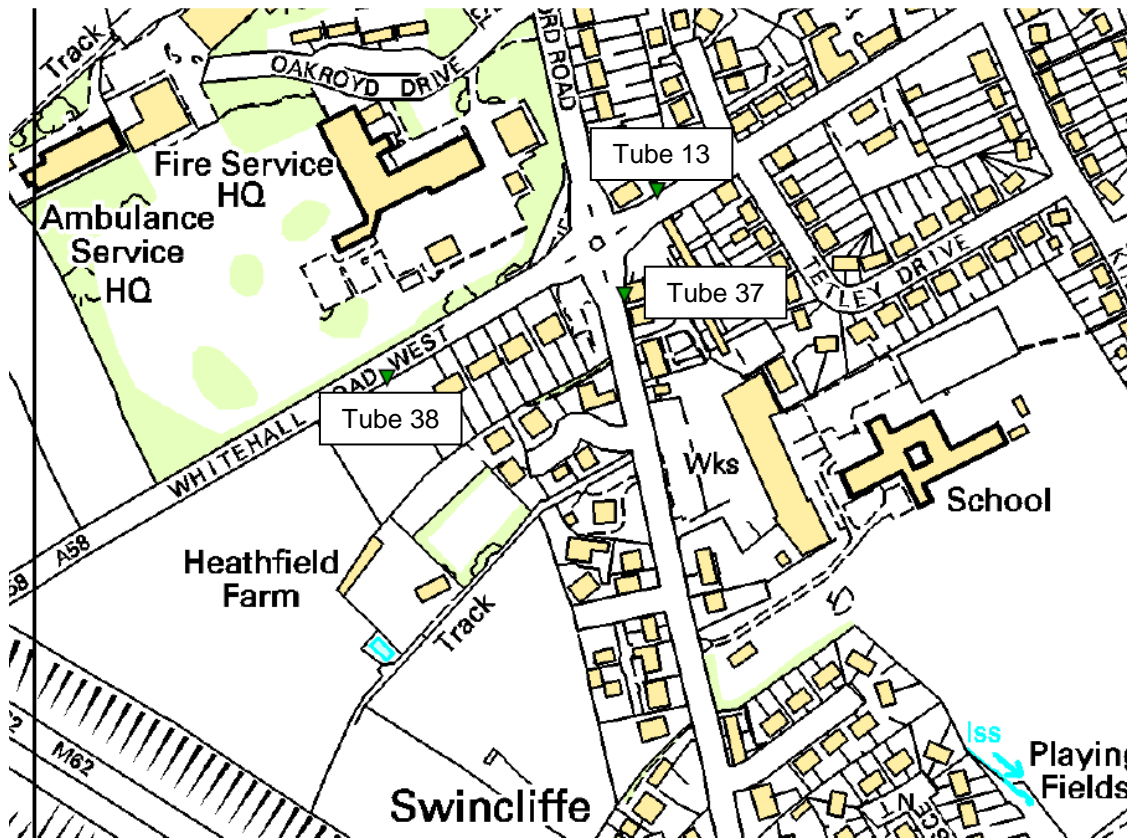
D 2.4 Dewsbury town centre & Eastborough diffusion tubes



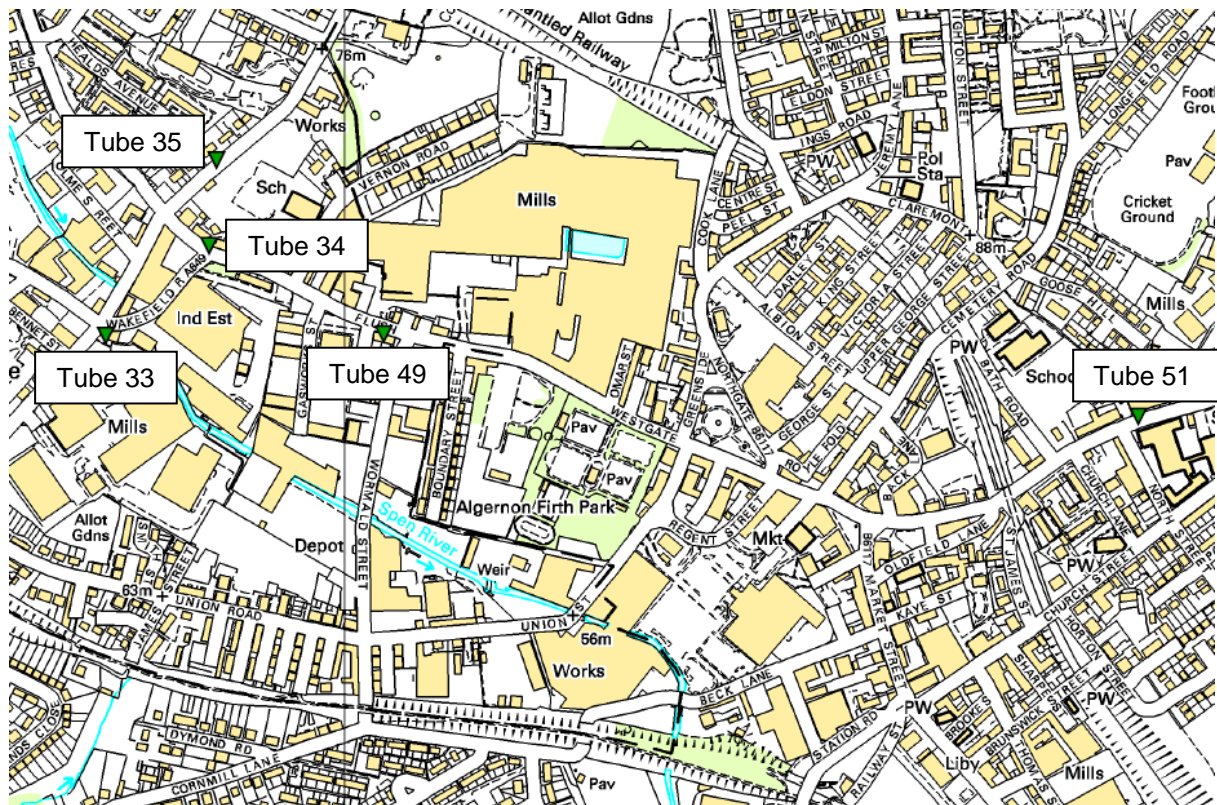
D 2.5 Batley diffusion tubes



D 2.6 Birkenshaw diffusion tubes



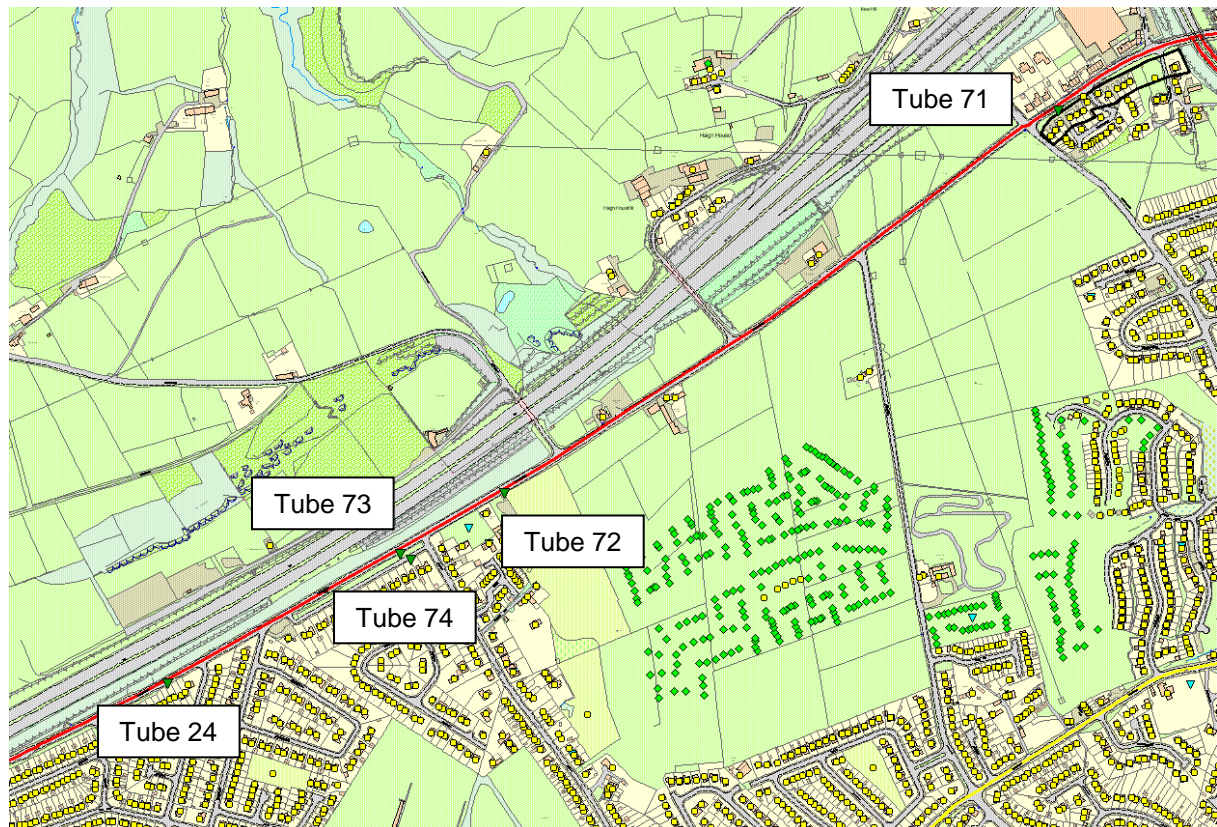
D 2.7 Heckmondwike and Liversedge diffusion tubes



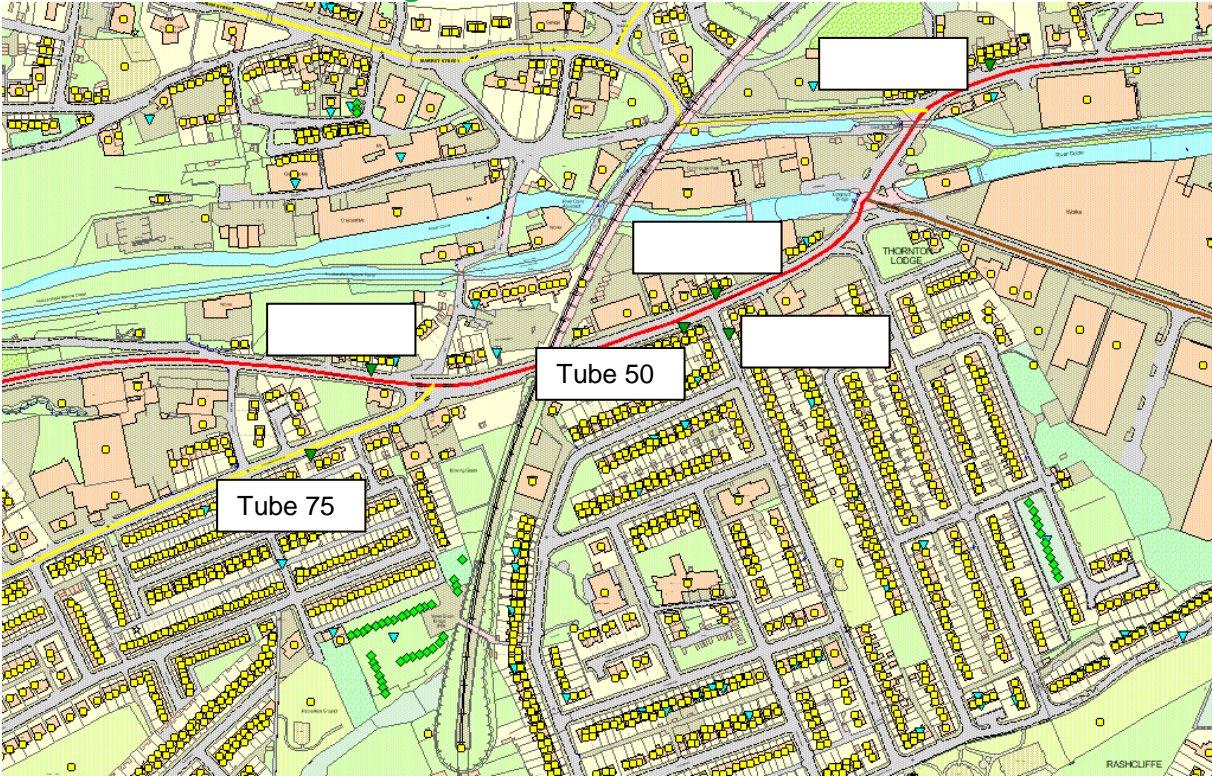
D 2.8 Edgerton diffusion tubes



D 2.9 Lindley Moor Road diffusion tubes

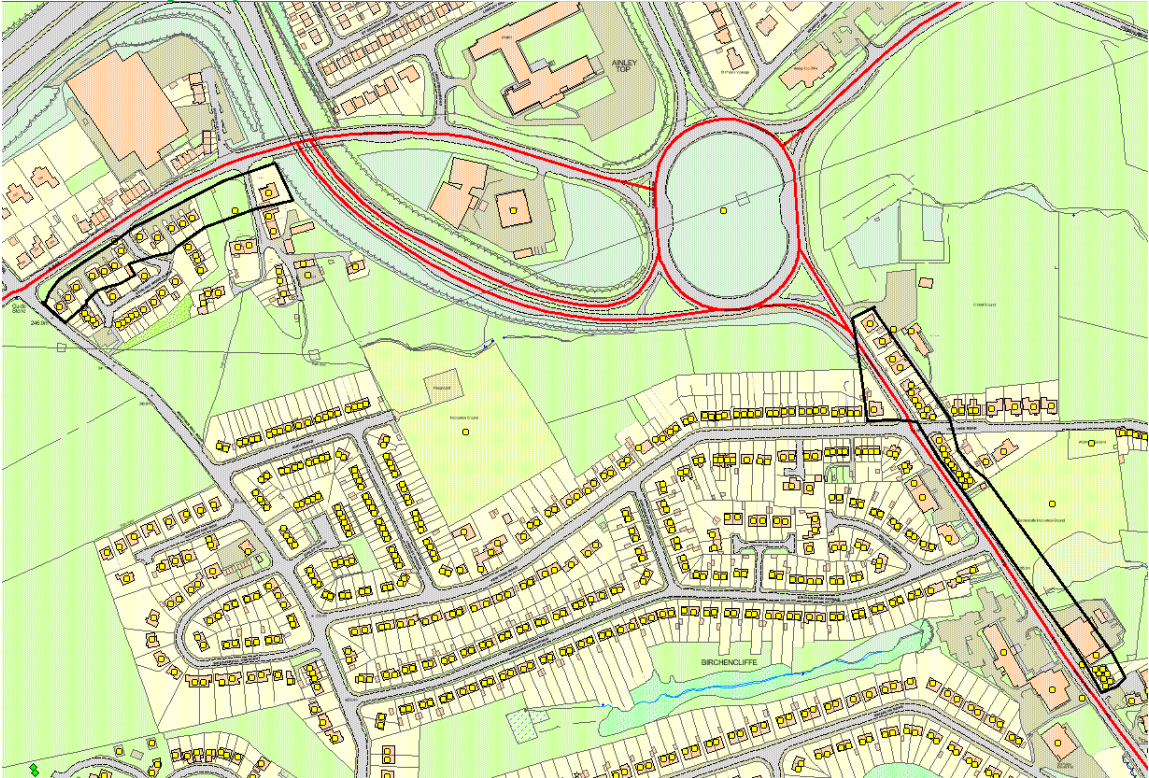


D 2.10 Thornton Lodge diffusion tubes

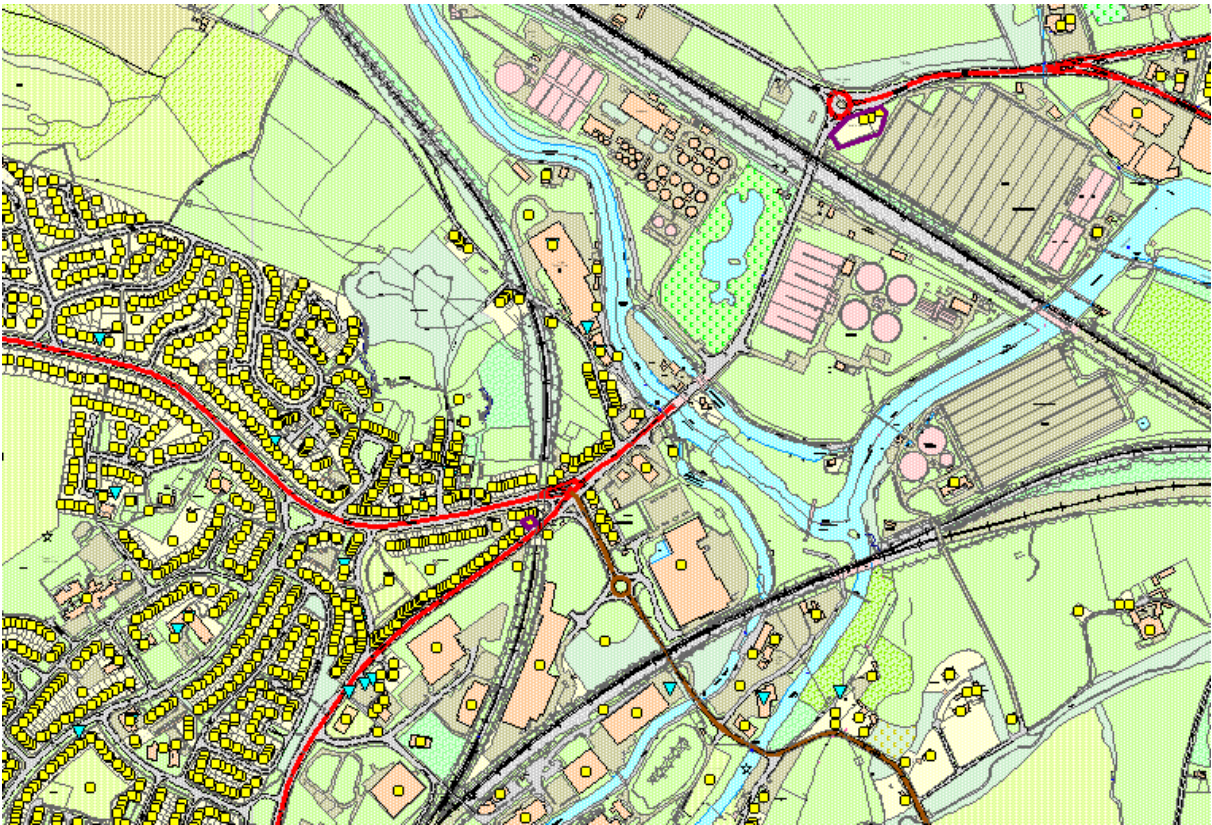


D.3 Air Quality Management Areas

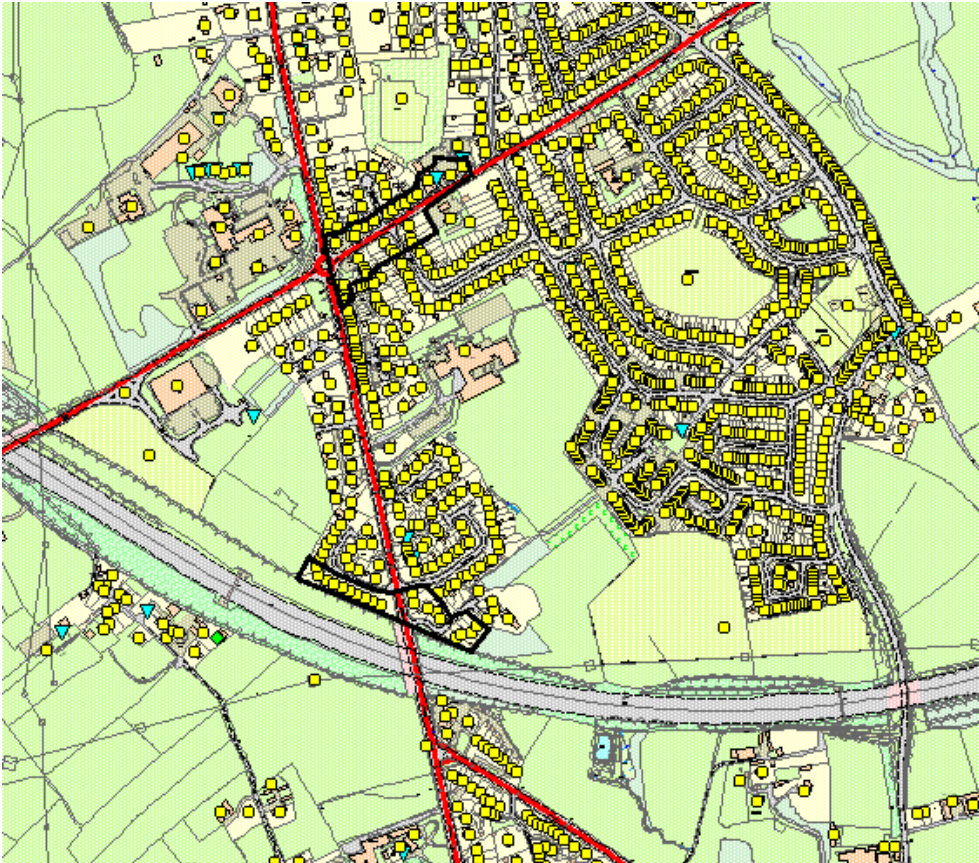
D 3.1 Ainley Top AQMA



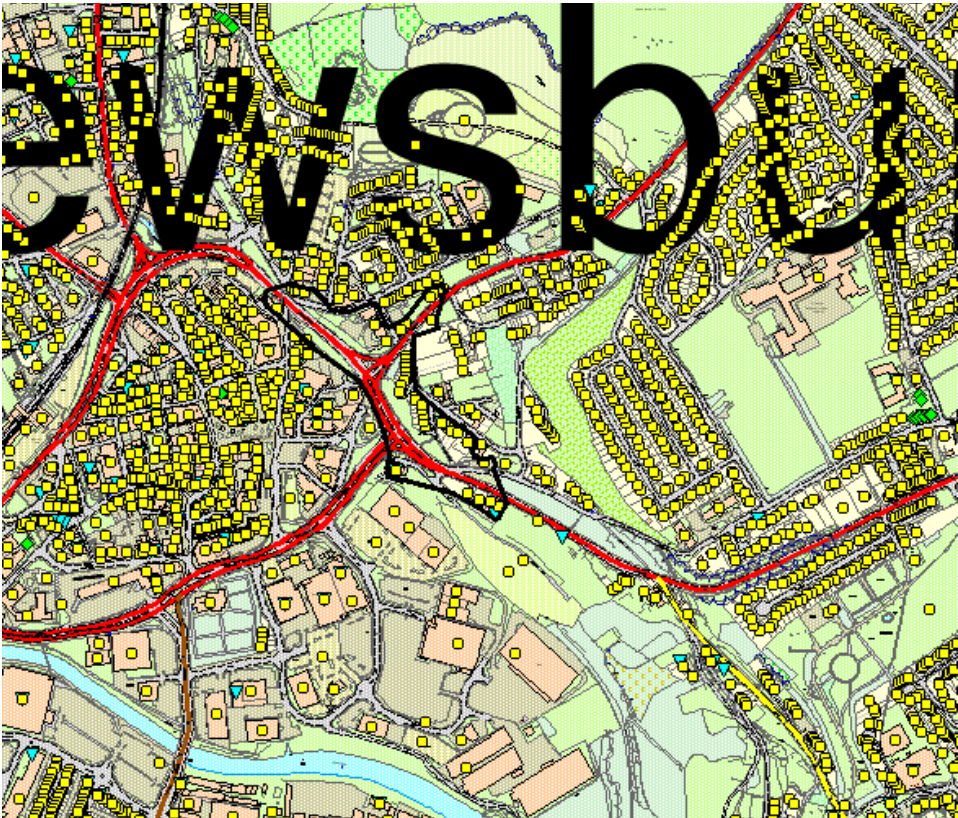
D 3.2 Amended Bradley AQMA



D 3.3 Birkenshaw AQMA



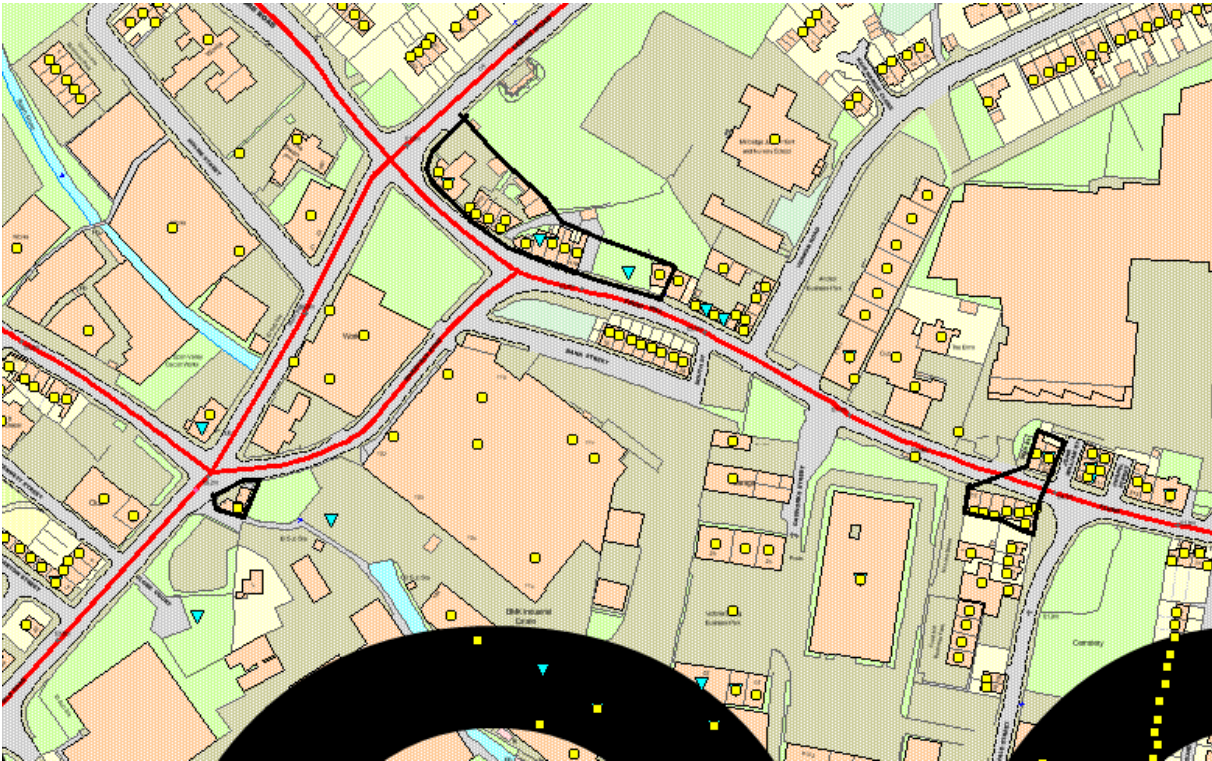
D 3.4 Eastborough AQMA



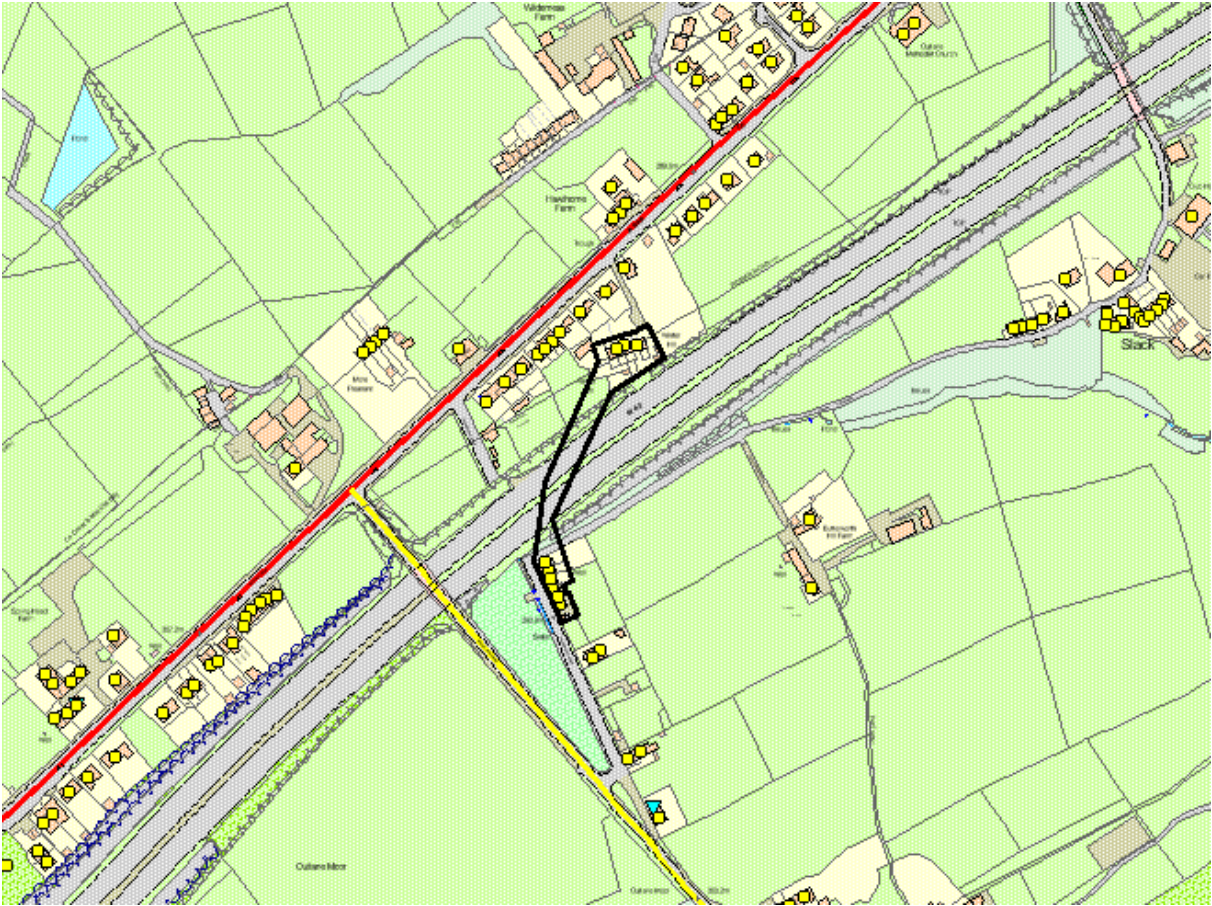
D 3.5 Edgerton AQMA



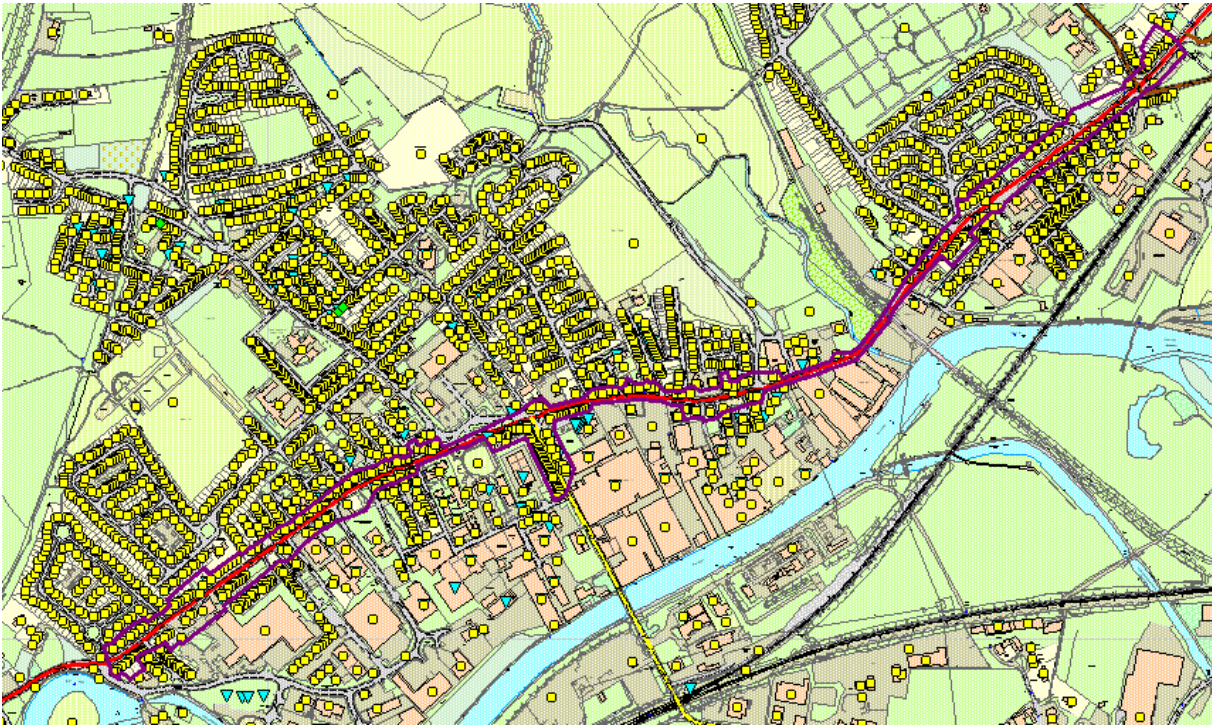
D 3.6 Liversedge / Heckmondwike AQMA



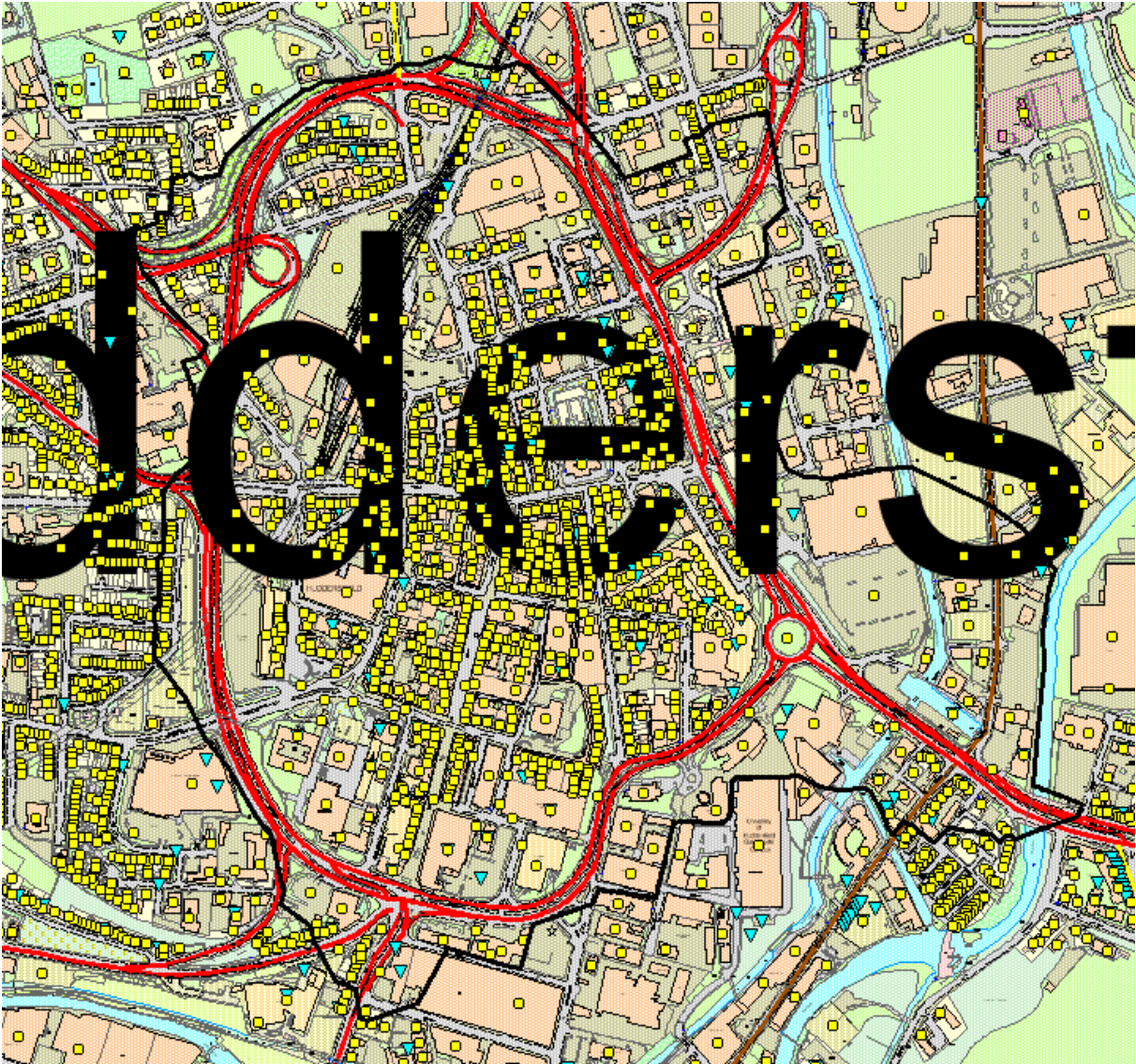
D 3.7 Outlane AQMA



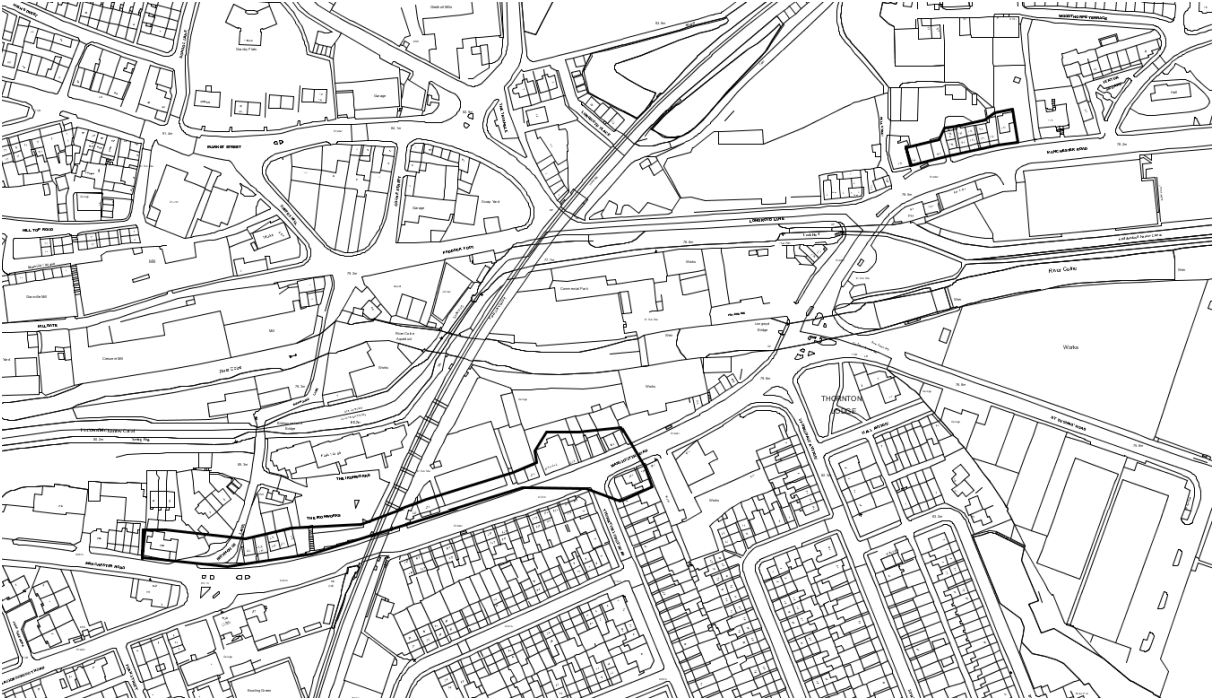
D 3.8 Revoked Scouthill AQMA



D 3.9 Huddersfield Town Centre AQMA



D 3.10 Thornton Lodge AQMA



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective ⁴	
	Concentration	Measured as
Nitrogen Dioxide (NO ₂)	200 µg/m ³ not to be exceeded more than 18 times a year	1-hour mean
	40 µg/m ³	Annual mean
Particulate Matter (PM ₁₀)	50 µg/m ³ , not to be exceeded more than 35 times a year	24-hour mean
	40 µg/m ³	Annual mean
Sulphur Dioxide (SO ₂)	350 µg/m ³ , not to be exceeded more than 24 times a year	1-hour mean
	125 µg/m ³ , not to be exceeded more than 3 times a year	24-hour mean
	266 µg/m ³ , not to be exceeded more than 35 times a year	15-minute mean

⁴ The units are in microgrammes of pollutant per cubic metre of air (µg/m³).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
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 (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide
...	...

References

Part IV Environment Act 1995. (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

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