Buckinghamshire Council

Air Quality Action Plan

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

2024

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Executive Summary

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in Buckinghamshire between 2024 and 2030 or until the nitrogen dioxide air quality objective is achieved throughout Buckinghamshire.

Buckinghamshire Council is a new unitary authority created in April 2020. This action plan replaces four separate action plans from the legacy Aylesbury Vale, Chiltern, South Bucks and Wycombe District Councils into one action plan to cover the whole of Buckinghamshire.

Projects delivered through the past action plans include:

- Publication of the Climate Change and Air Quality Strategy with annual update reports. The strategy details over 60 actions the Council will take to address climate change and poor air quality within Buckinghamshire. A copy of the strategy can be found on the Climate Change pages of the Council's website.

- Improvement of the A418 Oxford Road Corridor leading to and including the Friarage Road AQMA was completed in February 2021.

- Through a Defra Grant obtained in 2020/21, the Council have worked with local businesses to encourage the uptake of electric vehicles (EVs) and bikes. A total of 30 large employers received advice and support on the benefits of switching to EVs within their operations. More information on the project and case studies can be found on the Electric Vehicles in Business page of the Council's website.

- Publication of an Electric Vehicle Action Plan 2022 - 2027 which outlines how the Council will work towards the aims of the National Electric Vehicle Infrastructure Strategy (2022) - Taking charge: the electric vehicle infrastructure strategy. More information and a copy of the plan can be found on the Electric Vehicles page of the Council's website.

- Implementation of electric bike hire scheme in Aylesbury and High Wycombe. 25 bikes have been made available for hire across the two towns.

- Launch of 'Pick Me Up' Demand Responsive Transport (DRT) Service in High Wycombe and extension to Flackwell Heath and Marlow. The DRT is part of a pilot scheme funded by the Government's Rural Mobility Fund. Sitting under Carousel's 'PickMeUp' brand, the pilot serves several communities where there is either a limited bus service or a route which only serves part of the community. More information on the scheme can be found on the PickMeUp website.

- Formal adoption of a new Hackney Carriage and Private Hire Licensing Policy in September 2021. One of the aims of the policy is to improve the environment and air quality by encouraging the use of low and ultra-low emission (such as electric, hybrid

or liquefied petroleum gas) taxi and private hire vehicles. A copy of the Policy can be found on the taxi and private hire licence information pages of the Council's website.

- A Feasibility Study was completed for Marlow to ascertain whether a Clean Air Zone (CAZ)/Low Emission Zone (LEZ) is the best method for reducing NOx in Marlow. The study concluded a Clean Air Zone should not be implemented.

- Launch of BetterPoints Bucks in January 2023. BetterPoints Bucks is a behaviour change programme, underpinned by academic research, that incentivises and rewards people for making positive changes to their lives. Delivered through an app and online platform it enables Local Authorities to incentivise, track, reward, and measure activities such as walking, cycling, wheeling and public transport and engaging directly with local audiences. More information can be found on the BetterPoints Bucks website.

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 billion[3]. Buckinghamshire Council is committed to reducing the exposure of people in Buckinghamshire to poor air quality in order to improve health.

We have developed actions that can be considered under eleven broad topics:

- Alternatives to private vehicle use
- Environmental permits
- Freight and delivery management
- Policy guidance and development control
- Promoting low emission plants

[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

- Promoting low emission transport
- Promoting travel alternatives
- Public information
- Transport planning and infrastructure.
- Traffic management
- Vehicle fleet efficiency

Our priorities encompass the behavioural change measures of improved walking, cycling and electric vehicle charging network and a clean air campaign to tackle emissions from diesel cars and vans.

In this AQAP we outline how we plan to effectively tackle air quality issues within our control. However, we recognise that there are a large number of air quality policy areas that are outside of our influence (such as vehicle emissions standards agreed in Europe), but for which we may have useful evidence, and so we will continue to work with regional and central government on policies and issues beyond Buckinghamshire Council's direct influence.

Responsibilities and Commitment

This AQAP was prepared by the Strategic Environmental Protection Team and the draft approved by the Strategic Environmental Protection Manager of Buckinghamshire Council with the support and agreement of the following officers and departments:

- Transport Strategy
- Public Health
- Energy and Climate Change
- Public Transport and School's Sustainable Travel team
- Planning Policy

This AQAP will be subject to an annual review, appraisal of progress in the Annual Status Report the Annual Status Reports (ASRs) produced by Buckinghamshire Council, as part of our statutory Local Air Quality Management duties.

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1. Introduction

This report outlines the actions that Buckinghamshire Council will deliver between 2024 and 2030 to reduce concentrations of air pollutants and exposure to air pollution; thereby positively impacting on the health and quality of life of residents and visitors to the district.

It has been developed in recognition of the legal requirement on the local authority to work towards Air Quality Strategy (AQS) objectives under Part IV of the Environment Act 1995 and relevant regulations made under that part and to meet the requirements of the Local Air Quality Management (LAQM) statutory process.

This Plan will be reviewed every five years at the latest and progress on measures set out within this Plan will be reported on annually within Buckinghamshire Council's Annual Status Report (ASR).

2. Summary of Current Air Quality in Buckinghamshire

Buckinghamshire Council is a unitary local authority in England, the area of which comprises most of the ceremonial county of Buckinghamshire equivalent to 1,874 km^2 with an estimated population of 543,973 (Office for National Statistics, 2019). It was created in April 2020 from the areas that were previously administered by Buckinghamshire County Council and the district councils of Aylesbury Vale, Chiltern, South Bucks and Wycombe.

The main source of air pollution in Buckinghamshire is from road transportation. There are four motorways which run through the Buckinghamshire Council Area, M4, M25 M40 and the A404(M) and the other main routes of traffic are the A40, A41, A412, A413, A418, A421, A4010.

Currently nitrogen dioxide (NO_2) is the major pollutant of concern within Buckinghamshire and is monitored using 2 chemiluminescence continuous monitors up until 2023 and 1 from 2024 onwards, and 171 passive diffusion tubes at 149 sites. Due to the size of the council area and some of the AQMAs it has not been possible to show all diffusion tube monitoring locations within the maps provided. However, an interactive map is available to view on the council's air quality management reviews and annual report webpage which shows all locations discussed.

Buckinghamshire Council has declared nine Air Quality Management Areas (AQMAs) all for exceedances of NO_2. A summary of the AQMAs can be found in Table 2.1. Maps of each AQMA are provided below and are also available to view on the council's air quality management reviews and annual report webpages.

Table 2.1 Summary of Buckinghamshire Council's AQMAs

Name of	Date of Declaration	Pollutant	Description	Level of Exceedance: Declaration	Level of Exceedance: 2023	Number of Years Compliant with Air Quality Objective
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	44 µg/m^3	No Exceedance	1 year
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	59 µg/m^3	No Exceedance	2 years
Tring Road AQMA	4th July 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	40 µg/m^3	No Exceedance	5 years
Chesham AQMA	20th August 2007	NO_2 Annual Mean	A small part of the A416 including Broad Street and Berkhampstead Road	50 µg/m^3	No Exceedance	5 years

Name of	Date of Declaration	Pollutant	Description	Level of Exceedance: Declaration	Level of Exceedance: 2023	Number of Years Compliant with Air Quality Objective
South Bucks AQMA	2004	NO_2 Annual Mean	An area surrounding the M25, M40 and M4 motorways	42.8 µg/m^3	No Exceedance	6 years
South Bucks District Council AQMA No 2	August 2018	NO_2 Annual Mean	Iver Parish	44 µg/m^3	No Exceedance	4 years
AQMA No.1 (M40)	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 objectives for NO2 (annual mean)	n/a	No Exceedance	6 years
AQMA No.2 (High Wycombe)	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	52 µg/m^3	No Exceedance	4 years

Name of	Date of Declaration	Pollutant	Description	Level of Exceedance: Declaration	Level of Exceedance: 2023	Number of Years Compliant with Air Quality Objective
			roads where exceedances were modelled to include an area that passed through a significant part of a building or plot of land.			
AQMA No.3 (Marlow)	Declared 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 aforementioned roads.	52 µg/m^3	No Exceedance	4 years

The following section presents maps and monitoring data for each of the AQMAs and provides recommendations for Buckinghamshire Council in relation to the AQMAs, for progressing with the LAQM process.

It should be noted that COVID-19 restrictions during 2020 and the first half of 2021 resulted in a significant decrease in recorded concentrations of NO_2 at most monitoring locations in 2020 with a slight increase in levels at most sites in 2021. However, monitoring data for 2022 and 2023 shows that all sites have not returned to pre-pandemic concentrations.

Guidance from Defra and LAQM.TG(22) states that where compliance was achieved during the first year of the influence of the COVID-19 pandemic, which greatly impacted the traffic impact on local air quality, and if compliance with the objective is achieved in 2022, 2023 and 2024, consideration should be given to revocation of the AQMA. Where there have been no exceedances of the annual mean air quality objective for the past five years, local authorities must proceed with plans to revoke the AQMA.

2.1 Friarage Road AQMA

Monitoring is undertaken using diffusion tubes at 2 locations (AV20 and AV36) within the Friarage Road AQMA in Aylesbury as shown in Figure 2.1. Three other monitoring locations (AV21, AV22 and AV23) are also present immediately adjacent to the AQMA. As illustrated in Figure 2.2 and Table 2.2, concentrations at all monitoring sites have been consistently below the annual mean air quality objective for nitrogen dioxide except for site AV36 located at 51 Friarage Road. Once the fall off from distance calculation was completed to the nearest sensitive receptor, the concentration of NO_2 at AV36 was recorded as 41.1 µg/m^3 in 2022 which exceeds the annual mean objective and as 39.4 µg/m^3 in 2023 which is within 10% of the objective. This location was a new monitoring site for 2022 introduced to ensure the AQMA is adequately monitored.

As pollutant concentrations remain within 10% of the annual mean objective for nitrogen dioxide, it is recommended that this AQMA is retained, and monitoring will continue to observe future trends in concentrations.

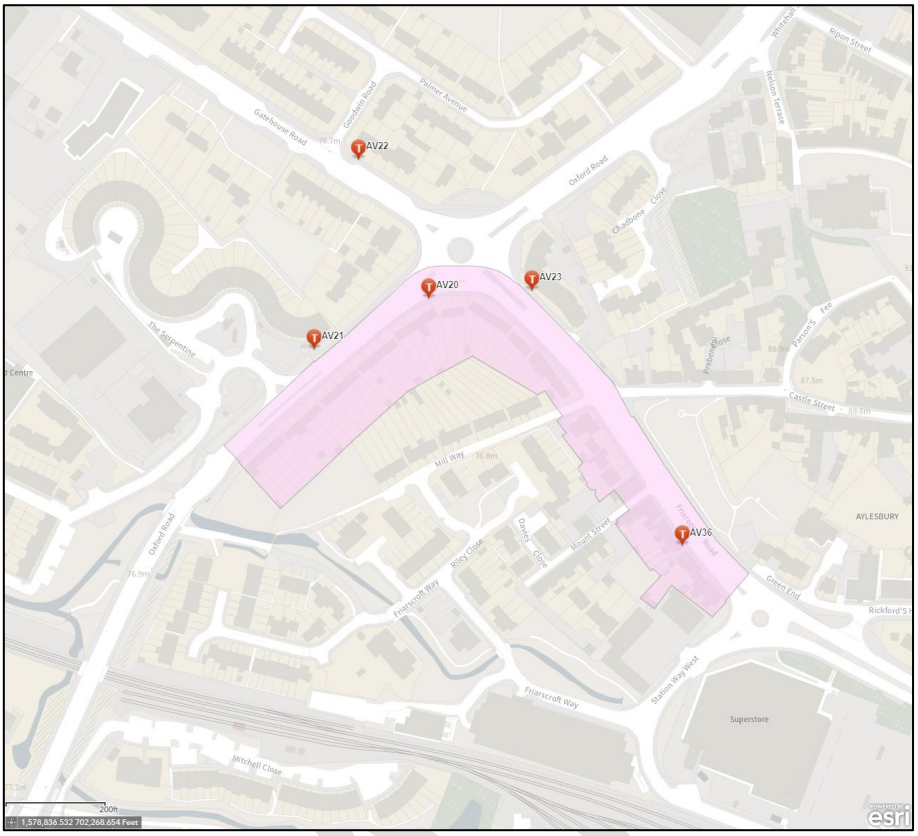


Figure 2.1 Monitoring Sites in the Friarage Road AQMA

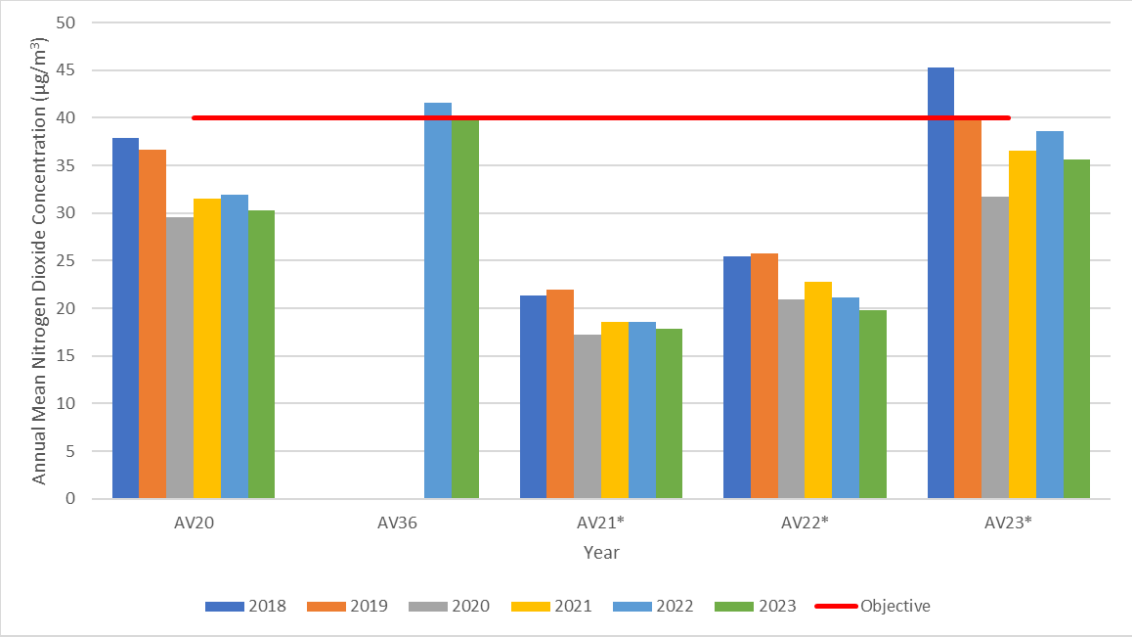


Figure 2.2 Annual Mean Nitrogen Dioxide (NO_2) Concentrations in Friarage Road AQMA (µg/m^3) 2018 - 2023.

(* indicates diffusion tube is located adjacent to the AQMA)

Table 2.2 Summary of Nitrogen Dioxide (NO_2) Monitoring Results (2018 – 2023) in Friarage Road AQMA (µg/m^3)

Site No	Location	2018	2019	2020	2021	2022	2023
AV20	Friarage Road/ Oxford Road Roundabout, Aylesbury	37.9	36.6	29.6	31.5	31.9	30.3
AV36	51 Friarage Road, Aylesbury	-	-	-	-	**41.6**	39.8
AV21[a]	Oxford Road, Aylesbury	21.3	21.9	17.2	18.6	18.6	17.8
AV22[a]	10 Gatehouse Road, Aylesbury	25.4	25.8	20.9	22.8	21.1	19.8
AV23[a]	Moorlands House, Friarage Road, Aylesbury	**45.3**	39.8	31.7	36.5	38.6	35.6

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

[a] Located adjacent to AQMA

2.2 Stoke Road AQMA

Monitoring is undertaken using diffusion tubes at four locations (AV14, AV15/AV41/AV42 a triplicate site, AV16 and AV18) within the Stoke Road AQMA in Aylesbury as shown in Figure 2.3. Three other monitoring locations (AV17, AV39 and AV40) are also present within a close proximity of the AQMA. Figure 2.4 and Table 2.3 illustrates that concentrations at most monitoring sites within the Stoke Road AQMA have shown a steady reduction and have been consistently below the annual mean nitrogen dioxide national air quality objective. However, monitoring data from 2023 has shown a slight increase in concentrations at AV16 and AV18. Despite this slight increase no sites either within the AQMA or just outside it are recorded as being within 10% of the annual mean objective once the fall off from distance calculation was completed.

It is recommended that as the AQMA has only been compliant for two years the AQMA will remain, and that monitoring will continue to observe future trends in concentrations. It is anticipated that if the current downward trend persists and assuming there are no significant increases in monitored nitrogen dioxide concentrations the Stoke Road AQMA could be revoked in 2027.

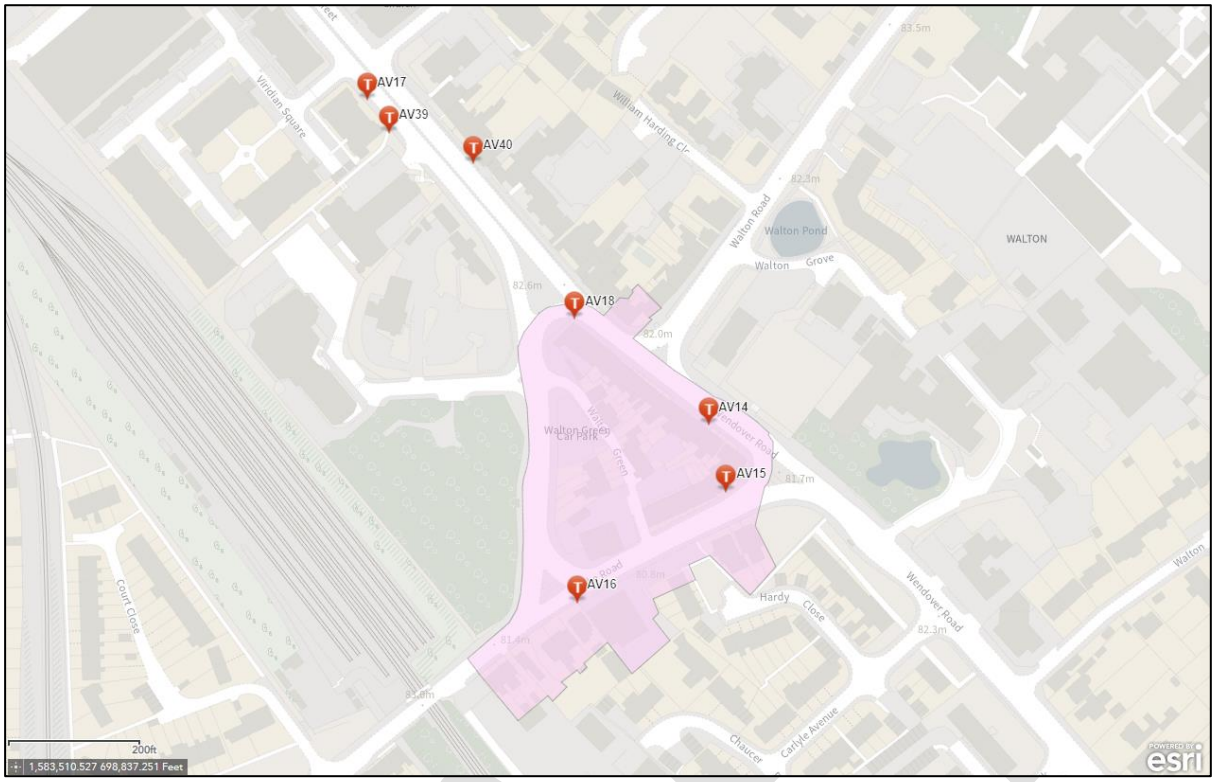


Figure 2.3 Monitoring sites within the Stoke Road AQMA

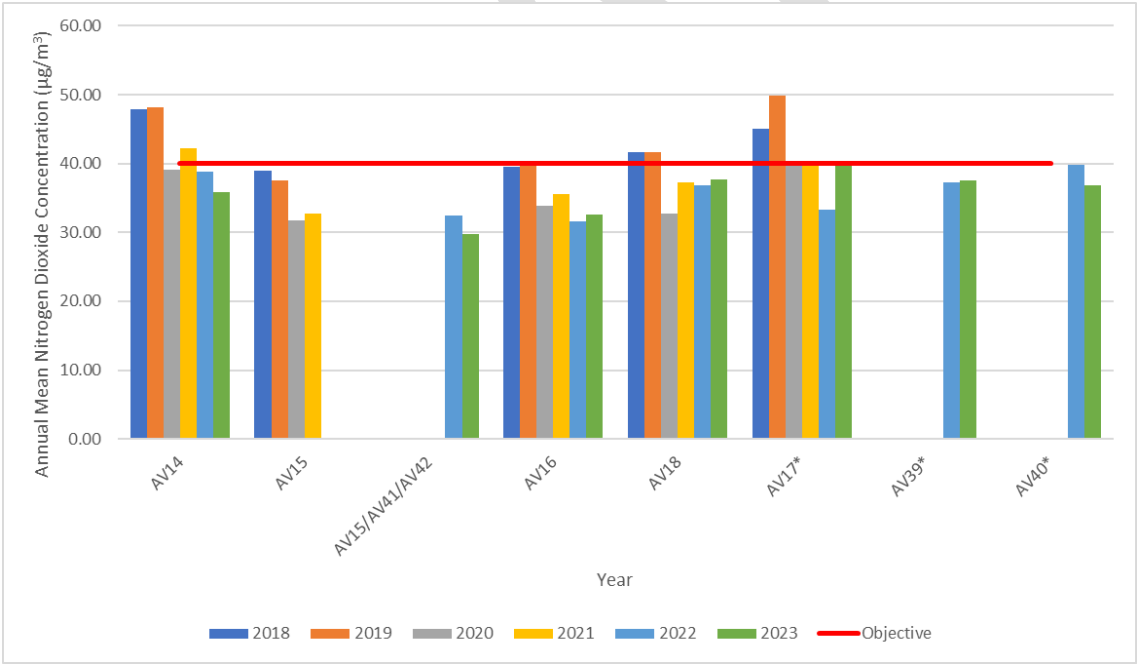


Figure 2.4 Annual Mean Nitrogen Dioxide (NO2) Concentrations in Stoke Road AQMA (µg/m³) 2018 – 2023.

(* indicates diffusion tube is located adjacent to the AQMA)

Table 2.3 Summary of Nitrogen Dioxide (NO_2) Monitoring Results (2018 – 2023) in Stoke Road AQMA (µg/m^3)

Site No	Location	2018	2019	2020	2021	2022	2023
AV14	25 Wendover Road, Aylesbury	**47.9**	**48.2**	39.1	**42.2**	38.8	35.7
AV15	2 Stoke Road, Aylesbury (single diffusion tube)	39.0	37.6	31.8	32.7	-	-
AV15/ AV41/ AV42[b]	2 Stoke Road, Aylesbury	-	-	-	-	32.5	29.8
AV16	31 Stoke Road, Aylesbury	39.5	**40.1**	33.8	35.5	31.6	32.6
AV18	1-5 Wendover Road, Aylesbury	**41.6**	**41.6**	32.7	37.2	36.8	37.6
AV17[a]		**45.10**	**49.90**	**40.20**	39.75	33.24	39.8
AV39[a]						37.21	37.5
AV40[a]						39.87	36.9

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

[a] Located adjacent to AQMA

[b] Average of triplicate diffusion tubes

2.3 Tring Road AQMA

Monitoring is undertaken using diffusion tubes at 3 locations (AV12, AV28, and AV29) within the Tring Road AQMA in Aylesbury as shown in Figure 2.5. Three other monitoring locations (AV13, AV30 and AV38) are also present immediately adjacent to the AQMA. As illustrated in Figure 2.6 and Table 2.4, concentrations at all monitoring sites have been consistently below the annual mean air quality objective for nitrogen dioxide for the last 6 years.

Based on guidance from Defra which states where there have been no exceedances of the annual mean air quality objective for the past five years, local authorities must proceed with plans to revoke the AQMA, Buckinghamshire Council recommended within its 2023 Annual Status Report that the process to revoke this AQMA should begin in 2023 and this action was endorsed by Defra. Consequently, the Tring Road AQMA will be revoked in 2024 and is not considered further in this action plan.

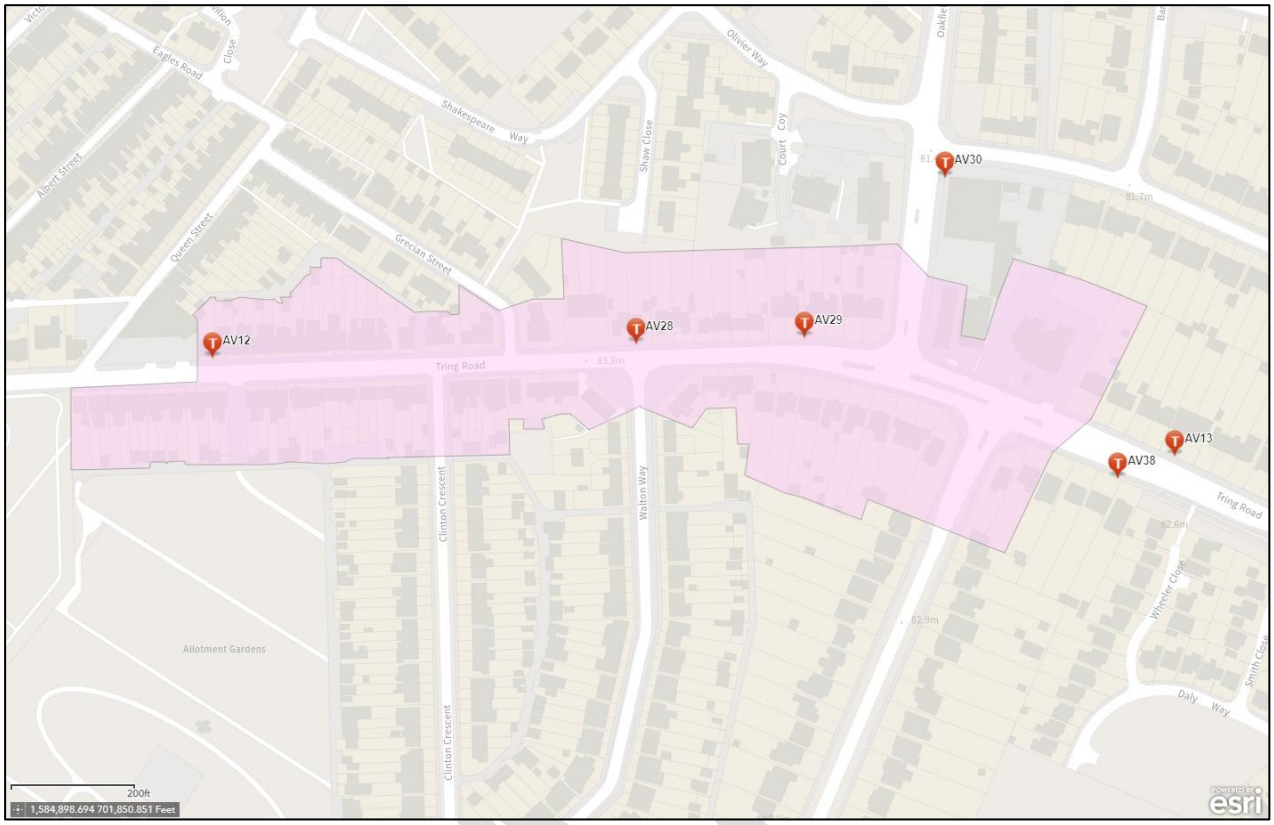


Figure 2.5 Monitoring sites within the Tring Road AQMA

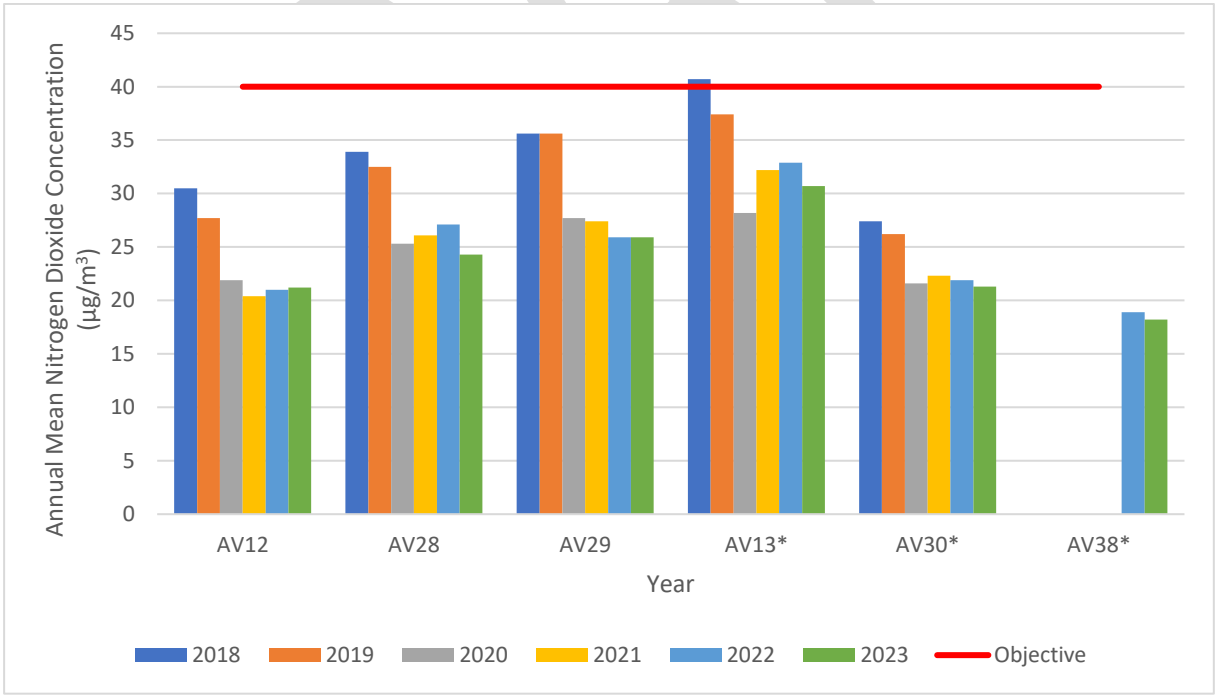


Figure 2.6 Annual Mean Nitrogen Dioxide (NO_2) Concentrations in Tring Road AQMA (µg/m³) 2018 – 2023.

(* indicates diffusion tube is located adjacent to the AQMA)

Table 2.4 Summary of Nitrogen Dioxide (NO_2) Monitoring Results (2018 – 2023) in Tring Road AQMA (µg/m³)

Site No	Location	2018	2019	2020	2021	2022	2023
AV12	87 Tring Road, Aylesbury	30.5	27.7	21.9	20.4	21.0	21.2
AV28	133 Tring Road, Aylesbury	33.9	32.5	25.3	26.1	27.1	24.3
AV29	149 Tring Road, Aylesbury	35.6	35.6	27.7	27.4	25.9	25.9
AV13[a]	183 Tring Road, Aylesbury	**40.7**	37.4	28.2	32.2	32.9	30.7
AV30[a]	Oakfield Road, Aylesbury	27.4	26.2	21.6	22.3	21.9	21.3
AV38[a]	116 Tring Road, Aylesbury	-	-	-	-	18.9	18.2

Exceedances of the annual mean nitrogen dioxide objective of 40 µg/m³ are shown in bold.

[a] Located adjacent to AQMA

2.4 Chesham AQMA

Monitoring is undertaken using diffusion tubes at 5 locations (CDC8/CDC8a, a duplicate site, CDC 9/CDC9a, a duplicate site, CDC29, CDC11/CDC11a, a duplicate site and CDC12/CDC12a, a duplicate site) within the Chesham AQMA as shown in Figure 2.7. As illustrated in Figure 2.8 and Table 2.5, concentrations at all monitoring sites have been consistently below the annual mean air quality objective for nitrogen dioxide since 2019.

Like the Tring Road AQMA, based on guidance from Defra which states where there have been no exceedances of the annual mean air quality objective for the past five years, local authorities must proceed with plans to revoke the AQMA, the Chesham AQMA will be revoked in 2024 and is therefore not considered further within the action plan.

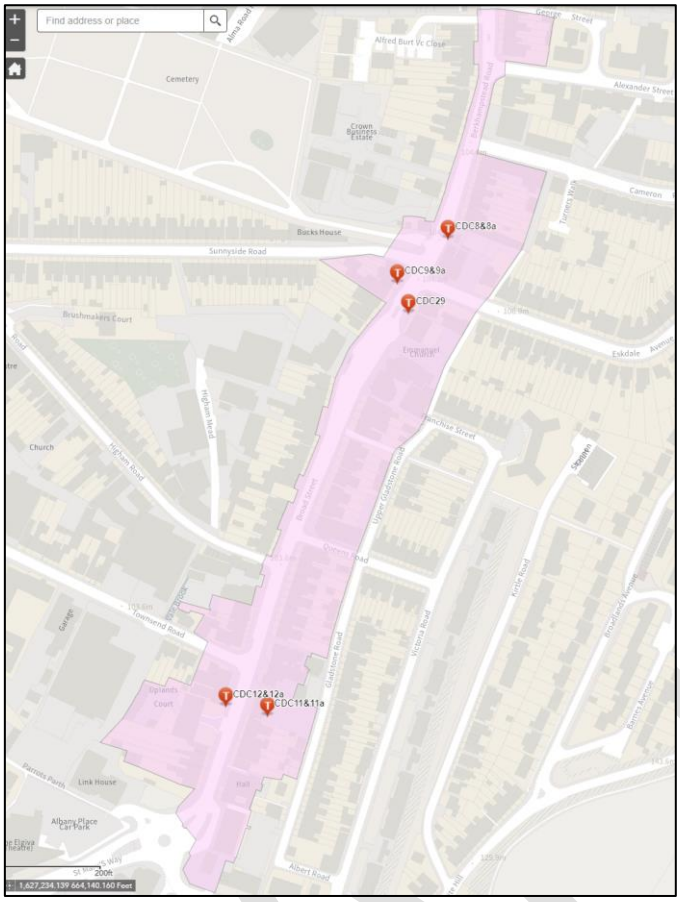


Figure 2.7 Monitoring sites within the Chesham AQMA

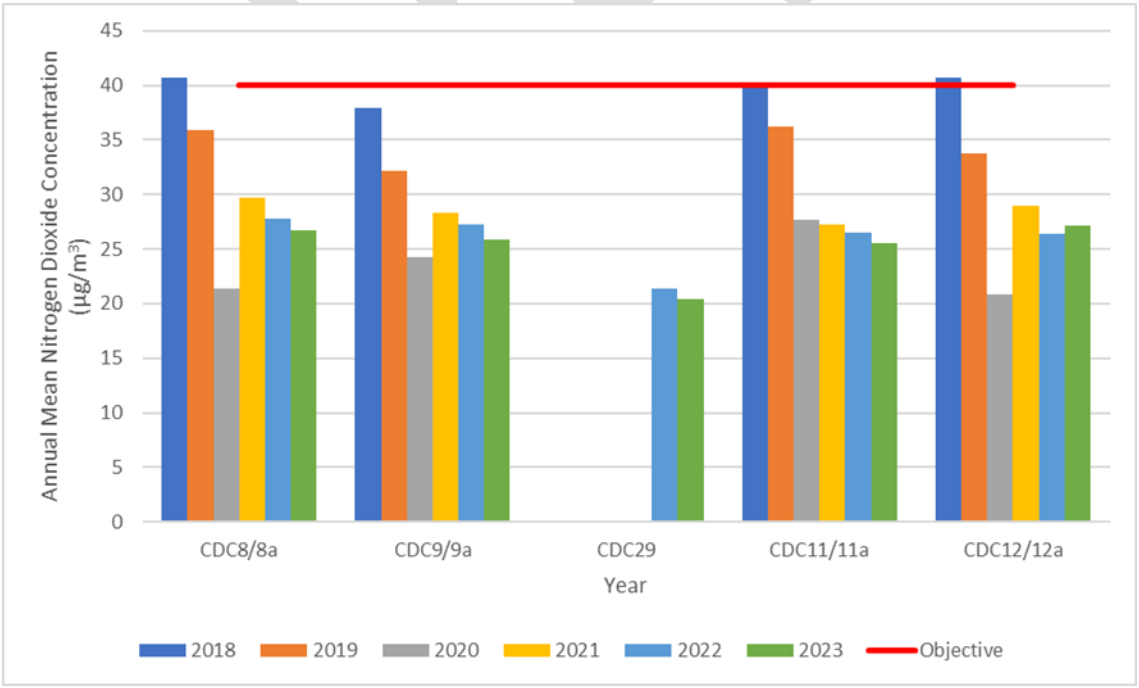


Figure 2.8 Annual Mean Nitrogen Dioxide (NO_2) Concentrations in the Chesham AQMA (µg/m^3) 2018 - 2023.

Table 2.5 Summary of Nitrogen Dioxide (NO_2) Monitoring Results (2018 – 2023) in the Chesham AQMA (µg/m³)

Site No	Location	2018	2019	2020	2021	2022	2023
CDC8/8a[c]	Jolly Sportsman PH, Chesham	**40.7**	35.9	21.4	29.7	27.8	26.71
CDC9/9a[c]	170 Broad Street, Chesham	37.9	32.2	24.3	28.3	27.3	25.83
CDC29	157 Broad Street, Chesham	-	-	-	-	21.4	20.44
CDC11/11a[c]	Uplands Court, Broad Street, Chesham	**40.1**	36.2	27.7	27.2	26.5	25.54
CDC12/12a[c]	Police Station, Broad Street, Chesham	**40.7**	33.8	20.8	29.0	26.4	27.14

Exceedances of the annual mean nitrogen dioxide objective of 40 µg/m³ are shown in bold.
[c] Average of duplicate diffusion tubes

2.5 South Bucks AQMA

Monitoring is undertaken using diffusion tubes at 1 location (SB46) within the AQMA as shown in Figure 2.10. Two other monitoring locations (SB2 and SB39) are also present adjacent to the AQMA as shown in Figure 2.11. However, SB39 is located close to the boundary of the South Bucks AQMA and is kerbside of the A40. Therefore, measurement results for this tube are more representative of the emissions from traffic along the A40 rather than the M25. Monitoring along the M40 and the M4 has been challenging due to the presence of trees and lack of infrastructure as illustrated in Figure 2.9. However, these challenges also make it less likely that exceedances of the air quality objective.

Figure 2.9 Locations near M40 and M4

As illustrated in Figure 2.14 and Table 2.6, concentrations at all monitoring sites have been consistently below the annual mean air quality objective for nitrogen dioxide since 2018.

An information request was also submitted to National Highways for the results of any air quality monitoring they have completed within this AQMA which can be included within our assessment. Results of the monitoring completed by National Highways are shown in Table 2.6, under site no. M25J15J16 and M25J16J17 and the monitoring locations are shown in Figures 2.12 and 2.13.

Based on guidance from Defra which states where there have been no exceedances of the annual mean air quality objective for the past five years, local authorities must proceed with plans to revoke the AQMA, the South Bucks AQMA will be revoked in 2024 and is therefore not considered further within the action plan.

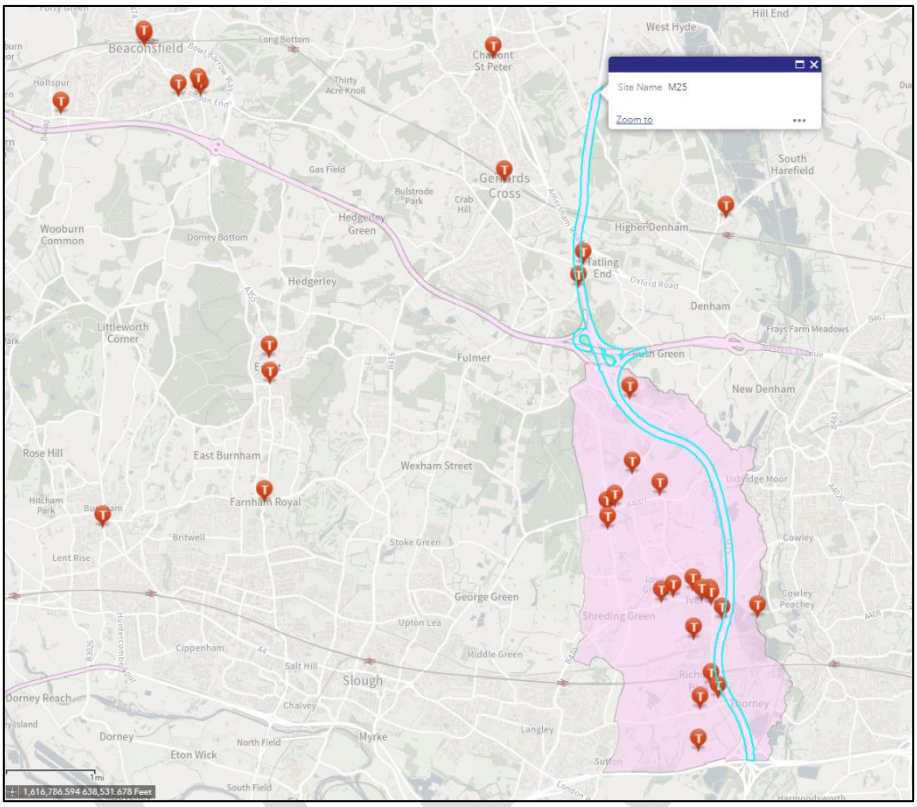


Figure 2.10 Monitoring sites within the South Bucks AQMA (Map shows both South Bucks AQMA and South Bucks District Council AQMA No.2).

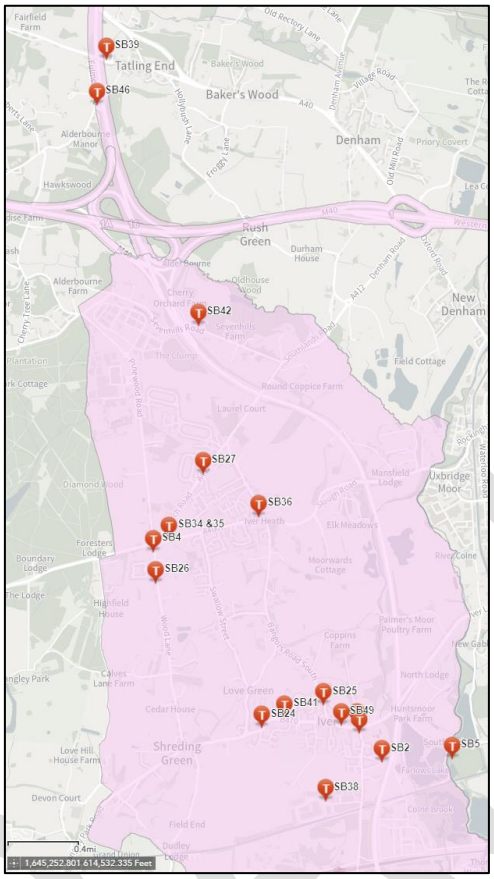


Figure 2.11 Monitoring Sites SB46, SB2 and SB39 within the South Bucks AQMA

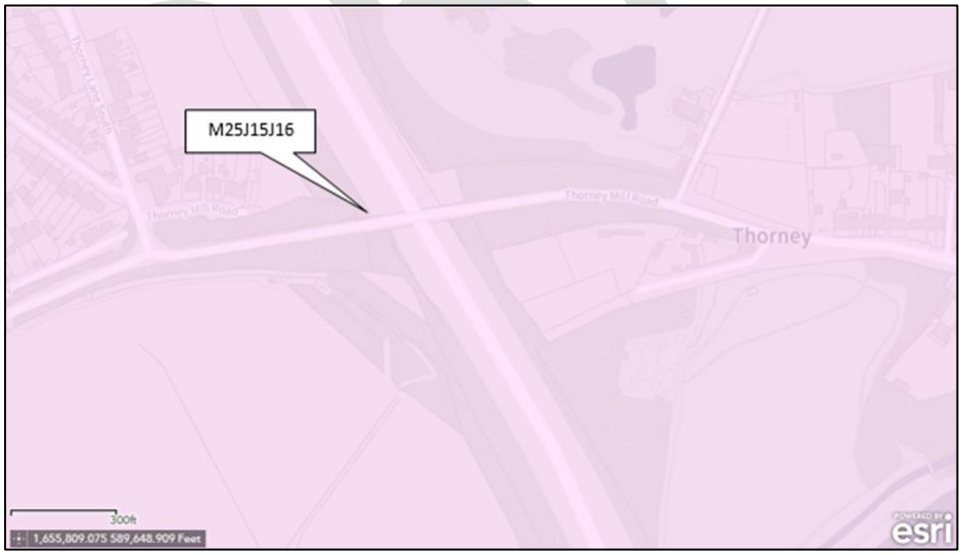


Figure 2.12 Monitoring site M25J15J16 managed by National Highways

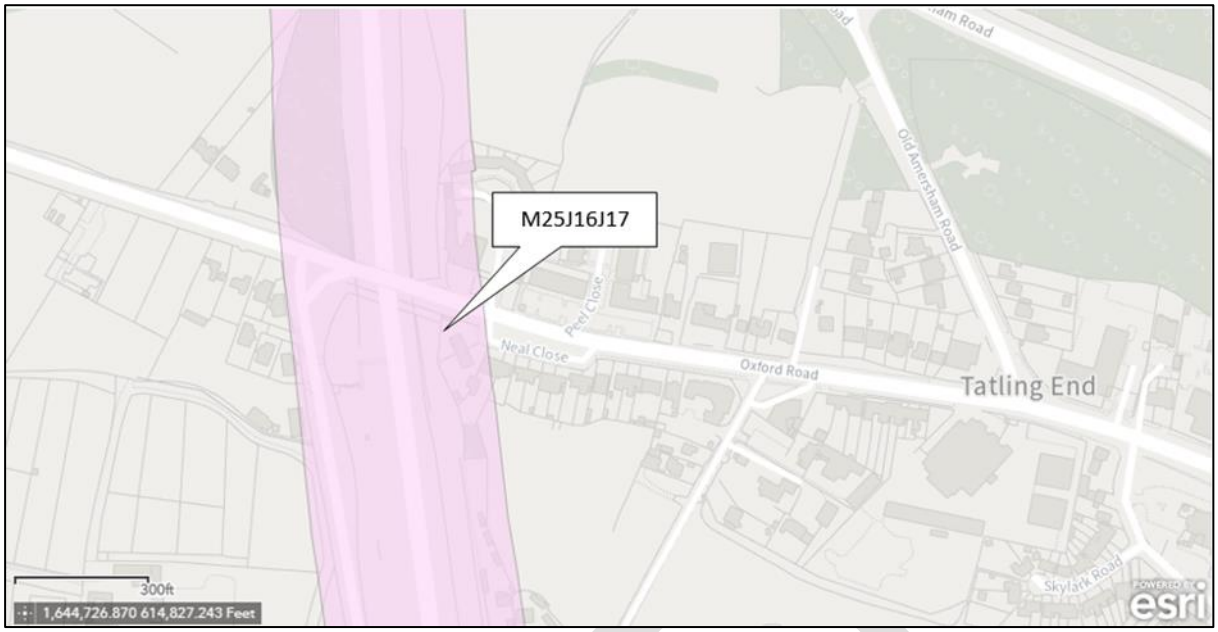


Figure 2.13 Monitoring site M25J16J17 managed by National Highways

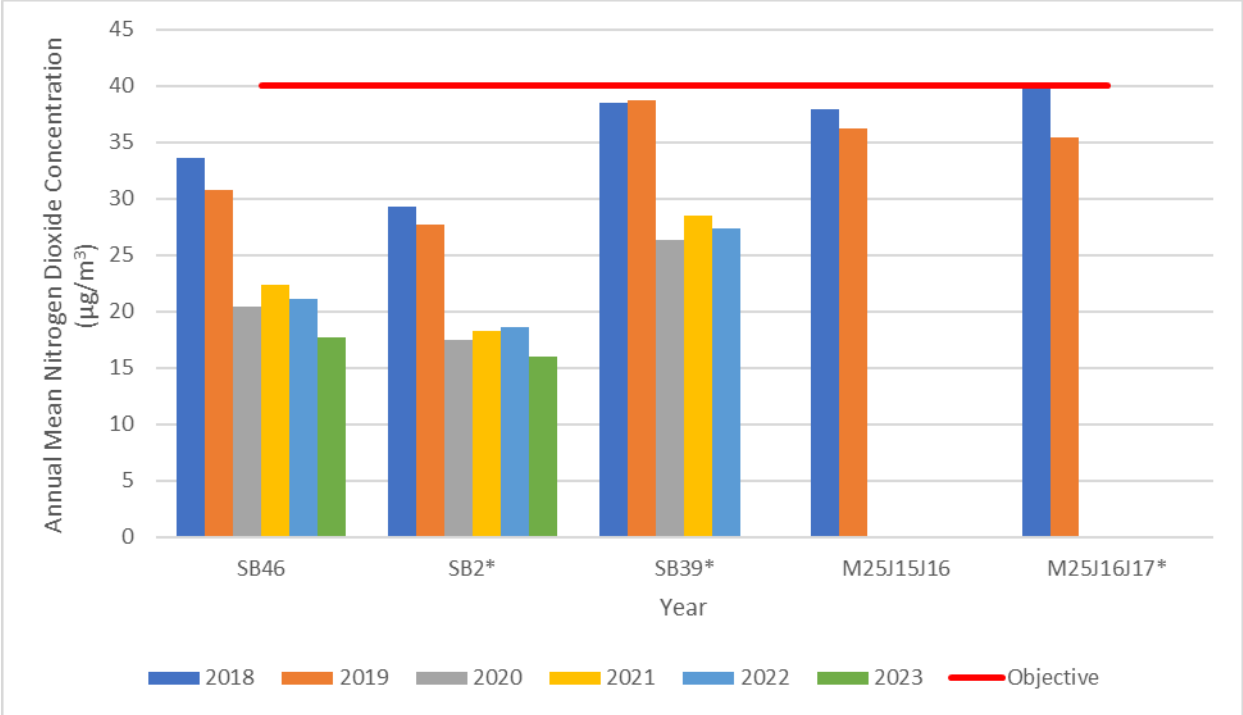


Figure 2.14 Annual Mean Nitrogen Dioxide (NO2) Concentrations in the South Bucks AQMA (µg/m3) 2018 - 2023.

Table 2.6 Summary of Nitrogen Dioxide (NO_2) Monitoring Results (2018 – 2023) in the South Bucks AQMA (µg/m^3)

Site No	Location	2018	2019	2020	2021	2022	2023
SB46	Alderbourne Cottage, Tatling End	33.6	30.7	20.4	22.3	21.1	17.7
SB2[a]	Victoria Crescent, Iver	29.3	27.7	17.4	18.3	18.6	15.9
SB39[a]	Fulmer, Tatling End	38.5	38.7	26.3	28.5	27.3	
M25J15J16[d]	M25 Junction15/16	37.9	36.2				
M25J16J17[d]	M25 Junction16/17	**40.1**	35.4				

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

[a] Located adjacent to AQMA

[d] National Highways Data

2.6 South Bucks District Council AQMA No.2

Monitoring is undertaken using diffusion tubes at 16 locations (SB1, SB2, SB4, SB21, SB22, SB24, SB25, SB26, SB27, SB28/SB29, a duplicate site, SB30/SB31, a duplicate site, SB32/SB33, a duplicate site, SB34/SB35, a duplicate site, SB36, SB42 and SB49) within the AQMA as shown in Figure 2.15. As illustrated in Figure 2.16 and Table 2.7, all monitoring locations have been below the annual mean air quality objective for nitrogen dioxide since 2020. Guidance from Defra and LAQM.TG (22) indicates that where compliance was achieved during the first year of the influence of the COVID-19 pandemic in 2020, which greatly impacted the traffic impact on local air quality, and if compliance with the objective is achieved in 2022, 2023 and 2024, consideration should be given to revocation of the AQMA.

As compliance of the objective was first achieved in 2020 the South Bucks District Council AQMA No.2 will be retained, and monitoring will continue to observe future trends in concentrations. If the monitoring data from 2024 indicates there has been a continued downward trend in nitrogen dioxide concentrations the AQMA will be considered for revocation in 2025.

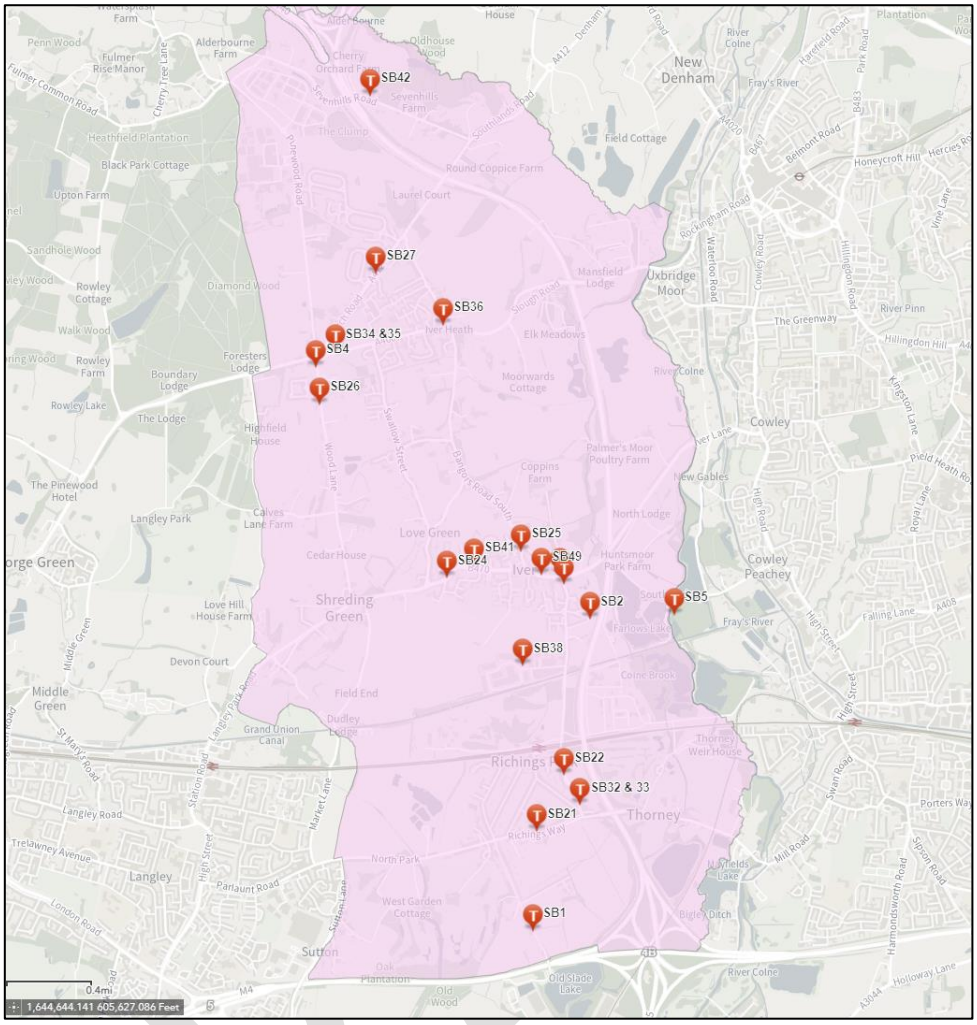


Figure 2.15 Monitoring sites within the South Bucks District Council AQMA No.2

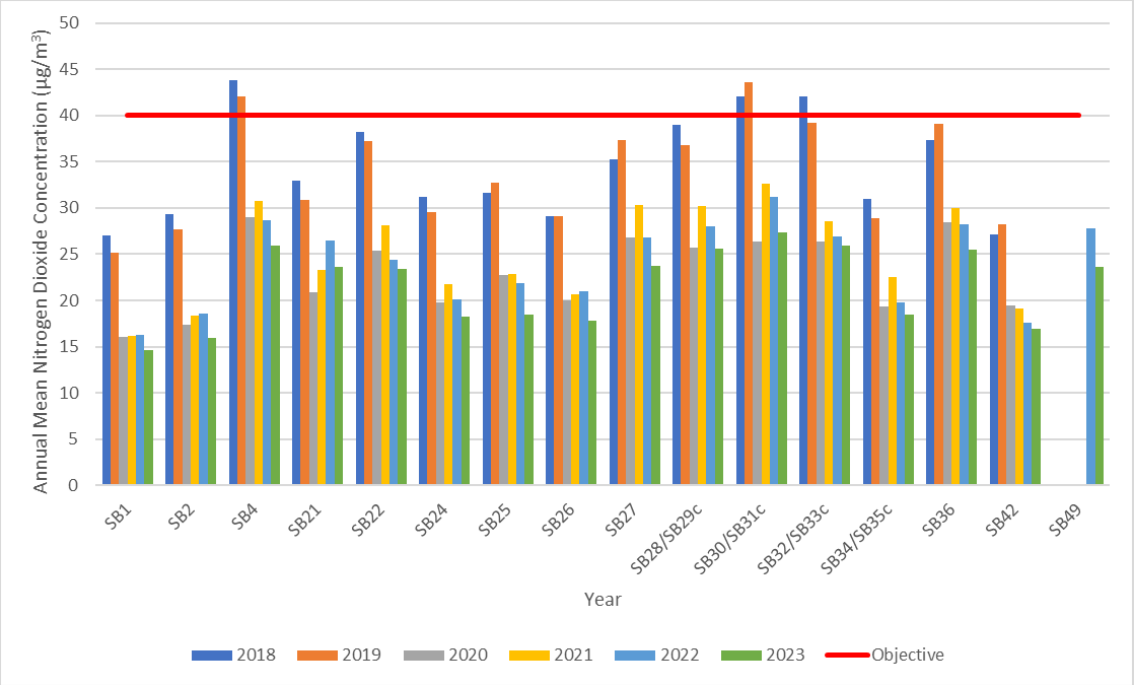


Figure 2.16 Annual Mean Nitrogen Dioxide (NO2) Concentrations in the South Bucks District Council AQMA No.2 (µg/m3) 2018 – 2023.

Table 2.7 Summary of Nitrogen Dioxide (NO2) Monitoring Results (2018 – 2023) in the South Bucks District Council AQMA No.2 (µg/m3)

Site No	Location	2018	2019	2020	2021	2022	2023
SB1	Old Slade Lane, Iver	27.0	25.2	16.1	16.2	16.3	14.66
SB2	Victoria Crescent, Iver	29.3	27.7	17.4	18.3	18.6	15.92
SB4	Uxbridge Road, Iver Heath,	**43.8**	**42.0**	29.0	30.7	28.7	25.97
SB21	47 Richings Way, Iver	32.9	30.9	20.9	23.3	26.5	23.58
SB22	29 Thorney Lane South, Iver	38.2	37.2	25.4	28.1	24.4	23.37
SB24	Langley Park Road, Iver	31.2	29.5	19.8	21.7	20.1	18.23
SB25	Bangors Road South, Iver	31.6	32.7	22.7	22.8	21.9	18.41
SB26	Wood Lane, Iver	29.1	29.1	20.0	20.7	21.0	17.80
SB27	Church Road, Iver	35.3	37.3	26.8	30.3	26.8	23.73
SB28/SB29[c]	Swan Pub, High Street, Iver	39.0	36.8	25.7	30.2	28.0	25.54
SB30/SB31[c]	Colne Cottage, 6 Thorney Lane North, Iver	**42.0**	**43.6**	26.4	32.6	31.2	27.39
SB32/SB33[c]	Tower Arms, Thorney Lane South, Iver	**42.0**	39.2	26.4	28.6	26.9	25.95
SB34/SB35[c]	Wood Cottages, 2 Slough Road, Iver	31.0	28.9	19.3	22.5	19.8	18.44
SB36	Black Horse Pub, 95 Slough Road, Iver	37.3	39.1	28.4	30.0	28.2	25.47
SB42	Belle Farm Lodge, Seven Hills Road, Iver Heath	27.1	28.2	19.4	19.1	17.6	16.94
SB49	Costa Coffee, High Street, Iver	-	-	-	-	27.8	23.61

Exceedances of the annual mean nitrogen dioxide objective of 40 µg/m³ are shown in bold. [c] Average of duplicate diffusion tubes

2.7 AQMA No.1 (M40)

AQMA No.1 (M40) is located exclusively within the boundary of the M40 highway which is managed by Highways England and for this reason no monitoring is undertaken by Buckinghamshire Council within the AQMA itself. However, monitoring is undertaken using diffusion tubes at two locations (W15/W16/W17 a triplicate site and W40) and by a chemiluminescence continuous monitor (CM1) co-located with diffusion tubes W15/W16/W17 immediately adjacent to the AQMA as shown in Figure 2.17 and Figure 2.18. It should be noted that it was not possible to access diffusion tubes W15/W16/W17 during 2020 and 2021 due to the Covid-19 pandemic and the diffusion tubes and the continuous monitor was removed in 2023.

As illustrated in Figure 2.19 and Table 2.8, concentrations at all monitoring sites have been consistently below the annual mean air quality objective for nitrogen dioxide since 2018 with concentrations below 10% of the objective, 36 µg/m^3, at all sites between 2020 and 2023.

An information request was also submitted to National Highways for the results of any air quality monitoring they have completed within this AQMA which can be included within our assessment. A response from National Highways stated that no monitoring data was available within this location.

As previously discussed, guidance from Defra and LAQM TG.22 states where there have been no exceedances of the annual mean air quality objective for the past five years, local authorities must proceed with plans to revoke the AQMA. For this reason, AQMA No.1 (M40) will be revoked in 2024 and is therefore not considered further within the action plan.

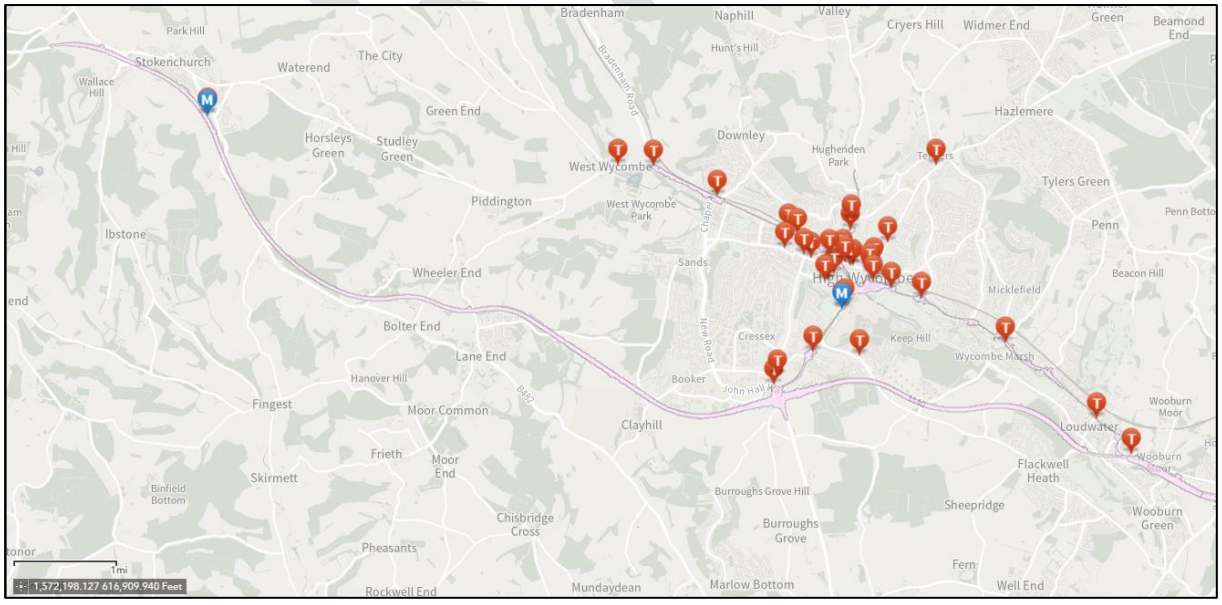


Figure 2.17 Monitoring sites within AQMA No.1 (M40)

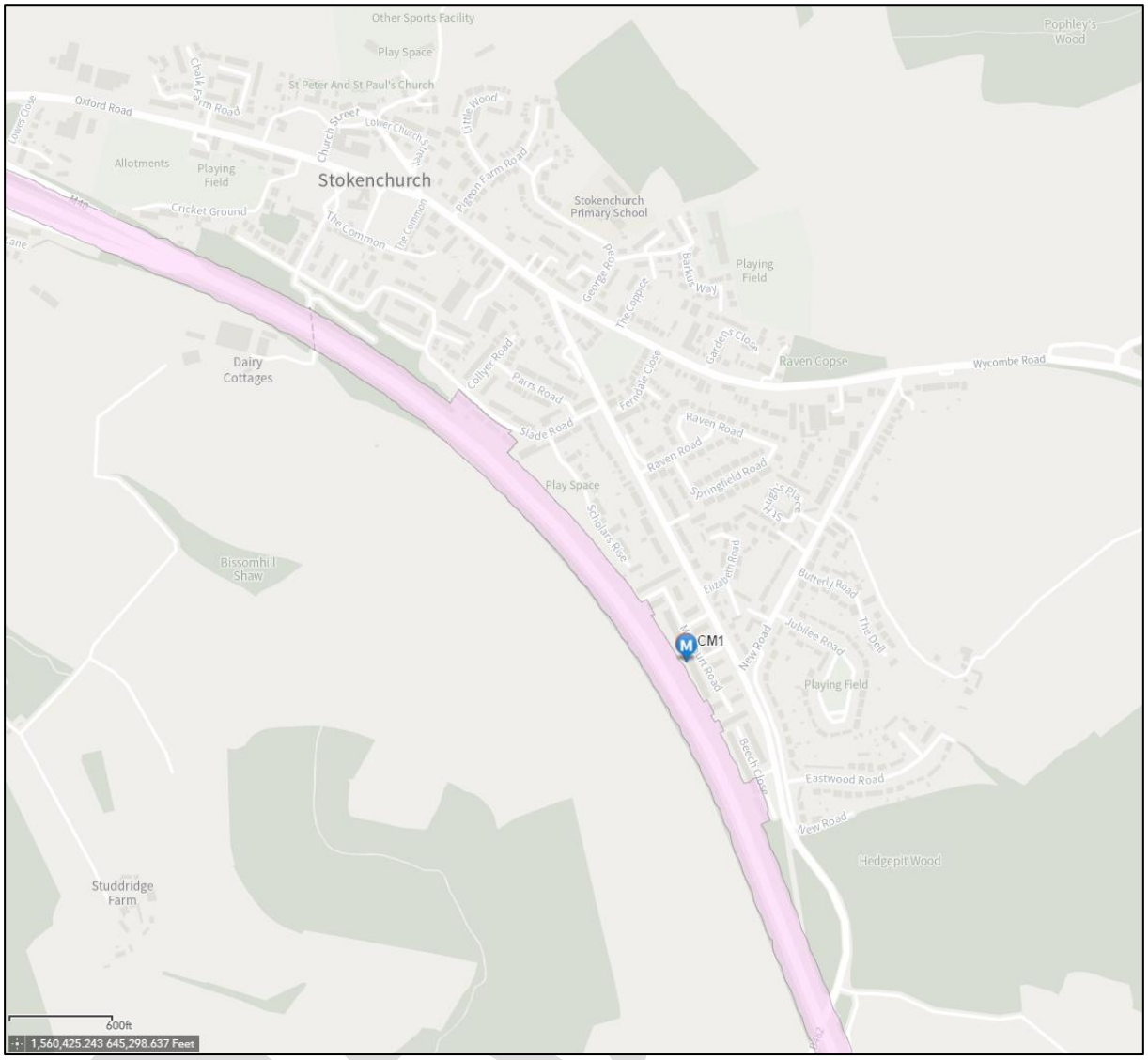
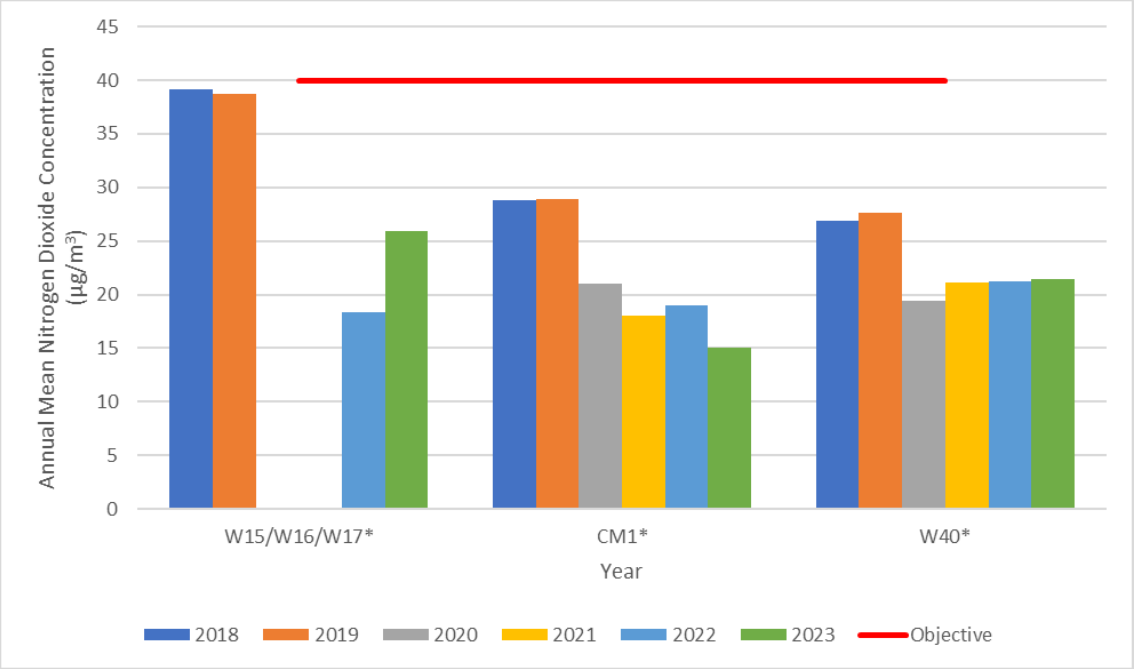


Figure 2.18 Location of Co-Located Diffusion Tubes (W15/W16/W17) and Continuous Monitor (CM1) at Stokenchurch



(* indicates diffusion tube is located adjacent to the AQMA) N.B. Monitoring was not possible at W15/W16/W17 in 2020 or 2021 due to the Covid-19 Pandemic

Figure 2.19 Annual Mean Nitrogen Dioxide (NO_2) Concentrations AQMA No.1 (M40) (µg/m³) 2018 – 2023.

Table 2.8 Summary of Nitrogen Dioxide (NO_2) Monitoring Results (2018 – 2023) in AQMA No.1 (M40) (µg/m³)

Site No	Location	2018	2019	2020	2021	2022	2023
W15/W16/ W17[a&b]	40 Marcourt Road, Stokenchurch	39.1	38.7	-	-	18.4	25.9
CM1[a]	40 Marcourt Road, Stokenchurch	28.8	28.9	21.0	18	19	15
W40[a]	Handy Cross Roundabout, Marlow Road, High Wycombe	26.9	27.6	19.4	21.4	21.2	21.4

Exceedances of the annual mean nitrogen dioxide objective of 40 µg/m³ are shown in bold.

[a] Located adjacent to AQMA

[b] Average of triplicate diffusion tubes

2.8 AQMA No.2 (High Wycombe)

Monitoring is undertaken using diffusion tubes at 10 locations (W4, W5, W8, W18, W20, W51, W52 W59, W60, W61) and by a chemiluminescence continuous monitor (CM2) within the AQMA as shown in Figure 2.20. It should be noted that it was not possible to access diffusion tube W4 during 2020 and 2021 due to the Covid-19 pandemic. As illustrated in Figure 2.21 and Table 2.9, all monitoring locations have been below the annual mean air quality objective for nitrogen dioxide since 2020. Guidance from Defra and LAQM.TG (22) indicates that where compliance was achieved during the first year of the influence of the COVID-19 pandemic in 2020, which greatly impacted the traffic impact on local air quality, and if compliance with the objective is achieved in 2022, 2023 and 2024, consideration should be given to revocation of the AQMA.

As compliance of the objective was first achieved in 2020 AQMA No.2 (High Wycombe) will be retained, and monitoring will continue to observe future trends in concentrations. If the monitoring data from 2024 indicates there has been a continued downward trend in nitrogen dioxide concentrations consideration will be given to revoking the AQMA in 2025.

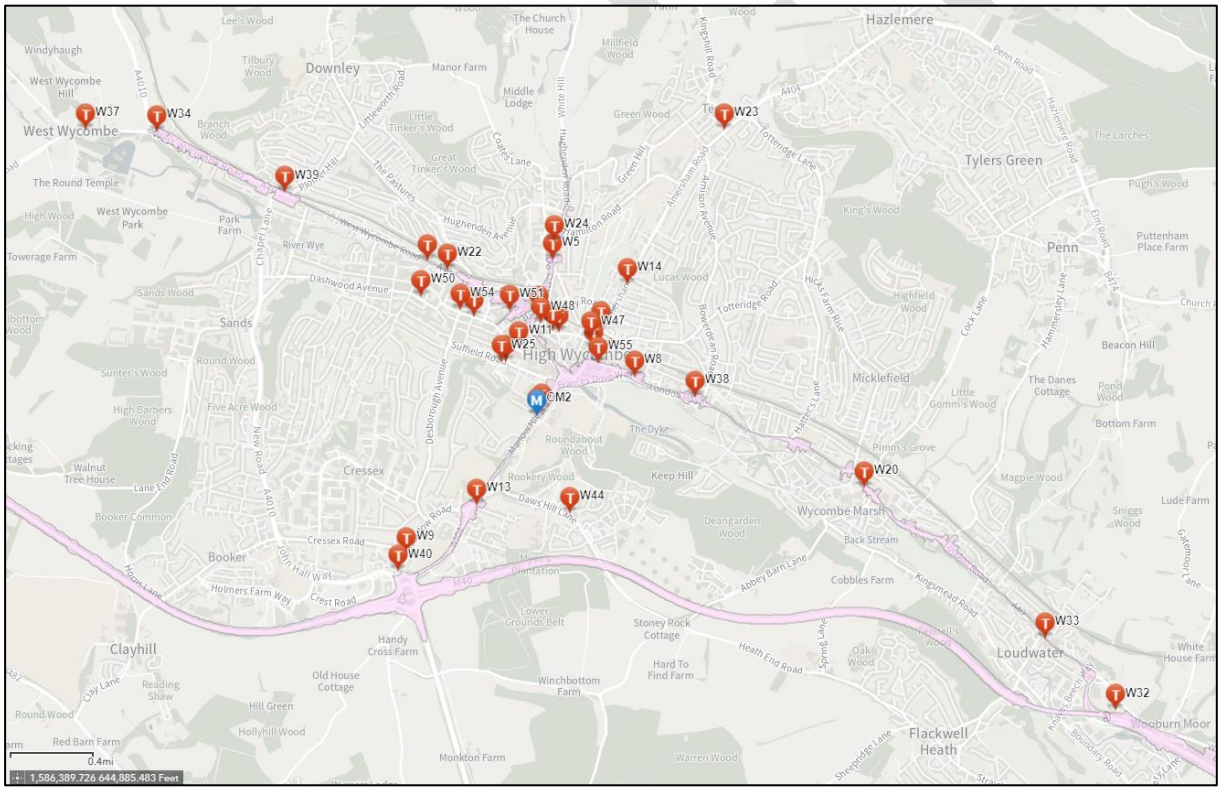
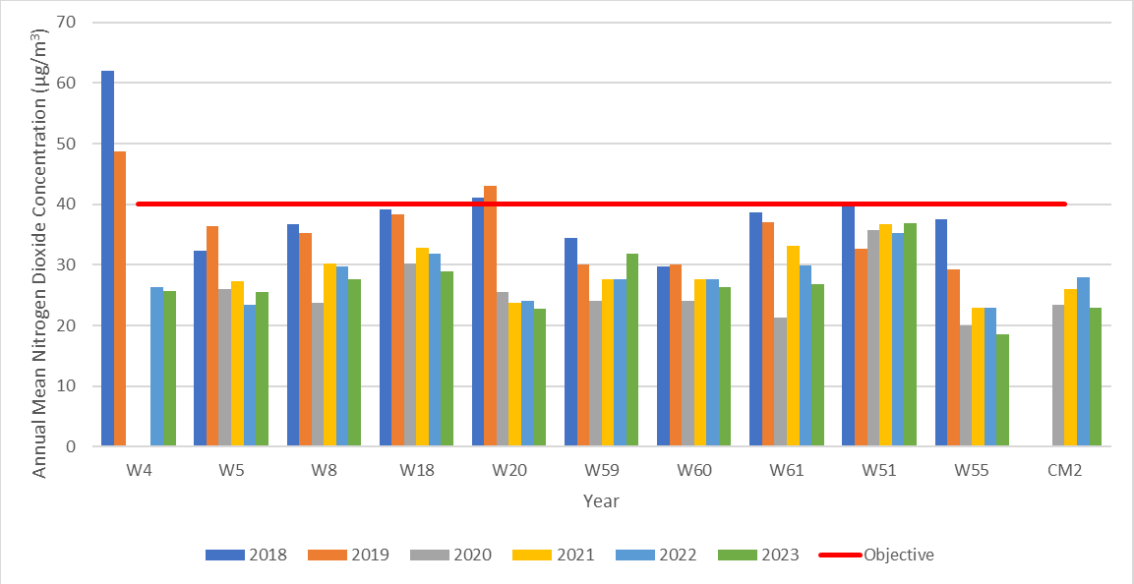


Figure 2.20 Monitoring sites within AQMA No.2 (High Wycombe)



N.B. Monitoring was not possible at W4 in 2020 or 2021 due to Covid-19 Pandemic

Figure 2.21 Annual Mean Nitrogen Dioxide (NO2) Concentrations AQMA No.2 (High Wycombe) (µg/m³) 2018 - 2023

Table 2.9 Summary of Nitrogen Dioxide (NO_2) Monitoring Results (2018 – 2023) in AQMA No.2 (High Wycombe) (µg/m³)

Site No	Location	2018	2019	2020	2021	2022	2023
W4	Abbey Accommodation, Abbey School, Marlow Hill, High Wycombe	**62.1**	**48.8**	-	-	26.3	25.6
W5	Morrisons, Hughenden Road, High Wycombe	32.3	36.4	26.0	27.3	23.4	25.6
W8	London Road, High Wycombe	36.7	35.3	23.7	30.2	29.7	27.7
W18	Crendon Street, High Wycombe	39.2	38.3	30.3	32.8	31.9	28.9
W20	Marsh Retail Park, London Road, High Wycombe	**41.1**	**43.0**	25.5	23.8	24.1	22.7
W59	Pedestal Roundabout, West Wycombe Road, High Wycombe	34.4	31.4	36.0	37.8	34.8	31.8
W60	Kwik Fit, London Road, High Wycombe	29.7	30.1	24.1	27.6	27.6	26.4
W61	Chapel Lane, High Wycombe	38.7	37.1	21.4	33.1	29.9	26.9
W51	Bridge Street, High Wycombe	**40.0**	32.7	35.8	36.7	35.2	36.8
W55	Easton Street, High Wycombe	37.6	29.2	20.1	22.9	22.9	18.6
CM2	Wycombe Abbey 5 – Abbey School, Marlow Hill, High Wycombe	-	-	23.3	26	28	23.0

Exceedances of the annual mean nitrogen dioxide objective of 40 µg/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.

2.9 AQMA No.3 (Marlow)

Monitoring is undertaken using diffusion tubes at 3 locations (W2, W21 and W49) within the AQMA as shown in Figure 2.22. Ten other monitoring locations (W29, W43, W41, W53, W30, W31, W42, W52, W35 and W36) are also present immediately adjacent to the AQMA and have been included within the assessment of the AQMA. As illustrated in Figure 2.23 and Table 2.10, all monitoring locations, excluding location W31, Marlow High Street, have been below the annual mean air quality objective for nitrogen dioxide since 2019. Location W31 has been compliant since 2020.

As compliance of the objective was first achieved at all monitoring locations in 2020, AQMA No.2 (Marlow) will be retained, and monitoring will continue to observe future trends in concentrations. If the monitoring data from 2024 indicates there has been a continued downward trend in nitrogen dioxide concentrations consideration will be given to revoking the AQMA in 2025.

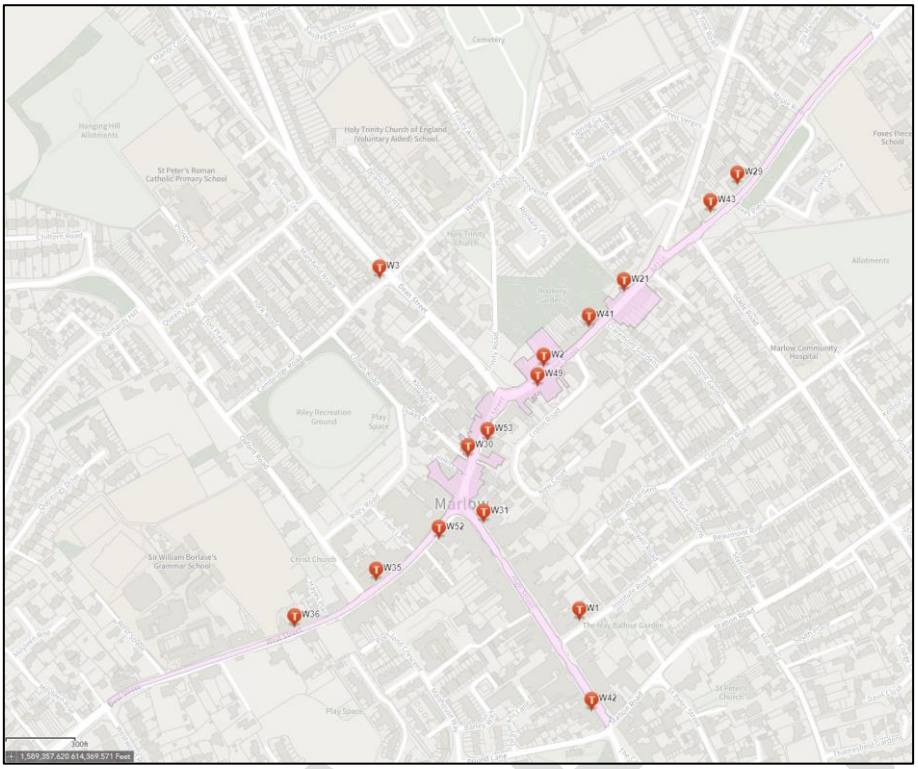


Figure 2.22 Monitoring sites within AQMA No.3 (Marlow)

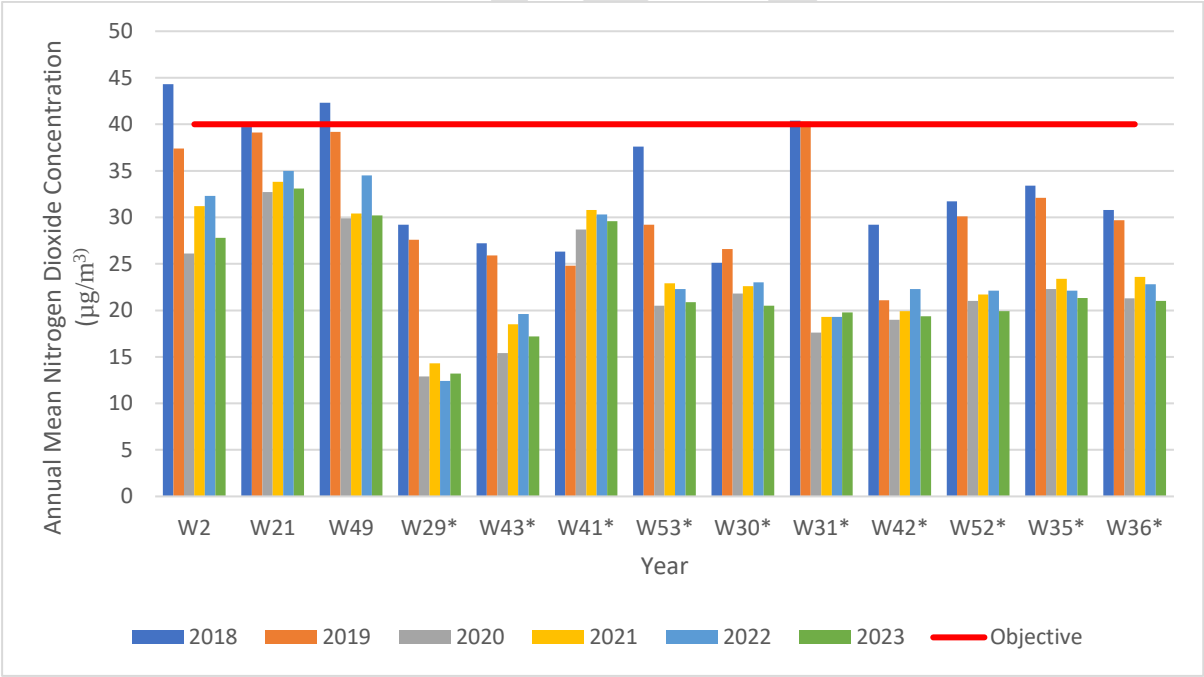


Figure 2.23 Annual Mean Nitrogen Dioxide (NO2) Concentrations AQMA No.3 (Marlow) (µg/m^3) 2018 - 2023.

(* indicates diffusion tube is located adjacent to the AQMA)

Table 2.10 Summary of Nitrogen Dioxide (NO_2) Monitoring Results (2018 – 2023) in AQMA No.3 (Marlow)

Site No	Location	2018	2019	2020	2021	2022	2023
W2	Solicitors, Chapel Street, Marlow	**44.3***	37.4	26.1	31.2	32.3	27.8
W21	Chapel Street Crossing, Marlow	39.7	39.1	32.7	33.8	35.0	33.1
W49	Waitrose, Chapel Street, Marlow	**42.3**	39.2	29.9	30.4	34.5	30.2
W29[a]	Wedding Centre, Little Marlow Road, Marlow	29.2	27.6	12.9	14.3	12.4	13.2
W43[a]	Glade View, Little Marlow Road, Marlow	27.2	25.9	15.4	18.5	19.6	17.2
W41[a]	55 Chapel Street, Marlow	26.3	24.8	28.7	30.8	30.3	29.6
W53[a]	Chapel Street 2, Marlow	37.6	29.2	20.5	22.9	22.3	20.9
W30[a]	Butchers Tap, Spittal Street, Marlow	25.1	26.6	21.8	22.6	23.0	20.5
W31[a]	Marlow High Street	**40.4**	**40.3**	17.6	19.3	19.3	19.8
W42[a]	Tanning Centre, High Street, Marlow	29.2	21.1	19.0	19.9	22.3	19.4
W52[a]	West Street 3, Marlow	31.7	30.1	21.0	21.7	22.1	19.9
W35[a]	West Street 1, Marlow	33.4	32.1	22.3	23.4	22.1	21.3
W36[a]	West Street 2, Marlow	30.8	29.7	21.3	23.6	22.8	21.0

Exceedances of the annual mean nitrogen dioxide objective of 40 µg/m³ are shown in bold.

[a] Located adjacent to AQMA

3. Buckinghamshire Council's Air Quality Priorities

This chapter presents the main priorities and approach taken by Buckinghamshire Council to select the measures included within the Air Quality Action Plan. Descriptions of the existing strategies and policies which relate to air quality within the district are provided.

The measures outlined within the action plan target the predominant source of emissions within Buckinghamshire as well as the six remaining AQMAs where air quality has failed to meet the National Air Quality Objectives.

3.1 Public Health Context

Air pollution is associated with several adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions.

The mortality burden of air pollution within the UK is equivalent to 29,000 to 343,000 deaths at typical ages[4], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[5].

In his annual report for 2022[6] the Chief Medical Officer Professor Chris Whitty focussed on air pollution and its impact on health. It states that although air quality in this county has improved significantly since the 1980s there is still a requirement for further progress.

Professor Whitty summarises that "improvements in engineering for transport and industry, modifications to agricultural practice and improvements in the built environment are examples that should, once a change is made, be self-sustaining and allow us to reap health benefits for the foreseeable future." He also reminds us that "Many of the changes to improve outdoor air pollution have significant co-benefits. For example, reducing the use of fossil fuels for energy reduces both air pollution and carbon emissions; improving active travel reduces air pollution emissions from vehicles and has direct health benefits to those who are walking, wheeling, or cycling." Professor Whitty also suggests that "we need to concentrate on the places where people live, work and study; the same air pollution concentration in a densely populated area will lead to greater accumulated health effects than in a sparsely populated area as more people will be affected." Figure 3.1 provides a summary of the health effects of air pollution throughout life as outlined within the report.

[4] Defra. Air quality appraisal: damage cost guidance, January 2023

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

[6] Chief Medical Officer's annual report 2022: air pollution

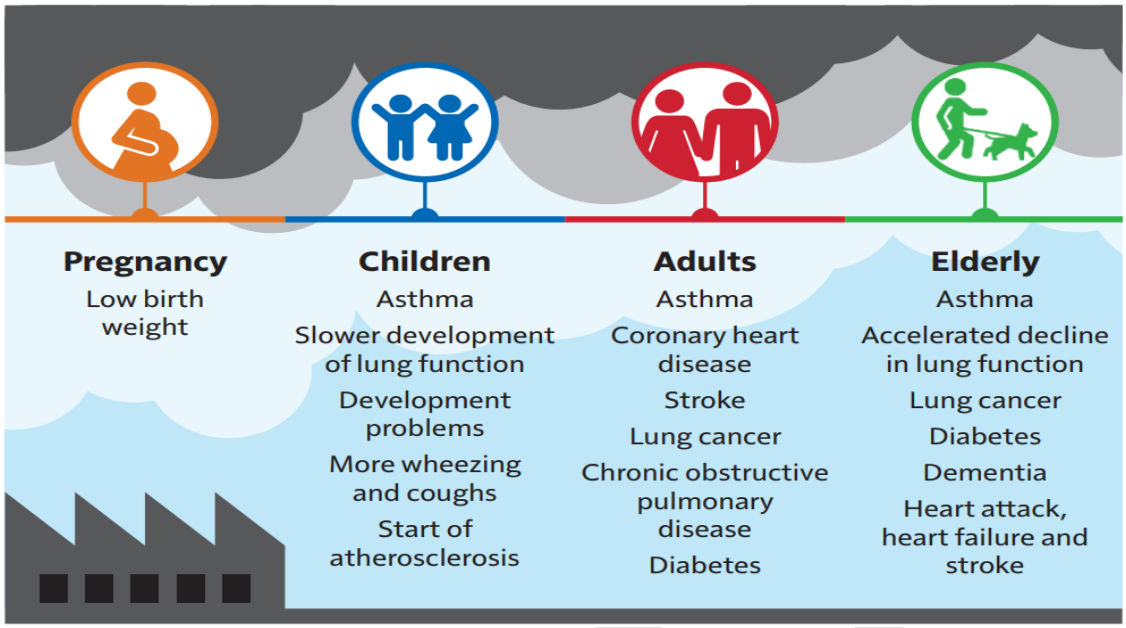


Figure 3.1 Summary of the health effects of air pollution throughout life[7]

3.1.1 Buckinghamshire Joint Strategic Needs Assessment

The Joint Strategic Needs Assessment (JSNA) is a continuous process to assess the current and future health, care and wellbeing needs of the local community to inform local decision making, using a variety of data sources. A JSNA is not one report, it includes a range of resources including:

- reports which look at specific topics providing recommendations and considerations for local commissioners
- summary reports on topics providing a snapshot for Buckinghamshire.
- data profiles and interactive tools to enable the user to explore the data in more detail.

Some of resources that constitute the JSNA are:

The Buckinghamshire Health and Wellbeing Profile 2023[8]. This identified four main health behaviours of smoking, physical inactivity, unhealthy diet, and alcohol misuse which account for 40% of all years lived with ill health and disability. Addressing these four behaviours could lead to a reduction by up to 75% in new cases of heart disease, stroke and type 2 diabetes and a reduction of 40% in new cases of cancer. It also identified that emergency

[7] Chief Medical Officer's annual report 2022: air pollution

[8] The Buckinghamshire Health and Wellbeing Profile 2023 Buckinghamshire profile PDF (healthandwellbeingbucks.org)

hospital admissions for respiratory reason were statistically significantly higher in the Aylesbury and High Wycombe areas than the Buckinghamshire Average. The report recognises that being in contact with the natural environment is vital for our mental wellbeing and physical health at all ages. Air pollution contributes to a range of poor health outcomes including low birth weight babies, stroke, dementia, lung disease and heart disease. The environment affects our mental health and ability to adopt healthy behaviours such as being physically active.

The Opportunity Bucks – Succeeding for all A local response to Levelling Up Framework[9]. This focuses on five key themes, two of which are:

- Quality of Public Realm - Public realm improvements which will promote a sense of wellbeing in our communities.

- Health and Wellbeing - Engaging communities in mental and physical health initiatives and supporting businesses with a healthy workforce and reduced absenteeism.

In tackling these priorities, the Buckinghamshire Growth Board will initially focus their action on those wards where residents experience a combination of inequalities. The following AQMAs are found in councillor wards where people are experiencing the most hardship.

- Stoke Road
- Friarage Road
- Chesham
- AQMA No 2 (High Wycombe).

3.1.2 Public Health Outcomes Framework and $PM_{2.5}$

The Public Health Outcomes Framework has been set up by Government to get a better understanding of trends in public health to enable them to fulfil their vision of improving the nation's health and to improve the health of the poorest fastest. Included within the framework is an indicator for $PM_{2.5}$, Indicator D.01, which can be found in Section D of the framework known as Health Protection. The objective of section D is to protect the population's health from major incidents and other threats, whilst reducing health inequalities. Figures 3.2, 3.3, and 3.4 below show the latest data available on the Office for Health Improvement & Disparities Website Public Health Outcomes Framework.

[9] The Opportunity Bucks – Succeeding for all A local response to Levelling Up Framework Appendix_1_for_Buckinghamshire_Levelling_Up_Framework.pdf (buckinghamshire-gov-uk.s3.amazonaws.com)

The fraction of mortality attributable to particulate air pollution is slightly higher in Buckinghamshire than most of its neighbours and although over the last 10 years it has been both above and below the national average for England it does follow a similar trend.

Area	Recent Trend	Count	Value	95% Lower CI	95% Upper CI
England	–	-	5.8	-	-
South East region	–	-	5.7	-	-
Slough	–	-	7.1	-	-
Windsor and Maidenhead	–	-	6.6	-	-
Reading	–	-	6.6	-	-
Bracknell Forest	–	-	6.5	-	-
Milton Keynes	–	-	6.5	-	-
Wokingham	–	-	6.5	-	-
Buckinghamshire UA	–	-	6.4	-	-
Medway	–	-	6.4	-	-
Portsmouth	–	-	6.2	-	-
Surrey	–	-	6.2	-	-
Southampton	–	-	6.1	-	-
Oxfordshire	–	-	6.0	-	-
West Berkshire	–	-	5.8	-	-
Hampshire	–	-	5.8	-	-
Kent	–	-	5.4	-	-
Isle of Wight	–	-	4.8	-	-
West Sussex	–	-	4.7	-	-
Brighton and Hove	–	-	4.5	-	-
East Sussex	–	-	3.9	-	-

Source: Background annual average PM2.5 concentrations for the year of interest are modelled on a 1km x 1km grid using an air dispersion model, and calibrated using measured concentrations taken from background sites in Defra's Automatic Urban and Rural Network (https://uk-air.defra.gov.uk/interactive-map). By approximating LA boundaries to the 1km by 1km grid, and using census population data, population weighted background PM2.5 concentrations for each lower tier LA are calculated. This work is completed under contract to Defra, as a small extension of its obligations under the Ambient Air Quality Directive (2008/50/EC). Concentrations of total PM2.5 are used for estimating the mortality burden attributable to particulate air pollution (COMEAP, 2022).

Figure 3.2 Fraction of Mortality attributable to particulate air pollution (new method) 2022

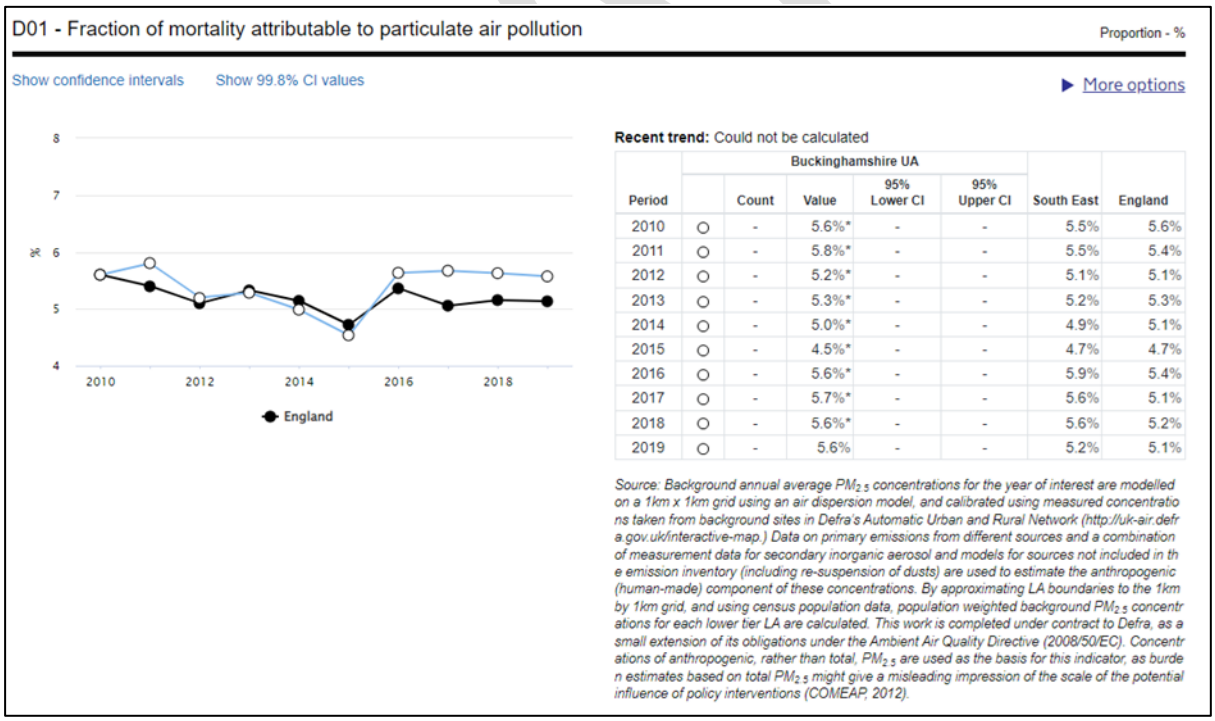


Figure 3.3 Fraction of mortality attributable to particulate air pollution trend 2010 to 2018.

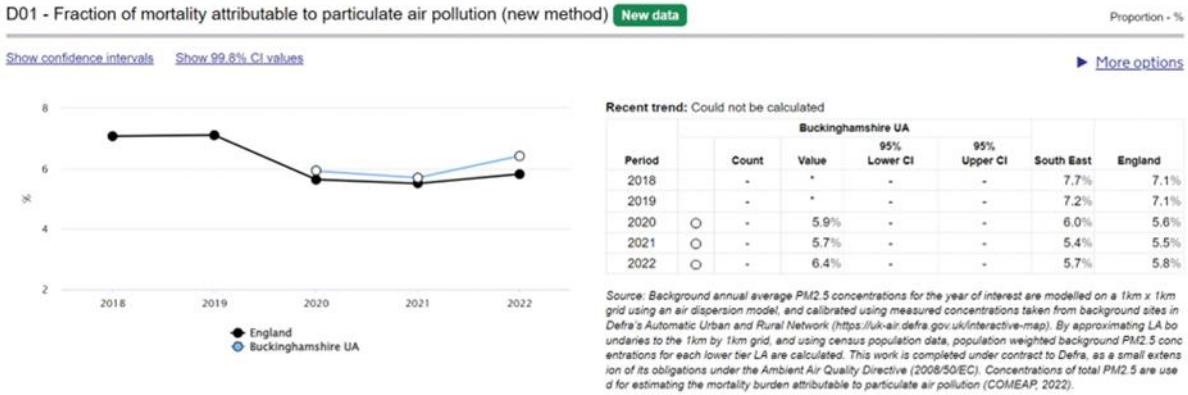


Figure 3.4 Fraction of mortality attributable to particulate air pollution trend 2020 to 2022 (new method)

A representative from the Strategic Environmental Protection team attends the Health Protection Assurance Committee and uses this platform to highlight the importance of reducing $PM_{2.5}$ concentrations on public health. Regular attendance at the Public Health & Transport Strategy Collaboration Meeting and being active contributors to the Council's Physical Activity Strategy enables further engagement with Public Health and other departments in Buckinghamshire Council to improve air quality.

3.2 Planning and Policy Context

The planning system plays an important role in improving air quality and as such air quality is a material planning consideration in relevant planning decisions. Buckinghamshire Council will consider the following planning and policy documents in seeking improvements in air quality within the district.

3.2.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) was updated in September 2023 and sets out the Government's planning policies for England and how these are expected to be applied. It states the purpose of the planning system is to contribute to the achievement of sustainable development and in achieving this the planning system has three overarching objectives. One of these objectives is environmental and it states to protect and enhance our natural, built, and historic environment including minimising waste and pollution.

Paragraph 174 states planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of air pollution. Development should, wherever possible, help to improve local environmental conditions such as air quality.

Paragraph 186 goes further to say planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to

improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.

3.2.2 Local Planning Policies

Buckinghamshire Local Plan

As a relatively new unitary authority Buckinghamshire Council must produce a new local plan within 5 years of coming into being (by April 2025). Having an up-to-date plan in place brings many benefits for Buckinghamshire. In August 2020, the government consulted on a Planning White Paper that proposed significant reforms to the planning system. Later in May 2022, the government published the Levelling Up and Regeneration Bill. Consequently, progress on the local plan is limited until the government has confirmed the detail and timetable for the proposed changes. More information of the Buckinghamshire Local Plan can be found on the planning pages of the council's website.

In the meantime, the Council is reliant on the Local Plans for each legacy district. Listed below are the Local Plans and the policies that have some relevance to ensure that air quality is protected in Buckinghamshire.

Vale of Aylesbury Local Plan (VALP)

The Vale of Aylesbury Local Plan 2013-2033 was adopted by Buckinghamshire Council as a Development Plan Document on the 15th of September 2021. Within this document there is one policy which specifically relates to air quality, Policy NE5 Pollution, air quality and contaminated land. This states:

> "Developments requiring planning permission that may have an adverse impact on air quality will be required to prove through a submitted air quality impact assessment that:
>
> e. The effect of the proposal would not exceed the National Air Quality Strategy Standards (as replaced) or
>
> f. The surrounding area would not be materially affected by existing and continuous poor air quality.
>
> Potentially polluting developments will be required to assess their air quality impact with detailed air dispersion modelling and appropriate monitoring. Air quality impact assessments are also required for development proposals that would generate an increase in air pollution and are likely to have a significantly adverse impact on biodiversity. Required mitigation will be secured through a planning condition or Section 106 agreement."

Several other policies are also present which will have a significant positive impact on improving air quality within the Aylesbury Vale area. These are S1 - Sustainable development for Aylesbury Vale, T1 - Delivering the sustainable transport vision, T7 - Footpaths and cycle routes, T8 - Electric Vehicle Parking and C4 - Protection of public rights of way. A copy of the VALP can be found on the local development plans pages of the council's website.

Chiltern District Local Plan Written Statement.

The Local Plan for Chiltern District was adopted on 1st September 1997. The statement includes alterations adopted in May 2021 and was consolidated in September 2007 and November 2011.

Policy GC9 - Prevention of Pollution Throughout the District states:

> "Throughout the District, the Council will not grant permission for any development likely to generate unacceptable levels of air pollution.
>
> The Council will also refuse any development that would be near existing sources of pollution.
>
> In appropriate cases the Council will positively support proposals for the alleviation of pollution. "

A Core Strategy for Chiltern District was adopted in November 2011.

Policy CS4: Ensuring that Development is Sustainable states:

> "To ensure long–term sustainability of development and help contribute towards national targets to reduce overall CO_2 emissions, the Council will expect all new developments to have regard to the sustainable development principles including:
>
> a. Locations which are easily accessible by public transport, walking and cycling and which are provided with fast broadband services to reduce reliance on the car;
>
> e. Minimal impact on designated local Air Quality Management Areas (AQMA)
>
> n. Incorporation of cycle and vehicle parking appropriate to the needs of the site; o. Travel plans for any residential development of over eighty dwellings and for other development as defined by the local transport authority in its published document (including updates) "Travel Plan Guidance for Developers" www.buckscc.gov.uk/bcc/transport/travelchoice_guidance. page;"

Other relevant polices within the Core Strategy which will have a significant positive impact on improving air quality within the Chiltern area include Policy CS25: Dealing with the Impact of New Development on the Transport and Policy CS26: Requirements of New Development. A copy of the Local Plan for Chiltern District and the Core Strategy for Chiltern District can be found on the local development plans pages of the council's website.

The Local Plan for South Bucks District Local Plan Written Statement

Adopted in March 1999 and Consolidated in September 2007 and February 2011 to include The Adopted Core Strategy Development Plan Document (2011), The Local Plan for South Bucks District Local Plan Written Statement outlines a number of policies which will have a significant positive impact on improving air quality in the South Bucks area. These include Policy TR5 - Accesses, Highway Works, and Traffic Generation, Policy TR10 - Heavy Goods Vehicles and TR13 - Freight Facilities.

The Core Strategy outlines the main policy which specifically relates to air quality in Core Policy 13: Environmental and Resource Management. This states:

"The Council will seek to ensure the prudent and sustainable management of the district's environmental resources by:

- Seeking improvements in air quality, especially in the Air Quality Management Area adjacent to the motorways and close to Burnham Beeches SAC.

- New development will be directed away from existing sources of air pollution to avoid adverse impacts on local communities."

Core Policy 16: South of Iver (Opportunity Area) also focuses on measures to reduce the number of HGV movements in the Iver area. A copy of the Adopted Core Strategy Development Plan Document and The Local Plan for South Bucks District Local Plan Written Statement can be found on the local development plans pages of the council's website.

Wycombe Local Plan

Relevant policy in the Development Plan for Wycombe District is set out in the Wycombe District Local Plan (WDLP) (2019) and the Delivery and Site Allocations Plan (DSA) (2013). The policies relevant to air quality within the documents are CP12 - Climate Change, DM2 - Transport requirements of Development Sites and DM33 – Managing Carbon Emissions: Transport and Energy Generation. A copy of the Wycombe District Local Plan (WDLP) (2019) and the Delivery and Site Allocations Plan (DSA) can be found on the local development plans pages of the council's website.

Wycombe District Council Supplementary Planning Document

This Supplementary Planning Document (SPD) published in March 2020 sets out the Council's preferred approach to applying development plan policies in relation to air quality. It is designed to support measures to mitigate against and improve air quality impacts from and on new developments. This is with the aim of making sure that planning proposals are properly assessed for air quality impact, and that decisions:

- On any new development are consistent with the local Air Quality Action Plan, particularly in the Air Quality Management Areas;

- Support the delivery of the Air Quality Action Plan.

A copy of the SPD can be found on the local planning guidance pages of the council's website.

Buckinghamshire's Minerals and Waste Plan

Formally adopted in July 2019 paragraph 7.15 of Buckinghamshire Minerals and Waste Local Plan 2016 – 2036 states:

"Development proposals will be required to take into account the presence of Air Quality Management Areas (AQMAs) and the cumulative impacts on air quality from individual sites in local areas. Any new development in AQMAs must be consistent with the local air quality action plan". A copy of Buckinghamshire's Minerals and Waste Plan can be found on the local development plans pages of the council's website.

Neighbourhood Plans

Neighbourhood development plans are created by communities to develop a shared vision for their neighbourhood. Once they are formally made, their policies become part of the development plan used to make decisions on planning applications. A significant number of Neighbourhood Plans have either been made or are emerging within the council area. At the time of writing the action plan, several plans outlined policies which would have a co-benefit for air quality such as improved active travel and reduction in traffic and congestion, only one plan outlines a specific policy relating to air quality. More information on Buckinghamshire Council's Neighbourhood Plans can be found on the Neighbourhood Plans pages of the council's website.

3.2.3 Transport Planning

Local Transport Plan 4

Local Transport Plan (LTP) 4 sets out how transport can play its part in Buckinghamshire Council's vision to make Buckinghamshire a great place to live and work. It was adopted by the Council on 28 April 2016. It covers all types of transport and looks ahead to 2036. It sets out the high-level approach to transport in Buckinghamshire. Several policies within the plan relate to air quality. These include Policy 10 - Improving our environment, Policy 12 - Encouraging walking for shorter journeys, Policy 13 - Encouraging cycling, Policy 14 - Car clubs, car sharing and taxis, Policy 16 - Total Transport: the bus network Buckinghamshire needs and Policy 19 – Parking. A copy of LTP4 can be found on the our local transport plan pages of the council's website.

Local Transport Plan 5

Buckinghamshire Council is in the process of updating its Local Transport Plan. This will be the fifth Transport Plan for Buckinghamshire (LTP5) and it will set out the ambitions, policies and plans for delivering transport improvements for all types of transport across the county until 2040. The initial public consultation on the LTP5 vision and objectives took place in June 2023.

The LTP5 policies will be developed using feedback received during the consultation, current transport challenges in Buckinghamshire and government priorities. An implementation plan will also be created to deliver the policies. A further public consultation on the draft LPT5 policies and action plan will be held before adoption of the final plan. More information on LTP5 can be found on the our local transport plan pages of the council's website.

Local Cycling and Walking Infrastructure Plans (LCWIP)

Buckinghamshire Council are currently developing a Council-wide Local Cycling and Walking Infrastructure Plan (LCWIP) that will outline a high-level strategic network across Buckinghamshire. The LCWIP will focus on identifying opportunities for strategic connections between settlements and to key destinations, including employment, education, public transport hubs and networks, town and village facilities, countryside and visitor attractions, neighbouring authority areas.

The Council has also developed and adopted a Local Cycling and Walking Infrastructure Plans (LCWIPs) for High Wycombe. This plan outlines a strategic, long-term approach to improving walking and cycling networks in and around the towns and identifying opportunities for new and improved links with nearby surrounding settlements.

An LCWIP for Aylesbury Garden Town was also published in 2019. The Aylesbury Garden Town LCWIP recommends improvements to walking, cycling and wheeling routes in and around Aylesbury and identifies opportunities for new and improved links with nearby surrounding settlements. The Aylesbury Gardenway is a proposed 18km orbital park that will encircle Aylesbury and delivered in phases over several years. The route will connect with existing and proposed walking, cycling and wheeling routes providing a green corridor to surrounding villages and the local countryside.

More information on the various LCWIPs can be found on the Local Cycling and Walking Infrastructure Plans pages of the council's website.

Freight Strategy

The Buckinghamshire Freight Strategy was created to help keep the balance between the need for efficient distribution of goods and the needs of our environment and communities. The Strategy analyses the impact freight is having in Buckinghamshire and looks ahead to the impact it might have in 2036 and sets out what can be done to harness the benefits of freight and manage its impact. To support the Strategy, 14 policies have been developed which demonstrate the council's commitments on how we intend to manage freight. A copy of the Freight Strategy can be found on the Freight Strategy 2018 to 2036 pages on the council's website.

3.2.4 Other Local Strategies and Plans

Buckinghamshire Council's Corporate Plan 2020 – 2025

The corporate plan outlines the ambitions and priorities for Buckinghamshire Council. One of the four key priorities of the council is 'Improving our Environment' where it is stated that

the Council want to improve air quality and people's health, by reducing emissions and encouraging green transport options. The corporate plan can be found on the corporate plan pages of the council's website.

Climate Change and Air Quality Strategy

The Climate Change and Air Quality Strategy published in October 2021 sets out what Buckinghamshire council will do, and how we will work with partners and residents to achieve net-zero for carbon emissions for Buckinghamshire as a whole by 2050 and to improve air quality across Buckinghamshire pursuant to achieving national air quality objectives. It details over 60 actions the council will take to address climate change and poor air quality.

Update reports have been published by the council which outlines the progress made during 2021 – 2022 and 2022 - 2023 against the targets set out within the Strategy. A copy of the progress reports and the Climate Change and Air Quality Strategy can be accessed on the council's website.

Electric Vehicle Action Plan

In June 2022, Buckinghamshire Council launched a 5-year Action Plan to support the transition of the county to electric vehicles (EVs).

The Action Plan covers a range of measures, including doubling the number of EV charging parking spaces across Buckinghamshire by 2023/4 and an ambition to have more than 1,000 publicly available charging spaces across the county by 2027.

The aim of the EV Action Plan is to help to reduce carbon emissions and improve air quality in Buckinghamshire as set out in Buckinghamshire Council's Climate Change and Air Quality Strategy. More information on the plan can be found on the Electric Vehicles page on the Council's website.

3.3 Source Apportionment

The AQAP measures presented in this report are intended to be targeted towards the predominant sources of emissions within Buckinghamshire Council's area.

A source apportionment exercise was carried out by Buckinghamshire Council in 2023. The method used and the percentage source contributions identified are discussed below.

Air pollution can be quantified in terms of emissions (the quantity of pollutants released into the atmosphere from a source) or the concentration of pollutants in a location (air quality). The source apportionment presented in this section uses emissions. Emissions are related to concentrations, but not in a linear way, because of the effects of dispersion, meteorology, and atmospheric chemistry. Whilst it is exposure to elevated concentrations which cause the health effects, measures to reduce emissions will minimise these effects and are hence a useful approximation.

Source apportioned NOx emissions have been calculated taking account of the different proportions of emissions emitted by different vehicle types on a section of road within the AQMAs where traffic data is readily available, and concentrations measured in 2022 are amongst the highest in that area. The different proportions have been calculated using the Emission Factor Toolkit (EFT version 11.0)[10] Annual Average Traffic Data and % as HGVs provided by DfT and Buckinghamshire Council. These were split further by the EFT which assumes a standard fleet composition for the selected road type, with specified %HDV (HGV and buses/coaches).

The following categories have therefore been included in the source apportionment:

- Petrol Cars,
- Diesel Cars,
- Diesel LGVs (vans),
- Buses and Coaches,
- HGVs
- And Full Hybrid Petrol Cars, Plug-In Hybrid Petrol Cars, Full Hybrid Diesel Cars, CNG Buses, and Hybrid Buses collectively entitled as lower emission cars and buses.

Petrol LGVs and motorcycles were also included in source apportionment calculations, however emissions from these sources make up less than 0.25 % of emissions and have not been considered further. Figure 3.5 shows the percentage contributions of each vehicle type to total predicted NOx emissions from the road. The largest proportion and nearly half of the road NOx emissions is contributed by diesel cars followed by diesel LGVs (vans). HGVs are a more dominant source in the Iver AQMA due to the large number of industrial estates in an area where height, weight and width restrictions limit the routes taken by HGVs in the area.

[10] Emissions Factors Toolkit | LAQM (defra.gov.uk)

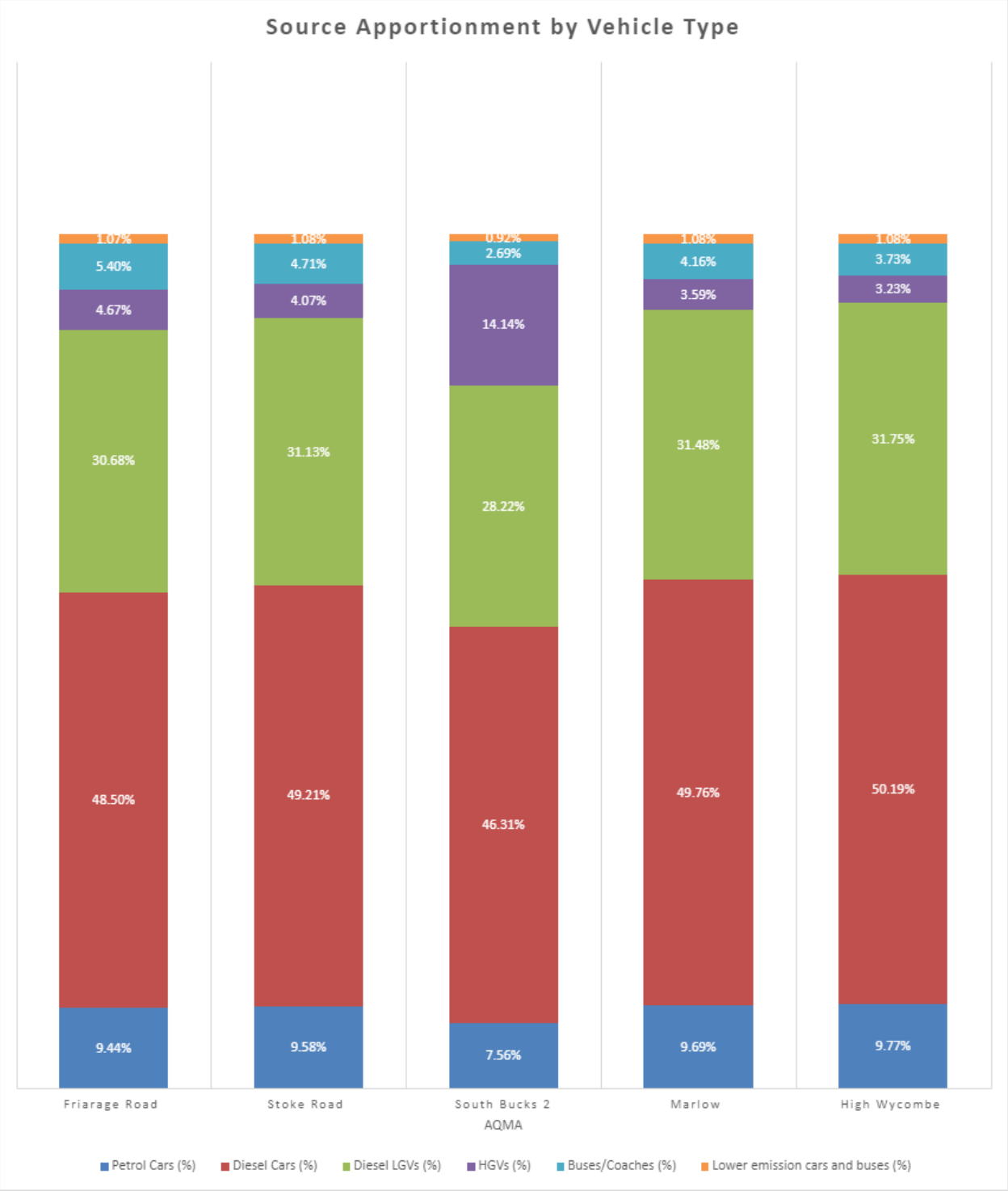


Figure 3.5 Source Apportionment by vehicle type.

3.4 Required Reduction in Emissions

The required reduction in emissions was calculated in accordance with technical guidance LAQM.TG:22, Chapter 7 for AV36 only, see Table 3.1. This was due to it being the only monitoring location to exceed the national air quality objective in 2022 and that it was very close to the objective in 2023. Detailed calculations for both the source apportionment and required reductions in emissions can be found in Appendix C.

Table 3.1 Required Reduction in Emissions

Receptor	Annual Mean Contribution µg/m³					
	Measured NO_2	Background NO_x	Background NO_2	Road NO_x	% decrease in Road NO_x to achieve objective	% decrease in Road NO_x to achieve 10% below objective
AV36	41.6	15.87	11.89	77.49	4.99%	17.16%

3.3.1 When will the objective be achieved?

Using the factors for adjusting roadside nitrogen dioxide concentrations to future years supplied by Defra concentrations at AV36 should achieve the objective in 2023, as illustrated in Table 3.2. After reviewing the monitoring data for 2023 the objective was met. However, the revocation of an AQMA should only be considered following at least three consecutive years of compliance with the relevant objective as evidenced through monitoring. Buckinghamshire Council have taken a precautionary approach and revoke AQMAs after 3 consecutive years below 36µg/m³.

Table 3.2 When will the objective be achieved?

AQMA	Site ID	Site Name	Measured NO_2 in 2022 µg/m³	Projected 2023 µg/m³	Projected 2024 µg/m³	Projected 2025 µg/m³
Friarage Road	AV36	51 Friarage Road, Aylesbury	41.6	39.43	37.32	35.36

3.5 Key Priorities

The main priority of the action plan is to achieve and maintain compliance with the air quality strategy objectives. Considering local policies including the Public Health context, the source apportionment exercise and Air Quality Action Plan Feasibility Study for the South Bucks area, Buckinghamshire Council will focus on the following three themes in the Air Quality Action Plan.

- **Theme 1** – Promote Active and Sustainable Travel and prepare for an increase in uptake of electric vehicles, among other forms of alternative transport. We will educate on the impacts of poor air quality on health and provide information and guidance to those who live and work in Buckinghamshire on how they can both protect themselves as well as be part of the solution. Working with our colleagues in public health, other relevant council departments and external agencies we will facilitate and encourage the uptake of active travel by promoting its benefits on both the environment as well as personal health and wellbeing. To enable modal shift to Active and Sustainable travel or lower emission vehicles, Buckinghamshire Council will provide improved walking and cycling infrastructure and increase the provision of EV charging in the district.

- **Theme 2** - The built and natural environment are major determinants of health and wellbeing. The linkages between health and the environment across the life course have long been established and the role of the environment in shaping the social, economic, and environmental circumstances. For example, the design of our neighbourhoods can influence physical activity levels, travel patterns, social connectivity, mental and physical health, and wellbeing outcomes. As a member of the Buckinghamshire Council Healthy Planning Network, Public Health and Active Travel and Collaboration team and the Electric Vehicle Charging Infrastructure working group the Strategic Environmental Protection team will take the opportunity to embed air quality within local strategies and policies in Buckinghamshire. Examples that are in the process of being developed are Local Plan and Local Transport Plan 5. We will also explore the production of Buckinghamshire-wide local planning guidance for use at local level as best practice.

- **Theme 3** – This AQAP predominantly focusses on the reduction of NO_2 as the AQMAs were declared because of breaching the annual mean objective for NO_2. However, Buckinghamshire Council consider it prudent to include measures in this action plan that reduce the emissions of $PM_{2.5}$ in the area. These include compliance with Environmental Permitting regulations and educating on the impact of domestic burning on concentrations of $PM_{2.5}$. It is widely reported the wood burning stoves are a significant source of $PM_{2.5}$ emissions. Early evidence seems to suggest there is an increase in the number of residents in Buckinghamshire are fitting wood burning stoves.

4 Development and Implementation of Buckinghamshire Council AQAP

4.1 Consultation and Stakeholder Engagement

Buckinghamshire Council has undertaken limited consultation in the initial review of this Action plan. Once appraised by Defra we will amend the action plan accordingly and consult as outlined below.

In updating this AQAP, we have worked with other local authorities, agencies, businesses and the local community to improve local air quality. Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in LAQM-Policy-Guidance-2022. In addition, we will be undertaking the following stakeholder engagement:

- Website
- Presentations at local community boards that have AQMAs in their boundaries.

The response to our consultation stakeholder engagement is given in 6. 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'
AQAPFS	Air Quality Action Plan Feasibility Study
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
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
CAZ	Clean Air Zone
Defra	Department for Environment, Food and Rural Affairs
DRT	Demand Responsive Transport
ETF	Emission Factor Toolkit
EU	European Union

Abbreviation	Description
EV	Electric Vehicle
HGV	Heavy Goods Vehicle
JSNA	Joint Strategic Needs Assessment
LAQM	Local Air Quality Management
LEZ	Low Emission Zone
LGV	Light Goods Vehicle
NAQO	National Air Quality Objectives
NPPF	National Planning Policy Framework
NO2	Nitrogen Dioxide
NOx	Nitrogen Oxides
PM10	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM2.5	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
SAC	Special Area of Conservation
SPD	Supplementary Planning Document
LCWIP	Local Cycling and Walking Infrastructure Plan
LTP	Local Transport Plan
VALP	Vale of Aylesbury Local Plan
WDLP	Wycombe District Local Plan

Appendix A: Response to Consultation.

Table 4.1 Consultation Undertaken

Consultee	Consultation Undertaken
The Secretary of State	Not yet
The Environment Agency	Not yet
The highways authority	Not yet
All neighbouring local authorities	Not yet
Other public authorities as appropriate, such as Public Health officials	Not yet
Bodies representing local business interests and other organisations as appropriate	Not yet

4.2 Steering Group

The Strategic Environmental Protection Team are already a member of the Public Health and Transport Strategy Collaboration Meeting, Physical Activity Strategy group, Health Protection Assurance Committee and have regular meetings with the Transport to School team Energy and Climate Change team and Transport Strategy. Air Quality and action planning is regularly discussed at these meetings therefore it was considered unnecessary to set up a further separate steering group in addition to those mentioned above.

Health Protection Assurance Committee (HPAC)

Buckinghamshire HPAC membership include Buckinghamshire Council Public Health, Communications team, the UK Health Security Agency (UKHSA) Health Protection Team (HPT), NHS England (NHSE) Screening and Immunisation Team, Integrated Care Board (ICB) Infection Control Team and Environmental Health for air quality. Each member of the group is responsible for reporting any issues or risks identified through relevant structures in their own organisations. The group also reports to the DPH, who will escalate any issues through the relevant routes in Buckinghamshire Council and Health & Wellbeing Board. The group meets quarterly.

Public Health & Transport Strategy Collaboration Meeting

The Public Health and Transport Strategy meeting was set up to enable teams who want to encourage active and sustainable travel to collaborate and provide a cohesive message to the public on the co-benefits of active travel. Ensuring that our project promote all the benefits of active travel and not just focus on air quality ensure s better value for money. The teams meet quarterly.

Buckinghamshire Council Healthy Planning Network

Actions to promote healthy, inclusive, and safe places through planning policies/decisions are being taken forward as part of the Wider Determinants strategy. The increasing focus on health and spatial planning provides a real opportunity to bring together health and planning specialists across Buckinghamshire. Enabling partners in Buckinghamshire Council to plan ways in which to improve the health of our current and future residents through the built and natural environment. Membership will primarily consist of officers from health, planning, transport, and environmental protection teams across Buckinghamshire Council. Meetings will take place quarterly.

Transport to School

Monthly meetings with the Transport to School manager to discuss campaigns and ensure that Air Quality is included in their materials where relevant.

5 AQAP Measures

The following measures are for inclusion in this Action Plan.

Theme 1 – Promote Active and Sustainable Travel and Prepare for an Increase in Uptake of Electric Vehicles. Measures to be included in this theme are:

- Promoting data captured from the air quality monitoring network. Promotion and public understanding of the data captured might help the public to become consciously aware of their own impact on local air quality. This may lead to change in routine behaviour, leading to improved local air quality. Evidence of public interest may also help to secure future funding for additional monitoring stations.

- It is the government's ambition to make cycling and walking the natural choices for shorter journeys, or as part of a longer journey by 2040. As well as developing Local Cycling and Walking Infrastructure Plans Buckinghamshire Council are improving footpath and cycling paths in major towns. The council are also utilising section 106 funding to improve walking and cycling infrastructure to enable cycling to be a viable option for travelling to work or school. Examples are the Buckinghamshire Greenway and improvements to the Amber Way. The Buckinghamshire Greenway is an accessible, high-quality active travel route that will connect people and communities running the full length of the county. More information can be found on The Buckinghamshire Greenway pages of the council's website. We are in the early stages of using section 106 funding to improve the Amber Way in the Turnfurlong area of Aylesbury. It is anticipated that improvements to this cycleway will encourage cycling to schools in the local area discouraging driving through the Stoke Road AQMA.

- Buckinghamshire Council encourage local schools, businesses, and communities to develop travel plans. A travel plan is a long-term strategy that encourages people to use alternative modes of transport to cars by:

    - identifying any travel issues that need to be addressed.
    - providing details about how people travel to the site.
    - setting targets to reduce single car occupancy journeys.
    - explaining how targets will be monitored.

  There are now 64 schools in Buckinghamshire with Modeshift STARS (Sustainable Travel Accreditation and Recognition for Schools), increasing the numbers by 14% from the same time last year. The scheme offers schools an online tool to help them plan, monitor and develop a nationally recognised School Travel Plan against set criteria. Taking inspiration from schools using Defra Air Quality Grant funding Buckinghamshire Council can provide travel planning support to local businesses enabling them to develop travel plans using the same framework as the schools.

More information can be found on the Travel planning for schools, businesses and communities pages of the council's website.

- Buckinghamshire Council receives funding from the Department for Transport (DfT) to enable schools to provide Bikeability cycle training to their pupils.

- Implementation of an Electric Scooter Rental Trial within Aylesbury, Princes Risborough, and High Wycombe. The trial has been extended by the Department for Transport until May 2024. More information can be found on the Buckinghamshire electric scooter trial pages of the Council's website.

- Securing cycle parking facilities in town centres and at key transport hubs. Secure and reliable locations to park bikes and other alternative transport equipment are vital to help citizens overcome any concerns in the uptake of an active travel option.

- A lesson learnt when working with local businesses to encourage the uptake of electric vehicles (EVs) and bikes was that there were still many barriers in place when small businesses wanted to reduce emissions from vehicles especially if they used specialist vehicles, for example a domestic oven cleaning service. To enable the business to "green their credentials" Buckinghamshire Council are promoting eco-driver training. Driving smoothly, accelerating, and decelerating gently and reading the road ahead to avoid braking unnecessarily not only reduces emissions and saves fuel it is also improves road safety.

- Working with community boards, residents' associations, and other local groups to promote awareness. Using Defra Air Quality Grant funding Buckinghamshire Council have developed a Clean-up Our Air Toolkit to enable awareness raising by local groups on air pollution. So far, we have installed monitoring sensors at several schools and developed a case study from an action day carried out by a junior school in Princes Risborough. More information can be found on the Clean up Our Air pages on the council's website.

Theme 2 – Embedding Air Quality into Emerging Council Policies and Plans and reducing impact from developments. Measures to be included in this theme are:

- Working with the Planning Policy team to ensure that the emerging Local Plan encourages development that does not adversely affect air quality in Buckinghamshire especially in the AQMAs. There is also a requirement to ensure that where air quality levels are below the objectives, as a minimum, this is maintained in areas where AQMAs are revoked or have not been declared. Ideally Buckinghamshire Council would like to see improvement in air quality in all areas.

- The drafting of the LTP5 vision and objectives has been undertaken alongside the development of the Local Plan for Buckinghamshire. LTP5 will explain how we'll:

    - meet our commitments to address transport related emissions as part of our Climate Change and Air Quality Strategy

- promote sustainable and active travel.

- address the impacts of traffic congestion to improve journeys within and outside Buckinghamshire.

- The Strategic Environmental Protection team critically assesses planning applications that may have the potential to compromise air quality in the district. In response the team ensures that all National and Local Planning policies and guidance is adhered to ensure there is minimal impact on emissions from the proposed developments. In addition, there are several National Infrastructure Projects (NIPs) currently being planned within Buckinghamshire over the next few years. If not managed appropriately they have the potential to cause a large and significant impact on local air quality.

Theme 3 – Reducing $PM_{2.5}$ emissions. Measures to be included in this theme are:

- It is widely reported the wood burning stoves are a significant source of $PM_{2.5}$ emissions. There has been an increase in the number of wood burning stoves being installed in Buckinghamshire in the last 2 years. Figures on the number of HETAS notifications received by Buckinghamshire Council in connection to the installation of stoves/wood burners in domestic properties obtained from our Building Control Department, demonstrate that following a downward trend in 2018 – 2021 there has been a sharp increase in the number of stoves/wood burners being installed in domestic properties with approximately 900 notifications received in 2021 compared to approximately 1500 notifications in 2022 and 2023. Research by Kantar has revealed that most people are unaware of the impact of wood burning stoves on air quality. The Strategic Environmental Protection Team are proposing to conduct a campaign with the support of our Communications and Public Health teams in the winter of 2023/24 to educate members of the public about the risks to human health from domestic burning.

- To enable the implementation of the legally binding targets to reduce concentrations of $PM_{2.5}$ the Air Quality Strategy 2023 states that wider planning reforms partly through the Levelling up and Regeneration Bill and partly through reviews of national planning policy should enable Local Authorities will ensure are equipped with the information they need to make informed choices that support sustainable development. The aim of the policy change is to drive the achievement of statutory environmental targets and the Environment Improvement Plan. In the meantime, the Strategic Environmental Protection Team will continue to compel applicants of local developments and NIPs to follow good construction practice to minimise fugitive dust.

- Ensuring compliance with Environmental Permitting regulations. Industrial emissions have decreased significantly but are still a large source of pollution. We will continue to work with the Environment Agency to ensure that large installations and medium combustion plant are permitted and compliant with their permits. Smaller sites (Part B sites, Solvent Emission Activities and Small Waste Incineration Plant) operate in accordance with process guidance notes issued by Defra and are regulated by Local Authorities. In addition to regular monitoring of permit conditions to ensure compliance the Strategic Environmental Protection Team encourage permit holders to adopt an

Environmental Management Plan to reduce their emissions as much as reasonably possible.

The measures in table 5.3 have been ranked according to the cost benefit analysis (CBA) based on the metrics outlined in Table 5.1. The modelling and cost benefit analysis outlined in the Air Quality Action Plan feasibility study for the South Bucks area was used as evidence to support the scores chosen for each measure. As many of the measures are conceptual at this stage, these are largely qualitative comparisons, but should aid the interpretation of the relative efficacy of each measure. This comparison also recognises that whilst measures may have varying impacts on air quality, that is not always the only consideration for their implementation.

The metrics within the analysis can be described as follows:

- Air Quality Benefit (AQ) – the maximum direct benefit on NO_2 concentrations. This will be based on modelled data where possible, and experience of similar measures,
- External Benefits (Ex) – the perceived externalities associated with the measure, i.e., the knock-on impacts on two other key priorities, climate change and transportation,
- Alignment with existing policies (Po) – reflects the measure's alignment with existing policies, at both a local and national level and,
- Expected Cost (£) – anticipated financial implications of measure, the direct cost of implementation.

Table 5.1 Cost Benefit Analysis Metrics

Level	Air Quality Benefit (AQ)	External Benefits (Ex)	Alignment with existing policies (Po)	Expected Cost (£)
0	No discernible or direct benefit, even a disbenefit, to NO_2	No discernible benefits to other priority areas, climate and transport policy.	Diverges completely from existing Council and National policy	Zero cost, or part of existing spend
1	Low (<1 µg/m^3) benefit to NO_2	Low benefits to climate and transport	Low alignment with existing policy	Low (<£10,000) cost

Level	Air Quality Benefit (AQ)	External Benefits (Ex)	Alignment with existing policies (Po)	Expected Cost (£)
2	Medium (1-5 µg/m^3) benefit to NO_2	Medium benefits to climate and transport	Medium alignment with existing policy	Medium (£10,000-£100,000) cost
3	High (>5 µg/m^3) benefit to NO_2	High benefits to climate and transport	High alignment with existing policy	High (£100,000 – £1000,000) cost

Example Calculation:

Measure Z: AQ (2) x Ex (2) x Po (3) - £ (1) = Overall Rating (11)

CBA Rating Banding: -

-3 – 0 = Undesirable Measure

0 – 5 = Low Priority Measure

5 – 10 = Medium Priority Measure

10+ = High Priority Measure

Alongside the calculation within the descriptions of the measures, the CBA rating of each measure is provided in Table 5.2.

Table 5.3 shows the Buckinghamshire Council AQAP measures. It contains:

- a list of the actions that form part of the plan.
- the responsible individual and departments/organisations who will deliver this action.
- estimated cost of implementing each action (overall cost and cost to the local authority)
- expected benefit in terms of pollutant emission and/or concentration reduction.

- the timescale for implementation
- how progress will be monitored

Updates on implementation of these measures will be reported in the Annual Status Report.

Table 5.2 Cost Benefit Analysis Calculation

Measure	Air Quality Benefit (AQ)	External Benefits (Ex)	Alignment with existing policies (Po)	Expected Cost (£)	Cost Benefit Analysis (CBA) Rating
Implementation of a Freight Strategy	1	2	3	3	3
Working with key stakeholders and appointed consultants to ensure that any impacts associated with National Planning Infrastructure (NPI) projects are minimised.	1	1	2	2	0
Electric Scooter and e-bike Rental Trial within Aylesbury, Wycombe and Princes Risborough	2	2	3	3	9
Implementation of Environmental Permitting Regulations	1	1	1	0	1
Community/public engagement to promote and educate on sources of air pollution, impacts on health and how concentrations can be reduced	2	2	3	2	10
Increase number of cycling networks within the district	2	3	3	3	15
Implementation of the EV Action Plan	3	1	2	3	3
Improving Bus Fleet	1	2	2	2	2
Participate in and support Clean Air Day and Clean Air Night	1	2	2	0	4
Highway improvements to traffic flow by installing smart signals	2	2	3	3	9
Utilising previous studies and the Health Street Approach develop a high-level feasibility design, cost estimate and business case for the Iver AQMA	0	0	2	2	-2
Delivering Air Quality Improvements through Planning Policy	2	3	3	0	18
Work with local schools and business to develop Green Travel Plans. Identify good examples and use as champions	1	2	2	3	1
Promote driver training and ECO aids	1	2	2	2	2
Working with the bus and rail operating companies, we will endeavour to develop new ways of making public transport more attractive to the public.	1	2	2	0	4
Control Domestic Emissions	0	1	2	0	0
Guidance on use of diesel backup generators	1	2	1	0	2
Taxi licensing conditions in updated Taxi Licensing Policy to encourage low emission vehicles	1	2	3	2	4
The Southeast Aylesbury Link Road (SEALR) is a 2-phase project that will create 1.1 miles of dual carriageway connected by 3 roundabouts to form a crucial part of the Aylesbury Orbital Link Road. Completing this project will reduce congestion by redirecting traffic around town via the Orbital Link Roads, which will have a positive impact on air quality within Aylesbury particularly the Stoke Road AQMA and improve walking and cycling by providing two new cycleways/footways.	2	2	2	3	5
Enable compliance with the Iver Neighbourhood Plan Air Quality Neutral (AQN) policy with more stringent application of mitigation required in the Air quality Management Area in Iver	2	3	2	2	10

Table 5.3 Air Quality Action Plan Measures

No	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
1	Delivering Air Quality Improvements through Planning Policy	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2023	2030	Local Authority Strategic Environmental Protection Team and Planning Departments	Local Authority	No	Funded	£10k - 50k	Planning	Not measurable	NOx and PM	Buckinghamshire Council must produce a new local plan within 5 years of coming into being (by April 2025). Following new White Papers and Bills released by the government progress on the local plan is limited until the government has confirmed the detail and timetable for the proposed changes to the planning system. The Strategic Environmental Protection Team will work with the Planning Policy Team to ensure air quality measures are included within the new local plan.	New local planning guidance needs to be considered in light of Iver's Neighbourhood plan and building regs now has a requirement to install EV infrastructure.
2	Increase number of cycling networks within the district	Transport Planning and Infrastructure	Cycle network	2020	Ongoing	Local Authority Strategic Environmental Protection Team and Transport Departments	Various Local Government Funding & Section 106 developer contributions	No	Funded	£500k - £1 million	Implementation	Reduced vehicle emissions	NOx and PM	Improvements to the cycle network are continually being made where funding is secured. For example, the completion of Platinum Way in Aylesbury, Waddesdon Greenway School Link and Aylesbury	

No	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
														Canal Towpath in 2023.	
3	Community/public engagement to promote and educate on sources of air pollution, impacts on health and how concentrations can be reduced	Public Information	Via other mechanisms	2021	2023	Local Authority Strategic Environmental Protection Team and Communications Departments	Local Authority	No	Funded	£50-100k	Implementation	Not measurable	Uptake of toolkits	The majority of the multi-pollutant sensors have been installed in the Community Board areas wishing to participate within the project. The Community Boards have also received their toolkits and started to implement their own campaigns. An example is an ani-idling day held at Princes Risborough School.	
4	Enable compliance with the Iver Neighbourhood Plan Air Quality Neutral (AQN) policy with more stringent application of mitigation required in the Air quality Management Area in Iver	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021	2040	Local Authority Strategic Environmental Protection Team and Development Management	Local Authority	No	Part funded	£10k - 100K	Implementation	Not measurable	Number of planning proposals meeting AQNP; Number of planning proposals requiring NOx damage cost calculations; S106 secured for 100% of relevant developments and 100% of this is ring fenced and allocated to projects which will improve air		

No	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
5	Electric Scooter and e-bike Rental Trial within Aylesbury, Wycombe and Princes Risborough	Alternatives to private vehicle use	Other	2020	2024	Local Authority, Department for Transport, Zipp Mobility	Department for Transport	No	Funded	£100k - £500k	Implementation	Reduced vehicle emissions	No of Scooters Hired	During January and December 2022 there have been more than 130,000 rides covering over 160,000 miles.	The scheme has been extended until the end of May 2024.
6	Highway improvements to traffic flow by installing smart signals	Traffic Management	Other	2024	2030	Local Authority Strategic Environmental Protection Team and Local Authority Urban Transport Management Team	LA	No	Not Funded	£1 million - £10 million	Planning	Reduced vehicle emissions	Smoother running traffic	Workshop planning to take place in Q1 and Q2 2024	Apply for a funding to install smart signals in the Aylesbury area
7	The Southeast Aylesbury Link Road (SEALR)	Transport Planning and Infrastructure	other	2016	2016	Buckinghamshire Highways Transport Strategy	Various sources including: HS2 Ltd the Local Growth Fund Homes England Section 106 contributions	No	Part funded	£1 million - £10 million	Planning	Reduced vehicle emissions in the AQMAs	NO_x Reduced congestion in AQMA Increase in cycling and walking.	Detailed progress can be seen on Buckinghamshire Council's website New road: South East Aylesbury Link Road (SEALR) | Buckinghamshire Council	
8	Participate in and support Clean Air Day and Clean Air Night	Public Information	Via other mechanisms	2017	Annually	Local Authority Strategic Environmental Protection Team and Communications Departments	N/A	No	Not Funded	< £10k	Planning	Not measurable	Shares and Retweets	Working with the Local Community Boards and internal comms team on setting up campaigns for Clean Air Night in January and Clean Air Day in June	

No	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
9	Working with the bus and rail operating companies, we will endeavour to develop new ways of making public transport more attractive to the public.	Alternatives to private vehicle use	Other	2023	2030	Buckinghamshire Council and local train companies	Local authority	No	Funded	£>10K	Implementation	Not measurable	Train patronage	Regular meetings with TFL and Chiltern Railways	
10	Taxi licensing conditions in updated Taxi Licensing Policy to encourage low emission vehicles	Promoting Low Emission Transport	Taxi emission incentives	2024	2025	Buckinghamshire Council and local taxi trade/unions	Local authority	No	Not Funded	<10k	Planning	Reduced vehicle emissions	Increase in the number of low emission taxis	Review of the taxi licensing policy is due to take place in 2024. The Strategic Environmental Protection Team will work with the Licensing Team to ensure air quality measures are included within the updated policy.	
11	Implementation of the EV Action Plan	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2022	2027	Buckinghamshire Council	Office for Zero Emission Vehicles (OZEV)	No	Partially Funded	£1 million - £10 million	Implementation	Not measurable	KPI set in EV Action Plan	Secured funding from On-Street Residential ChargePoint Scheme (ORCS), with installations underway for 64 charging points in 16 council owned car parks. Further ORCS funding has been secured to support the rollout of 'fast' (7-22kW) chargepoints in eight town/parish council car parks, as well as three	

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														Buckinghamshire Council-managed car parks. The Council has also received Local Electric Vehicle Infrastructure (LEVI) funding to support the installation of in-pavement cable channels and EV lamppost charge points in Wendover. Three in-pavement cable channels have been installed to date. Further LEVI funding has been secured to install hundreds of new publicly accessible electric vehicles (EV) charging points across the county. The focus of this project will be to install EV charging points on existing lampposts, which will provide a slow (<7kW) charge. The Council will also be looking at installing a small amount of fast (22kW) charging points in publicly accessible car parks across the county."	
12	Implementation of a Freight Strategy	Freight and Delivery Management	Route Management Plans/ Strategic	2018	2036	Local Authority Strategic Environmental Protection Team	Local Authority	No	Not Funded	500k – 1 million	Implementation	Reduced vehicle emissions	Improved HGV fleet	A pilot scheme is also being run within Ivinghoe where a 7.5 tonne weight	Buckinghamshire Council's Freight Strategy has been adopted. To

No	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
			routing strategy for HGV's			and Transport Departments								restriction is being applied, giving access for local needs. The zone is now moving through a 2-stage implementation phase. Stage 1 We covered the design, procurement and positioning of signs around the zone. This was completed at the end of February 2023 making the restriction order legal. Stage 2 We will work with our neighbouring authorities on the installation of advance notice signage. This will ensure we let HGV drivers and operators know about this restricted zone before they reach the perimeter. We expect the work to be completed in the first half of 2023. Buckinghamshire Council are working with the Wexham and Iver Community Board to develop an action plan to reduce the impact of HGVs on the villages.	support the Strategy, 14 policies have been developed which outline how the council intend to manage freight.

Buckinghamshire Council

No	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
13	Improving Bus Fleet	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	2022	2023	Buckinghamshire Council	Local Authority and if successful the BSIP fund	No	Partially Funded	£50k - £100k	Planning	Not measurable	KPI not set within AQAP	Buckinghamshire Council will continue work to set up an Enhanced Partnership with bus companies and remain fully committed to improving public transport in Buckinghamshire and working to secure Government funding in the future.	The Government announced allocations of BSIP funding in April 2022 and have only awarded monies to 31 authorities. 40 other authorities will receive no funding at this stage and, unfortunately, Buckinghamshire is one of those. This is extremely disappointing as we submitted an ambitious plan containing nearly 50 schemes to improve bus services for our residents and covering all of the areas the Department for Transport asked us to focus on, including plans for greener buses, more frequent services, lower fares, improved technology and travel information.
14	Promote driver training and ECO aids	Vehicle Fleet Efficiency	Driver training and ECO driving aids	2024	2025	Local Authority Strategic Environmental Protection Team, Local Authority Transport strategy team, Bucks Business First	Air Quality Grants	Yes	Funded	£10k - 50k	Planning	Not measurable	No of Eco-Driving training and eco aids taken up	Grant received to promote Eco-Driving Aids in Buckinghamshire. Company employed to implement the project	

No	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
15	Guidance on use of diesel backup generators	Promoting low emission plant	Emission control equipment for small and medium sized stationary combustion sources	2024	2030	Local Authority Strategic Environmental Protection Team, Planning Department and Environment Agency	Local Authority	No	Funded	<10k	Planning	Reduced emissions	NOx and PM	A draft guidance document is in the process of being written	There has been a marked increase in the number of planning applications being received which include diesel backup generators. Particularly for data centres within the Iver area.
16	Implementation of Environmental Permitting Regulations	Environmental Permits	Measures to reduce pollution through IPPC Permits going beyond BAT	2016	Ongoing	Local Authority Strategic Environmental Protection Team	Local Authority and Permitting Fees	No	Funded	< £10k	Implementation	PM	No of Permitted Processes with Environment Management schemes	Permitting officer encourages the uptake of Environmental Management schemes to reduce emissions	
17	Work with local schools and business to develop Green Travel Plans. Identify good examples and use as champions	Promoting Travel Alternatives	Workplace Travel Planning	2023	2030	Buckinghamshire Council	Local Authority and Air Quality Grants	Partially funded	Funded	£100K - £500k	Implementation	NOx and PM	No of businesses and schools with travel plans	For schools see theme 1 above. The council have employed travel planning consultant to work with 50 local businesses. The Council has an ongoing function of approving and supporting implementation of developer and business travel plans linked to development sites.	
18	Working with key stakeholders and appointed consultants to ensure that any	Transport Planning and Infrastructure	Other	2006	Various	Local Authority Strategic Environmental Protection Team, High Speed 2 (HS2),	HS2 and EWR	No	Funded	£10k - 50k	Implementation	Limited short-term increase in emissions	NOx and PM	During the construction phase of each of these developments Buckinghamshire	

No	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Potential Barriers to Implementation
	impacts associated with National Planning Infrastructure (NPI) projects are minimised.					East West Rail (EWR) and Luton Rising (LR)								Council will continue to work with the relevant agencies and organisations to minimise impacts upon air quality.	
19	Control Domestic Emissions	Promoting low emission plant	Regulations for fuel quality for stationary and mobile sources	2024	2030	Local Authority Strategic Environmental Protection Team, Public Health, Trading Standards and Communications Team	Local Authority	No	Funded	<10k	Planning	PM and NOx	HETAS notifications of new wood burning stoves	Will be taking part in Clean Air Night and monitoring HETAS notifications received	To include wood burning and gas/diesel boilers
20	Utilising previous studies and the Health Street Approach develop a high-level feasibility design, cost estimate and business case for the Iver AQMA	Traffic Management	Strategic highway improvements	2024	2030	Local Authority Strategic Environmental Protection Team and Transport Team	Section 106 developer contributions	No	Not Funded	£10 - £50k	Planning	Reduced vehicle emissions	Smoother running traffic	Commission form submitted to Buckinghamshire Highways	

6. 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'
AQAPFS	Air Quality Action Plan Feasibility Study
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
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
CAZ	Clean Air Zone
Defra	Department for Environment, Food and Rural Affairs
DRT	Demand Responsive Transport
ETF	Emission Factor Toolkit
EU	European Union
EV	Electric Vehicle
HGV	Heavy Goods Vehicle
JSNA	Joint Strategic Needs Assessment
LAQM	Local Air Quality Management
LEZ	Low Emission Zone
LGV	Light Goods Vehicle
NAQO	National Air Quality Objectives
NPPF	National Planning Policy Framework
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less

Abbreviation	Description
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
SAC	Special Area of Conservation
SPD	Supplementary Planning Document
LCWIP	Local Cycling and Walking Infrastructure Plan
LTP	Local Transport Plan
VALP	Vale of Aylesbury Local Plan
WDLP	Wycombe District Local Plan

Appendix A: Response to Consultation

Table A.1 Summary of Responses to Consultation and Stakeholder Engagement on the AQAP

Consultee	Category	Response

Buckinghamshire Council has undertaken limited consultation in the initial review of this Action plan. Once appraised by Defra we will amend the action plan accordingly and consult as outlined within section 1.14.

Appendix B: Reasons for Not Pursuing Action Plan Measures

Table B.1 Action Plan Measures Not Pursued and the Reasons for that Decision.

Action category	Action description	Reason action is not being pursued (including Stakeholder views)

Buckinghamshire Council has undertaken limited consultation in the initial review of this Action plan. Once appraised by Defra we will amend the action plan accordingly and consult as outlined within section 1.14. Table B.1 will then be updated accordingly.

Appendix C: Quantitative Appraisal of Action Plan Measures

In 2020 an Air Quality Action Plan Feasibility study (AQAPFS) was undertaken on the South Buckinghamshire Action Plan. This AQAFS was funded by DEFRA Air Quality Grant awarded to South Bucks District Council in 2019. It provided a package of actions which offered the potential to reduce emissions of air pollutants and GHGs. The purpose of the AQAFS was to seek to optimise Council policies and strengthen partnership working to deliver cost-effective, road transport emission reductions across the Parish of Iver as well as Buckinghamshire-wide.

The executive summary can be found below, and the complete document is located on Buckinghamshire Council's Air Quality pages of the website.

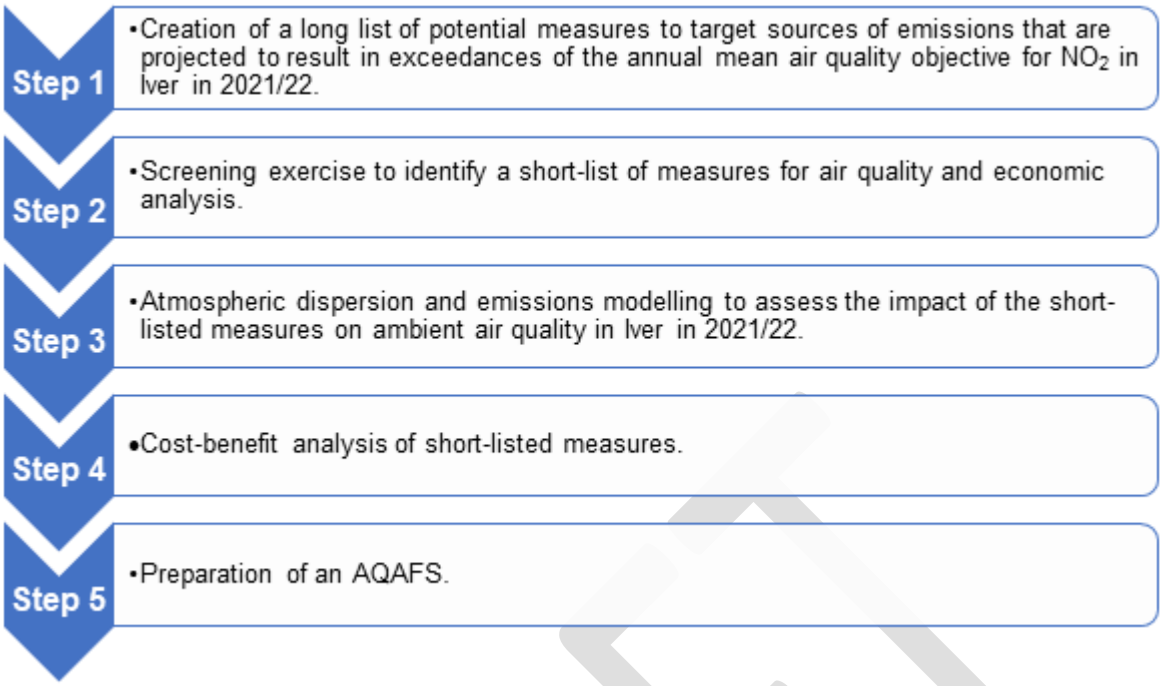
Air Quality Action Plan Feasibility Study (South Bucks Area) Executive Summary

South Bucks, like many other areas in the UK, has locations where NO_2 concentrations are in excess of national and European air quality standards. There are two AQMAs declared for NO_2 based on measured concentrations exceeding the national objective, principally due to emissions from road transport travelling along the motorways that run through the South Bucks area. The South Bucks AQMA was declared in 2004 and comprises the M4, M25, M40 and adjacent land, while South Bucks AQMA No.2 was declared in 2018 and encompasses the whole of the Parish of Iver.

On 1st April 2020, a new unitary Buckinghamshire Council replaced:

- Aylesbury Vale District Council (AVDC)
- Buckinghamshire County Council (BCC)
- Chiltern District Council (CDC)
- South Bucks District Council (SBDC)
- Wycombe District Council (WDC)

The measures included in the South Bucks Air Quality Action Feasibility Study (AQAFS) were identified through a series of steps:



The measures developed in support of the AQAFS were designed to focus on the following areas:

1. Iver Village High Street – This will focus on the High Street in the village of Iver, as this is a focal area for air pollution in the Iver Parish AQMA.

2. Iver Parish AQMA – This will also address Iver Village High Street, as well as Thorney Mill North and South, and other locations of relevance within the Parish of Iver.

3. Buckinghamshire-wide – In some cases, measures will have benefits for emission reductions across Buckinghamshire as a whole, including areas within Iver Parish, along the motorways in the South Bucks AQMA, and beyond.

A long list of potential measures to be included in the AQAFS was developed following a review of the Council's policies and programmes and using Ricardo's experience of completing similar air quality modelling studies for other regions across the UK.

An internal stakeholder engagement workshop was then conducted via teleconference during September 2020. The aim of the workshop was to present the key concepts of the AQAFS to stakeholders and to generate discussion regarding potential measures.

Prior to the stakeholder engagement workshop, participants were asked to complete a multi-criteria analysis (MCA) of the long list of measures. The MCA required participants to review each of the measures on the long list, providing a ranking score to reflect how the measure would perform against each criterion, whilst also considering the measure relative to others on the long list. Stakeholders were also asked to provide comments on the measures' suitability, potential for implementation and the likely impacts on emissions and

broader socio-economic factors. This feedback is summarised in the report and was taken into account when selecting the shortlisted measures.

Following the stakeholder engagement workshop, a shortlist of measures was identified that had the greatest potential of improving air quality in the city, whilst also being cost-effective, practical and achievable. The implementation time for each measure was considered, and whether the emissions impact of the measure could be quantified through modelling. The shortlisted measures are a combination of a number of long list measures, and packaged into two work packages.

Work Package 1 encompasses the behavioural change measures of an electric vehicle charging network and a clean air campaign (Measure 1). Work Package 2 relates specifically to HGV traffic; one measure is a freight strategy based on removing HGV traffic from the modelling domain (Measure 2) and the other measure tests the impact of smoother traffic flows and increased speeds on Iver High Street (Measure 3). The three measures have undergone an economic assessment, emissions assessment and air quality assessment, the results of which are provided in this report in full.

Measure		Action	
1	Electric vehicle charging network and clean air campaign	1.1	EV infrastructure, promotion and awareness.
		1.2	Encourage alternative transport and active travel including provision of cycle infrastructure and incentive schemes.
2	Freight strategy including relief road scenario	2.1	Collaboration with local businesses to encourage low emission vehicle practices and improvements to the HGV fleet travelling in and around Iver .
		2.2	Promotion of EcoStars scheme.
		2.3	Construction of relief road.
3	Alternative Parking & Traffic Flow Sensitivity Test	3.1	Parking improvement measures.

The results of the economic, emissions and air quality assessments allow us to make the following observations:

- When considering percentage savings in emissions, the greatest reduction in NOx emissions was seen in Measure 3 although it must be considered that this reduction applied to the Iver High Street only. The percentage reduction in NOx emissions from Measure 1 is comparable to that of Measure 3, however, these impacts would be felt more widely than just the High Street.

- Considering pollutants other than NOx, Measure 1 had a relatively small impact on particulate matter (PM_{10} and $PM_{2.5}$) emissions, but a larger impact on CO_2. This trend could also be seen for Measure 3, but the impact on particulate matter emissions was greater than for Measure 1. Measure 2 was targeted at HGVs and had a greater impact on particulate matter and CO_2 emissions, but less of an impact on NOx emissions.

- Similar trends can be seen when looking at air quality improvements in terms of change in concentration at diffusion tube locations within South Bucks. Measure 1 and Measure 3 have comparable impacts on NO_2 concentrations at diffusion tube locations, although Measure 3 only applies to those locations on Iver High Street. Measure 2 achieved relatively small reductions in NO_2 concentrations at diffusion tube locations compared to the other two measures. Although this measure targets HGVs, which are a key issue for the South Bucks area, they are still only a small portion of the fleet. In comparison, Measure 1 targets cars and LGVs, and Measure 3 targets all vehicle types (although only on the High Street).

- None of the three measures achieved as significant a reduction in PM_{10} and $PM_{2.5}$ concentrations as NO_2 concentrations. As with the emissions assessment, Measures 1 and 3 had a significantly smaller impact on particulate matter, but Measure 2 had more of an impact.

- The Net Present Values of the measures vary considerably. Overall, Measure 1 will have a NPV of between £1.5 and £3.5 million over the 10-year appraisal period. Measure 2 has a NPV between £900,000 to £4,000,000. However, this only includes the potential air quality damage cost savings and does not include any potential costs associated with the relief road or other options to reduce freight emissions. The modelled net benefit of Measure 3 is between £18,000 and £40,000.

Overall, the analysis suggests all measures would offer a benefit for local air quality in South Bucks and none of the measures will result in a significantly negative economic impact. Furthermore, many of the negative economic impacts reflect the capital and/or operational costs, which in many cases could be supplemented through additional funding streams (e.g. Early Measures Funding, Clean Bus Technology Fund etc.). Measure 1 is the only measure with significant costs (due to vehicle upgrades and implementation), and these are predicted to be almost offset by the benefits of operation, fuel savings, CO_2 savings and air quality benefits.