Report to Transport, Environment & Climate Change Select Committee

Date: **30th March 2023**

Title: **Information item on Air Quality in Buckinghamshire**

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Recommendations/Outcomes: That the Committee note the content of the report.

1. Background

1.1. The Local Air Quality Management (LAQM) process places a legal 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. Details on the objectives and where they apply as well as providing prescriptive instruction on how to undertake the review and assessment process is given in the LAQM Technical Guidance provided by Defra.

1.2. At the core of LAQM delivery are three pollutant objectives; these are: Nitrogen Dioxide (NO_2), Particulate Matter (PM_{10}) and Sulphur Dioxide (SO_2). All current Air Quality Management Areas (AQMAs) across the UK are declared for one or more of these pollutants, with NO_2 accounting for the majority. Table 1 in Appendix 1 shows the national objectives for the three main pollutants and Table 2 in Appendix 1 outlines where they apply to in the UK.

1.3. The purpose of this report is to outline:

1.3.1. How the LAQM process is carried out in Buckinghamshire

1.3.2. What Air Quality is currently like in Buckinghamshire

1.3.3. What the Council are doing to improve Air Quality

2. Main content of report

2.1. Buckinghamshire Council and its predecessor councils have undertaken LAQM reporting since its inception in 1995. The LAQM process can be split into the following steps:

2.1.1. Monitoring

2.1.2. Review and reporting to Defra

2.1.3. Declaration of AQMAs where necessary

2.1.4. Develop an AQAP for AQMAs and/or an Air Quality Strategy where there are no AQMAs

2.2. Report on progress to Defra with the aim of revoking AQMAs

2.3. **Air Quality Monitoring** - The main source of LAQM pollutants in the Buckinghamshire area is road transport and so consequently monitoring is focussed on nitrogen dioxide. Buckinghamshire Council utilise both monitoring methods, automatic and non-automatic, accepted by Defra. There are 2 types of monitoring:

2.4. **Automatic monitoring -** uses highly technical equipment which continuously monitors levels of pollutants such as nitrogen dioxide 24 hours a day and is therefore also known as continuous monitoring. Continuous monitoring equipment is expensive to install and maintain but it provides valuable real time data. There are currently 2 continuous monitors in Buckinghamshire. One is located on Marlow Hill in High Wycombe and the second is next to the M40 in Stokenchurch. Data from our continuous monitoring sites can be downloaded from the Air Quality England website https://www.airqualityengland.co.uk/.

2.5. **Non-automatic monitoring -** utilises passive monitoring techniques, such as diffusion tubes, which unlike continuous monitors are relatively inexpensive. As a result, they allow a greater number of sites to be monitored. The tubes are deployed monthly and are useful for assessing compliance with both the annual and hourly mean objective for NO2. Diffusion tubes can be placed in many different locations, though are typically placed on building facades or lampposts in heavily trafficked areas. Diffusion tubes are generally less accurate than automatic forms of monitoring. However, for NO2 adjustment factors can be applied to take in to account measured differences between the continuous monitoring technique and passive diffusion tube.

2.6. There has also been a significant growth in the development of **low-cost sensor systems** capable of measuring air pollutants in recent years, and both the technology and methods of operation continue to evolve rapidly. Typically, these instruments represent a lower capital investment cost when compared to more complex continuous methods of monitoring, and their use can reduce the extent of running costs over a yearly period. As such, they are potentially an attractive option that allows measurements to be undertaken at improved spatial and temporal resolutions. However, this comes with a significant trade-off on the accuracy and precision of the measurements being made.

2.7. These instruments are not currently approved for gaseous pollutants or PM monitoring, as they have not yet been tested, though they may be suitable as supplementary monitoring or for identifying short-term pollution events at construction, demolition, or waste transfer sites (PM) and are suitable for short, local campaigns.

2.8. Working with Spelthorne Council and Heathrow Airport, the Strategic Environmental Protection Team received funding from an Air Quality Grant to trial several types of sensors in the South Buckinghamshire area. Using the lessons learnt from this trial the Strategic Environmental Protection Team were able to secure a second grant to purchase and trial more monitoring sensors and will be using these to work with Local Community Boards on local campaigns. More information on this work is given further on in the report. Data from our low-cost sensor systems can also be downloaded from the Air Quality England website https://www.airqualityengland.co.uk/.

2.9. **Air Quality in Buckinghamshire -** The results of the air quality monitoring conducted within Buckinghamshire for the years 2017 – 2021 can be found in Appendix 2 of this report and Appendix A of the Annual Status Report 2022 on our website https://www.buckinghamshire.gov.uk/environment/air-quality/.

2.10. Monitoring has been undertaken in 2022 however at the time of writing this report Defra had not released the tools and adjustment factors required to ratify and process the monitoring data. It has therefore not been possible to carry out the necessary ratification and diffusion tube data processing required by Defra for the 2022 monitoring data. The Strategic Environmental Protection Team will endeavour to process the data as soon as the relevant tools and adjustment factors have been made available by Defra and will publish the results as an addendum to this report.

2.11. Only one exceedance of the annual mean nitrogen dioxide national objective was identified in Buckinghamshire in 2021. This was in the Stoke Road AQMA in Aylesbury with a concentration of 42.2 µg/m^3 recorded. Once distance corrected to the nearest sensitive receptor, the concentration of NO_2 dropped to 39.5 µg/m^3 which is just below the objective level of 40 µg/m^3. Six other locations measured concentrations within 10% of the objective and these were located within either the Stoke Road AQMA or Wycombe AQMA. All other diffusion tube sites in 2021 reported levels well below the annual mean objective level of 40 µg/m^3.

2.12. Although the results of the air quality monitoring have not varied significantly in the previous 5 years there was a significant decrease at most monitoring locations in Buckinghamshire in 2020 followed by a slight increase in 2021 due to the COVID-19 pandemic. In 2021 it was noted that concentrations had not returned to pre-pandemic levels, and this has been attributed to the lockdown in January 2021 and people continuing to work from home where possible.

2.13. This reflects the national trend where in 2021, the annual mean NO_2 concentration at the roadside increased by an average of 1.9 µg/m^3, rising by 8% from 2020. This is a result of increased road traffic following the removal of lockdown restrictions. Concentrations are still 20% lower than concentrations in 2019, after falling to the lowest point in 2020.

2.14. As 2022 is the first calendar year without any Covid-19 pandemic restrictions it is anticipated there will be a slight increase in concentrations in 2022.

2.15. **Air Quality Management Areas** - There are currently 9 AQMAs within Buckinghamshire and these are listed in Appendix 1. Maps showing the location of the AQMAs can also be found on our website, https://www.buckinghamshire.gov.uk/environment/air-quality/air-quality-management-reviews-and-annual-reports/.

2.16. The majority of the AQMAs were declared over 10 years ago, 3 of the AQMAs were declared in the last 5 years. There is now an expectation for action taken in relation to air quality not only to reduce concentrations within the AQMAs but to improve reduce emissions across the County in general.

2.17. In 2021, only 1 monitoring location within the 9 AQMAs was above the annual mean nitrogen dioxide objective. However, in most AQMAs there has not been enough years where concentrations have been significantly below the objective to consider revocation of the AQMAs.

2.18. **Action Planning** - The responsibility for developing and reporting on Buckinghamshire Council's Action Plans is held by the Strategic Environmental Protection Team. However, its success relies on input and cooperation from other teams in the Council such as the Transport Strategy, Public Health and Climate Change Teams as well as other agencies such as National Highways and the Environment Agency.

2.19. Progress on the Air Quality Action Plans is reported annually in the Annual Status Report. A snapshot of the achievements made by Buckinghamshire Council in 2022 is outlined below:

2.20. **Climate Change and Air Quality Strategy** - The Strategic Environmental Protection team are co-authors, along with the Climate Change Team, of the Climate Change and Air Quality Strategy published in October in 2021. The purpose of the strategy is to improve air quality not just in those areas designated as an AQMA but throughout Buckinghamshire where there is no action plan in place. It is also to ensure that when an AQMA is revoked there is a policy in place to ensure that the level of air quality pollutants remains below the National Air Quality Objectives.

2.21. A progress report on actions taken in 2021 – 2022 was presented to cabinet in October 2022. A copy of this report and the Climate Change and Air Quality Strategy

can be found on our website https://www.buckinghamshire.gov.uk/environment/sustainability-and-climate-change/energy-and-climate-change/the-climate-change-and-air-quality-strategy/.

2.22. **Defra Grants** - Defra runs an air quality grant scheme which provides funding to eligible local authorities to help improve air quality in their areas and has awarded more than £81 million in funding to a variety of projects since it started in 1997.

2.23. The team submits bids each year to the scheme and has been highly successful in obtaining funding for a variety of projects. The successful projects that have either been started, completed or where an application has been submitted in 2022 are:

2.24. **Defra Grant Bid 2020/21: EV (Electric Vehicles) in business project** – Completed in December 2022, The Strategic Environmental Protection Team worked with Global Action Plan as key delivery partner and local business engagement groups, to lead a campaign to accelerate the mode shift to electric vehicles and e-bikes in Buckinghamshire. Aimed at employers and their staff, 30 large employers received tailored, high quality, and independent support to implement actions to increase EV and e-bikes in their own operations and to encourage and enable their staff (including staff on low to middle income brackets) to buy or lease EVs and e-bikes taking advantage of attractive incentives on offer.

2.25. This project will make purchasing cars and bikes a more realistic option for many citizens who live and work in Buckinghamshire, especially those on lower incomes. More information on the project including case studies and testimonials can be found on the Council's website. Electric vehicles in business | Buckinghamshire Council.

2.26. **Defra Grant Bid 2021/22: Clean up Our Air Toolkit** – The team are in the process of providing local Community Boards with the materials necessary to enable them to carry out campaigns and to raise awareness of local air quality issues in their board area.

2.27. Each board area will receive a toolkit containing anti-idling correx signs, high visibility vests, refillable pens, pencils, and a mesh banner to be used in campaign work. Access to information on how to organise an event, a no idling event information pack, PowerPoint presentations on citizen science and introduction to air quality for schools and other useful information will also be available on the Council's intranet.

2.28. Working with a key partner of the project Ricardo each Community Board will also have access to real time pollution monitoring data from an air quality sensor which will be placed in a suitable location within each Community Board area.

2.29. **Defra Grant Bid 2022/23: Travel Planning and Eco-Driving** - In February 2023, the team were awarded funding to work with Bucks Business First to promote the benefits of Travel planning and eco-driving to employers within Buckinghamshire and

to assist businesses in the creation of a travel efficiency plan and encourage Eco-driving. Eco-driving training will also be offered to a several businesses as part of the project. As funding has just been secured it is anticipated the project will begin in April 2023.

2.30. **Local Transport Plan 5** - As previously discussed, transport emissions contribute significantly to air pollution in Buckinghamshire. Buckinghamshire's AQMAs are all focused around major transport routes, or road junctions within urban areas. The pollutant responsible for Buckinghamshire's AQMAs is NO_2, the primary source of which is road traffic. Road traffic also accounts for 49.8% of total greenhouse gas emissions in Buckinghamshire. This is a higher proportion than the national average of 27%, highlighting that the management of transport will play a significant role in reducing emissions across the county.

2.31. The Strategic Environmental Protection Team have therefore participated in workshops and consultations the Transport Strategy team have run in connection to a new Local Transport Plan 5 (LTP5) currently being produced. The LTP outlines the Council's approach to transport provision in Buckinghamshire and any improvements in transport provision will also have the co-benefit of improving air quality.

2.32. **Active Travel** - The relative affluence and semi-rural nature of the county has also historically led to higher car usage than other parts of the UK. Between 1993 and 2019 the number of vehicle miles driven in Buckinghamshire increased by 23.6%, from 2.7 billion vehicle miles to 3.3 billion. This increase is above the 17.9% average for the Southeast and is the 4th highest increase amongst counties in the Southeast. To help improve air quality within Buckinghamshire it is therefore vital to encourage a shift from the reliance of using the car to alternative forms of transport such as active travel.

2.33. The team has therefore supported the proposals outlined within the draft Transport Strategy and draft Local Cycling and Walking Infrastructure Plan (LCWIP) for High Wycombe completed by the Transport Strategy Team which went out to public consultation in October 2022. We have also attended and participated in a workshop run by the Public Health Team in connection to a renewal of Buckinghamshire's Physical Activity Strategy for 2023-2028.

2.34. **Collaborating with other Departments within Buckinghamshire Council** - The Strategic Environmental Protection Team have built on the relationships held with other departments within the council who's work although primarily does not directly have an impact on air quality would have significant co-benefit to improving air quality. As part of this the team regularly attends Public Health and Transport Strategy Collaboration Meetings, Electric Vehicle Charging Infrastructure Working Group meetings, Collaboration meetings with Public Health and the Energy and Climate Change Communications meetings.

2.35. **Upgrading of traffic signals at Stoke Road Gyratory, Aylesbury** - In 2021, the Council secured a £500k traffic signals maintenance grant from the Department of Transport for refurbishing the signals at the Walton Street Gyratory in Aylesbury. SCOOT (split cycle offset optimisation technique) sensors enable groups of traffic lights to pick up traffic data which is then used to synchronise the lights to reduce delays. MOVA (Microprocessor Optimised Vehicle Actuation) signals are used at standalone junctions, altering the length of time a light stays red according to traffic volume.

2.36. Work began on installing the SCOOT and MOVA (microprocessor optimised vehicle actuation) systems in October and since November, engineers have been fine-tuning the system to ensure it is able to respond to traffic volume and achieve the best balance of vehicles flowing into, around and out of the gyratory.

2.37. The team has been working with Transport for Bucks in connection to this project as the gyratory junction forms the Stoke Road Air Quality Management Area (AQMA), and it is anticipated that the upgrade will also benefit air quality in the local area.

2.38. **Planning Consultations** - The Strategic Environmental Protection Team review and provide comments on air quality assessments submitted to the council as part of planning applications for proposed new developments. Where such assessments are not included and they meet the thresholds, they can be requested. This is to ensure that any new development will not have a negative impact on air quality within Buckinghamshire.

3. Next steps and review

3.1. The Environment Act 2021 obligated Defra to introduce new air quality standard for $PM_{2.5}$. The following indicators amongst others were published in December 2022:

3.1.1. An Annual Mean Concentration Target for $PM_{2.5}$ levels in England to be 10 µg m^{-3} or below by 2040.

3.1.2. A Population Exposure Reduction Target for a reduction in $PM_{2.5}$ population exposure of 35% compared to 2018 to be achieved by 2040.

3.2. Defra have not yet published any updated information on the role of Local Authorities in the delivery of meeting these new targets. It is anticipated that an updated National Air Quality Strategy to be published relatively soon would clarify the future role of Local Authorities in assisting Defra to achieve these targets.

3.3. Next steps for Buckinghamshire Council:

3.3.1. Continue to meet the Council's LAQM obligations

3.3.2. Enact upon the guidance from Defra with regards to the new air quality standards for $PM_{2.5}$ and if possible, extend focus of air quality monitoring to include this pollutant.

3.3.3. Continue to collaborate with key Departments within the Council and outside partners to improve air quality within Buckinghamshire.

Appendix 1

Table 1 – UK National Air Quality Objectives

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

Table 2 – Where the Air Quality Objectives Should Apply

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
Annual Mean	All locations where members of the public might be regularly exposed. Building façades of residential properties, schools, hospitals, care homes etc.	Building façades of offices or other places of work where members of the public do not have regular access. Hotels, unless used as a permanent residence. Gardens of residential properties. Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be short term

Averaging Period	Objectives should apply at:	Objectives should generally not apply at:
24 hour mean and 8 hour mean	All locations where the annual mean objective would apply, together with hotels. Gardens of residential properties.	Kerbside sites (as opposed to locations at the building façade), or any other location where public exposure is expected to be shorter than either the 24- or 8-hour relevant mean.
1 hour mean	All locations where the annual mean and 24- and 8-hour mean objectives apply. Kerbside sites (for example, pavements of busy shopping streets). Those parts of car parks, bus stations and railway stations etc. which are not fully enclosed, where members of the public might reasonably be expected to spend one hour or more. Any outdoor locations where members of the public might reasonably expect to spend one hour or longer.	Kerbside sites where the public would not be expected to have regular access.
15-minute mean	All locations where members of the public might reasonably be exposed for a period of 15 minutes or longer.	

Appendix 2

Table 3 – AQMAs within Buckinghamshire

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	Description
Friarage Road AQMA	16th June 2008	NO_2 Annual Mean	An area encompassing several properties along the A418 (Friarage Road and Oxford Road) in Aylesbury
Stoke Road AQMA	16th June 2008	NO_2 Annual Mean	An area encompassing the junction of the A413 Wendover Road, Walton St, and the B4443 Stoke Road in Aylesbury
Tring Road AQMA	4th June 2005	NO_2 Annual Mean	An area encompassing a stretch of the A41 Tring Road and properties bordering it between the Oakfield Road/King Edward Avenue junction and Queen Street in Aylesbury
Broad Street / Berkhampstead Road AQMA	20th August 2007	NO_2 Annual Mean	A small part of the A416 including Broad Street and Berkhampstead Road
South Bucks 1 AQMA	2004	NO_2 Annual Mean	An area surrounding the M25, M40 and M4 motorways
South Bucks 2 AQMA	August 2018	NO_2 Annual Mean	Iver Parish
M40 Motorway AQMA	Declared 1st August 2001 Amended 22nd December 2017	NO_2 Annual Mean	Along the M40 Motorway throughout District. Area includes land and property to each side of the carriageway that were modelled to have exceeded national air quality

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	Description
			objectives for NO2 (annual mean)
Wycombe AQMA	22nd December 2017	NO_2 Annual Mean	Main arterial roads of High Wycombe including West Wycombe Rd, Oxford St, Hughenden Rd, Abbey Way, Marlow Hill, Bridge St, Crendon St, Queen Victoria Rd, Easton St, London Rd, and Amersham Hill (part of). Area also includes properties to the side of these roads where exceedances were modelled to include an area that passed through a significant part of a building or plot of land
Marlow AQMA	22nd December 2017	NO_2 Annual Mean	Area incorporates the High Street (between Station Rd / Pound Ln roundabout and West St / Spittal St roundabout), West St (between High St / Spittal St roundabout and Westwood Rd), Spittal St, Chapel St, Little Marlow Rd (between Chapel St and Foxes Piece School), and areas of land to either side of the carriageway on the roads

Appendix 3

Monitoring Results for 2017 – 2021

Table 4 - Results from Continuous Monitoring completed between 2017 - 2021

Monitor ID	Site Name	2017[1]	2018	2019	2020	2021
CM1	Marcourt Road, Stokenchurch	30.7	28.8	28.9	21	18
CM2	(Wycombe Abbey 5) - Abbey School, Marlow Hill, High Wycombe				23.39	26

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

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

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

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

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

Table 5 - Results from NO_2 Diffusion Tube Monitoring completed between 2017 - 2021

Diffusion Tube ID	Site Name	2017[2]	2018	2019	2020	2021
AV1	West Street, Buckingham	31.3	31.0	30.2	21.8	24.1
AV2	3 Bridge Street, Buckingham	38.3	34.8	32.1	22.8	25.6
AV3	Well Street, Buckingham	15.6	14.9	13.8	10.3	11.7
AV4	Candleford Court, Bridge Street, Buckingham	15.7	15.8	14.9	11.5	11.9
AV5	Oxfam, Market Square, Buckingham	27.9	27.2	25.2	19.0	18.8
AV6	16 Market Sq, Buckingham	**41.8**	37.2	35.3	25.4	27.0
AV7	6 High Street, Buckingham	32.2	29.6	28.5	22.1	20.6
AV8	29 High Street, Winslow	32.9	28.8	27.3	21.8	22.7
AV9	27 Elmhurst Road, Aylesbury	36.9	35.4	34.1	26.7	27.5
AV10	181 Aylesbury Road, Bierton	24.9	23.7	23.2	18.4	18.1
AV11	Cambridge Street, Aylesbury	36.7	33.2	31.7	25.0	28.0
AV12	87 Tring Road, Aylesbury	30.7	30.5	27.7	21.9	20.4
AV13	183 Tring Road, Aylesbury	**45.5**	**40.7**	37.4	28.2	32.2
AV14	25 Wendover Road, Aylesbury	**57.6**	**47.9**	48.2	39.1	**42.2**
AV15	2 Stoke Road, Aylesbury	**43.4**	39.0	37.6	31.8	32.7

[2] The annual mean concentrations are presented as µg/m^3.
Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.
NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.
Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%.
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

Diffusion Tube ID	Site Name	2017[2]	2018	2019	2020	2021
AV16	31 Stoke Road, Aylesbury	**44.1**	39.5	**40.1**	33.8	35.5
AV17	Viridian Square, Walton Street, Aylesbury	**54.0**	**45.1**	**49.9**	**40.2**	39.8
AV18	1 -5 Wendover Road, Aylesbury	**45.2**	**41.6**	**41.6**	32.7	37.2
AV19	Exchange Street, Aylesbury	**41.9**	39.9	**40.7**	31.2	33.0
AV20	Friarage Road/Oxford Road Roundabout, Aylesbury	**40.7**	37.9	36.6	29.6	31.5
AV21	Oxford Road, Aylesbury	22.6	21.3	21.9	17.2	18.6
AV22	10 Gatehouse Road, Aylesbury	30.1	25.4	25.8	20.9	22.8
AV23	Moorlands House, Friarage Road, Aylesbury	**41.7**	**45.3**	39.8	31.7	36.5
AV24	Stonehaven Road/Bicester Road, Aylesbury	35.8	33.8	33.6	26.9	28.0
AV25	Buckingham Road, Aylesbury	30.8	29.7	29.5	22.8	23.6
AV26	High Street, Wendover	29.7	24.1	25.9	18.3	19.8
AV27	91 Leighton Road, Wing	38.9	31.6	32.5	24.7	27.4
AV28	133 Tring Road, Aylesbury		33.9	32.5	25.3	26.1
AV29	149 Tring Road, Aylesbury		35.6	35.6	27.7	27.4
AV30	Oakfield Road, Aylesbury		27.4	26.2	21.6	22.3
AV31	41 Aston Clinton Road, Aylesbury					32.2
AV32	Mandeville Road, Aylesbury					25.0
AV33	Weedon Road, Aylesbury					23.6
AV34	New Street, Aylesbury					39.8
AV35	Long Meadow, Aylesbury					12.6

Diffusion Tube ID	Site Name	2017[2]	2018	2019	2020	2021
CDC1, CDC1a	Ashley Green Bus Stop	22.2	22.9	20.5	12.0	13.9
CDC2, CDC2a	Ashley Green Speed Camera	18.8	19.4	18.8	11.9	12.1
CDC3	Petrol St Nashleigh Hill	27.1	31.3	28.4	21.7	22.5
CDC4	St Columbas Church Berkhampstead Road	25.8	27.4	25.5	19.5	20.7
CDC5, CDC5a	Berkhamstead Road Chesham 305	27.9	31.7	29.1	18.0	21.7
CDC6, CDC6a	Berkhampstead Road 336	32.9	29.1	26.7	18.7	24.5
CDC7, CDC7a	Dentist Chesham	29.9	29.9	26.9	17.3	23.0
CDC8, CDC8a	Jolly Sportsman PH	36.9	**40.7**	35.9	21.4	29.7
CDC9, CDC9a	Broad Street 170	36.6	37.9	32.2	24.3	28.3
CDC10	Cemetery Broad Street	23.6	28.7	22.8	17.1	18.8
CDC11, CDC11a	Uplands Court Broad Street	36.2	**40.1**	36.2	27.7	27.2
CDC12, CDC12a	Police St Broad Street	37.3	**40.7**	33.8	20.8	29.0
CDC13, CDC13a	St Marys Way	29.0	34.8	29.6	19.6	24.4
CDC14, CDC14a	St Marys roundabout Outside New Flats	34.4	**40.2**	34.6	26.1	27.3
CDC15	High Street Great Missenden 75	19.9	20.9	18.3	13.7	13.8
CDC16	Wycombe Road Prestwood 10	20.1	21.5	19.3	13.2	13.4
CDC17	Broombarn Lane Little Missenden	15.1	21.3	17.4	11.9	12.7
CDC18	Speed bumps Old Amersham	22.7	25.3	23.1	15.4	17.0
CDC19	Amersham Hosp Old Amersham	26.5	30.5	25.4	17.0	20.9

Diffusion Tube ID	Site Name	2017[2]	2018	2019	2020	2021
CDC20	Stanley Hill	36.6	**44.6**	36.9	26.0	27.4
CDC21, CDC21a	Gore Hill	38.2	**43.6**	34.6	25.3	27.1
CDC22	Station Rd Amersham Opp 76	26.9	35.0	29.2	20.2	21.5
CDC23	Hervines Park Amersham	10.5	13.4	11.8	7.9	8.0
CDC24, CDC24a	Rickmansworth Road Amersham	26.6	28.7	23.7	17.0	16.9
CDC25	Nightingales Lane Little Chalfont	27.9	30.8	27.6	18.9	20.1
CDC27	High street Chalfont St Peter	25.6	27.3	24.1	16.9	18.4
CDC28, CDC28a	Vets Chalfont St Giles	32.7	35.8	28.7	18.9	20.2
SB1	Iver Old Slade Lane	27.0	27.0	25.2	16.1	16.2
SB2	Iver, Victoria Crescent	27.0	29.3	27.7	17.4	18.3
SB3	Iver High Street Police Station	31.0	39.6	36.0	23.6	27.2
SB4	Iver Heath, Uxbridge Road	**42.0**	**43.8**	**42.0**	29.0	30.7
SB5	New Denham Oxford Road/Knighton-Way Lane	32.0	32.8	31.6	22.0	24.5
SB8	Gerrads Cross/Packhorse Rd	27.0	36.0	35.4	22.8	24.8
SB12	Farnham Common Beaconsfield Road	27.0	35.4	32.3	23.1	26.4
SB13	Beaconsfield, Station Rd	31.0	34.0	30.5	22.1	23.2
SB14	Beaconsfield North Drive	**40.0**	35.9	37.9	25.6	25.5
SB15	Beaconsfield Shepherds Lane	26.0	25.3	24.1	15.2	17.1
SB16	Burnham High St	20.0	18.6	19.7	13.6	15.9
SB17	Bath Road, Taplow	34.0	32.9	30.9	20.9	23.3

Diffusion Tube ID	Site Name	2017[2]	2018	2019	2020	2021
SB21	47 Richings Way, Iver	39.0	38.2	37.2	25.4	28.1
SB22	29 Thorney Lane South	34.0	37.8	34.3	23.7	27.2
SB23	82 Thorney Lane North	35.0	33.9	33.2	23.6	26.7
SB24	Langley Park Road, Iver	31.0	31.2	29.5	19.8	21.7
SB25	Bangors Road South, Iver	34.0	31.6	32.7	22.7	22.8
SB26	Wood Lane, Iver	30.0	29.1	29.1	20.0	20.7
SB27	Church Road, Iver	38.0	35.3	37.3	26.8	30.3
SB28, SB29	Swan Pub, High Street, Iver	39.5	39.0	36.8	25.7	30.2
SB30, SB31	Colne Cottage, 6 Thorney Lane North, Iver	**45.0**	**42.0**	**43.6**	26.4	32.6
SB32, SB33	Tower Arms, Thorney Lane South, Iver	**42.5**	**42.0**	39.2	26.4	28.6
SB34, SB35	Wood Cottages, 2 Slough Road, Iver	31.0	31.0	28.9	19.3	22.5
SB36	Black Horse Pub, 95 Slough Road, Iver	38.0	37.3	39.1	28.4	30.0
SB37	Beaconsfield, Aylesbury End	33.0	30.8	29.6	19.0	20.4
SB38	Grand Union House, Iver	27.0	27.5	28.0	18.0	21.2
SB39, SB40	Fulmer	**41.0**	38.5	38.7	26.3	28.5
SB41	Iver Village Junior School		27.5	25.5	19.1	20.6
SB42	Belle Farm Lodge, Seven Hills Road		27.1	28.2	19.4	19.1
SB44	Burnham Beeches		17.7	17.4	10.7	11.6
SB45	South Drive		24.6	24.9	18.4	19.7
SB46	Alderbourne Cottage		33.6	30.7	20.4	22.3
SB47	Wilton Lodge			42.1	28.3	29.6

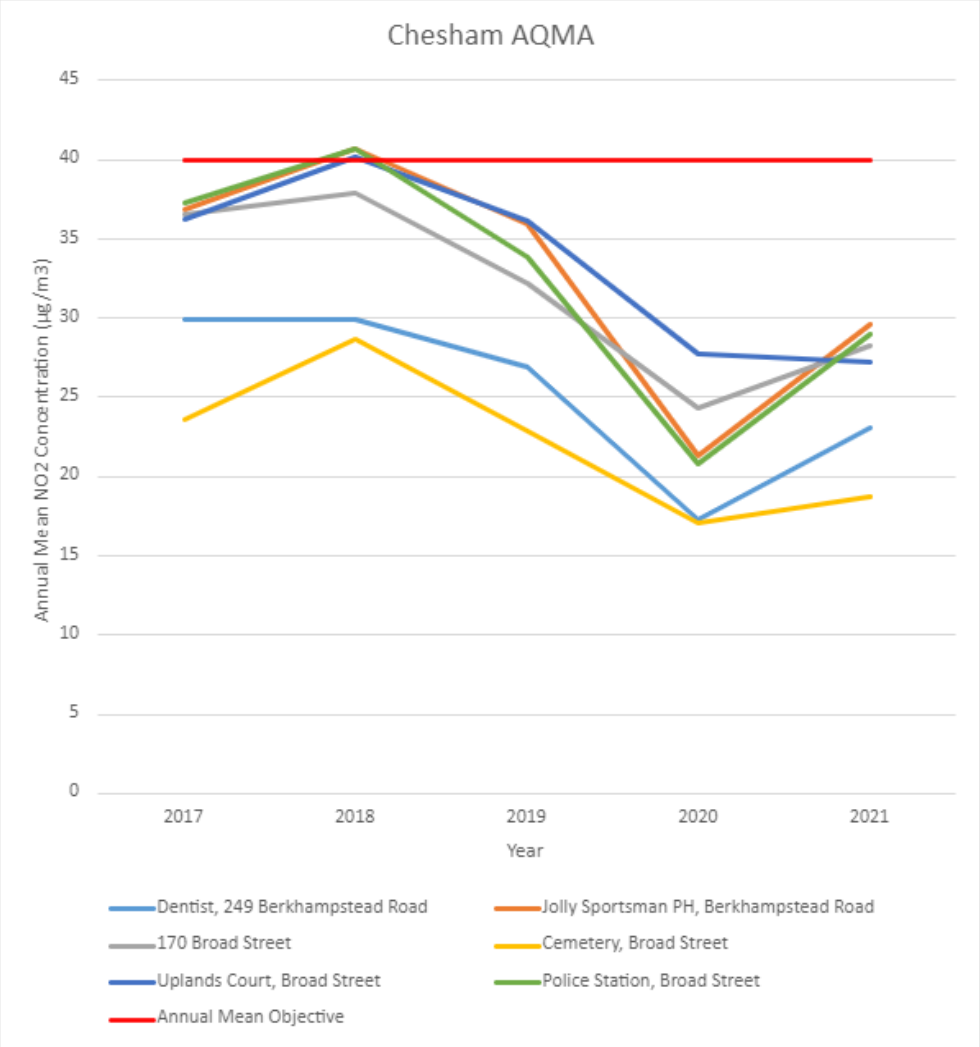
Diffusion Tube ID	Site Name	2017[2]	2018	2019	2020	2021
W1	High Street Crossing, Marlow	28.5	28.5	23.8	17.5	17.8
W2	Solicitors, Chapel Street, Marlow	**40.0**	**44.3**	37.4	26.1	31.2
W3	Barber Shop, Cambridge Road, Marlow	30.8	31.4	32.1	22.5	22.8
W4	Abbey Accommodation, Abbey School, Marlow Hill, High Wycombe	**64.9**	**62.1**	48.8	-	-
W5	Morrisons, Hughenden Road, High Wycombe	33.6	32.3	36.4	26.0	27.3
W6	Desborough Avenue, High Wycombe	26.3	30.1	35.4	25.2	24.2
W7	Suffield Road 1, High Wycombe		27.3	26.4	17.5	18.3
W8	London Road, High Wycombe	37.6	36.7	35.3	23.7	30.2
W9	Marlow Road, High Wycombe		34.8	37.5	21.2	26.7
W10	White Horse, West Wycombe Road, High Wycombe	37.7	**50.6**	42.9	32.1	32.6
W11	Lilys Walk, High Wycombe	27.2	29.2	25.1	14.5	-
W12	Dovecot Road, High Wycombe	25.6	24.9	25.9	19.1	19.7
W13	School Close, High Wycombe	29.4	25.9	26.2	20.7	18.3
W14	Amersham Hill (School), High Wycombe	20.6	18.8	19.1	17.0	14.1
W18	Crendon Street, High Wycombe	39.1	39.2	38.3	30.3	32.8
W19	Rail Bridge, Amersham Hill, High Wycombe	36.8	32.3	34.3	29.5	34.3
W20	Marsh Retail Park, London Road, High Wycombe	**46.1**	**41.1**	**43.0**	25.5	23.8
W21	Chapel Street Crossing, Marlow	**42.3**	39.7	39.1	32.7	33.8
W22	West Wycombe Road, High Wycombe	31.5	30.5	30.9	29.5	28.8

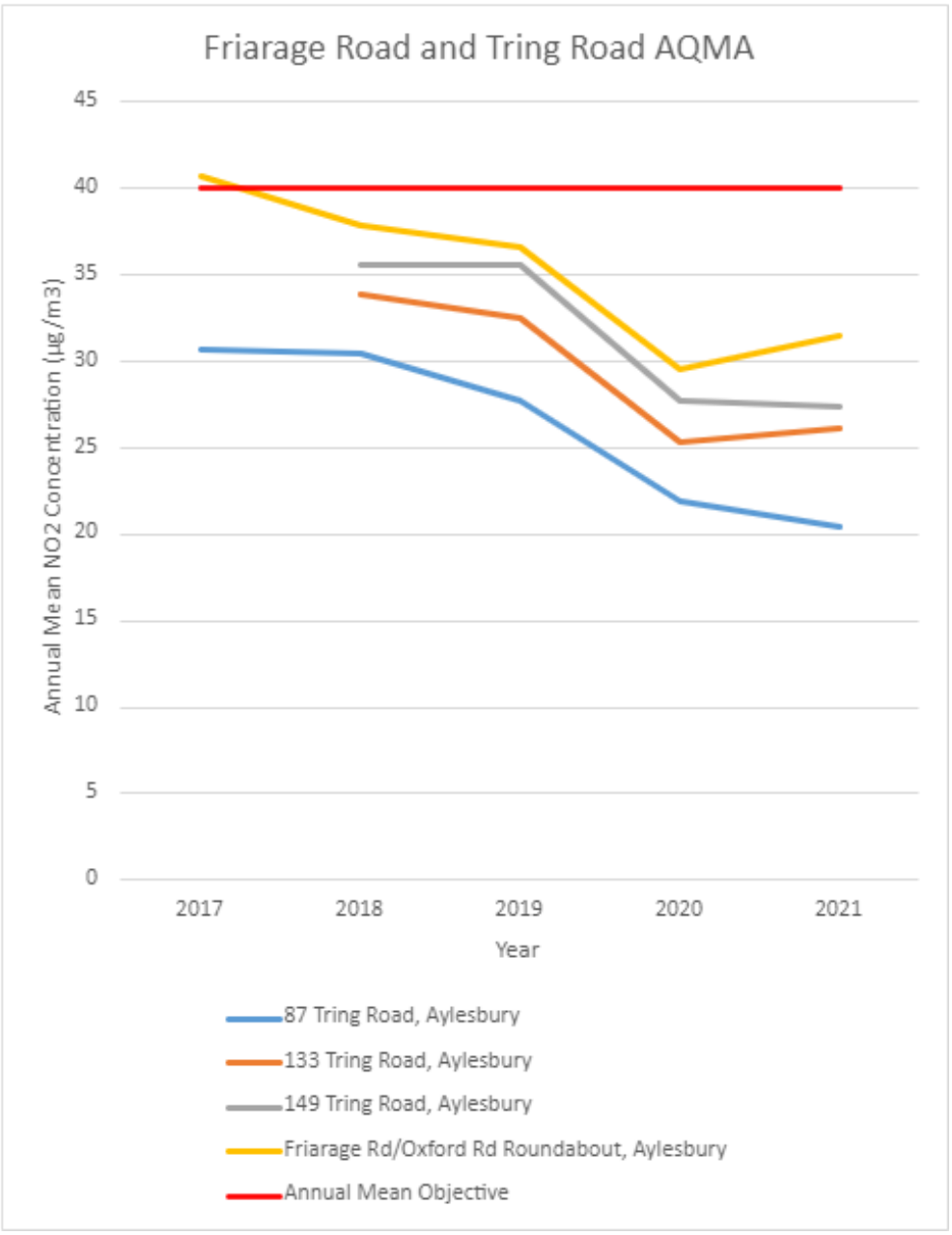
Diffusion Tube ID	Site Name	2017[2]	2018	2019	2020	2021
W23	Amersham Hill, High Wycombe	**45.0**	36.3	**40.9**	23.4	22.3
W24	Hughenden Road, High Wycombe	19.8	26.6	27.1	31.3	31.6
W25	Suffield Road 2, High Wycombe	22.1	19.3	17.9	20.6	21.3
W29	Wedding Centre, Little Marlow Road, Marlow	28.4	29.2	27.6	12.9	14.3
W30	Butchers Tap, Spittal Street, Marlow	30.9	25.1	26.6	21.8	22.6
W31	Marlow High Street		**40.4**	**40.3**	17.6	19.3
W32	Knaves Beech, Loudwater, High Wycombe		**48.5**	**46.0**	19.3	19.0
W33	Dentist, London Road, Loudwater, High Wycombe	30.7	32.2	30.8	29.2	32.1
W34	Pedestal Roundabout, West Wycombe Road, High Wycombe	35.4	34.4	31.4	36.0	37.8
W35	West Street 1, Marlow	34.5	33.4	32.1	22.3	23.4
W36	West Street 2, Marlow		30.8	29.7	21.3	23.6
W37	West Wycombe Village, High Street, West Wycombe		39.3	35.4	22.5	27.0
W38	Kwik Fit, London Road, High Wycombe	31.8	29.7	30.1	24.1	27.6
W39	Chapel Lane, High Wycombe	36.6	38.7	37.1	21.4	33.1
W40	Handy Cross Roundabout, Marlow Road, High Wycombe	33.9	26.9	27.6	19.4	21.4
W41	55 Chapel Street, Marlow	34.6	26.3	24.8	28.7	30.8
W42	Tanning Centre, High Street, Marlow	28.8	29.2	21.1	19.0	19.9
W43	Glade View, Little Marlow Road, Marlow	28.5	27.2	25.9	15.4	18.5
W44	Daws Hill Lane, High Wycombe	**42.9**	37.8	36.5	14.0	19.4

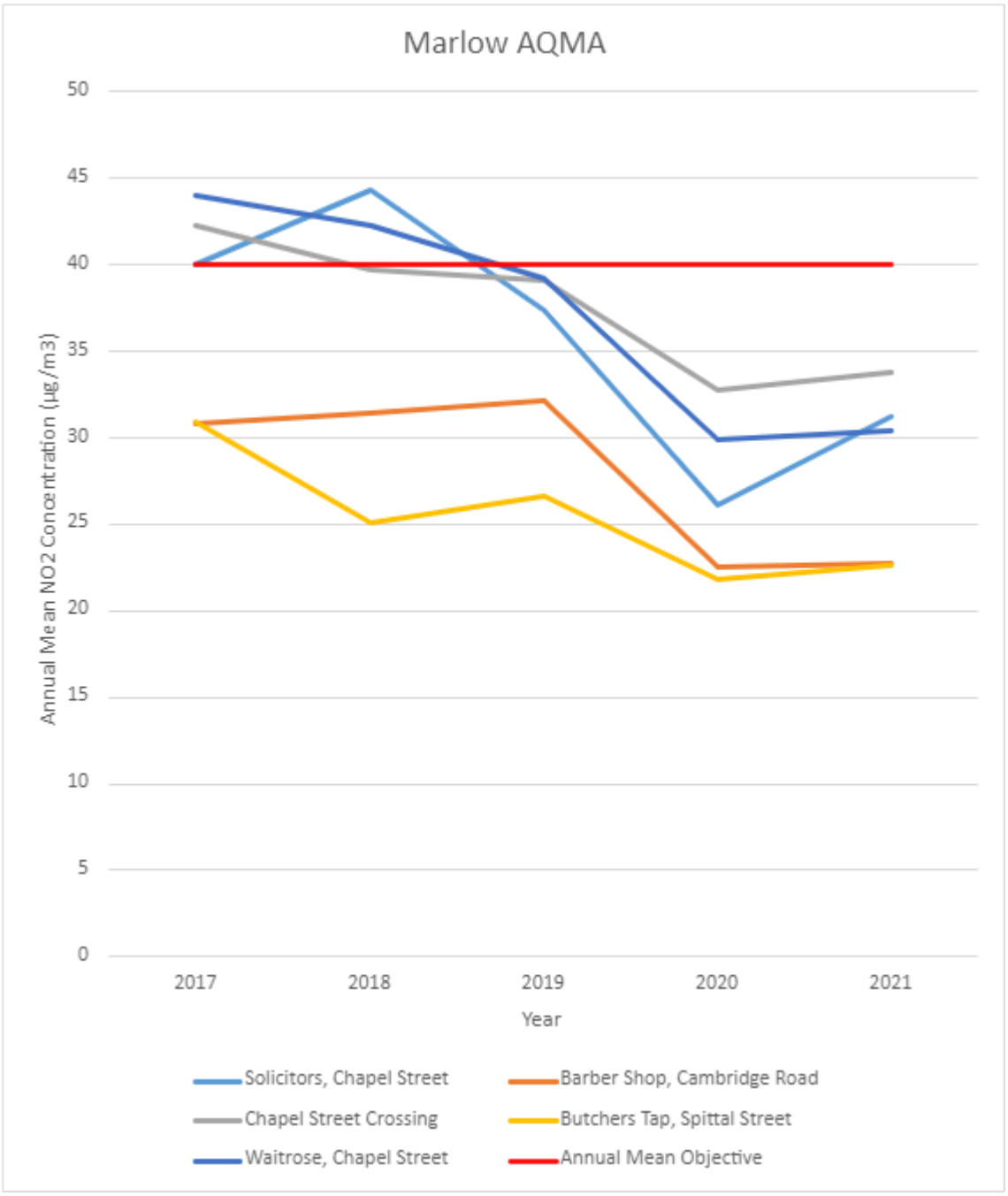
Diffusion Tube ID	Site Name	2017[2]	2018	2019	2020	2021
W45	Church Street, High Wycombe		35.5	35.1	19.9	21.4
W46	Chiltern Shopping Centre, Church Street, High Wycombe	**50.3**	**43.6**	**40.0**	26.6	32.0
W47	Castle Street, High Wycombe	**43.9**	**45.0**	**43.8**	25.5	28.3
W48	Oxford Street, High Wycombe	30.8	29.4	31.2	29.7	35.8
W49	Waitrose, Chapel Street, Marlow	**44.0**	**42.3**	39.2	29.9	30.4
W50	Zabida Court, Green Street, High Wycombe	32.1	30.8	30.4	24.9	23.2
W51	Bridge Street, High Wycombe	**48.6**	**40.0**	32.7	35.8	36.7
W52	West Street 3, Marlow	30.4	31.7	30.1	21.0	21.7
W53	Chapel Street 2, Marlow	39.4	37.6	29.2	20.5	22.9
W54	Desborough Avenue, High Wycombe	30.4	31.7	30.1	22.3	24.3
W55	Easton Street, High Wycombe	39.4	37.6	29.2	20.1	22.9

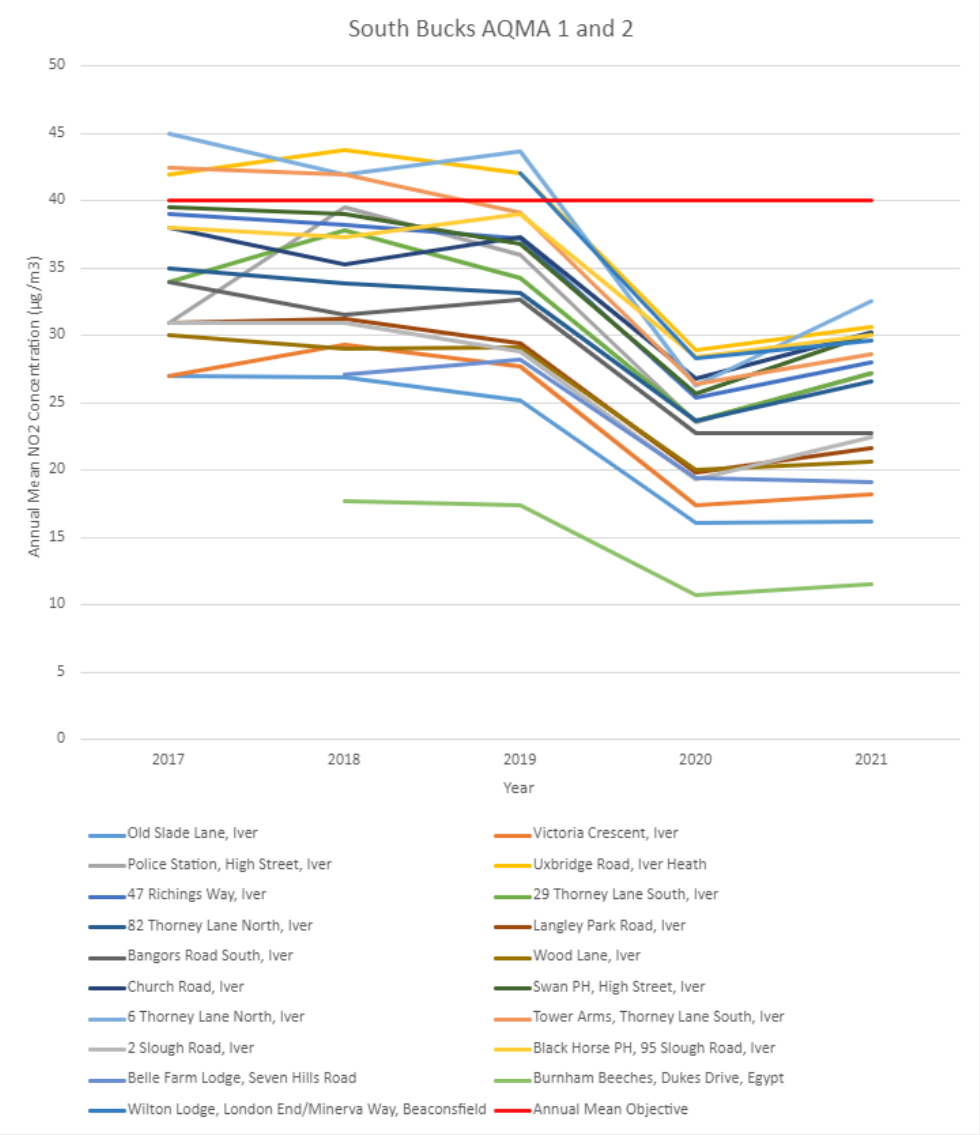
Appendix 4

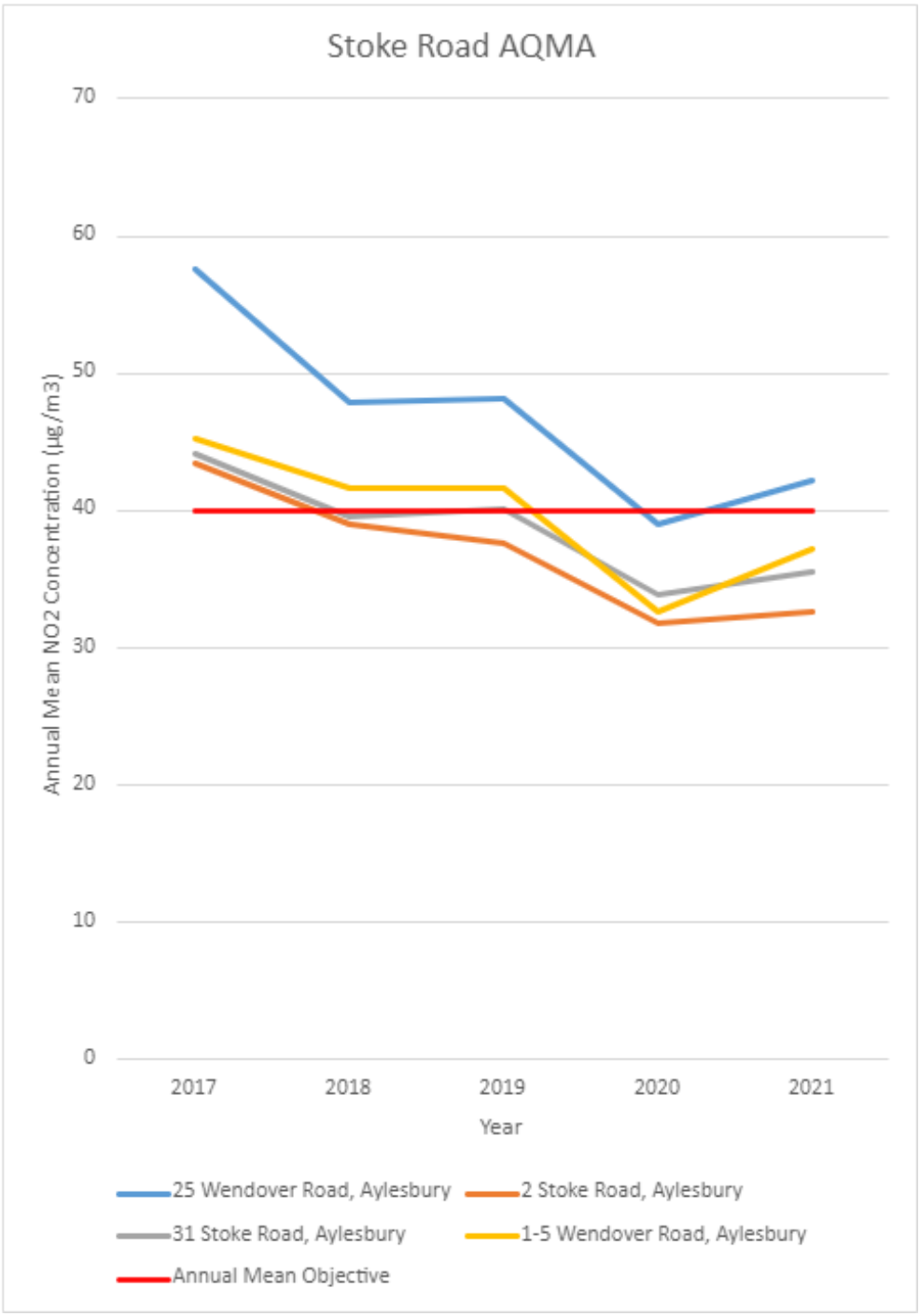
Graphs showing NO_2 Concentrations between 2017 – 2021 within Buckinghamshire's AQMAs

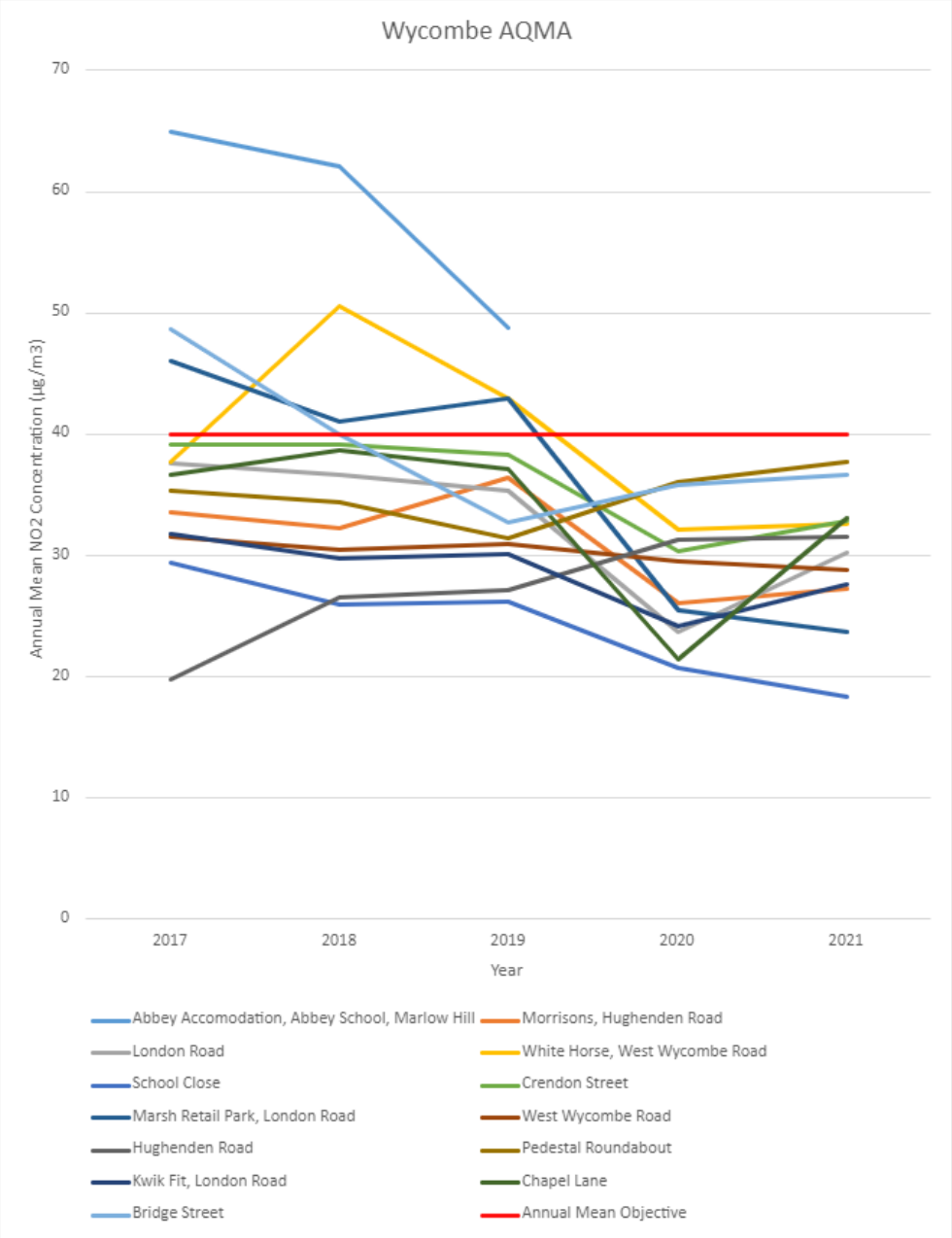



Friarage Road and Tring Road AQMA
45
40
35
30
25
20
15
10
5
0
Annual Mean NO2 Concentration (µg/m3)
2017
2018
2019
2020
2021
Year
87 Tring Road, Aylesbury
133 Tring Road, Aylesbury
149 Tring Road, Aylesbury
Friarage Rd/Oxford Rd Roundabout, Aylesbury
Annual Mean Objective


Marlow AQMA
50
45
40
35
30
25
20
15
10
5
0
Annual Mean NO2 Concentration (µg/m3)
2017
2018
2019
2020
2021
Year
Solicitors, Chapel Street
Barber Shop, Cambridge Road
Chapel Street Crossing
Butchers Tap, Spittal Street
Waitrose, Chapel Street
Annual Mean Objective

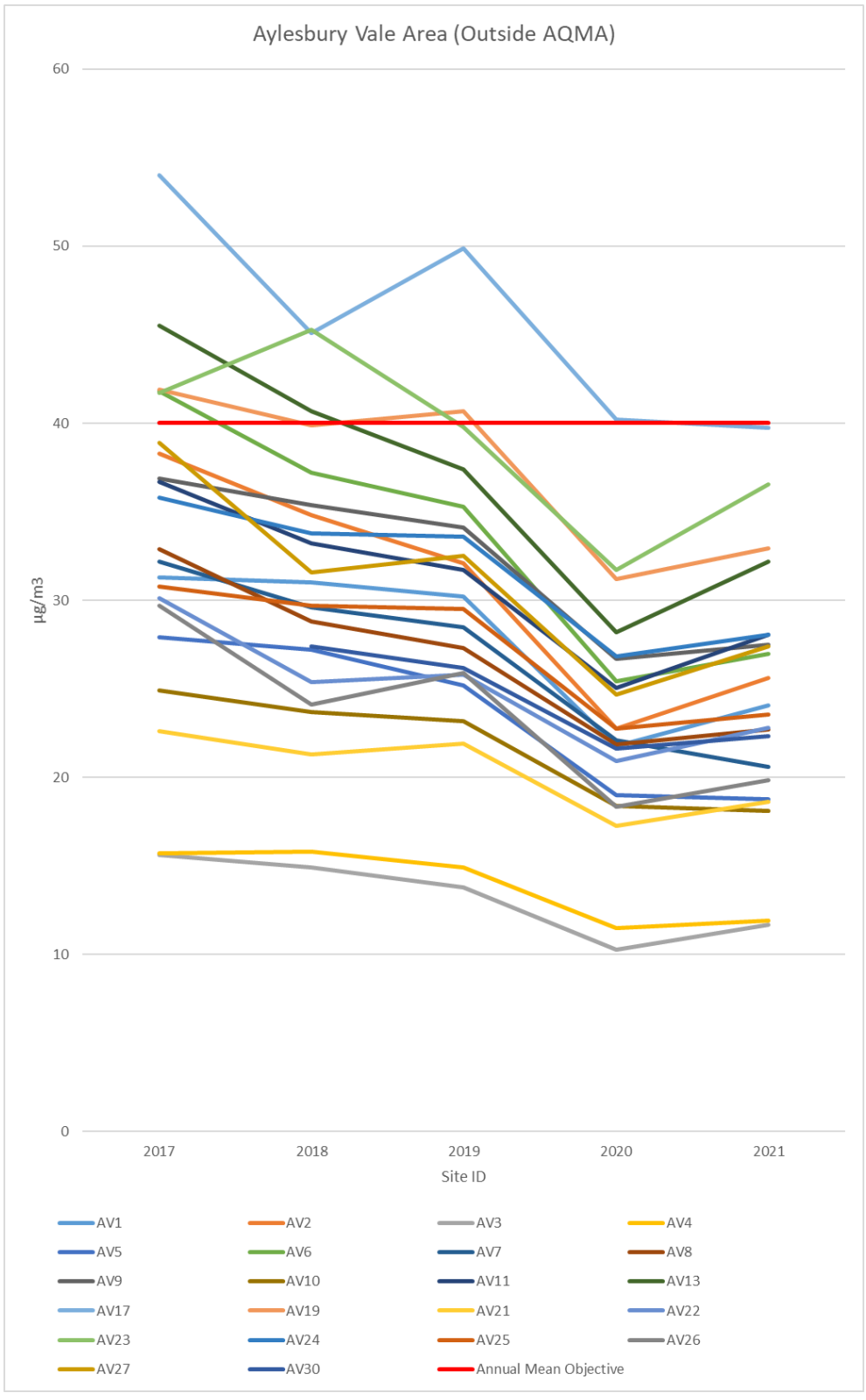

South Bucks AQMA 1 and 2
Annual Mean NO2 Concentration (µg/m3)
50
45
40
35
30
25
20
15
10
5
0
2017
2018
2019
2020
2021
Year
Old Slade Lane, Iver
Victoria Crescent, Iver
Police Station, High Street, Iver
Uxbridge Road, Iver Heath
47 Richings Way, Iver
29 Thorney Lane South, Iver
82 Thorney Lane North, Iver
Langley Park Road, Iver
Bangors Road South, Iver
Wood Lane, Iver
Church Road, Iver
Swan PH, High Street, Iver
6 Thorney Lane North, Iver
Tower Arms, Thorney Lane South, Iver
2 Slough Road, Iver
Black Horse PH, 95 Slough Road, Iver
Belle Farm Lodge, Seven Hills Road
Burnham Beeches, Dukes Drive, Egypt
Wilton Lodge, London End/Minerva Way, Beaconsfield
Annual Mean Objective

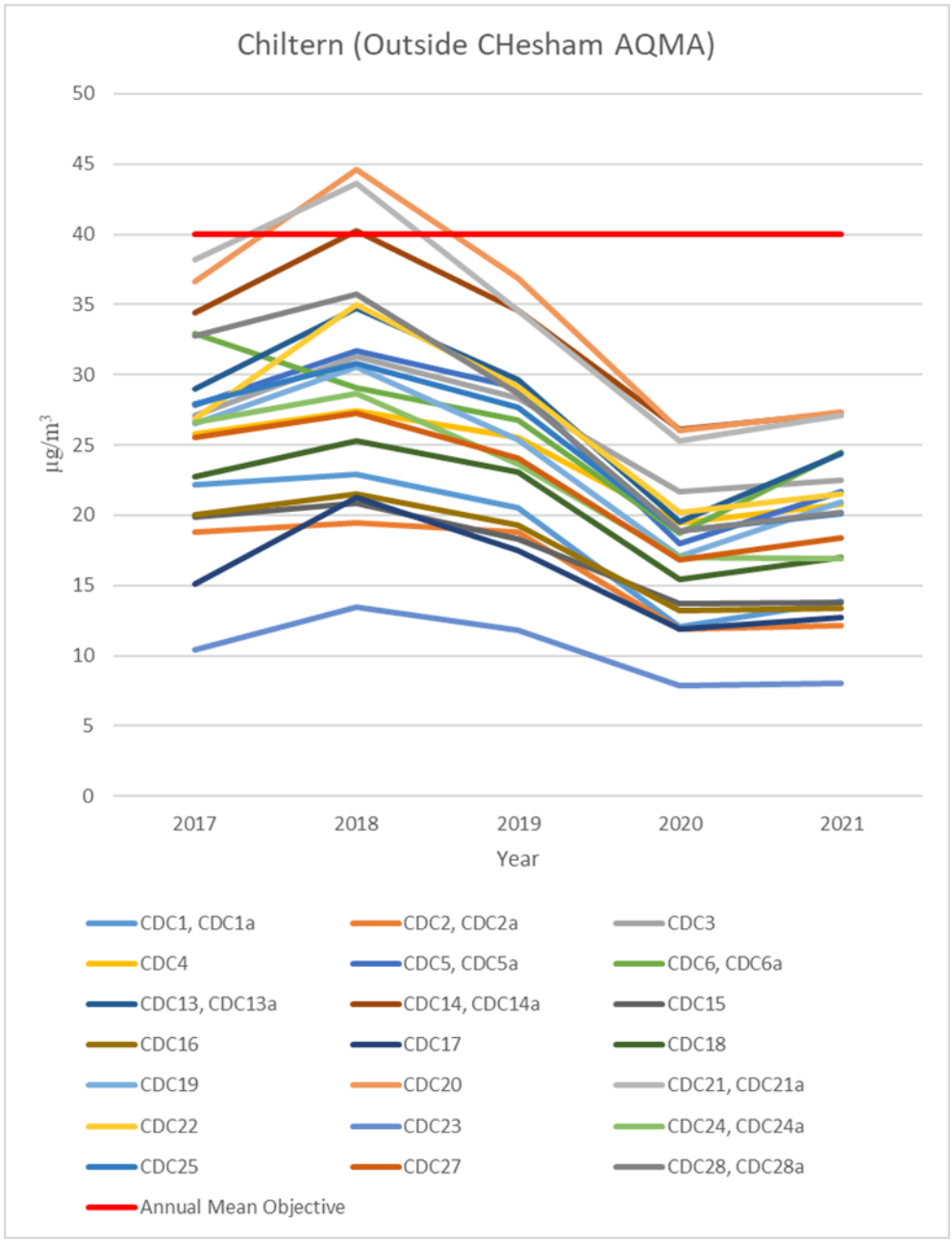

Stoke Road AQMA
70
60
50
40
30
20
10
0
Annual Mean NO2 Concentration (µg/m3)
2017
2018
2019
2020
2021
Year
25 Wendover Road, Aylesbury
2 Stoke Road, Aylesbury
31 Stoke Road, Aylesbury
1-5 Wendover Road, Aylesbury
Annual Mean Objective

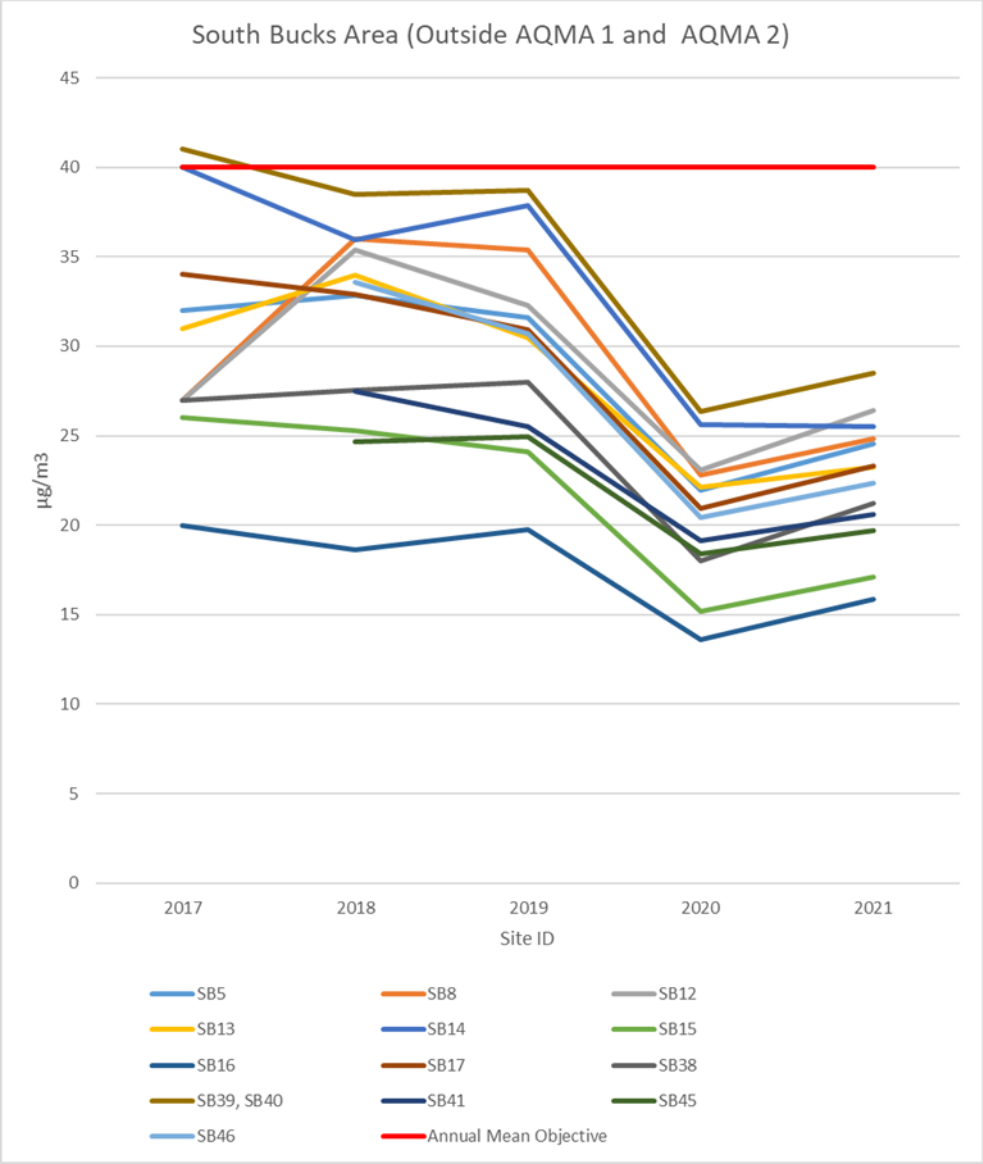

Wycombe AQMA
70
60
50
40
30
20
10
0
Annual Mean NO2 Concentration (µg/m3)
2017
2018
2019
2020
2021
Year
Abbey Accomodation, Abbey School, Marlow Hill
Morrisons, Hughenden Road
London Road
White Horse, West Wycombe Road
School Close
Crendon Street
Marsh Retail Park, London Road
West Wycombe Road
Hughenden Road
Pedestal Roundabout
Kwik Fit, London Road
Chapel Lane
Bridge Street
Annual Mean Objective

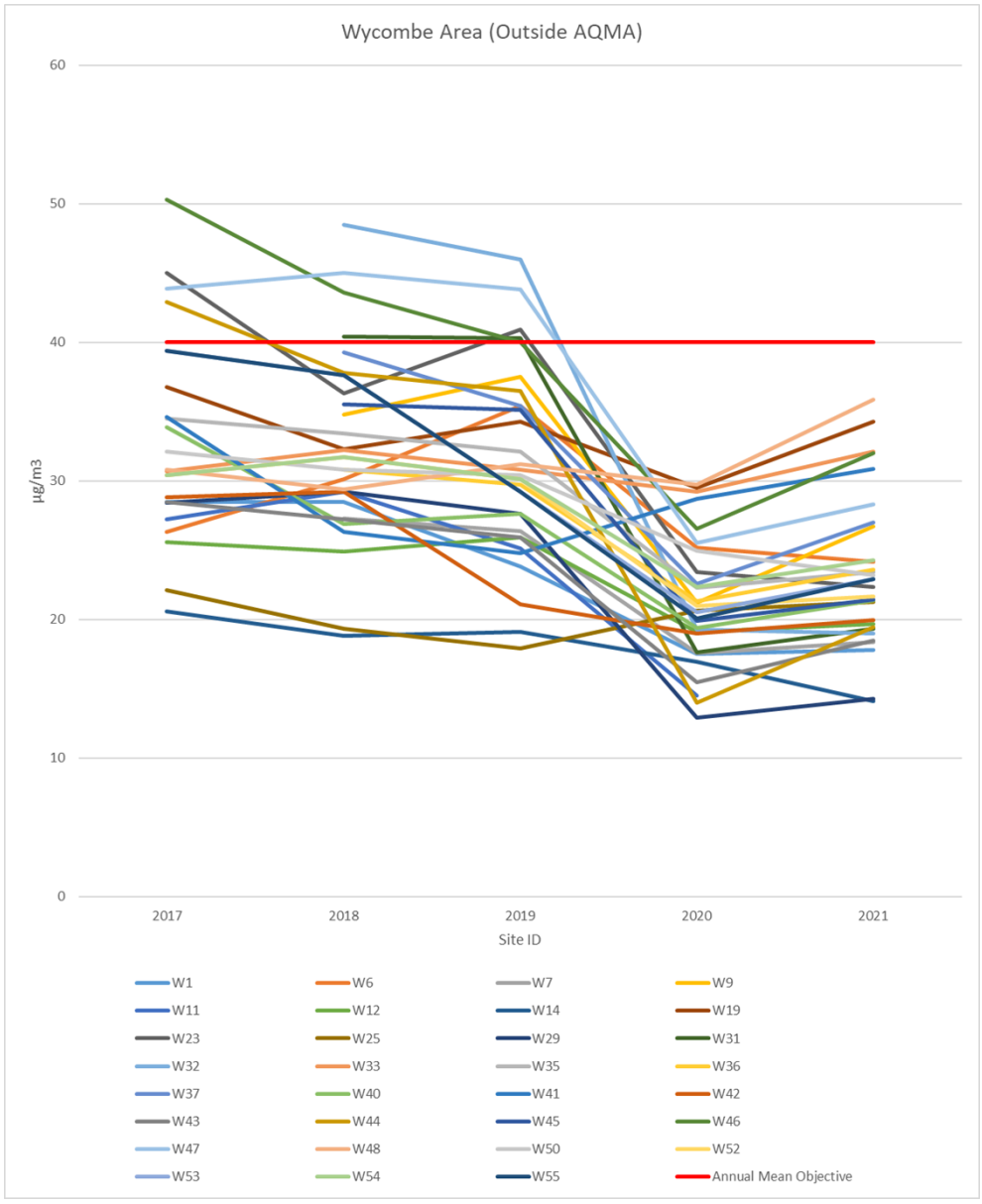
Appendix 5

Graphs showing NO_2 Concentrations between 2017 – 2021 outside the AQMAs




Chiltern (Outside CHesham AQMA)
50
45
40
35
30
25
20
15
10
5
0
µg/m³
2017
2018
2019
2020
2021
Year
CDC1, CDC1a
CDC2, CDC2a
CDC3
CDC4
CDC5, CDC5a
CDC6, CDC6a
CDC13, CDC13a
CDC14, CDC14a
CDC15
CDC16
CDC17
CDC18
CDC19
CDC20
CDC21, CDC21a
CDC22
CDC23
CDC24, CDC24a
CDC25
CDC27
CDC28, CDC28a
Annual Mean Objective


South Bucks Area (Outside AQMA 1 and AQMA 2)
45
40
35
30
25
20
15
10
5
0
µg/m3
2017
2018
2019
2020
2021
Site ID
SB5
SB8
SB12
SB13
SB14
SB15
SB16
SB17
SB38
SB39, SB40
SB41
SB45
SB46
Annual Mean Objective


Wycombe Area (Outside AQMA)
60
50
40
30
20
10
0
µg/m3
2017
2018
2019
2020
2021
Site ID
W1
W6
W7
W9
W11
W12
W14
W19
W23
W25
W29
W31
W32
W33
W35
W36
W37
W40
W41
W42
W43
W44
W45
W46
W47
W48
W50
W52
W53
W54
W55
Annual Mean Objective