



2019 Air Quality Annual Status Report (ASR)

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

June 2019

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 can be found at:

https://uk-air.defra.gov.uk/aqma/local-authorities?la_id=325

In 2018, 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 Gate AQMA showed a significant increase to above the annual mean objective for NO₂ when compared to 2017.

Diffusion tubes HF(K) (The Peacock Public House) and HF(K)(F) (Hudson Florists), both in Blackwell Street within the Horsefair/Coventry Street AQMA, were above

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

60µg/m³ indicating there may have been exceedences of the one hour mean objective, however members of the public tend to use the road as an access route to walk to and from Kidderminster town centre and as such exposure is expected to be short term.

Monitoring results within the Wyre Forest area show an increase in concentrations at all monitoring locations in 2018; this is consistent with trends across Worcestershire. This is likely to be have been caused in part by the significant difference in the bias adjustment factors between 2017 and 2018; 0.77 in 2017 compared to 0.89 in 2018. There is no discernible upward or downward trend in concentrations over the 5 year period 2014 - 2018.

In Kidderminster, diffusion tube TCH (Top of Comberton Hill), outside of the AQMA, continued to show an exceedence of the annual mean objective for NO₂ at 45.3µg/m³ after correction. Diffusion tubes CAS1 (Casper Polish Shop, 99 Comberton Hill) and SR(K) (431 Stourport Road) both exceeded the objective, however, when the distance from road to the nearest receptor calculation was used, both were below the objective.

In Stourport-on-Severn, diffusion tubes (F)FSB(S) (Flamingo's, 21 Bridge Street) and A1 (35 High Street) both exceeded the objective, however the relevant receptors are located at the first floor level and it is unlikely the objective was exceeded at this level

Monitoring at the following location was discontinued in 2018 due to the results being consistently below the annual mean objective:

- (F)14NS(S) - 14 New Street, Stourport-on-Severn

Four additional diffusion tubes were deployed at the following locations in Kidderminster:

- CR1 - Cuts4Scruffs, 29 Comberton Hill
- CR2 - Severn Valley Lock & Safe, 9/10 Comberton Road
- CR3 - 20 Comberton Road
- CRN - 470 Chester Road North

This is to monitor the air quality in the area around Comberton Hill, Comberton Road and Chester Road North with a view to carrying out a detailed assessment in 2019.

Refurbishment to a row of dwellings a short distance from diffusion tube 23HF within the Horsefair/Coventry Street AQMA in 2018 will allow the diffusion tube to be relocated to a more relevant receptor in 2019.

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>

WRS set up the Worcestershire Air Quality Steering Group to facilitate progressing the implementation of actions identified in the AQAP. At the inaugural Steering Group meeting, on 18th June 2014, it was agreed to establish a number of subgroups. The Welch Gate Sub Group covers the Welch Gate AQMA and the Horsefair Sub Group covers the Horsefair/Coventry Street AQMA. The sub-groups currently comprise representatives of WRS, the Worcestershire County Council Air Quality Liaison Officer, and local County and district Councillors

The Horsefair/Coventry Street AQMA is intrinsically linked to the Kidderminster Ringway with the vast majority of traffic travelling through the AQMA doing so either from or towards the Kidderminster Ringway. As part of the WFDC Churchfields Masterplan, there is a commitment to build a spur road from the Ringway roundabout at the bottom of Blackwell Street into Churchfields and creating a one way system which should result in a significant improvement in air quality in Blackwell Street. A planning application for improvements to the highways infrastructure in the Churchfields area was approved in October 2018, work is due to commence in 2019. The Wyre Forest District Council chapter of the Air Quality Action Plan will be updated on completion of the proposed works.

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. Alternative solutions will continue to be explored by Wyre Forest District Council and Worcestershire County Council in 2019.

Conclusions and Priorities

There are currently two AQMAs declared in the Wyre Forest District, Welch Gate, Bewdley and Horsefair/ Coventry Street, Kidderminster. Monitoring results show that the Horsefair/ Coventry Street continued to exceed the annual mean objective for NO₂ in 2018. Monitoring results within the Welch Gate AQMA showed that it exceeded the annual mean objective in 2018 when compared to 2017; both AQMAs will remain in place.

Monitoring results demonstrate an increase in concentrations at all monitoring locations in 2018 when compared to 2017; this is consistent with trends across Worcestershire. This is likely to have been caused in part by the significant difference in the bias adjustment factors between 2017 and 2018; 0.77 in 2017 compared to 0.89 in 2018. There is no discernible upward or downward trend in concentrations over the 5 year period 2014 - 2018.

Diffusion tube TCH (Top of Comberton Hill) continued to exceed the annual mean objective in 2018; the monitoring network was expanded by four diffusion tubes in 2018 at locations along Comberton Hill, Comberton Road and Chester Road North (A449) to identify the extent of additional sites of relevant exposure with a view to carrying out a detailed assessment in 2019. Monitoring was discontinued at one location in Stourport-on-Severn as results were consistently below the objective

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 2019 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 2020 Annual Status Report.

Local Engagement and How to get Involved

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

- Walk or cycle around the District instead of driving;
- 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>
- General travel planning advice is available on Worcestershire County Council's website (including walking, cycling and bus maps and timetables).
- 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>

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1 Local Air Quality Management

This report provides an overview of air quality in Wyre Forest District Council during 2018. 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. 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=325

Alternatively, see Appendix D: Maps 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	69	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	47	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 Wyre Forest District Council

Defra has yet to appraise last year's ASR.

Wyre Forest District Council has taken forward a number of direct measures during the current reporting year of 2018 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 completed measures are:

- **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
- **Greening Council and Business Fleets:**
Worcestershire County Council Local Transport Plan (LTP4) was formally adopted in November 2017 and incorporates policy on alternative fuels and associated infrastructure:
http://www.worcestershire.gov.uk/downloads/file/9024/worcestershire_s_local_transport_plan_ltp_2018_-_2030
- **Travel Planning:**
Personalised travel planning program planned as part of wider health improvement drives from the 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 estimate formal adoption by the Worcestershire District Councils in 2019.

WRS on behalf of Wyre Forest District Council will continue to monitor locations in 2019 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 2020 Annual Status Report.

The principal challenges and barriers to implementation that Wyre Forest District Council anticipates facing are that Blackwell Street in the Horsefair/Coventry Street AQMA, Kidderminster and Welch Gate, Bewdley are described as 'street canyons', in that they are narrow streets with continuous buildings on either side and both streets are major routes for traffic in and out of Kidderminster and Bewdley respectively. As a consequence solving the problem of poor air quality at these locations is proving to be difficult.

- Horsefair/Coventry Street AQMA: As part of the WFDC Churchfields Masterplan, there is a commitment to build a spur road from the Ringway roundabout at the bottom of Blackwell Street into Churchfields to create a one way system which should result in a significant improvement in air quality in Blackwell Street. A planning application for improvements to the highways infrastructure in the Churchfields area was approved in October 2018, work is due to commence in 2019. The Wyre Forest District Council chapter of the Air Quality Action Plan will be updated on completion of the proposed works.
- 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. Alternative solutions will continue to be explored by Wyre Forest District Council and Worcestershire County Council.

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	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	Loading and unloading restrictions during peak traffic times	Traffic Management	UTC, Congestion management, traffic reduction	Wyre Forest District Council (WFDC)	2015	2016	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	WCC	2015 - 2016	2016	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	WCC & WFDC	2015 - 2016	2017	Increase in uptake of personal travel planning services. Change in behaviour towards more sustainable modes of transport	<1%	Implementation 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	WCC		On-going	Fewer HGVs travelling through AQMAs	5 - 10%	Implementation on-going	On- going	It can take some time for the information to filter down to users.

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5	Alteration to phasing of traffic light systems	Traffic Management	UTC, Congestion management, traffic reduction	WCC	2015 - 2017	2018 onwards	Improved flow through Horsefair/Covenry 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. Planning application approved 10/2018
6	Introduction of traffic signals at roundabouts	Traffic Management	UTC, Congestion management, traffic reduction	WCC	2015 - 2017	2018 onwards	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. Planning application approved 10/2018
7	Installing electric vehicle charging points	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	WFDC & WCC	2013	2014 onwards	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.worcsregservices.gov.uk/pollution/planning-and-pollution.aspx
8	Greening Council and Business Fleets	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	WCC	2015 - 2017	2018 onwards	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	

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9	Travel Planning	Promoting Travel Alternatives	Personalised Travel Planning	WCC		2017 onwards	Increased uptake of alternative modes of transport	<1%	Personalised travel planning program planned as part of wider health improvement drives from County Council who are developing a "one-stop-shop" online travel portal	On-going	Initiative taking longer than expected
10	Measures linked to walking and cycling initiatives	Promoting Travel Alternatives	Promotion of cycling	WFDC & WCC	2014 - 2015	Easter 2015 onwards	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	WCC	2014 – 2015	Liftshare Scheme launched Autumn 2015	Increase in number of people car sharing	<1%	Liftshare Scheme launched in Autumn 2015	Currently operating	
12	Produce Air Quality Supplementary Planning Document	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	WRS & District Councils	On-going	Draft completed in August 2017. Start of formal adoption processes by November 2017	Formally adopted and utilised SPD at all six LPAs across County	<1%	SPD drafted by WRS officers	Estimate formal adoption by District Councils in 2019	Draft SPD currently out for consultation
13	Encourage developers to provide sustainable transport facilities and links serving new developments	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	WRS & District Councils	On-going	Draft completed in August 2017. Start of formal adoption processes by November 2017	Formally adopted and utilised a by all six LPAs across County	<1%	SPD drafted by WRS officers	Estimate formal adoption by District Councils in 2019	Draft SPD currently out for consultation
14	Air Quality Policy in Local Development Plans	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	WFDC	On-going	Due to come into effect on 13th August 2015	Formal adoption of revised LDO	<1%	WRS consulted on revised South Kidderminster Enterprise Park Revised Development Order.	13th August 2015	This measure will no longer be reported on in future ASRs

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15	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	WFDC & WRS	2014	2014 onwards	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 BC	On- going	
16	Forge closer links with local health agencies	Other	Other	WRS & WCC	N/A	On-going	Participation of relevant health agencies in the Worcestershire Air Quality Steering Group	<1%	Director of Public Health at Worcestershire County Council is to set up an air quality group in 2019 to discuss air quality issues in the County	On- going	
17	Normal length buses block road in narrow bends	Transport Planning and Infrastructure	Bus route improvements	WFDC (WCC no longer manages any bus fleet other than school buses, all operators are private companies)	2015 - 2016	N/A	More shorter length buses seen in Welch Gate AQMA area	2%	WCC has no control over commercial bus companies and any commitment to using shorter length buses would be purely on a voluntary basis on the part of the bus companies.	WCC advised they have no influence over bus networks	This measure will no longer be reported on in future ASRs

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 2018 calendar year. The average total PM_{2.5} at 197 locations (centre points of 1km x 1km grids) across the Wyre Forest District is 7.47µg/m³, with a minimum concentration of 6.78µg/m³ and a maximum concentration of 8.78µg/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.

As outlined in Policy Guidance LAQM.PG16 WRS have discussed the role of the DoPH and the details of PM_{2.5} levels across the County, with the Director of Public Health for Worcestershire County Council. The DoPH has not confirmed to WRS that they are advocating or supporting any specific actions to reduce PM_{2.5} concentrations across the County at this time. The DoPH set up an air quality action group in 2019 to discuss air quality issues across the County including PM_{2.5}.

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

3.1.1 Automatic Monitoring Sites

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

No automatic (continuous) monitoring was undertaken within the Wyre Forest District during 2018.

3.1.2 Non-Automatic Monitoring Sites

Wyre Forest District Council undertook non-automatic (passive) monitoring of NO₂ at 43 sites during 2018. Table A.1 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 bias, “annualisation” and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO₂)

During 2018, Wyre Forest District Council monitored annual mean nitrogen dioxide concentrations using passive diffusion tubes at forty three locations across the District compared to forty locations in 2017. No monitoring was carried out in January 2018 due to staffing issues.

Monitoring at the following location was discontinued in 2018 due to the results being consistently below the annual mean objective:

- (F)14NS(S) - 14 New Street, Stourport-on-Severn

Four additional diffusion tubes were deployed at the following locations in Kidderminster:

- CR1 - Cuts4Scruffs, 29 Comberton Hill
- CR2 - Severn Valley Lock & Safe, 9/10 Comberton Road
- CR3 - 20 Comberton Road
- CRN - 470 Chester Road North

This is to monitor the air quality in the Comberton Hill, Comberton Road and Chester Road North (A449) area with a view to carrying out a detailed assessment in 2019.

Refurbishment to a row of dwellings a short distance from diffusion tube 23HF within the Horsefair/Coventry Street AQMA in 2018 will allow the diffusion tube to be relocated to a more relevant receptor in 2019.

Table 3.1 below provides a summary of measured exceedences in 2018 or borderline locations (within 5% of annual mean objective), whether representative of relevant exposure and within an existing AQMA or not.

Table 3.1 - Summary of measured exceedences and borderline results in 2018

Site ID	Within AQMA Y/N	Bias Adjusted Measurement ($\mu\text{g}/\text{m}^3$)	Adjusted for distance to relevant exposure ($\mu\text{g}/\text{m}^3$)
Kidderminster			
HF(K) ¹	Y – Horsefair/Coventry Street	60.89	60.89
HF(K)(F) ¹	Y – Horsefair/Coventry Street	68.51	68.51
(F)69COV	Y – Horsefair/Coventry Street	50.63	50.63
K3	Y – Horsefair/Coventry Street	37.97	37.97
TCH	N	48.77	45.3
Bewdley			
WG(B)	Y – Welch Gate	45.62	45.62
B1	N	38.1	38.1

Note: Exceedences of the NO₂ annual mean objective of 40 $\mu\text{g}/\text{m}^3$ are shown in **bold**.

Table 3.1 above indicates there have been exceedences of the annual mean Air Quality Objective (AQO) for NO₂ concentrations or recorded within 5% of the AQO at 7 of the 43 monitoring locations in 2018. Of these, four locations are within the Horsefair/Coventry Street AQMA. The location within the Welch Gate AQMA exceeded the objective in 2018 when compared to 2017. Locations (TCH - Top of Comberton Hill, Kidderminster) and B1 (Adam & Eve, Load Street, Bewdley) are outside of existing AQMAs.

Table A..2 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.

Five Year Trend Graphs

The graphs below show the NO₂ five year trends, 2014 to 2018, for Kidderminster, Horsefair/Coventry Street AQMA, Stourport-on-Severn and Bewdley.

Kidderminster

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

Figure 3.1 - Long Term Trend Graph of NO₂ Concentrations in Kidderminster. Excluding the Horsefair/Coventry Street AQMA

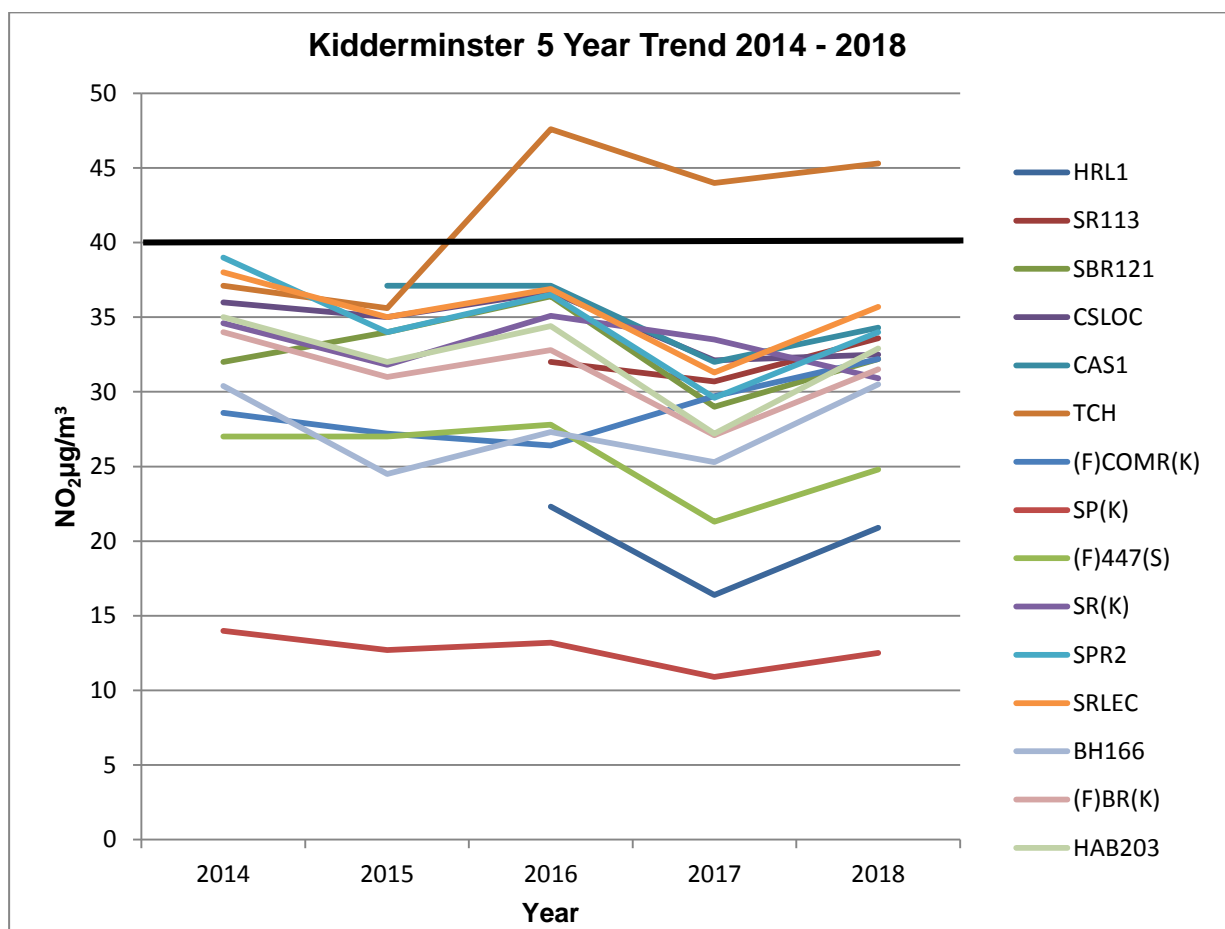


Figure 3.1 shows that there has been an increase in NO₂ concentrations at all locations in Kidderminster in 2018. There was one exceedence outside of the Horsefair/Coventry Street AQMA in 2018. Location TCH (Top of Comberton Hill) shows an exceedence of the annual mean objective for NO₂ of 45.3µg/m³.

The diffusion tube network was expanded in 2018 to monitor the air quality in the Comberton Hill, Comberton Road and Chester Road North (A449) area with a view to carrying out a detailed assessment in 2019.

Horsefair/Coventry Street AQMA

Figure 3.2 below demonstrates the five year trend for NO₂ concentrations for the Horsefair/Coventry Street AQMA where available.

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

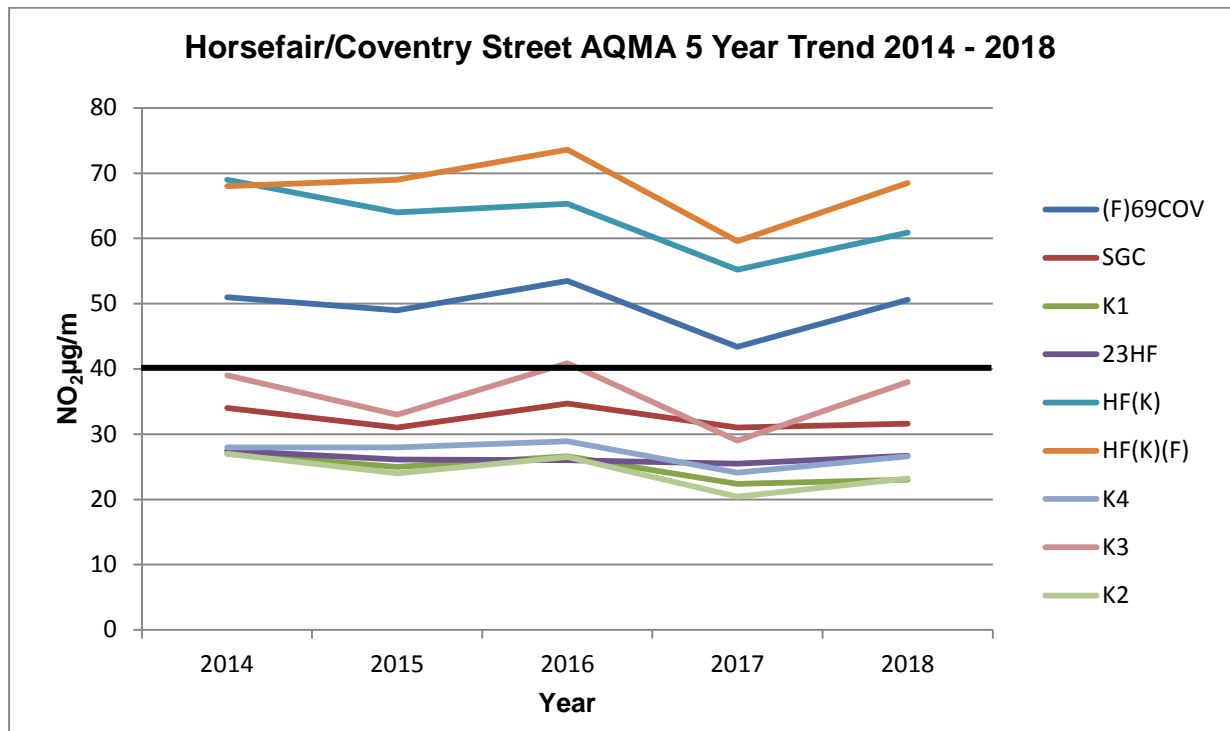


Figure 3.2 shows that there were exceedences at three locations within the Horsefair/Coventry Street AQMA. There has been an increase in NO₂ concentrations at all locations within the AQMA in 2018 when compared to 2017.

Two locations were above 60µg/m³ indicating there may have been exceedences of the one hour mean objective, however members of the public tend to use the road as an access route to walk to and from Kidderminster town centre and as such exposure is expected to be short term.

Stourport-on-Severn

Figure 3.3 below demonstrates the five year trend for NO₂ concentrations for Stourport-on-Severn where available.

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

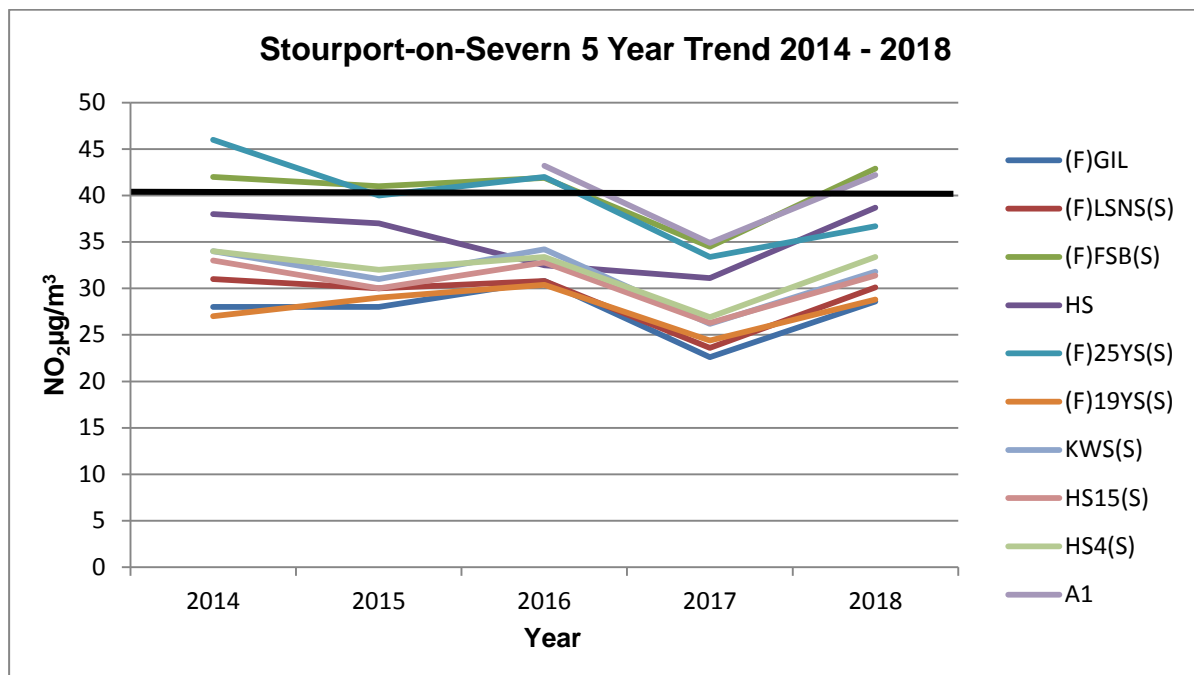


Figure 3.3 shows that there has been an increase in NO₂ concentrations at all locations in Stourport-on-Severn in 2018. There were exceedences of the annual mean objective at two locations, however the relevant receptors are located at the first floor level and it is unlikely the objective was exceeded at this level

Bewdley

Figure 3.4 below demonstrates the five year trend for NO₂ concentrations for Bewdley where available.

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

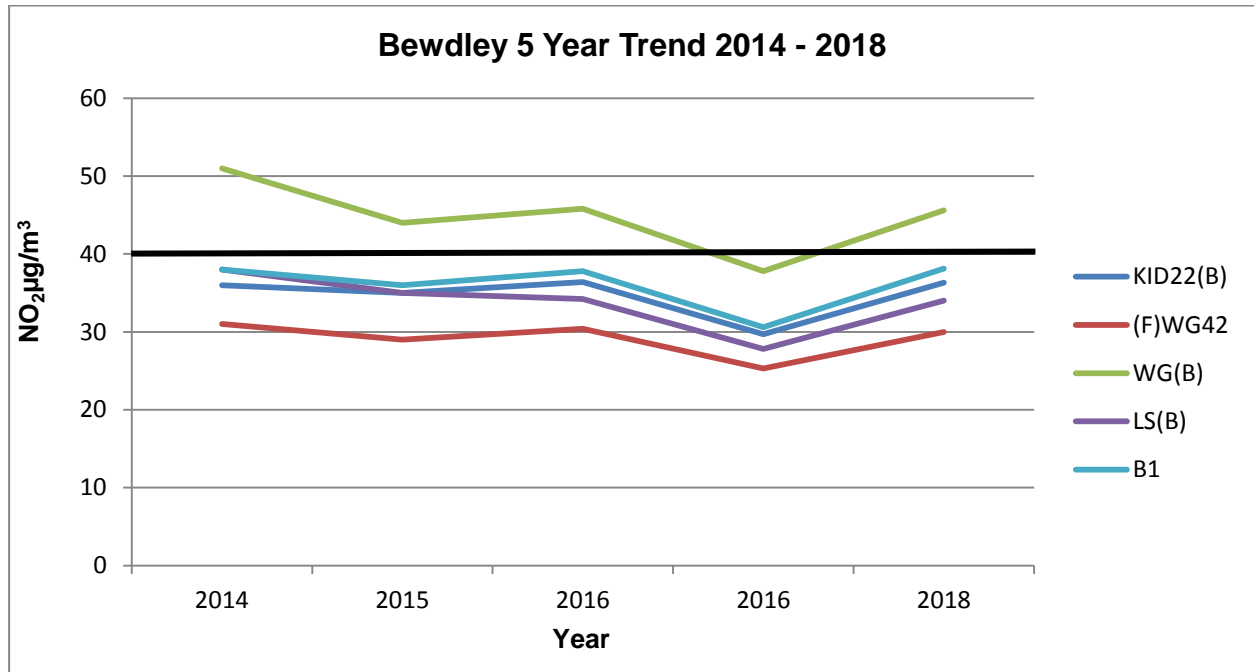


Figure 3.4 shows that there has been an increase in NO₂ concentrations at all locations in Bewdley in 2018. Location WG(B) within the Welch Gate AQMA exceeded the annual mean objective in 2018 when compared to 2017.

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.1 – 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)
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
23HF	23 Horsefair	Roadside	383350	277193	NO ₂	YES	12m	2.5m	NO	2.34m
HF(K)	Horsefair (lamppost @ 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

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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)
SBR121	121 Stourbridge Road	Roadside	383905	277857	NO ₂	NO	0m	2.4m	NO	2.69m
CSLOC	Flats at top of Coventry Street - Land Oak Court	Roadside	384205	277121	NO ₂	NO	0m	7.9m	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
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

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)
SP(K)	Spennells (located at Jay Park Crescent)	Urban Background	384486	274596	NO ₂	NO	11m	1.7m	NO	2.34m
(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 against 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
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

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)
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/adjacent to the façade of a residential property).

(2) N/A if not applicable.

Table A.2 – 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
KIDDERMINSTER									
HLR1	Roadside	Diffusion Tube		92			22.3	16.4	20.9
SR113	Roadside	Diffusion Tube		92			32.0	30.7	33.6
(F)69COV	Roadside	Diffusion Tube		83	51	49	53.5	43.4	50.6
(F)SGC	Roadside	Diffusion Tube		92	34	31	34.7	31.0	31.6
K1	Roadside	Diffusion Tube		92	27	25	26.6	22.4	23.0
23HF	Roadside	Diffusion Tube		92	27.5	26.1	26.0	25.5	26.7
HF(K)	Roadside	Diffusion Tube		83	69	64	65.3	55.2	60.9
HF(K)(F)	Roadside	Diffusion Tube		83	68	69	73.6	59.6	68.5
K4	Roadside	Diffusion Tube		92	28	28	28.9	24.1	26.6
SBR121	Roadside	Diffusion Tube		83	32	34	36.4	29.0	32.2
CSLOC	Roadside	Diffusion Tube		92	36	35	36.7	32.1	32.5
K3	Roadside	Diffusion Tube		83	39	33	40.9	29.0	38.0
K2	Roadside	Diffusion Tube		92	27	24	26.5	20.4	23.2
CAS1	Roadside	Diffusion Tube		83		37.1	37.1	32.0	40.7
CR1	Roadside	Diffusion Tube		75					32.6
CR2	Roadside	Diffusion Tube		92					35.8
CR3	Roadside	Diffusion Tube		92					23.7
CRN	Roadside	Diffusion Tube		92					34.0
TCH	Roadside	Diffusion Tube		92	37.1	35.6	47.6	44.0	48.8
(F)COMR(K)	Roadside	Diffusion Tube		92	28.6	27.2	26.4	29.7	32.2

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
SP(K)	Urban Background	Diffusion Tube		92	14	12.7	13.2	10.9	12.5
(F) 447 (S)	Roadside	Diffusion Tube		92	27	27	27.8	21.3	24.8
SR(K)	Roadside	Diffusion Tube		83	34.6	31.8	35.1	33.5	41.7
SPR2	Roadside	Diffusion Tube		92	39	34	36.5	29.6	34.0
SRLEC	Roadside	Diffusion Tube		92	38	35	36.9	31.3	35.7
BH166	Roadside	Diffusion Tube		92	30.4	24.5	27.3	25.3	30.5
(F)BR(K)	Roadside	Diffusion Tube		83	34	31	32.8	27.1	31.5
HAB203	Roadside	Diffusion Tube		92	35	32	34.4	27.2	32.9
STOURPORT-ON-SEVEN									
(F)GIL	Roadside	Diffusion Tube		83	28	28	30.8	22.6	28.6
(F)LSNS(S)	Roadside	Diffusion Tube		92	31	30	30.8	23.6	30.1
(F)FBS(S)	Roadside	Diffusion Tube		67	42	41	41.9	34.5	42.9
HS(S)	Roadside	Diffusion Tube		92	38	37	36.6	31.1	38.7
(F)25YS(S)	Roadside	Diffusion Tube		92	46	40	42	33.4	36.7
(F)19YS(S)	Roadside	Diffusion Tube		92	27	29	30.4	24.4	28.8
KSW(S)	Roadside	Diffusion Tube		75	34	31	34.2	26.2	31.8
HS15(S)	Roadside	Diffusion Tube		92	33	30	32.8	26.3	31.4
HS4(S)	Roadside	Diffusion Tube		92	34	32	33.4	26.9	33.4
A1	Roadside	Diffusion Tube		83			43.2	34.9	42.2
BEWDLEY									
KID22(B)	Roadside	Diffusion Tube		92	36	35	36.4	29.7	36.3
(F)WG42	Roadside	Diffusion Tube		92	31	29	30.4	25.3	30.0

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
WG(B)	Roadside	Diffusion Tube		92	51	44	45.8	37.8	45.6
LS(B)	Roadside	Diffusion Tube		92	38	35	30	27.8	34.0
B1	Roadside	Diffusion Tube		92	38	36	37.8	30.6	38.1

Diffusion tube data has been bias corrected

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.

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)														
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean		
													Raw Data	Bias Adjusted (f0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
HLR1		30.33	31.41	24.55	23.75	23.11	15.66	15.18	15.88	22.83	28.21	27.15	23.46	20.88	
SR113		42.90	46.75	41.43	37.82	28.00	19.92	35.62	39.96	39.25	41.62	41.39	37.70	33.55	27.8
(F)69COV		51.82	61.59	53.80	65.66	59.77		51.92	51.94	55.78	58.71	57.90	56.89	50.63	
(F)SGC		41.56	42.42	38.30	39.42	34.77	18.13	31.57	33.91	37.17	35.45	37.74	35.49	31.59	
K1		31.10	31.97	28.39	21.49	18.41	15.10	22.24	25.58	26.28	30.41	33.48	25.86	23.02	
23HF		36.87	38.34	33.28	18.55	25.06	17.02	26.09	27.74	32.17	36.63	38.23	30.00	26.70	20.0
HF(K)		71.37	75.88	70.21	69.68	53.19		63.43	70.71	69.39	65.67	74.60	68.41	60.89	
HF(K)(F)		81.45	85.28	85.24	86.32	72.99		66.89	75.03	75.64	66.70	74.27	76.98	68.51	
K4		36.36	36.36	31.71	24.47	19.17	19.37	27.67	27.98	31.52	36.29	37.46	29.85	26.57	
SBR121		40.40		41.24	41.28	32.07	18.56	32.96	37.68	37.11	37.17	43.38	36.18	32.20	
CSLOC		40.98	44.96	41.43	37.01	31.64	20.42	36.81	38.11	35.74	36.58	38.20	36.53	32.51	
K3		46.24	53.06	44.13	48.34	43.17		34.34	36.63	45.19	37.17	38.39	42.66	37.97	
K2		32.19	33.51	28.25	26.28	19.92	16.83	21.45	23.04	25.15	30.90	28.81	26.03	23.17	
CAS1		48.29	51.39	50.86	43.80	36.65		41.55	46.88	45.43	38.59	51.15	45.46	40.46	34.3
CR1		43.80	44.59	38.30		38.97		31.48	33.66	41.51	34.28	23.22	36.64	32.61	

Wyre Forest District Council

Site ID	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 (f0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
CR2		37.07	49.97	39.68	52.55	45.23	38.72	33.35	36.44	43.29	38.20	27.89	40.22	35.79	
CR3		35.20	34.75	27.11	27.43	23.05	21.29	21.25	23.17	27.24	28.65	23.22	26.58	23.65	
CRN		44.57	47.68	42.95	40.30	29.76	31.12	29.50	35.21	38.53	44.37	35.80	38.16	33.96	
TCH		62.46	79.22	53.38	62.82	48.30	48.62	43.13	51.63	58.33	55.34	39.59	54.80	48.77	45.3
(F)COMR(K)		39.24	45.69	36.93	40.40	32.58	31.74	33.06	35.33	35.20	37.12	30.80	36.19	32.21	23.6
SP(K)		20.61	18.42	12.98	12.81	11.08	9.91	10.68	11.31	15.94	18.12	12.12	14.00	12.46	10.9
(F) 447 (S)		35.00	30.55	27.25	29.23	27.48	25.95	23.13	25.39	30.74	28.55	23.73	27.91	24.84	
SR(K)		54.79	57.76	49.44	58.16	47.55	39.77	35.48	38.11		49.75	37.55	46.84	41.68	30.9
SPR2		39.05	47.68	38.02	41.07	31.95	35.63	33.55	35.39	35.56	41.82	40.01	38.16	33.96	
SRLEC		47.46	48.30	40.39	40.40	34.20	39.59	37.55	37.86	38.71	37.56	39.54	40.14	35.73	
BH166		37.06	44.28	32.99	39.89	35.52	30.31	25.84	26.44	30.15	37.90	36.40	34.25	30.49	25.3
(F)BR(K)		40.66	41.12	36.40	37.62	29.32	30.00	28.41		34.19	37.61	38.29	35.36	31.47	
HAB203		38.86	42.85	39.15	38.34	37.34	37.30	31.57	31.50	35.14	36.58	37.92	36.96	32.90	
STOURPORT-ON-SEVERN															
(F)GIL		40.66	36.61	31.20	30.61		21.52	27.29	27.30	35.62	35.31	35.52	32.16	28.63	
(F)LSNS(S)		36.81	40.50	37.03	42.82	33.88	30.81	24.58	23.78	28.25	38.49	35.24	33.84	30.11	
(F)FBS(S)		53.29		48.44	52.72	47.37		40.89	43.05		41.43	46.53	46.71	42.85	
HS(S)		49.51	53.14	45.31	51.07	46.99	41.57	33.86	31.50	39.01	44.86	41.72	43.50	38.72	
(F)25YS(S)		43.29	48.86	54.17	44.52	35.46	42.37	35.09	34.03	35.20	39.76	40.88	42.24	36.70	
(F)19YS(S)		38.03	37.78	34.56	35.45	28.75	31.74	27.69	29.09	30.39	29.92	32.28	32.33	28.78	

Site ID	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 (f0.89) and Annualised ⁽¹⁾	Distance Corrected to Nearest Exposure ⁽²⁾
KSW(S)		43.74	39.64	41.38	42.20		27.47	27.15	29.09	33.89		37.32	35.77	31.83	
HS15(S)		41.62	42.86	39.21	38.39	31.62	33.16	27.49	28.97	32.41	36.83	35.70	35.30	31.41	
HS4(S)		42.90	43.17	39.25	38.65	32.07	35.38	29.86	31.93	34.67	41.87	43.10	37.53	33.40	
A1		54.51	50.85	46.26	55.09	47.18	50.72		38.30	43.65	41.33	45.69	47.36	42.15	
BEWDLEY															
KID22(B)		48.55	52.33	44.27	45.61	37.83	39.28	33.36	31.93	36.51	41.33	38.06	40.80	36.33	
(F)WG42		44.06	39.14	33.85	32.05	29.30	29.45	26.36	30.82	34.13	34.92	36.44	33.70	29.98	
WG(B)		<u>64.97</u>	57.91	53.70	51.74	51.07	51.52	40.17	43.48	48.88	49.90	50.50	51.30	45.62	
LS(B)		47.46	43.97	41.00	39.11	35.64	36.99	29.91	33.54	34.67	38.05	39.54	38.20	33.97	
B1		50.66	47.13	46.21	49.83	44.04		29.32	34.65	41.98	40.99	43.24	42.80	38.10	

- 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

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 2018.

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 2018 was 0.89 (Spreadsheet Version No. 03/19) which were derived from the national studies.

QA/QC of Automatic Monitoring

No Automatic Monitoring Data is available for 2018.

QA/QC of Diffusion Tube Monitoring

Under the AIR NO₂ PT (formerly WASP) Scheme Somerset Scientific Services performed 100% satisfactory for the period January to October 2018. Tube precision was 'Good' throughout 2018.

Data Annualisation**Short-term to Long-term Data Adjustment**

Only 8 months of data was recorded for (F)FSB(S) - Flamingo's, 21 Bridge Street, Stourport-on Severn. 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 for (F)FSB(S)

Site	Site Type	Annual Mean	Period Mean	Ratio
Birmingham Acocks Green	Urban Background	17.8	17.3	1.03
Birmingham A4540	Roadside	32.3	31.3	1.03
Walsall Woodlands	Urban Background	15.9	15.5	1.03
			Average	1.03
			(F)FSB(S) Result	41.6
			(F)FSB(S) Annualised	42.85

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 SR113 – Signpost outside 113 Stourport Road

<u>Enter data into the red cells</u>		
Step 1	How far from the KERB was your measurement made (in metres)?	1 metres
Step 2	How far from the KERB is your receptor (in metres)?	3.6 metres
Step 3	What is the local annual mean background NO ₂ concentration (in µg/m ³)?	11.55 mg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	33.5 mg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	27.8 mg/m ³

Figure C.2 23HF – 23 Horsefair

BUREAU VERITAS

Air Quality CONSULTANTS

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	2.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	14.5	metres
Step 3	What is the local annual mean background NO ₂ concentration (in µg/m ³)?	11.25	mg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	26.7	mg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	20	mg/m ³

Figure C.3 CAS1 – Lamp-post outside 99 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)?	2.7	metres
Step 2	How far from the KERB is your receptor (in metres)?	6.9	metres
Step 3	What is the local annual mean background NO ₂ concentration (in µg/m ³)?	14.32	mg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	40.46	mg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	34.3	mg/m ³

Figure C.4 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)?	12.1	mg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	48.77	mg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	45.3	mg/m ³

Figure C.5 (F)COMR(K) – Lamp-post outside Holmwood, Comberton Road



BUREAU VERITAS

Air Quality CONSULTANTS

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	3.5	metres
Step 2	How far from the KERB is your receptor (in metres)?	17	metres
Step 3	What is the local annual mean background NO ₂ concentration (in µg/m ³)?	12.1	mg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	32.21	mg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	23.6	mg/m ³



Figure C.6 SP(K) – Spennells, lamp-post in Jay Park Crescent

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	1.7	metres
Step 2	How far from the KERB is your receptor (in metres)?	12.7	metres
Step 3	What is the local annual mean background NO ₂ concentration (in µg/m ³)?	9.1	mg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	12.46	mg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	10.9	mg/m ³



Figure C.7 SR(K) – Lamp-post outside 431 Stourport Road

Enter data into the red cells

Step 1	How far from the KERB was your measurement made (in metres)?	3	metres
Step 2	How far from the KERB is your receptor (in metres)?	12	metres
Step 3	What is the local annual mean background NO ₂ concentration (in µg/m ³)?	11.54	mg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	41.68	mg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	30.9	mg/m ³

Figure C.8 BH166 – Lamp-post outside 166 Bewdley Hill

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)?	7	metres
Step 3	What is the local annual mean background NO ₂ concentration (in µg/m ³)?	12.85	mg/m ³
Step 4	What is your measured annual mean NO ₂ concentration (in µg/m ³)?	30.49	mg/m ³
Result	The predicted annual mean NO ₂ concentration (in µg/m ³) at your receptor	25.3	mg/m ³

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

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

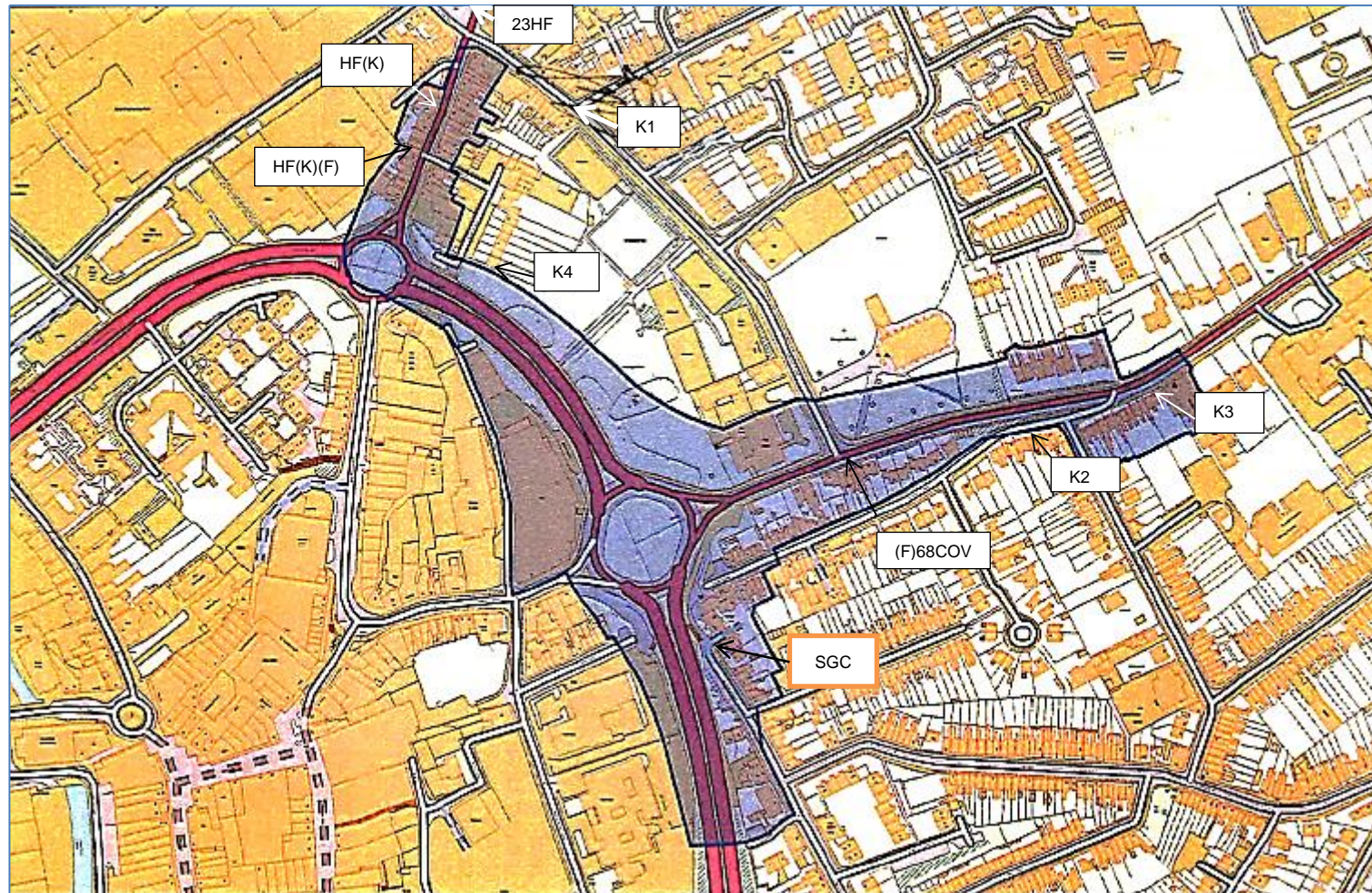


Figure D.2 Welch Gate AQMA and Monitoring Locations

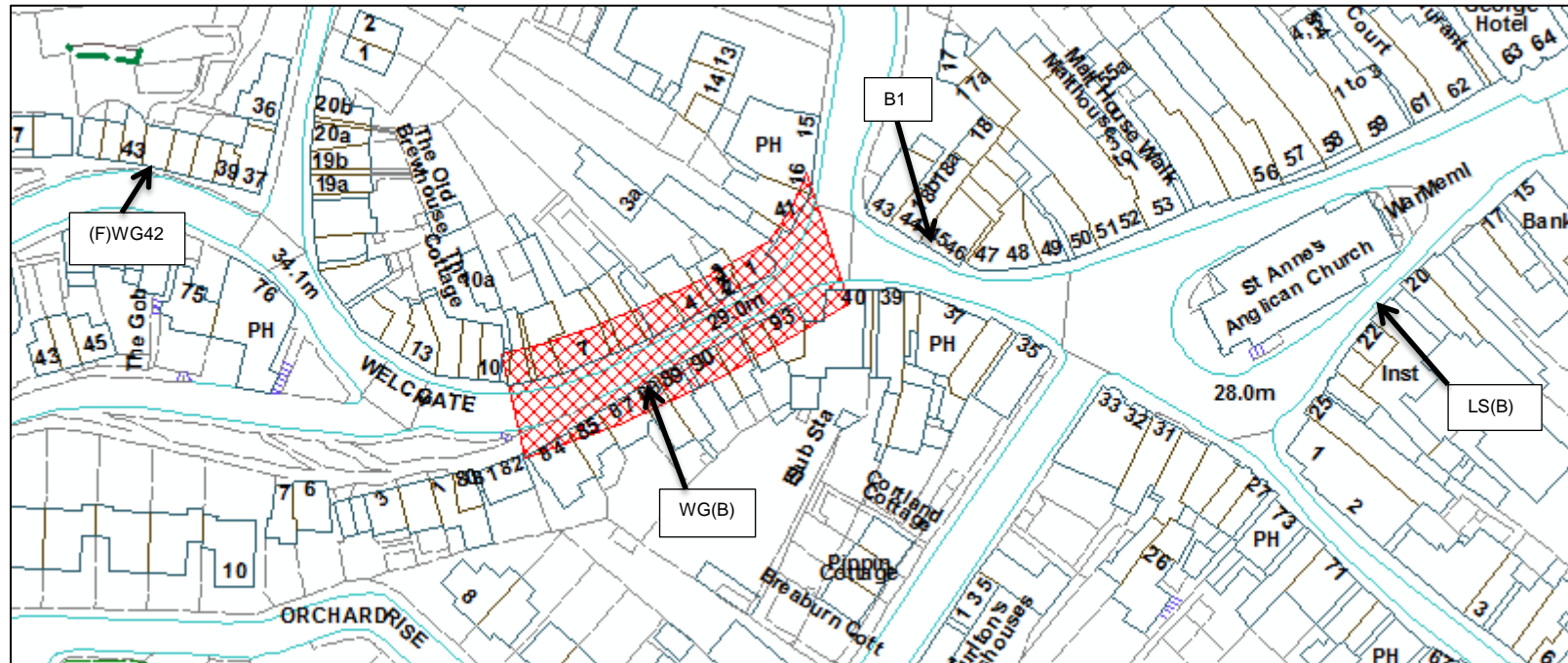


Figure D.3 East of Kidderminster Town Centre

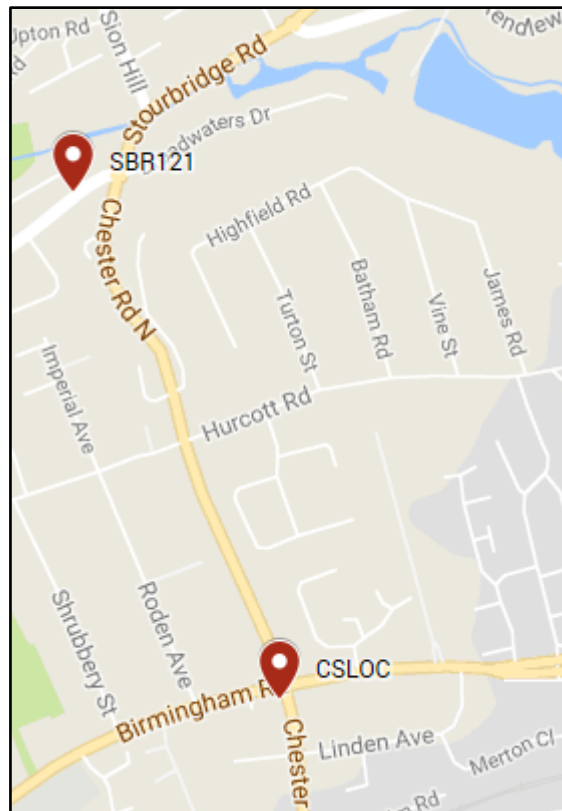


Figure D.4 West of Kidderminster Town Centre



Figure D.5 South of Kidderminster Town Centre

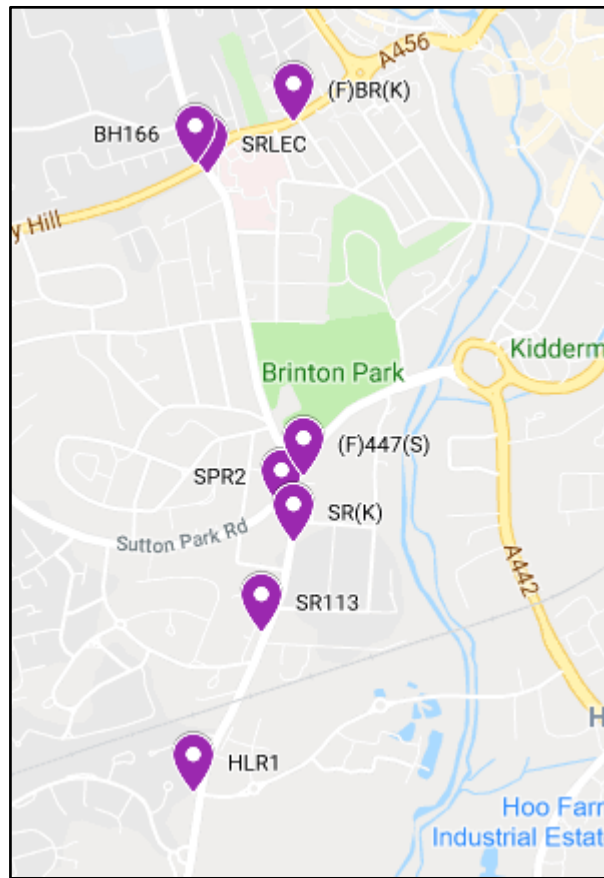


Figure D.6 Comberton Hill, Comberton Road & Chester Road North & South

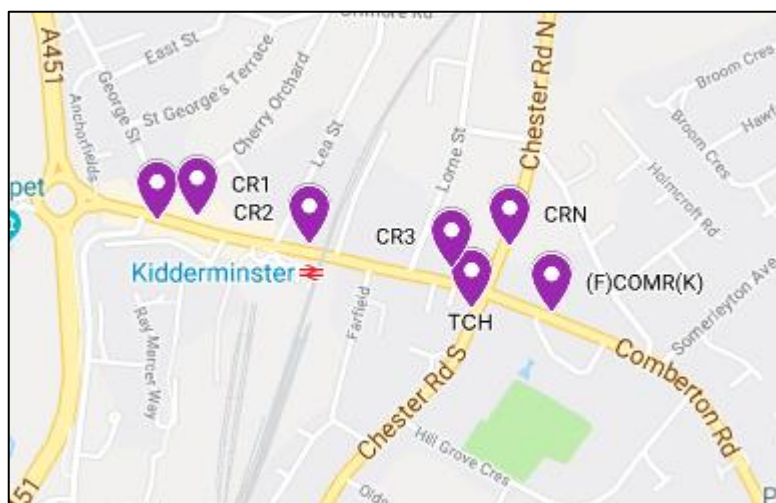


Figure D.7 Stourport-on-Severn



Figure D.8 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 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
DoPH	Director of Public Health
EU	European Union
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

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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 (2019) National Diffusion Tube Bias Adjustment Factor Spreadsheet v.03/19
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 (2018) Air Quality Annual Status Report for Wyre Forest District Council
10. Wyre Forest District Council (2011) Churchfields Masterplan Supplementary Planning Document