



2020 Air Quality Annual Status Report (ASR)

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

June 2020

Wyre Forest District Council

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Executive Summary: Air Quality in Our Area

Air Quality in Wyre Forest District Council

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.

Worcestershire Regulatory Services (WRS) have been responsible for managing (monitoring and reporting of) local air quality in the six Worcestershire District Councils since April 2011.

Two Air Quality Management Areas (AQMA's) were declared by Wyre Forest District Council for exceedences of the annual mean objective for nitrogen dioxide (NO₂):

- Welch Gate, Bewdley AQMA. Declared January 2003
- Horsefair, Kidderminster AQMA. Declared January 2003
Amended in July 2009 to include part of the Kidderminster Ring Road and Coventry Street.

Details of declarations and plans of the AQMAs can be found on the following pages of WRS website:

<http://www.worcsregservices.gov.uk/pollution/air-quality/air-quality-management-areas.aspx>

In 2019, there continue to be exceedences of the annual mean objective for NO₂ of 40µg/m³ within the Horsefair/Coventry Street AQMA. Monitoring results for the Welch

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

Gate AQMA showed a significant decrease to below the annual mean objective for NO₂ when compared to 2018.

Monitoring results demonstrate a significant decrease in concentrations at all monitoring locations between 2018 and 2019 this is consistent with trends across Worcestershire. This is likely to have been caused in part by the difference in the bias adjustment factors between 2018 and 2019; 0.89 in 2018 compared to 0.78 in 2019. There is no discernible upward or downward trend in concentrations over the 5 year period 2015 - 2019.

Diffusion tube 23HF – 23 Horsefair was relocated to a more relevant receptor within the Horsefair/Coventry Street AQMA in 2019, enabled by the refurbishment of a row of dwellings a short distance away in 2018. The new diffusion tube is identified as:

- 21HF – 21 Horsefair

Six additional diffusion tubes were deployed at the following locations in Kidderminster in September 2019:

- 334CRN - 334 Chester Road North
- 294CRN - Cambrian House, 294 Chester Road North
- 383CRN - 383 Chester Road North
- 239CRN - 239 Chester Road North
- 50CRS - 50 Chester Road
- 100CRS - 100 Chester Road South

This is to increase the monitoring of air quality in Chester Road North and Chester Road South to further inform a detailed assessment due to be carried out in 2020.

A new Air Quality Partnership led by the DoPH, supported by WRS, and comprising members from public health, air quality, strategic planning, sustainability, highways and transport was set up in 2019. The group have discussed potential actions to improve air quality across the County and work will continue in 2020 to formalise an action plan for implementation.

Actions to Improve Air Quality

In 2013, WRS produced a countywide Air Quality Action Plan (AQAP) for Worcestershire which was adopted by Wyre Forest District Council (WFDC) on 24th October 2013. WRS have produced two updates to the AQAP, the latest in September 2016. For details of all measures completed, in progress or planned, please refer to the 'Air Quality Action Plan Progress Report for Worcestershire April 2015-2016'. A copy of this, the previous update, and the AQAP, is available to view or download at:

<http://www.worcsregservices.gov.uk/pollution/air-quality/air-quality-action-plan.aspx>

Key actions in 2019 are:

- **Kidderminster Ring Road (Horsefair/Coventry Street) AQMA**

As part of the WFDC Churchfields Masterplan for improvements to the highways infrastructure, work commenced in October 2019 on building a new spur road from the Kidderminster Ringway roundabout at the bottom of Blackwell Street into Churchfields to create a one way system with traffic entering the Kidderminster Ringway using Blackwell Street and traffic exiting the Kidderminster Ringway using Churchfields. This should result in a significant improvement in air quality in Blackwell Street; however, air quality in Churchfields is expected to decline due to the increase in traffic. The work is expected to be completed by the end of 2020; once the new road layout is operational the monitoring network in the area will be expanded.

- **Welch Gate AQMA**

Various options were explored to mitigate the air quality in the Welch Gate AQMA in 2018 including closing the road to all but public service vehicles and buses together with prohibiting vehicles from using Park Lane, which runs parallel to Cleobury Road and Welch Gate, as an alternative route and prohibiting HGVs from accessing the B4190 Cleobury Road leading into Welch Gate to the B4194 Dowles Road. All options were found to have been either unworkable, ineffective or politically unacceptable. There was no progress on alternative solutions in 2019, but options will continue to be explored by Wyre Forest District Council and Worcestershire County Council in 2020.

Conclusions and Priorities

There are currently two AQMAs declared in the Wyre Forest District, Welch Gate, Bewdley and Horsefair/ Coventry Street, Kidderminster. Monitoring shows that air quality in the Horsefair/ Coventry Street AQMA continued to exceed the annual mean objective in 2019. Monitoring results within the Welch Gate, Bewdley AQMA showed that it was now below the annual mean objective; however, both AQMAs will remain in place.

Diffusion tube 23HF (23 Horsefair) was relocated to 21HF (21 Horsefair) in 2019 as this location was considered to be a more relevant receptor. The monitoring network was increased in September 2019 by six diffusion tubes at locations along Chester Road North and Chester Road South (A449) to further inform a detailed assessment of the area due to be carried out in 2020.

Monitoring results demonstrate a significant decrease in NO₂ concentrations at all monitoring locations in 2019; this is consistent with trends across Worcestershire. This is likely to have been caused in part by the significant difference in bias adjustment factors between 2018 and 2019; 0.89 in 2018 compared to 0.78 in 2019. The decrease between 2018 and 2019 monitoring data should not be considered as indicative of local trends.

The 2017 'UK plan for tackling roadside nitrogen dioxide' outlines Government's approach and preferred options for mitigation of national areas of poor air quality detailing 29 local authorities required to produce strategies to accelerate compliance with the air quality objectives in their areas. A further 33 local authorities have since been required to produce feasibility studies on accelerating compliance following a High Court order. In autumn budget 2017, the chancellor announced a £220 million Clean Air Fund to support those local authorities and the people and businesses affected by these local plans. Wyre Forest District Council is not one of these named councils and therefore has not been prioritised for access to that funding.

The priorities for Wyre Forest District Council are to continue to monitor nitrogen dioxide at key points across the area. WRS on behalf of Wyre Forest District Council will continue to monitor locations in 2020 to assess any improvements or degradation in NO₂ concentrations. The data gathered will assist in further assessment of areas

of poor air quality within the District. Further update on monitoring and action progress will be provided in the 2021 Annual Status Report.

Local Engagement and How to get Involved

A new Air Quality Partnership led by the officers of the Director of Public Health (DoPH), and supported by WRS Land and Air Quality Team, was set up in 2019 to discuss potential actions to improve air quality across the County and determine an action plan for implementation. The group comprises officers from the County and District authorities from public health, air quality, strategic planning, sustainability, highways and transport disciplines, and also representatives from the NHS and Highways England. Further discussions and work to formalise an action plan will continue in 2020.

WRS is also a member of Central England Environmental Protection Managers Group (CEEPG) which provides a strategic overview and direction for the delivery of Environmental Protection Services across the area of Central England covered by participating authorities. CEEPG responsibilities covers all environmental health matters regarding air quality, noise, contaminated land and LAPPC/IPPC including cooperation and coordination with the Environment Agency and Public Health England.

There are a number of ways members of the public can help to improve local air quality:

- **Walk or cycle, leave you car at home:** Leaving your car at home and walking or cycling instead will benefit in three ways - increased exercise, reduced pollution exposure and will reduce individual's pollution emissions; Visit this link for more information: <https://www.wyreforestdc.gov.uk/things-to-see-do-and-visit/cycling-walking-and-running.aspx>
- **Turn off your engine when stationary or parked,** don't 'idle', particularly outside sensitive receptors such as schools, hospitals, care homes and residential properties;
- Worcestershire County Council have launched a car sharing website, **LiftShare**, to help people find others journeying to the same destinations to

share journeys and costs, and reduce traffic and emissions. Visit this link for more information <https://worcestershire.liftshare.com/>;

- Contact Worcestershire County Council for help and advice on a **Travel Plan** for your business. General travel planning advice is available on Worcestershire County Council's website (including walking, cycling and bus maps and timetables);
- **Hold meetings by Conference Call** by phone or Video conference via Skype, Facetime, Zoom or other service rather than driving to meetings. This reduces fuel and other travel costs, vehicle maintenance and hire cost, increases productivity through reduction in hours lost through unnecessary travel;
- Facilitate **Flexible Working Arrangements** for non-front line staff to **work remotely from home** or nearer home facilities for one or more days a week thus removing or reducing any journey to work. This reduces congestion which has beneficial impacts for delivery times, reduced business costs and thus economic benefits. Additionally, provides social benefits through improved work life balance for employees, reduces local air quality and reduced emergency vehicle response times.
- **Switch Fleet to Low Emission Vehicles:** The government is providing £80m funding to encourage installation of Electric Vehicle (EV) charging points. Eligible businesses, charities and public sector organisations with off street parking for staff or vehicles fleets can apply for vouchers to redeem costs of electric vehicle charge-points. There is a limit of 1 voucher per applicant; however, applicants with a 'franchise' may apply for up to 20 franchisees. There is an approved charge points list and a list of authorised installers. <https://www.gov.uk/government/collections/government-grants-for-low-emission-vehicles#workplace-charging-scheme>
- If you have to drive follow fuel efficient driving advice, often known as '**Smarter Driving Tips**', to save on fuel and reduce your emissions. A number of websites promote such advice including:
<http://www.energysavingtrust.org.uk/travel/driving-advice>
<http://www.theaa.com/driving-advice/fuels-environment/drive-smart>

<http://www.dft.gov.uk/vca/fcb/smarter-driving-tips.asp>

- **Reduce air pollution from open fires and wood-burning stoves:** Advice is available from Defra on choosing the right stove, using the right fuels and maintenance enabling householders to reduce their impact on their health and air quality from open fires and wood burning stoves. Further information is available on the [Smokeless Zones](#) and [Public Advice](#) pages on WRS website.

Air pollution can affect all of us over our lifetime however certain groups will be more sensitive to the effects of air pollution. Vulnerable groups include adults and children with lung or heart conditions such as asthma, chronic bronchitis, emphysema and chronic obstructive lung disease (COPD)^{4,5}. Senior citizens are more likely to be affected by respiratory diseases and children are more likely to be affected by air pollution due to relatively higher breathing and metabolic rates as well as a developing lung and immune system.

Vulnerable individuals and groups can keep informed of:

- Current levels and forecasts of air pollution from Defra at <https://uk-air.defra.gov.uk/>.
- If you are sensitive to the effects of air pollution, it may be appropriate to limit the length of time spent in areas of local poor air quality – see advice from Defra at <https://uk-air.defra.gov.uk/air-pollution/daqi>.
- If you are on social media, sign up to the WRS Twitter feed. WRS tweet when pollution is forecast by Defra to be moderate to very high.

Further information for the general public on reducing your family's exposure to poor air quality in Worcestershire and how individuals, business and schools can assist with reducing their impact on local air quality can currently be found at <http://www.worcsregservices.gov.uk/pollution/air-quality/public-advice.aspx> .

⁴ <http://www.breathelondon.org/>

⁵ <https://www.londonair.org.uk/LondonAir/guide/MyActionsForMe.aspx>

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1 Local Air Quality Management

This report provides an overview of air quality in Wyre Forest District 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 Wyre Forest District 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 Table E.1 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 Wyre Forest District Council can be found in Table 2.1. Details of declaration and plans of the AQMAs can be found on the following pages of WRS website:

<http://www.worcsregservices.gov.uk/pollution/air-quality/air-quality-management-areas.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).

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
The Kidderminster Ring Road (Horsefair /Coventry Street)	Declared 06/01/2003 Amended 30/07/2009	NO2 Annual Mean	Kidderminster	An area of residential & commercial properties in The Horsefair & Blackwell Street. The AQMA was extended to include part of the Kidderminster Ring Road and residential properties in the vicinity of Coventry Street.	NO	54	µg/m ³	54	µg/m ³	Action Plan for Horsefair/ Coventry Street AQMA	Sep-13	http://www.worcsregservices.gov.uk/pollution/air-quality/air-quality-action-plan.aspx
Welch Gate	Declared 06/01/2003	NO2 Annual Mean	Bewdley	A short section of Welch Gate encompassing a number of residential properties from the junction of Dog Lane running south west to north east to a point level with 84 Welch Gate	NO	47	µg/m ³	37	µg/m ³	Action Plan for Welch Gate AQMA	Sep-13	

Wyre Forest District 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

Defra's appraisal of last year's ASR concluded that the report is well structured, detailed, and provides the information specified in the Guidance.

1. Trends are clearly presented and discussed and a robust comparison with air quality objectives is provided.
2. The diffusion tube mapping is comprehensive and clearly demonstrates the monitoring network. AQMA boundaries are also clearly shown on the map.
3. Table 3.1 misses four exceedances and is therefore not fully completed.
4. Current concentrations within the AQMA persist to be above the annual mean objective therefore the AQMAs should remain.
5. It appears the Council have distance corrected all sites that are not located at the nearest receptor. The guidance was updated in 2018 to state that this is not necessary for sites below $36\mu\text{g}/\text{m}^3$. See LAQM TG(16) paragraph 7.78 for further details. There were 5 locations below $36\mu\text{g}/\text{m}^3$ which distance were corrected.
6. 'Table A.1 – Details of Non-Automatic Monitoring Sites' and 'Table A.2 – Annual Mean NO_2 Monitoring Results' were labelled in correctly and should be labelled as following to be identical as the excel spreadsheet; 'Table A.2 – Details of Non-Automatic Monitoring Sites' and 'Table A.3 – Annual Mean NO_2 Monitoring Results'.
7. Monitoring results demonstrate an increase in concentrations at all monitoring locations in 2018 when compared to 2017. However, there is no discernible trend over the past 5 years. The Council should continue their hard work to improve air quality within Wyre Forest.

Wyre Forest District 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.

More detail on these measures can be found in the 'Air Quality Action Plan Progress Report for Worcestershire April 2015 – April 2016' at:

<http://www.worcsregservices.gov.uk/pollution/air-quality/air-quality-action-plan.aspx>

Key actions in 2019 are:

- **Kidderminster Ring Road (Horsefair/Coventry Street) AQMA**

As part of the WFDC Churchfields Masterplan for improvements to the highways infrastructure, work commenced in October 2019 on building a new spur road from the Kidderminster Ringway roundabout at the bottom of Blackwell Street into Churchfields to create a one way system with traffic entering the Kidderminster Ringway using Blackwell Street and traffic exiting the Kidderminster Ringway using Churchfields. This should result in a significant improvement in air quality in Blackwell Street; however, air quality in Churchfields is expected to decline due to the increase in traffic. The work is expected to be completed by the end of 2020; once the new road layout is operational the monitoring network in the area will be expanded.

- **Freight Quality Partnership:**

On-going work with satellite navigation companies to route HGVs around AQMAs.

- **Installing electric vehicle charging points:**

Recommendations for the installation of EV Charging Points are routinely included by WRS on relevant planning consents.

- **Travel Planning:**

Personalised travel planning program planned as part of wider health improvement drives from Worcestershire County Council who have developed a "one-stop-shop" online travel portal:

http://www.worcestershire.gov.uk/info/20007/travel_and_roads

- **Produce Air Quality Supplementary Planning Document (SPD):**

WRS officers have drafted the SPD and it is currently out for consultation.

WRS on behalf of Wyre Forest District Council will continue to monitor locations in 2020 to assess any improvements or degradation in NO₂ concentrations. The data gathered will assist in further assessment of areas of poor air quality outside the

current AQMAs. Further update on monitoring and action progress will be provided in the 2021 Annual Status Report.

The principal challenges and barriers to implementation that Wyre Forest District Council anticipates facing is in the Welch Gate AQMA in Bewdley, described as a 'street canyon', in that it is a narrow street with continuous buildings on either side and is a major routes for traffic in and out of Bewdley. As a consequence solving the problem of poor air quality at this location is proving to be difficult.

- **Welch Gate AQMA:** Various options were explored to mitigate the air quality in the Welch Gate AQMA in 2018 including closing the road to all but public service vehicles and buses together with prohibiting vehicles from using Park Lane which runs parallel to Cleobury Road and Welch Gate as an alternative route and prohibiting HGVs from accessing the B4190 Cleobury Road leading into Welch Gate to the B4194 Dowles Road. All options have been found to be either unworkable, ineffective or politically unacceptable. There was no progress on alternative solutions in 2019, but options will continue to be explored by Wyre Forest District Council and Worcestershire County Council in 2020.

Progress on the following measure has been slower than expected:

- **HGV or weight restriction on affected roads:**

The B4190 Cleobury Road/Welch Gate is the main access route for traffic from the B456 Bewdley By-pass to the B4194 Dowles Road which leads to towns in Shropshire. Enforcement of the 7.5 tonne weight limit and access only restriction is proving problematic as alternative routes in the area for HGVs are not considered viable.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, Wyre Forest District Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of the Horsefair/Coventry Street and Welch Gate AQMAs.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	EU Category	EU Classification	Date Measure Introduced	Organisations involved	Funding Source	Key Performance Indicator	Reduction in Pollutant / Emission from Measure	Progress to Date	Estimated / Actual Completion Date	Comments / Barriers to implementation
1	Loading and unloading restrictions during peak traffic times	Traffic Management	UTC, Congestion management, traffic reduction	2016	WFDC	WFDC	Decrease in illegally parked vehicles	2-5%	WFDC parking enforcement to target AQMA areas.	Currently in operation	
2	HGV or weight restriction on affected roads	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2016	WCC	WCC	Less HGV's travelling through Welch Gate AQMA	2%	A 7.5 tonne weight limit and access only restriction is currently in operation on the B4190 Cleobury Road leading into Welch Gate.	Currently in operation	HGVs use the B4190 for access to the B4194 (Dowles Road)
3	Promote flexible working arrangements	Promoting Travel Alternatives	Encourage / Facilitate home-working	2017	WCC & WFDC	WCC & WFDC	Increase in uptake of personal travel planning services. Change in behaviour towards more sustainable modes of transport	<1%	On-going	On-going	
4	Freight Quality Partnership – work with satellite navigation companies to route HGVs around AQMAS	Traffic Management	UTC, Congestion management, traffic reduction	On-going	WCC	WCC	Fewer HGVs travelling through AQMAS	5 - 10%	On-going	On-going	It can take some time for the information to filter down to users.
5	Alteration to phasing of traffic light systems	Traffic Management	UTC, Congestion management, traffic reduction	2018 onwards	WCC	WCC	Improved flow through Horsefair/Coventry Street AQMA, reduction in congestion	10-40%	Action linked to the implementation of the WFDC Churchfields Masterplan	Currently on-going	Improvements to Highways Infrastructure in the Churchfields area. Due to be completed by end of 2020
6	Introduction of traffic signals at roundabouts	Traffic Management	UTC, Congestion management, traffic reduction	2018 onwards	WCC	WCC	Improved flow around ring road, significant reduction in stationary idling traffic at peak times.	10-40%	Action linked to the implementation of the WFDC Churchfields Masterplan;	Currently on-going	Improvements to Highways Infrastructure in the Churchfields area. Due to be completed by end of 2020
7	Installing electric vehicle charging points	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2014 onwards	WFDC & WCC	WFDC & WCC	Increase in availability of EV charging points and corresponding increase in use of electric vehicles	1%	Recommendations for installation of EV Charging Points routinely recommended by WRS on relevant planning consents.	On-going	WRS technical guidance note for planning (v.5.1) is produced on behalf of all Worcestershire local authorities. This document does not form part of any SPD guidance produced by WFDC but all applications are reviewed on their behalf with regard to its requirements. http://www.worcsregservic.es.gov.uk/media/4210767/WRS-technical-guidance-document-for-Planning-V51.pdf

8	Greening Council and Business Fleets	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018 onwards	WCC	WCC	Increase in number of Council and business fleet vehicles of higher Euro Standard and/or utilising alternative fuels	1%	WCC Local Transport Plan (LTP4) adopted November 2017	On-going	
9	Travel Planning	Promoting Travel Alternatives	Personalised Travel Planning	2017 onwards	WCC	WCC	Increased uptake of alternative modes of transport	<1%	County Council have developed a "one-stop-shop" online travel portal	Currently Operating	
10	Measures linked to walking and cycling initiatives	Promoting Travel Alternatives	Promotion of cycling	Easter 2015 onwards	WFDC & WCC	WFDC & WCC	Increased uptake of walking and cycling in Wyre Forest	<1%	WFDC has a web page dedicated to the promotion of walking and cycling.	On-going	
11	Car Sharing	Alternatives to private vehicle use	Car & lift sharing schemes	Liftshare Scheme launched Autumn 2015	WCC	WCC	Increase in number of people car sharing	<1%	Liftshare Scheme launched in Autumn 2015	Currently Operating	
12	Produce Air Quality Supplementarily Planning Document	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Draft completed in August 2017.	WRS & District Councils	WRS & District Councils	Formally adopted and utilised SPD at all six LPAs across County	<1%	SPD drafted by WRS officers. Draft out for consultation	On-going	
13	Encourage developers to provide sustainable transport facilities and links serving new developments	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Draft completed in August 2017.	WRS & District Councils	WRS & District Councils	Formally adopted and utilised a by all six LPAs across County	<1%	SPD drafted by WRS officers. Draft out for consultation	On-going	
14	Air Quality Networks	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2014 onwards	WFDC & WRS	WFDC & WRS	Improved cross boundary working between local authorities in Worcestershire	1%	WRS are a member of the Midlands Joint Advisory Council (MJAC). Provision of AQ services to Tewkesbury Borough Council & Gloucester City Council	On-going	
15	Forge closer links with local health agencies	Other	Other	2019	WRS, District Councils & WCC	WRS & WCC	Participation of relevant health agencies in the Worcestershire Air Quality Steering Group	<1%	Director of Public Health at Worcestershire County Council set up an air quality group in 2019 to discuss air quality issues in the County	On-going	

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.

There are currently no automatic PM_{2.5} monitoring stations in Worcestershire. The nearest AURN PM_{2.5} monitoring station is the Walsall Woodlands site approximately 23 kilometres to the north east of the Wyre Forest District.

WRS has reviewed the DEFRA national background maps to determine projected PM_{2.5} concentrations with the Wyre Forest District for the 2019 calendar year. The average total PM_{2.5} at 197 locations (centre points of 1km x 1km grids) across the Wyre Forest District is 7.34µg/m³, with a minimum concentration of 6.65µg/m³ and a maximum concentration of 8.66µg/m³.

This indicates that PM_{2.5} concentrations within the Wyre Forest District are well below the annual average EU limit value for PM_{2.5} of 25µg/m³ and the average is below World Health Organisation limits also.

A new Air Quality Partnership led by the DoPH, and supported by WRS Land and Air Quality Team, was set up in 2019 to discuss potential actions to improve air quality across the County and determine an action plan for implementation. The group comprises officers from the County and District authorities from public health, air quality, strategic planning, sustainability, highways and transport disciplines, and also representatives from the NHS and Highways England. The group met initially in May 2019 to discuss terms and references and in September to discuss potential actions. Further discussions and work to formalise an action plan are continuing in 2020.

In light of the above no additional actions are currently planned by Wyre Forest District Council in relation to the reduction of PM_{2.5} levels. However it is anticipated that any actions taken to improve NO₂ levels across the District will likely result in a linked improvement in PM_{2.5} levels.

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

3.1 Summary of Monitoring Undertaken

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

3.1.1 Automatic Monitoring Sites

No automatic (continuous) monitoring was undertaken within the Wyre Forest District during 2019

Non-Automatic Monitoring Sites

Wyre Forest District Council undertook non- automatic (passive) monitoring of NO₂ at 49 sites during 2019. Table A.2 in Appendix A shows the details of 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 bias⁶, “annualisation” (where the data capture falls below 75%), and distance correction⁷. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

During 2019, Wyre Forest District Council monitored annual mean nitrogen dioxide concentrations using passive diffusion tubes at 49 locations across the District compared to 43 locations in 2018.

Diffusion tube 23HF – 23 Horsefair was relocated to a more relevant receptor within the Horsefair/Coventry Street AQMA in 2019, enabled by the refurbishment of a row of dwellings a short distance away in 2018. The new diffusion tube is identified as:

⁶ <https://laqm.defra.gov.uk/bias-adjustment-factors/bias-adjustment.html>

⁷ Fall-off with distance correction criteria is provided in paragraph 7.77, LAQM.TG(16)

- 21HF – 21 Horsefair

Six additional diffusion tubes were deployed at the following locations in Kidderminster in September 2019:

- 334CRN - 334 Chester Road North
- 294CRN - Cambrian House, 294 Chester Road North
- 383CRN - 383 Chester Road North
- 239CRN - 239 Chester Road North
- 50CRS - 50 Chester Road
- 100CRS - 100 Chester Road South

This is to increase the monitoring of air quality in Chester Road North and Chester Road South to further inform a detailed assessment of the area due to be carried out in 2020.

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. Note that the concentration data presented in Table A.3 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 2019 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.

Five Year Trend Graphs

The graphs below show the NO₂ five year trends, 2015 to 2019, for Kidderminster, Horsefair/Coventry Street AQMA, Stourport-on-Severn and Bewdley.

Kidderminster

Figure 3.1 below demonstrates the five year trend for NO₂ concentrations at the location of the monitoring site for Kidderminster excluding the Horsefair/Coventry Street AQMA where available.

Figure 3.1 - Long Term Trend Graph of NO₂ Concentrations in Kidderminster.

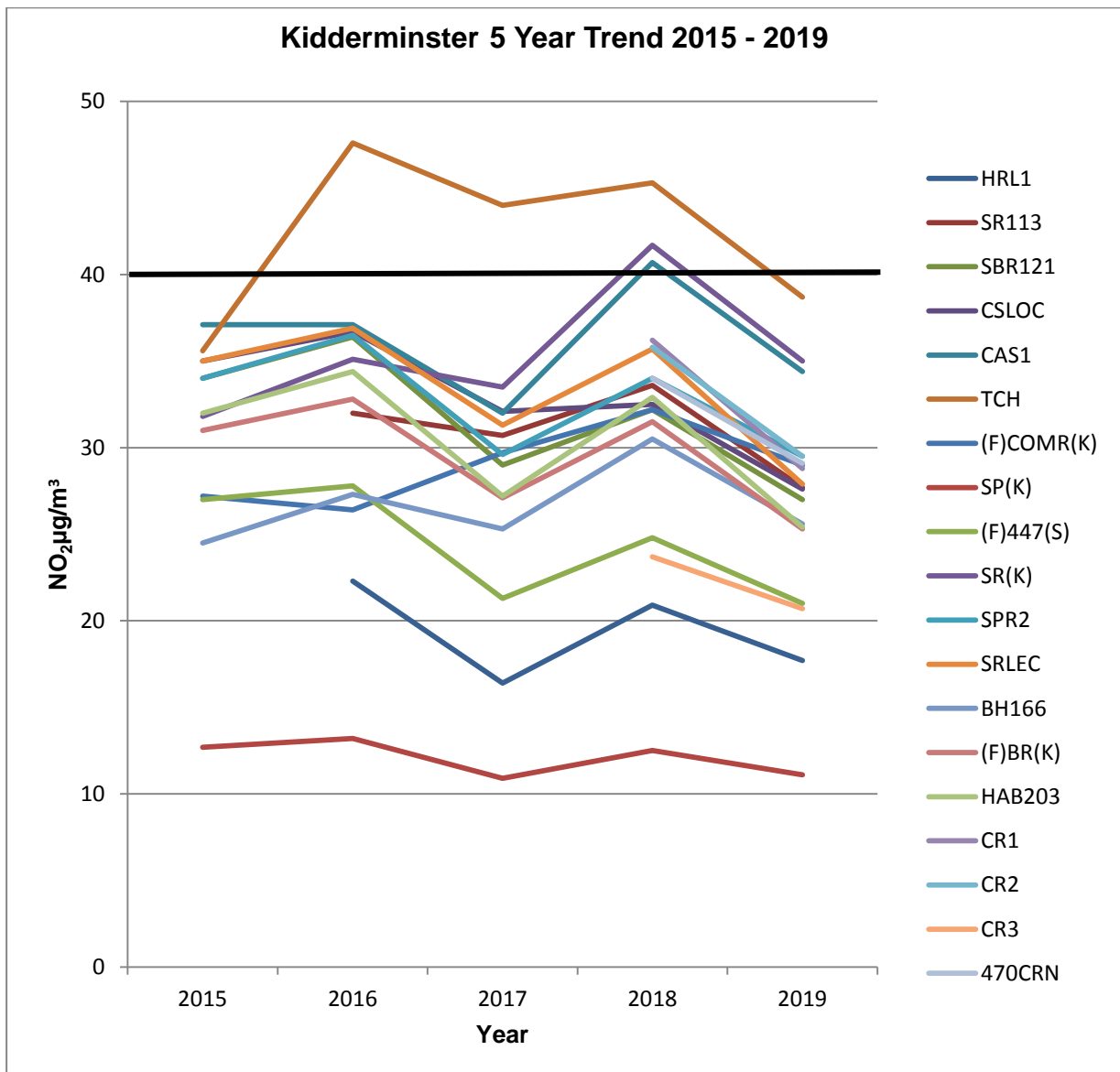


Figure 3.1 shows that there has been a decrease in NO₂ concentrations to below the annual objective at all locations in Kidderminster in 2019, this is likely to be have been caused in part by the difference in the bias adjustment factors between 2018 and 2019. The decrease between 2018 and 2019 monitoring data should not be considered as indicative of local trends.

Horsefair/Coventry Street AQMA

Figure 3.2 below demonstrates the five year trend for NO₂ concentrations at the location of the monitoring site for the Horsefair/Coventry Street AQMA where available.

Figure 3.2 - Long Term Trend Graph of NO₂ Concentrations in the Horsefair/Coventry Street AQMA

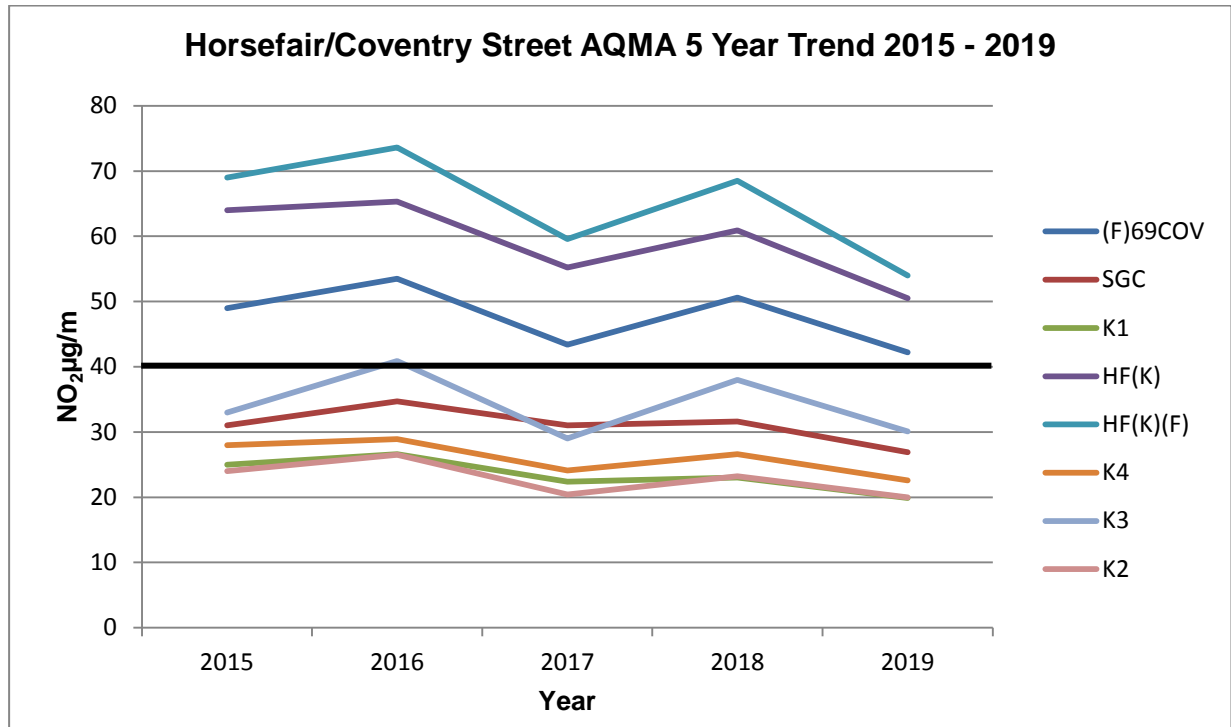


Figure 3.2 shows that there were exceedences at three locations within the Horsefair/Coventry Street AQMA. There has been a decrease in NO₂ concentrations at all locations within the AQMA in 2019; this is likely to be have been caused in part by the difference in the bias adjustment factors between 2018 and 2019. The decrease between 2018 and 2019 monitoring data should not be considered as indicative of local trends.

Stourport-on-Severn

Figure 3.3 below demonstrates the five year trend for NO₂ concentrations at the location of the monitoring site for Stourport-on-Severn where available.

Figure 3.3 - Long Term Trend Graph of NO₂ Concentrations at Stourport-on-Severn

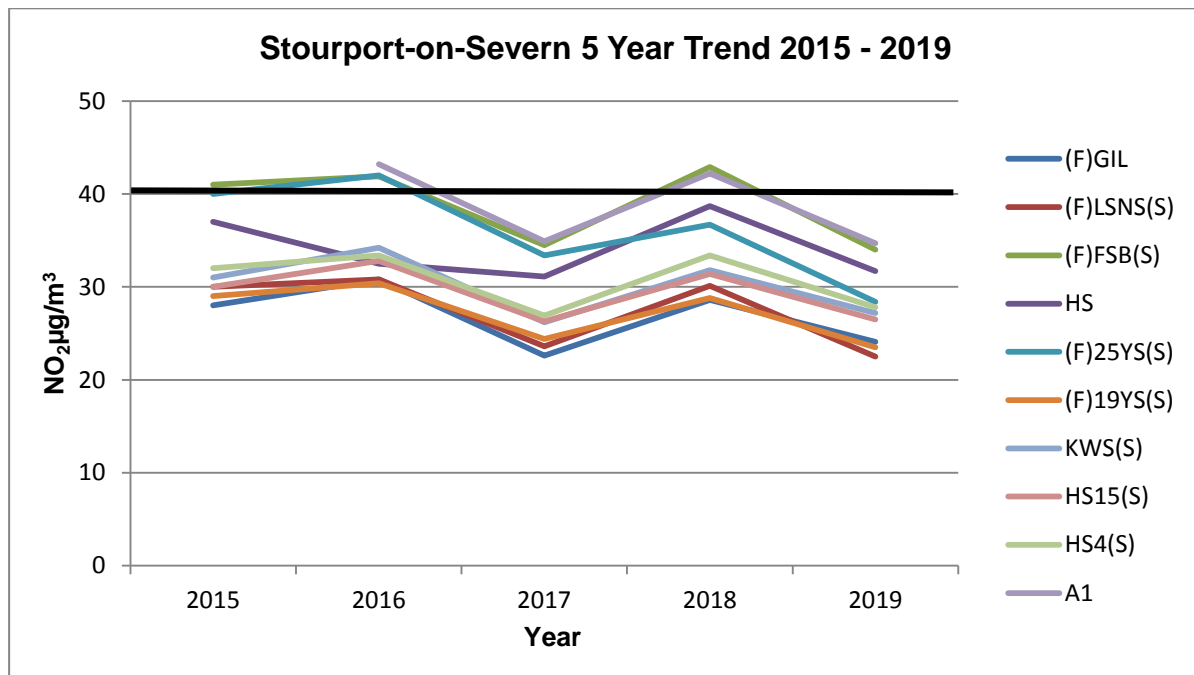


Figure 3.3 shows that there has been a decrease in NO₂ concentrations to below the annual objective at all locations in Stourport-on-Severn in 2019, this is likely to be caused in part by the difference in the bias adjustment factors between 2018 and 2019. The decrease between 2018 and 2019 monitoring data should not be considered as indicative of local trends.

Bewdley

Figure 3.4 below demonstrates the five year trend for NO₂ concentrations at the location of the monitoring site for Bewdley where available.

Figure 3.4 - Long Term Trend Graph of NO₂ Concentrations at Bewdley

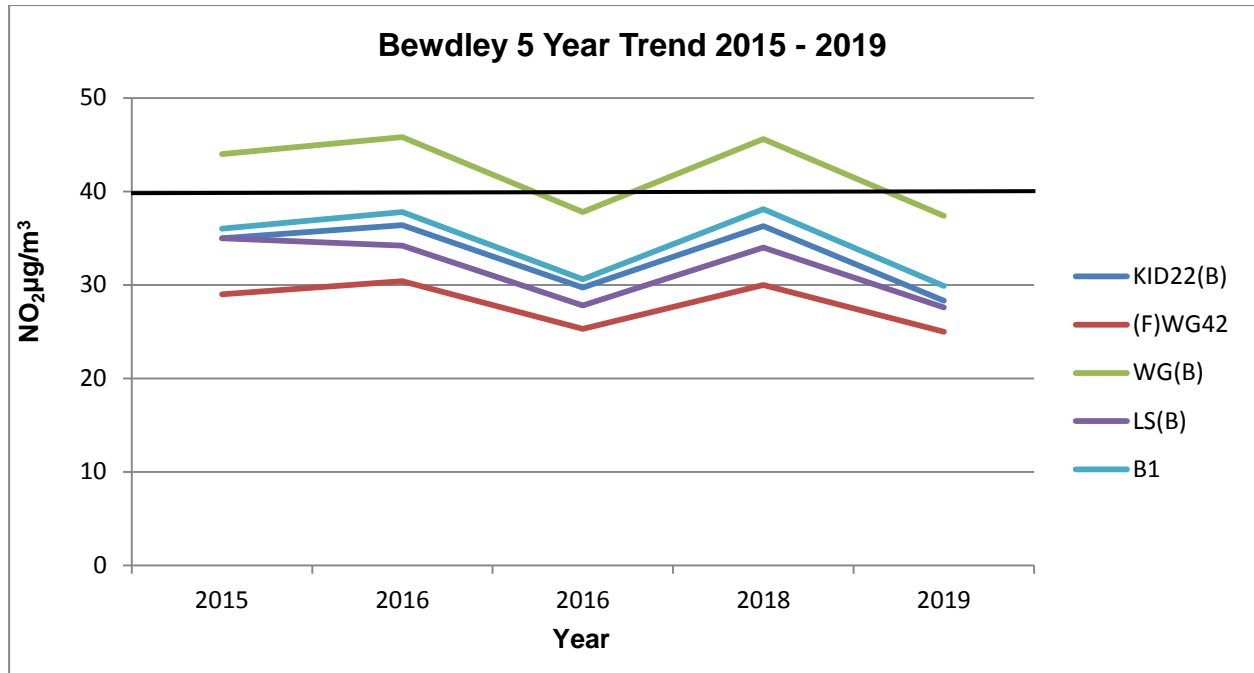


Figure 3.4 shows that there has been a decrease in NO₂ concentrations to below the annual objective at all locations in Bewdley in 2019, this is likely to be have been caused in part by the difference in the bias adjustment factors between 2018 and 2019. The decrease between 2018 and 2019 monitoring data should not be considered as indicative of local trends.

3.2.2 Particulate Matter (PM₁₀)

PM₁₀ is not monitored within the Wyre Forest District.

3.2.3 Particulate Matter (PM_{2.5})

PM_{2.5} is not monitored within the Wyre Forest District.

3.2.4 Sulphur Dioxide (SO₂)

Sulphur Dioxide is not monitored within the Wyre Forest District.

Appendix A: Monitoring Results

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

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	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)
KIDDERMINSTER										
HLR1	139 Stourport Road, Kidderminster	Roadside	382136	274589	NO ₂	NO	0m	18.6	NO	1.7m
SR113	Sign Post O/S 113 Stourport Road	Roadside	382342	275054	NO ₂	NO	2.6m	2.4m	NO	2.3m
(F)69COV	69 Coventry Street	Roadside	383552	276870	NO ₂	YES	0m	5.5m	NO	1.83m
(F)SGC	6/7 St George's Court	Roadside	383475	276760	NO ₂	YES	0m	10m	NO	1.79m
K1	50 Radford Avenue	Roadside	383391	277086	NO ₂	YES	0m	2.1m	NO	2.49m
21HF	21 Horsefair	Roadside	383338	277215	NO ₂	YES	0m	4.7m	NO	3m
HF(K)	Horsefair (Peacock PH, Blackwell Street)	Roadside	383311	277087	NO ₂	YES	0m	2.5m	NO	2.51m
HF(K)(F)	Hudson Florists on Horsefair	Roadside	383304	277071	NO ₂	YES	0m	2.5m	NO	2.49m
K4	1 Silver Street – façade 20 m to kerb of ring road, 14 m to kerb of Silver Street.	Roadside	383337	276998	NO ₂	YES	0m	18.2m	NO	2.39m

Wyre Forest District Council

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	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)
SBR121	121 Stourbridge Road (façade)	Roadside	383905	277857	NO ₂	NO	0m	2.44m	NO	2.69m
334CRN	334 Chester Road North (façade)	Roadside	383965	277823	NO ₂	NO	0m	3.1m	NO	2.2m
294CRN	Cambrian House, 294 Chester Road North (façade)	Roadside	384054	277444	NO ₂	NO	0m	11m	NO	1.6m
383CRN	383 Chester Road North (façade)	Roadside	384175	277275	NO ₂	NO	0m	11m	NO	2.4m
239CRN	239 Chester Road North (façade)	Roadside	384221	276911	NO ₂	NO	0m	6.1m	NO	1.6m
CSLOC	Flats at top of Coventry Street - Land Oak Court (façade)	Roadside	384205	277121	NO ₂	NO	0m	7.92m	NO	1.93m
K3	53 Coventry Street, 6m to kerb	Roadside	383726	276909	NO ₂	YES	0m	2.7m	NO	1.27m
K2	34 Leswell Lane, 3m to kerb, 10m to Coventry Street	Roadside	383657	276890	NO ₂	YES	0m	3.1m	NO	1.80m

Wyre Forest District Council

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	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)
CAS1	Casper Polish Shop, 99 Comberton Hill (On lamppost)	Roadside	383636	276377	NO ₂	NO	4.2m	2.7m	NO	2.5m
CR1	Cuts4Scruffs, 29 Comberton Hill (façade)	Roadside	383696	276388	NO ₂	NO	0m	4.6m	NO	3m
CR2	Severn Valley Lock & Safe, 9/10 Comberton Road (façade)	Roadside	383890	276333	NO ₂	NO	0m	3.4m	NO	2m
CR3	20 Comberton Road (façade)	Roadside	384069	276304	NO ₂	NO	0m	13.1m	NO	1.9m
CRN	470 Chester Road North ((façade)	Roadside	384154	276340	NO ₂	NO	0m	4.9m	NO	1.9m
TCH	Top Comberton Hill (lamppost) on corner with the Firs (white building)	Roadside	384086	276228	NO ₂	NO	1m	2m	NO	2m
(F)COMR(K)	Holmwood, Comberton Road	Roadside	384214	276242	NO ₂	NO	13.5m	3.5m	NO	2.18m
SP(K)	Spennells (located at Jay Park Crescent)	Urban Background	384486	274596	NO ₂	NO	11m	1.7m	NO	2.34m
50CRS	50 Chester Road South ((façade)	Roadside	383699	275251	NO ₂	NO	0m	14.6m	NO	1.6m

Wyre Forest District Council

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	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)
100CRS	100 Chester Road South ((façade)	Roadside	383766	275723	NO ₂	NO	0m	12.5m	NO	1.6m
(F) 447 (S)	447 Stourport Road	Roadside	382447	275506	NO ₂	NO	0m	10.6m	NO	1.65m
SR(K)	431 Stourport Road	Roadside	382429	275315	NO ₂	NO	9m	3m	NO	2.34m
SPR2	Flat 2, Park House, Sutton Park Road	Roadside	382496	275417	NO ₂	NO	0m	7m	NO	1.73m
SRLEC	Flats at crossroads - Lucy Edwards Court Sutton Road	Roadside	382183	276388	NO ₂	NO	0m	9.5m	NO	1.98m
BH166	166 Bewdley Hill (lamppost gainst garden wall)	Roadside	382135	276409	NO ₂	NO	5m	2m	NO	2.21m
(F)BR(K)	52 Bewdley Road	Roadside	382437	276542	NO ₂	NO	0m	6.5m	NO	1.70m
HAB203	203 Habberley Lane (Façade)	Roadside	381713	278069	NO ₂	NO	0m	3.1m	NO	1.52m
STOURPORT-ON-SEVERN										
(F)GIL	10 The Gilgal	Roadside	381482	271534	NO ₂	NO	0m	2m	NO	2.29m
(F)LSNS(S)	Lumsdons, New Street,	Roadside	380957	271284	NO ₂	NO	0m	1.5m	NO	2.32m
(F)FBS(S)	21 Bridge Street	Roadside	380933	271247	NO ₂	NO	0m	1.9m	NO	2.4m

Wyre Forest District Council

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	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)
HS(S)	High Street corner of York Street	Roadside	380974	271268	NO ₂	NO	0m	2.3m	NO	2.82m
(F)25YS(S)	22 York Street	Roadside	380990	271268	NO ₂	NO	0m	1.5m	NO	2.45m
(F)19YS(S)	19 York Street	Roadside	381086	271268	NO ₂	NO	0m	1.7m	NO	2.34m
KSW(S)	Kodak Spectacles High Street	Roadside	381072	271347	NO ₂	NO	0m	2.2m	NO	2.25m
HS15(S)	15 High Street	Roadside	381114	271380	NO ₂	NO	0m	2.2m	NO	2.34m
HS4(S)	4 High Street	Roadside	381169	271420	NO ₂	NO	0m	3.5m	NO	2.36m
A1	35 High Street	Roadside	380989	271298	NO ₂	NO	0m	3.2m	NO	2.4m
BEWDLEY										
KID22(B)	22 Kidderminster Road	Roadside	373996	275464	NO ₂	NO	0m	2m	NO	2.4m
(F)WG42	42 Welch Gate	Roadside	378383	275328	NO ₂	NO	0m	1.7m	NO	2.5m
WG(B)	88 Welch Gate	Roadside	378465	275292	NO ₂	YES	0m	0.9m	NO	2.53m
LS(B)	Load Street, (by estate agents)	Roadside	378590	275302	NO ₂	NO	0m	3m	NO	2.5m
B1	Adam & Eve, Load Street, (Lamppost)	Roadside	378513	275317	NO ₂	NO	0m	1.1m	NO	2.31m

Notes:

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

(2) N/A if not applicable.

Table A.3 – Annual Mean NO₂ Monitoring Results

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ^{(3) (4)}				
							2015	2016	2017	2018	2019
KIDDERMINSTER											
HLR1	382136	274589	Roadside	Diffusion Tube		100		22.3	16.4	20.9	17.7
SR113	382342	275054	Roadside	Diffusion Tube		92		32	30.7	33.6	27.7
(F)69COV	383552	276870	Roadside	Diffusion Tube		100	49	53.5	43.4	50.6	42.2
(F)SGC	383475	276760	Roadside	Diffusion Tube		100	31	34.7	31	31.6	26.9
K1	383391	277086	Roadside	Diffusion Tube		100	25	26.6	22.4	23	19.9
21HF	383338	277215	Roadside	Diffusion Tube		92					22.5
HF(K)	383311	277087	Roadside	Diffusion Tube		100	64	65.3	55.2	60.9	50.5
HF(K)(F)	383304	277071	Roadside	Diffusion Tube		100	69	73.6	59.6	68.5	54
K4	383337	276998	Roadside	Diffusion Tube		100	28	28.9	24.1	26.6	22.6
SBR121	383905	277857	Roadside	Diffusion Tube		100	34	36.4	29	32.2	27
334CRN	383965	277823	Roadside	Diffusion Tube	33						29
294CRN	384054	277444	Roadside	Diffusion Tube	33						20
383CRN	384175	277275	Roadside	Diffusion Tube	33						18.3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ^{(3) (4)}					
							2015	2016	2017	2018	2019	
239CRN	384221	276911	Roadside	Diffusion Tube	33							19.2
CSLOC	384205	277121	Roadside	Diffusion Tube		100	35	36.7	32.1	32.5		27.6
K3	383726	276909	Roadside	Diffusion Tube		100		40.9	29	38		30.1
K2	383657	276890	Roadside	Diffusion Tube		100	24	26.5	20.4	23.2		20
CAS1	383636	276377	Roadside	Diffusion Tube		100	37.1	37.1	32	40.7		34.4
CR1	383696	276388	Roadside	Diffusion Tube		100				32.6		28.8
CR2	383890	276333	Roadside	Diffusion Tube		100				35.8		29.5
CR3	384069	276304	Roadside	Diffusion Tube		100				23.7		20.7
CRN	384154	276340	Roadside	Diffusion Tube		100				34		29.1
TCH	384086	276228	Roadside	Diffusion Tube		100	35.6	47.6	44	48.8		38.7
(F)COMR(K)	384214	276242	Roadside	Diffusion Tube		100	27.2	26.4	29.7	32.2		29
SP(K)	384486	274596	Roadside	Diffusion Tube		100	12.7	13.2	10.9	12.5		11.1
50CRS	383699	275251	Roadside	Diffusion Tube	33							16.6
100CRS	383766	275723	Roadside	Diffusion Tube	33							14.8
(F) 447 (S)	382447	275506	Roadside	Diffusion Tube		100	27	27.8	21.3	24.8		21

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ^{(3) (4)}				
							2015	2016	2017	2018	2019
SR(K)	382429	275315	Roadside	Diffusion Tube		92	31.8	35.1	33.5	41.7	35
SPR2	382496	275417	Roadside	Diffusion Tube		100	34	36.5	29.6	34	29.5
SRLEC	382183	276388	Roadside	Diffusion Tube		100	35	36.9	31.3	35.7	27.9
BH166	382135	276409	Roadside	Diffusion Tube		92	24.5	27.3	25.3	30.5	25.6
(F)BR(K)	382437	276542	Roadside	Diffusion Tube		100	31	32.8	27.1	31.5	25.3
HAB203	381713	278069	Roadside	Diffusion Tube		100	32	34.4	27.2	32.9	25.4
STOURPORT-ON-SEVERN											
(F)GIL	381482	271534	Roadside	Diffusion Tube		92	28	30.8	22.6	28.6	24.1
(F)LSNS(S)	380957	271284	Roadside	Diffusion Tube		92	30	30.8	23.6	30.1	22.5
(F)FBS(S)	380933	271247	Roadside	Diffusion Tube		100	41	41.9	34.5	42.9	34
HS(S)	380974	271268	Roadside	Diffusion Tube		100	37	32.5	31.1	38.7	31.7
(F)25YS(S)	380990	271268	Roadside	Diffusion Tube		83	40	42	33.4	36.7	28.4
(F)19YS(S)	381086	271268	Roadside	Diffusion Tube		100	29	30.4	24.4	28.8	23.5
KSW(S)	381072	271347	Roadside	Diffusion Tube		100	31	34.2	26.2	31.8	27.2
HS15(S)	381114	271380	Roadside	Diffusion Tube		100	30	32.8	26.3	31.4	26.5

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) ⁽¹⁾	Valid Data Capture 2019 (%) ⁽²⁾	NO ₂ Annual Mean Concentration (µg/m ³) ^{(3) (4)}				
							2015	2016	2017	2018	2019
HS4(S)	381169	271420	Roadside	Diffusion Tube		100	32	33.4	26.9	33.4	27.8
A1	380989	271298	Roadside	Diffusion Tube		100		43.2	34.9	42.2	34.7
BEWDLEY											
KID22(B)	373996	275464	Roadside	Diffusion Tube		100	35	36.4	29.7	36.3	28.3
(F)WG42	378383	275328	Roadside	Diffusion Tube		100	29	30.4	25.3	30	25
WG(B)	378465	275292	Roadside	Diffusion Tube		100	44	45.8	37.8	45.6	37.4
LS(B)	378590	275302	Roadside	Diffusion Tube		92	35	34.2	27.8	34	27.6
B1	378513	275317	Roadside	Diffusion Tube		100	36	37.8	30.6	38.1	29.9

Diffusion tube data has been bias corrected

Annualisation has been conducted where data capture is <75%

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 adjustment

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.

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

Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 - NO₂ Monthly Diffusion Tube Results - 2019

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.78) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
KIDDERMINSTER																	
HLR1	382136	274589	28.8	26.2	18.4	31.9	18.5	20.4	15.6	13.9	19.2	24.1	30.8	24.4	22.7	17.7	
SR113	382342	275054	47.5	44	38.2	34.1	27.5	30.2	26.6	30.2	35.4	37.5	39.7		35.5	27.7	
(F)69COV	383552	276870	57.2	61	47.6	60.8	50.7	52.5	51.7	44.6	46.5	53.3	70.5	52.5	54.1	42.2	
(F)SGC	383475	276760	44.3	41.6	31.9	35.8	31.1	30.7	30	29.4	31.3	36.6	35.4	35.9	34.5	26.9	
K1	383391	277086	33.8	34	24.2	22.5	19.4	20.1	19.1	22.1	23.2	27.8	29.5	30.1	25.5	19.9	
23HF	383338	277215		36.2	25.4	29.8	26.8	25.6	22.4	22.1	27.6	33.4	36.7	30.7	28.8	22.5	
HF(K)	383311	277087	80.1	75.5	60.6	60.9	58.4	59.7	62.2	54	59.8	68.2	73.1	64.1	64.7	50.5	
HF(K)(F)	383304	277071	85	73.8	68.7	68	67.3	68.1	74.8	56.5	64.9	66.3	76.6	60.5	69.2	54	
K4	383337	276998	36.1	42.3	24.3	23	21	22.6	24.1	27	27.6	32	33.3	34.8	29	22.6	
SBR121	383905	277857	43.7	38.9	33.5	34.8	31.6	27.5	31.2	30.1	31.2	37.3	39.3	35.8	34.6	27	
334CRN	383965	277823										38.3	42.3	45	37.9	40.9	29
294CRN	384054	277444										23	27.2	30.8	31.4	28.1	20
383CRN	384175	277275										19.9	25.3	31.2	26.8	25.8	18.3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.78) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
239CRN	384221	276911									20.9	27.3	32	28.3	27.1	19.2	
CSLOC	384205	277121	42.1	43.1	35.2	34.5	30.1	30.3	32.7	31.4	33.1	38.1	37.9	35.7	35.4	27.6	
K3	383726	276909	51.3	39.5	34.2	48.3	35.2	35.7	32.5	27.4	33.3	44.2	48.2	32.7	38.5	30.1	
K2	383657	276890	35.4	33.1	22	28.8	20.0	19.9	17.7	18.9	23	27.5	32.4	29.3	25.7	20	
CAS1	383636	276377	53.3	53.1	41.9	48.5	37.3	38.3	41.3	40.2	43.3	46.4	40.2	45.1	44.1	34.4	
CR1	383696	276388	46.8	36.6	34.3	42.8	32	33.7	32.2	27.6	36.1	39.3	49.1	32.5	36.9	28.8	
CR2	383890	276333	48.8	39.3	37.5	47.7	37.2	35.1	30.1	27.4	36.6	37.2	44.6	32.9	37.9	29.5	
CR3	384069	276304	36.1	31.3	24.6	31.4	21.9	20	19	22.2	23.5	26.8	33.7	28	26.5	20.7	
CRN	384154	276340	47.0	47.6	34.1	44.1	30.8	31.4	28.8	33.6	34	36.9	38.4	40.8	37.3	29.1	
TCH	384086	276228	63.8	50.8	51.4	49.8	44.3	48.8	42.8	42.8	47.8	47.9	56.9	47.7	49.6	38.7	36.1
(F)COMR(K)	384214	276242	46.2	44.5	34.7	36.2	31.3	32.2	31.8	34.8	34.7	37	40.2	42.9	37.2	29	
SP(K)	384486	274596	24.1	17.1	11.1	15.6	8.9	10.4	8.8	10.4	11.1	16.1	21.1	16.1	14.2	11.1	
50CRS	383699	275251									20.1	24.4	27	21.9	23.4	16.6	
100CRS	383766	275723									16.7	20.3	25.5	20.9	20.9	14.8	
(F) 447 (S)	382447	275506	36.5	30.4	25.7	28.8	22.7	22.2	21	22.1	22.8	28.3	35.5	27.1	26.9	21	
SR(K)	382429	275315	58		37.5	51.4	38	43	32	34.2	41.2	48.1	63.6	46.7	44.9	35	
SPR2	382496	275417	44.1	47.3	33.9	45.1	31.6	30.2	29.7	35	35	39.2	38.7	44.7	37.9	29.5	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.78) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
SRLEC	382183	276388	45.2	44.7	23.4	34	33.4	33.1	33.9	35.1	33.1	35.6	39.6	38.4	35.8	27.9	
BH166	382135	276409	34.5	41	40.8	39.4	24.3		23.6	23.2	27.4	34.7	37.4	35.2	32.9	25.6	
(F)BR(K)	382437	276542	39.3	40.9	28	36.2	25.7	26.9	26.7	26.2	27.3	35.9	38.2	37.9	32.4	25.3	
HAB203	381713	278069	36.1	36.4	31	39.9	28.6	29.6	30.8	27.4	31.5	32.3	35	31.7	32.5	25.4	
STOURPORT-ON-SEVERN																	
(F)GIL	381482	271534	44.8	33	26.4	30.4		24.6	25.4	22.1	27.5	31.8	39.9	33.1	30.8	24.1	
(F)LSNS(S)	380957	271284	34	33.2	24.8		25.9	28.2	24.6	25.4	23.2	29.3	37.7	30.9	28.9	22.5	
(F)FBS(S)	380933	271247	53.9	40.9	49.8	44.7	42.2	43.6	41.4	38.4	38	42.8	52.8	44.2	43.5	34	
HS(S)	380974	271268	39.3	42.3	36.1	61.8	38.2	43.1	35.1	34.1	37.5	36.9	46.9	37.1	40.7	31.7	
(F)25YS(S)	380990	271268	41.7	40.6	34.4	42.2	33.9	33.7	34.8	31.7	35.2	35.9		33.9	36.4	28.4	
(F)19YS(S)	381086	271268	35.9	30.5	33.2	34.1	28.3	27	27	26.4	26.6	28.3	34.9	28.4	30.1	23.5	
KSW(S)	381072	271347	39.7	40.6	29.3	47.2	28.7	31.4	27.9	27.6	31.5	35.8	41.0	37.3	34.8	27.2	
HS15(S)	381114	271380	41.4	43.3	28.8	41.4	30.1	30.6	26.4	27.1	30.2	34.2	38.9	34.6	33.9	26.5	
HS4(S)	381169	271420	41.6	41.6	33.7	40.8	30.4	31.8	29.9	29.6	36.2	34.3	40.6	36.6	35.6	27.8	
A1	380989	271298	53.7	41.4	48.8	46.2	44.7	44.6	41.3	34.8	41.0	45.1	53.3	40.2	44.6	34.7	
BEWDLEY																	
KID22(B)	373996	275464	42.2	37.2	36.5	43.8	33.8	36.2	25.9	32.2	32.3	35.2	42.6	38.0	36.3	28.3	
(F)WG42	378383	275328	36.6	36.5	33.2	34.7	28.8	26.9	25.6	23.8	30.1	32.5	40.9	34.3	32	25	

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO ₂ Mean Concentrations (µg/m ³)														
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
															Raw Data	Bias Adjusted (0.78) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
WG(B)	378465	275292	48.3	53.3	44.1	58.6	43.2	45.4	42.9	37	44	49.8	55.4	52.9	47.9	37.4	
LS(B)	378590	275302	40.9	39.5	31.4	42.3	31.1		30.6	27.5	32.3	36.1	41.2	36.8	35.4	27.6	
B1	378513	275317	49.2	39.7	36.7	47.7	35.8	36.7	33	28	33.8	37.5	45.4	37.2	38.4	29.9	

- Local bias adjustment factor used
 National bias adjustment factor used
 Annualisation has been conducted where data capture is <75%
 Where applicable, data has been distance corrected for relevant exposure in the final column

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) 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

Sources of pollution

Wyre Forest District Council has not identified any new or significant changes to sources as described in Chapter 7, section 1 of Technical Guidance LAQM.TG(16)

QA/QC Data

Factor from Local Co-location Studies (if available)

No local co-location studies for nitrogen dioxide have been undertaken in 2019.

Diffusion Tube Bias Adjustment Factors

The following UKAS accredited company provides Wyre Forest District Council with nitrogen dioxide diffusion tubes and analysis:

Somerset Scientific Services,
Unit 2A,
Westpark 26
Chelston
Wellington
Somerset
TA21 9AD

01823 355906

sssmailbox@somerset.gov.uk

The 20% Triethanolamine (TEA) / De-ionised Water preparation method is used. The bias adjustment factor applied to the results in 2019 was 0.78 (Spreadsheet Version No. 03/20) which were derived from the national studies.

QA/QC of Automatic Monitoring

No Automatic Monitoring Data is available for 2019.

QA/QC of Diffusion Tube Monitoring

Under the AIR NO₂ Proficiency Testing Scheme, Somerset Scientific Services performed 100% satisfactory for the period January to November 2019. Tube precision was 'Good' throughout 2019.

Data Annualisation

Short-term to Long-term Data Adjustment

Only 4 months of monitoring data was recorded for:

334CRN - 334 Chester Road North

294CRN - 294 Chester Road North

383CRN - 383 Chester Road North

239CRN - 239 Chester Road North

50CRS - 50 Chester Road South

100CRS - 100 Chester Road South

The data has been annualised in accordance with Technical Guidance LAQM TG(16) as shown in Table C.1 below.

Table C.1 - Annualisation calculation

Site	Site Type	Annual Mean	Period Mean	Ratio
Birmingham Acocks Green	Urban Background	18.3	19.8	0.92
Coventry Allesley	Urban Background	20.5	22.5	0.91
Walsall Woodlands	Urban Background	16.2	18.5	0.9
			Average	0.91

Table C.2 - Annualisation Results

Site	Raw Data	Annualised Result	Bias adjusted (0.78) and Annualised Result
334CRN	40.9	37.2	29
294CRN	28.1	25.6	20
383CRN	25.8	23.5	18.3
239CRN	27.1	24.7	19.2
50CRS	23.4	21.3	16.6
100CRS	20.9	19	14.8

Distance Correction

Estimate of concentration at the nearest receptor

If an exceedance is measured at a monitoring site (or close to the air quality objective) which is not representative of public exposure, the procedure specified in Technical Guidance LAQM.TG(16) has been used to estimate the concentration at the nearest receptor where applicable. The results are presented below.

Figure C.1 TCH – Lamp-post outside The Firs top of Comberton Hill

BUREAU VERITAS

Air Quality CONSULTANTS

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	2	metres
Step 2	How far from the KERB is your receptor (in metres)?	3	metres
Step 3	What is the local annual mean background NO ₂ concentration (in µg/m ³)?	11.6	mg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	38.7	mg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	36.1	mg/m ³

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

Figure D.1 Horsefair/Coventry Street AQMA and Monitoring Locations

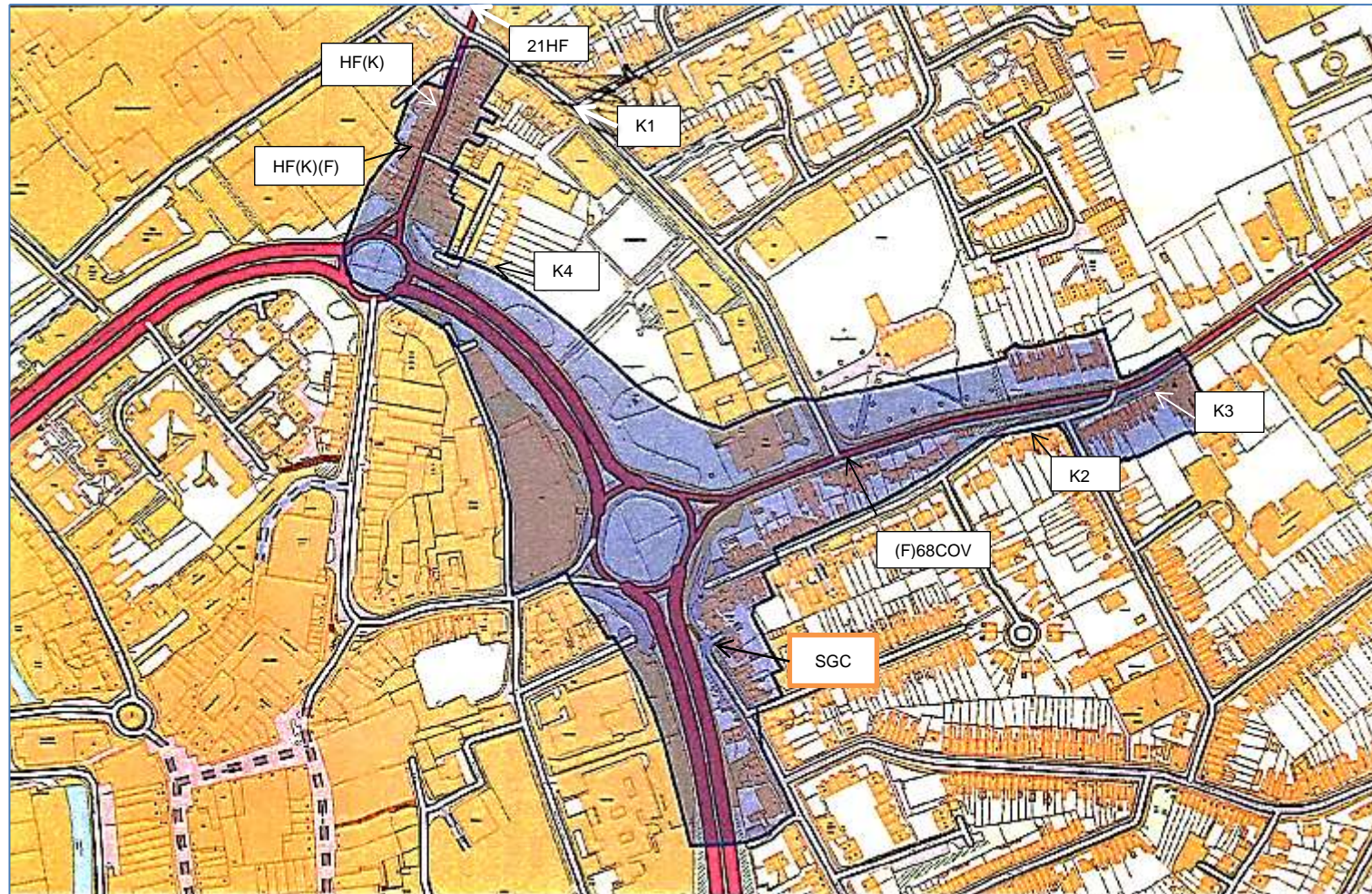


Figure D.2 Welch Gate AQMA and Monitoring Locations

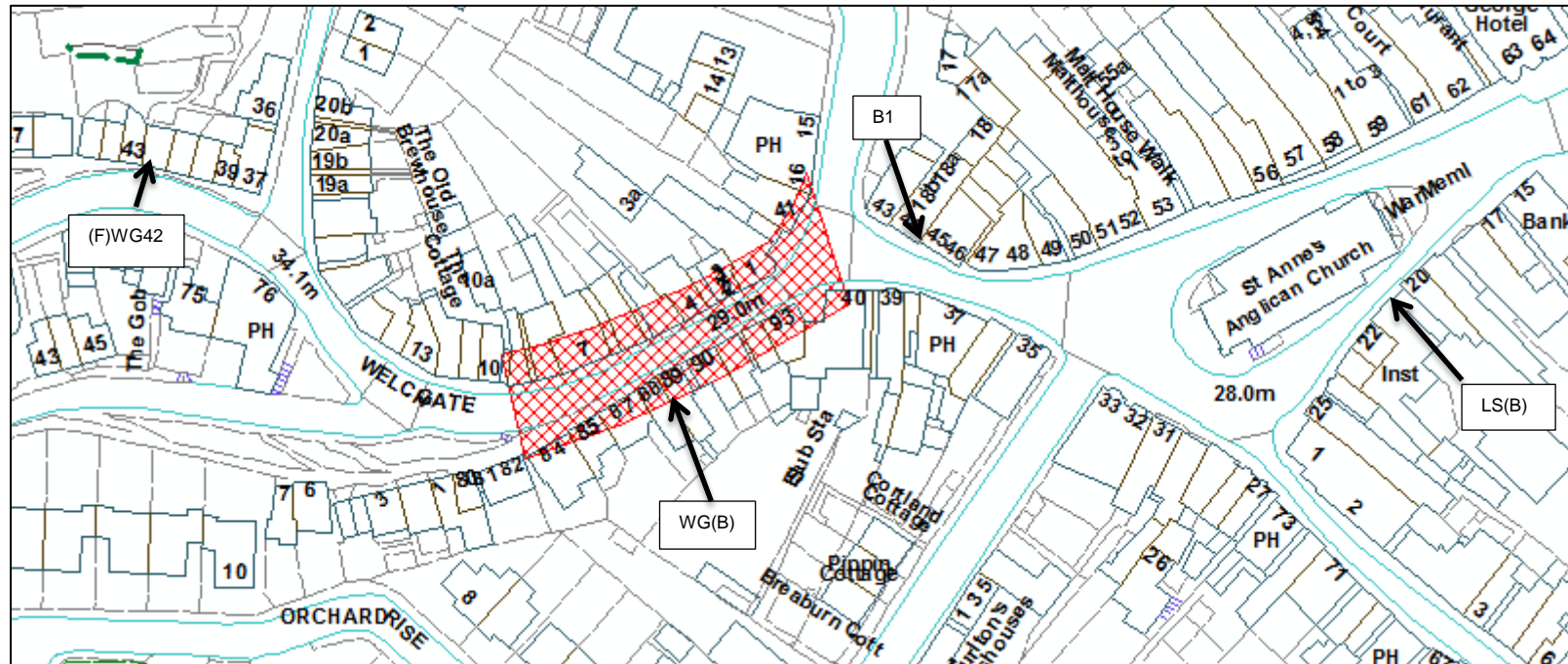


Figure D.3 Chester Road North (A449)
East of Kidderminster Town Centre

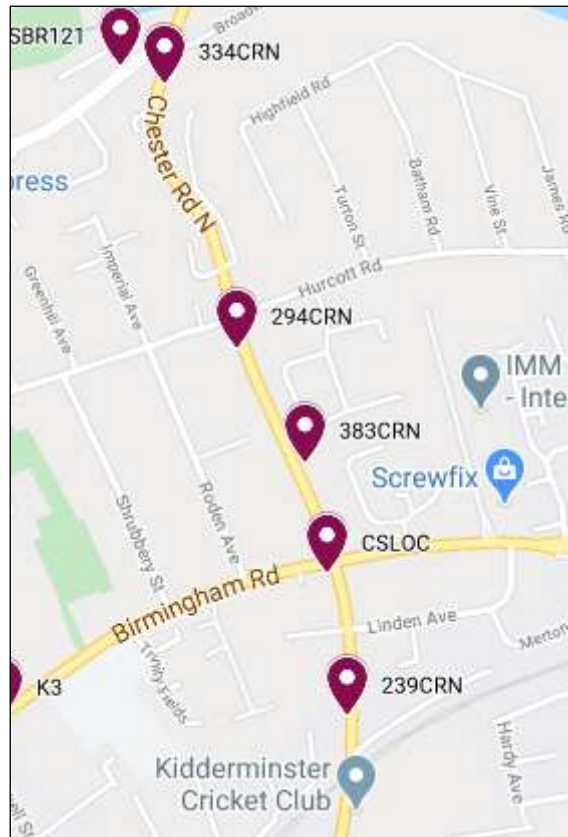


Figure D.4 Comberton Hill, Comberton Road & Chester Road North & South
East of Kidderminster Town Centre



Figure D.5 Chester Road South (A449) & Urban Background

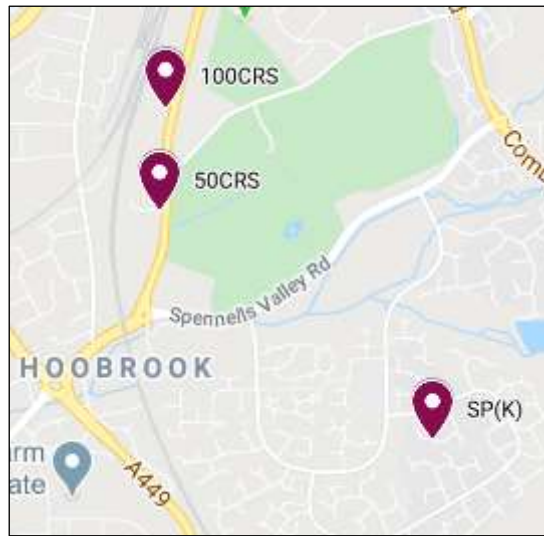


Figure D.6 West of Kidderminster Town Centre



Figure D.7 South of Kidderminster Town Centre

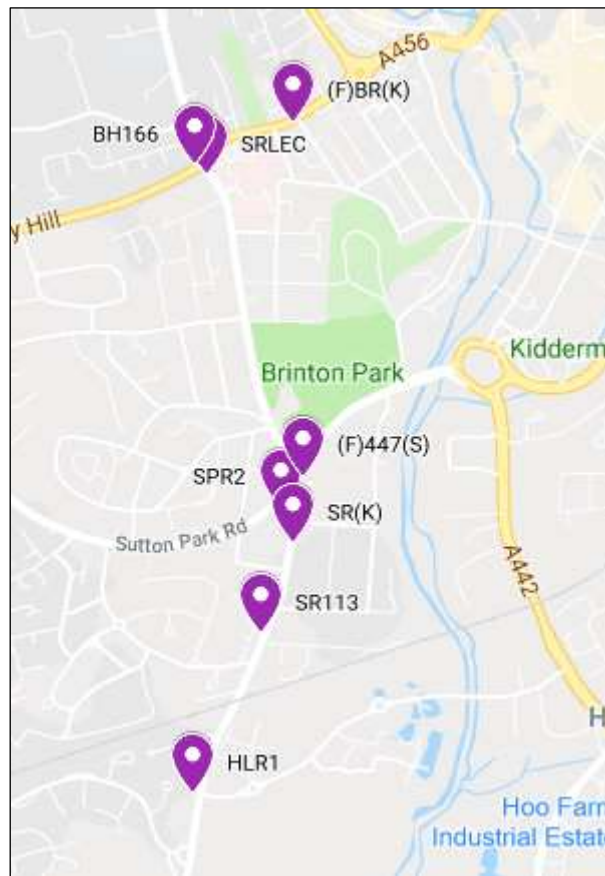


Figure D.8 Stourport-on-Severn

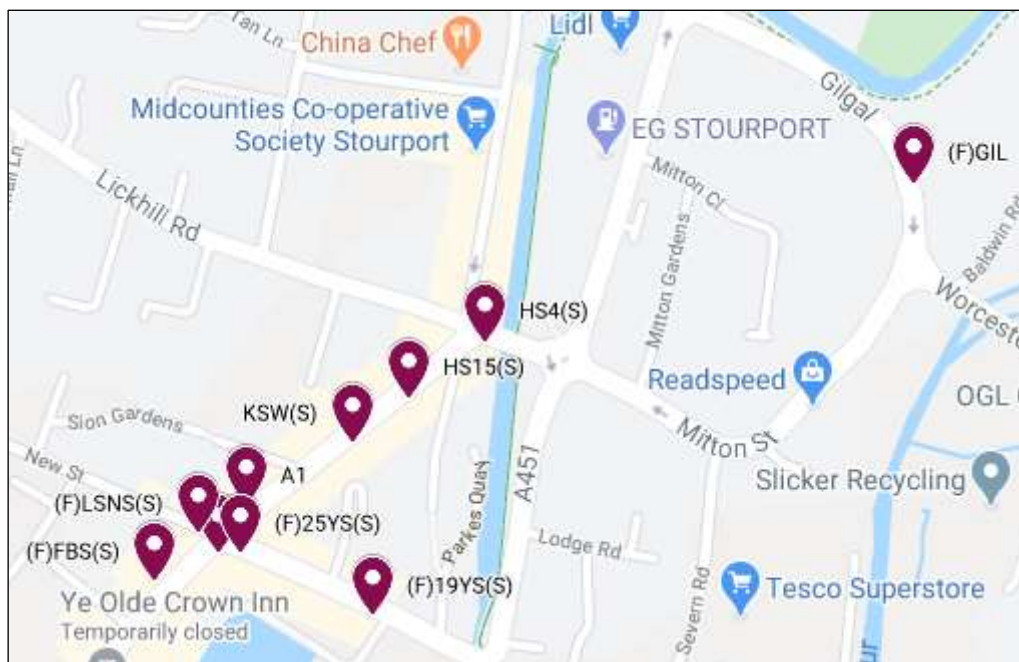


Figure D.9 East of Bewdley Town Centre



Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England

Pollutant	Air Quality Objective ⁸	
	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

⁸ 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
DoPH	Director of Public Health
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
WFDC	Wyre Forest District Council
WRS	Worcestershire Regulatory Services

References

1. Bureau Veritas (2016) 'NO₂ Fall-Off With Distance from Roads Calculator (Version 4.1)'
2. DEFRA (2016) Local Air Quality Management Policy Guidance LAQM PG.(16)
3. DEFRA (2016) Local Air Quality Management Technical Guidance LAQM TG.(16)
4. DEFRA (2020) National Diffusion Tube Bias Adjustment Factor Spreadsheet v.03/20
5. DEFRA (2017) Background Mapping for Local Authorities
6. Worcestershire Regulatory Services (2013) 'Air Quality Action Plan for Worcestershire'
7. Worcestershire Regulatory Services (2015) 'Air Quality Action Plan Progress Report for Worcestershire April 2013-April 2015'
8. Worcestershire Regulatory Services (2016) 'Air Quality Action Plan Progress Report for Worcestershire April 2015 – April 2016'
9. Worcestershire Regulatory Services (2019) Air Quality Annual Status Report for Wyre Forest District Council
10. Wyre Forest District Council (2011) Churchfields Masterplan Supplementary Planning Document