WEST OXFORDSHIRE DISTRICT COUNCIL

Supplement for

EXECUTIVE - WEDNESDAY, 11TH SEPTEMBER, 2024

Agenda No	Item
14.	**Witney & Chipping Norton Air Quality Action Plan (Pages 3 - 262)**

Annexes A-C are included in this supplement pack.

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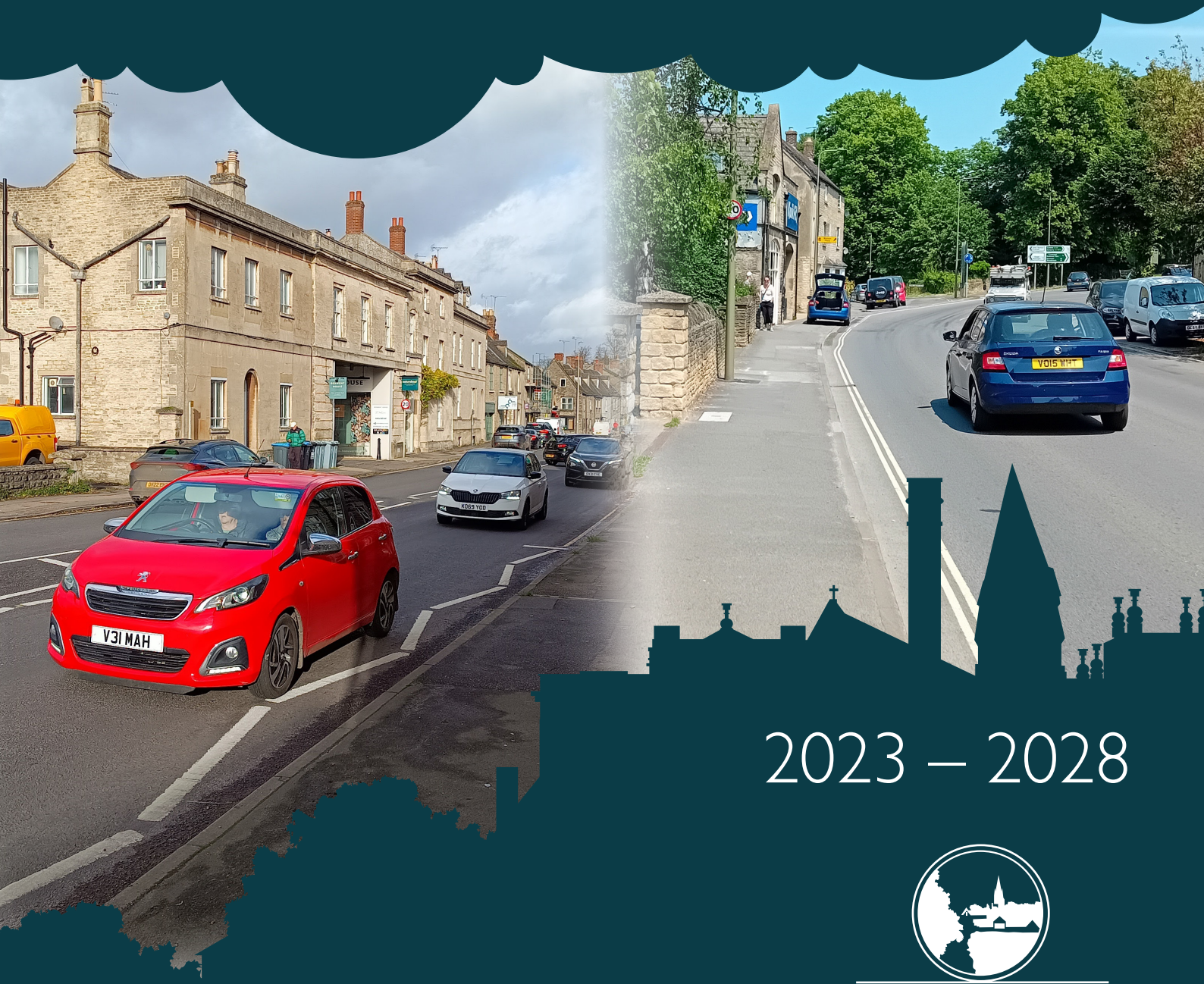
West Oxfordshire District Council
Witney and Chipping Norton

Air Quality Action Plan

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



2023 – 2028

WEST OXFORDSHIRE
DISTRICT COUNCIL

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Date	31/10/2023

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 Witney, Chipping Norton, and the wider West Oxfordshire District between 2023 – 2028.

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 equality 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]. West Oxfordshire District Council is committed to reducing the exposure of people in Witney and Chipping Norton to poor air quality in order to improve health.

We have developed actions that can be considered under 10 broad topics:

- Alternatives to private vehicle use
- Freight and delivery management
- Policy guidance and development control
- Promoting low emission plant
- Promoting low emission transport
- Promoting travel alternatives
- Public information e.g. on issues such as anti-idling, wood burning stoves etc.

[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

- Traffic management
- Transport planning and infrastructure
- Vehicle fleet efficiency

Witney

In Witney, our priorities are:

1. Bringing the Witney Air Quality Management Area (AQMA) into compliance with the NO_2 annual mean Air Quality Objective (AQO)
2. Managing $PM_{2.5}$ exposure in Witney
3. Improving accessibility into and around Witney by alternatives to private car – i.e. walking, cycling and public transport

Chipping Norton

This action plan replaces the previous Horsefair and High Street, Chipping Norton Air Quality Action Plan published in 2008. Projects delivered through the past action plan include:

- Consultation with neighbouring authorities regarding HGV routing, potential imposition of weight limits, and investigation of Low Emission Zone integration to support this. These options were considered in detail but not taken forward
- Development of a Climate Change Strategy
- Engagement with local public transport operators (buses and taxis) to

  a) promote the procurement of vehicles with cleaner engine technologies and

  b) promote the use of cleaner fuels
- Engagement with freight transport operators to

  a) promote the procurement of vehicles with cleaner engine technologies and

  b) promote the use of cleaner fuels
- Developed School Travel Plans and promoted the WODC Green Travel Plan
- Implemented the OCC Bus Strategy
- Acquired powers to require drivers to switch off their engines if they are idling

- Managed parking to reduce congestion – developed the 2016 West Oxfordshire Parking Strategy

In Chipping Norton, our priorities are:

1. Bringing the Chipping Norton Air Quality Management Area (AQMA) into compliance with the NO_2 annual mean Air Quality Objective (AQO)
2. Managing $PM_{2.5}$ exposure in Chipping Norton
3. Improve accessibility into and around Chipping Norton by alternatives to private car – i.e. walking, cycling and public transport

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 West Oxfordshire District Council's direct influence.

Responsibilities and Commitment

This AQAP was prepared by the Environment and Residential Services Department of West Oxfordshire District Council with the support and agreement of the following officers and departments:

Witney and Chipping Norton

- Hannah Kenyon, WODC Climate Change Manager in Climate Change
- Lidia Arciszewska, WODC Member for the Environment
- Kate Eveleigh, OCC Health Improvement Practitioner
- Susan McPherson, WODC Senior Air Quality Officer
- Phil Measures, WODC Team Leader

Witney

- Janice Bamsey, WODC Principal Planner in Planning Policy
- Odele Parsons, OCC Senior Transport Planner – Cherwell & West Infrastructure Locality Team
- David Rudland, WODC Air Quality Officer
- Karen Toomer, WODC Senior Manager
- Andrew Prosser, District Councillor for Witney North, Town Councillor, Cabinet for Climate Change
- Liz Duncan, Witney Town Councillor

Chipping Norton

- Kim Hudson, WODC Principal Planner in Planning Policy
- Natalie Moore, OCC Senior Transport Planner – Cherwell & West Infrastructure Locality Team
- Robert Skillern, Gloucestershire County Council Highway Manager
- Chipping Norton Town Council

This AQAP has been signed off by Ansaf Azhar, Director of Public Health for Oxfordshire County Council.

This AQAP will be subject to an annual review, appraisal of progress and reporting to West Oxfordshire District Council Climate & Environment Overview & Scrutiny Committee. Progress each year will be reported in the Annual Status Reports (ASRs) produced by West Oxfordshire District Council, as part of our statutory Local Air Quality Management duties.

If you have any comments on this AQAP please send them to Air Quality Officer at:

West Oxfordshire District Council

Woodgreen

Witney

Oxfordshire

OX28 1NB

Tel: 01993 861000

Email: ers.pollution@publicagroup.uk

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1 Introduction

This report outlines the actions that West Oxfordshire District Council will deliver between 2023 and 2028 in order to reduce concentrations of air pollutants and exposure to air pollution in Witney and Chipping Norton; thereby positively impacting on the health and quality of life of residents and visitors.

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 West Oxfordshire District Council's air quality ASR.

2 Summary of Current Air Quality in Witney and Chipping Norton

2.1 Background to Witney and Chipping Norton

Witney

Witney is the main economic centre in the district and has experienced major growth in the last 30 years, more than doubling its population. Transport is a key issue for the Witney subarea which contains a number of important and well-used routes including the A40, the A4095 and A415. Although Witney has the best road connections and bus services in the district context, traffic congestion is a significant problem due to high car use, particularly for journeys outside of Witney. Congestion is particularly an issue in the historic core of the town around Bridge Street where the town's single crossing of the River Windrush creates a 'bottleneck' to traffic travelling east-west across town.

Chipping Norton

Chipping Norton sits astride the crossing of the A44 and A361, with the heavily used lorry route to and from the Evesham area passing through the town centre. The previous AQAP, adopted in 2008, contained a range of measures to improve air quality in Chipping Norton, primarily targeting reduction of HGVs.

Pedestrian and cyclist access across Chipping Norton is hindered by the topography, narrow roads, and relatively poor access within the residential areas. There are no cycle routes into the town and routes within the town are poor. The availability of public car parking has been flagged as a limiting factor to the vitality and viability of the Chipping Norton town centre. It is not served by rail however there is scope for enhancement of bus services.

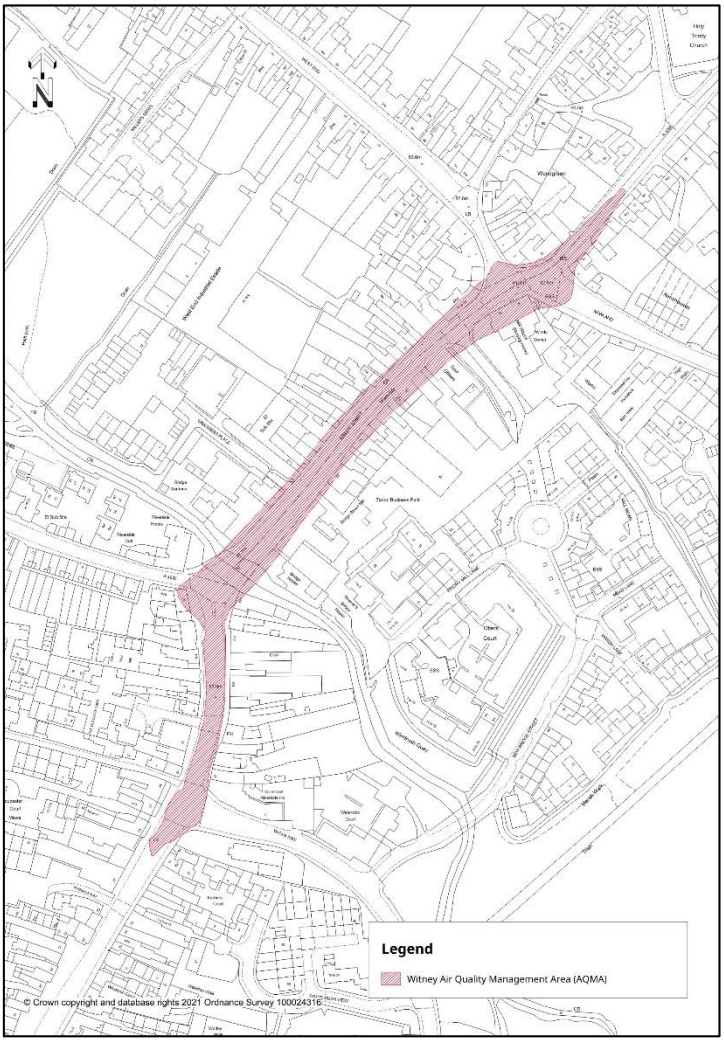
Surrounding villages look to Chipping Norton as a service centre, whilst Chipping Norton looks to Banbury for higher order services and facilities.

2.2 Summary of nitrogen dioxide (NO_2) in Witney and Chipping Norton

Witney

The Witney Air Quality Management Area (AQMA) was declared in 2005 for exceedance of the nitrogen dioxide (NO_2) annual mean Air Quality Objective (AQO). The AQMA extends along Bridge Street and parts of High Street, Newland, and Woodgreen Hill (Figure 2-1).

Figure 2-1: Map of Witney Air Quality Management Area (AQMA)



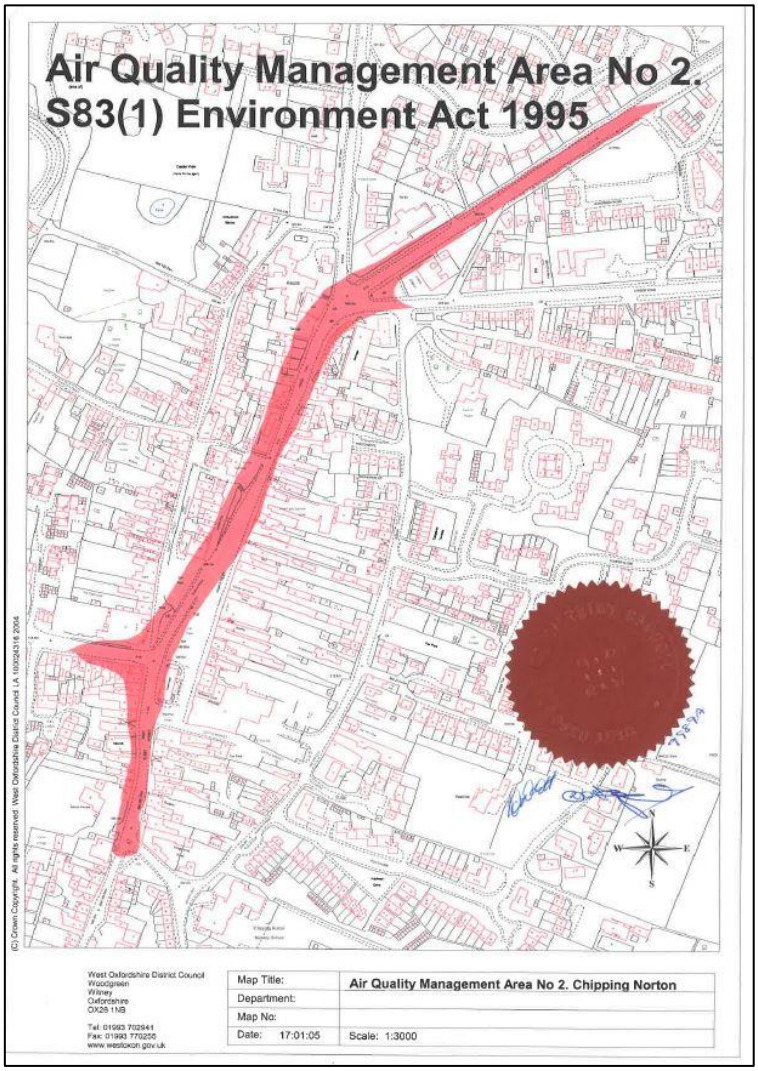
Congestion in this area, especially on Bridge Street, is commonplace. Bridge Street is the only road in the town which crosses the River Windrush, and is the main route for those travelling south west to north east of the town towards Woodstock on the A4095.

Traffic using this route, frequently backs up from the double mini roundabout at the northern end of Bridge Street, causing congestion.

Chipping Norton

The Chipping Norton AQMA, declared in 2005 for nitrogen dioxide (NO_2), incorporates an area of the town centre encompassing Banbury Road, Horse Fair and Market Place (Figure 2-2).

Figure 2-2: Map of Chipping Norton Air Quality Management Area (AQMA)



Congestion in this area, especially on Horse Fair and High Street (both also A44), is common. The A44 is classed as a Secondary Freight Priority Route, and consequently is frequently used by freight as well as other vehicles travelling from the north west to south east of the district and vice versa. Congestion is caused by traffic lights at the

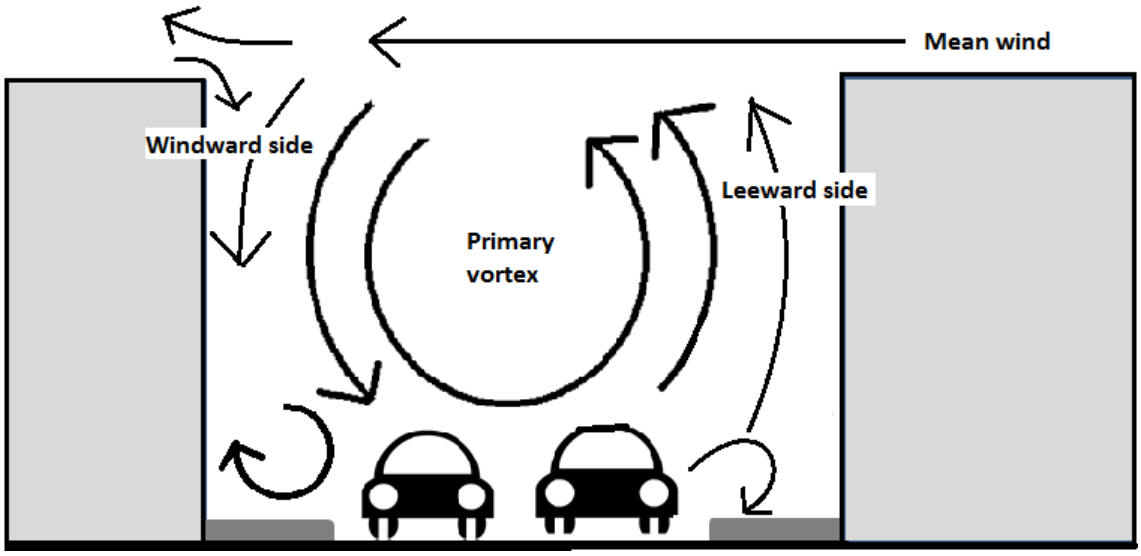
junction of High Street (A44), New Street (A44) and Market Street (A361), and the narrowing of the A44 as it becomes Horse Fair.

NO_2 continues to be the pollutant of most concern in Witney and Chipping Norton, and road transport exhausts is the most significant source of emissions of oxides of nitrogen (NOx), which includes NO_2 and nitrous oxide (NO). Further information on pollution sources is provided later in Section 3.3.

Effect of Street Canyons

Air quality issues, caused by slow-moving traffic along the main links in the Witney AQMA and Chipping Norton AQMA, are likely to be exacerbated by street canyon effects. The street canyon effect is the trapping of air pollution produced in a space between tall buildings, as shown in Figure 2-3, which leads to heightened levels of air pollution.

Figure 2-3: Diagram showing the street canyon effect, which traps air pollution in a wind vortex between buildings (Oke, 1988)[4]



[4] Oke, T.R (1988). "Street design and urban canopy layer climate". Energy and Buildings. 11 (1–3): 103–113

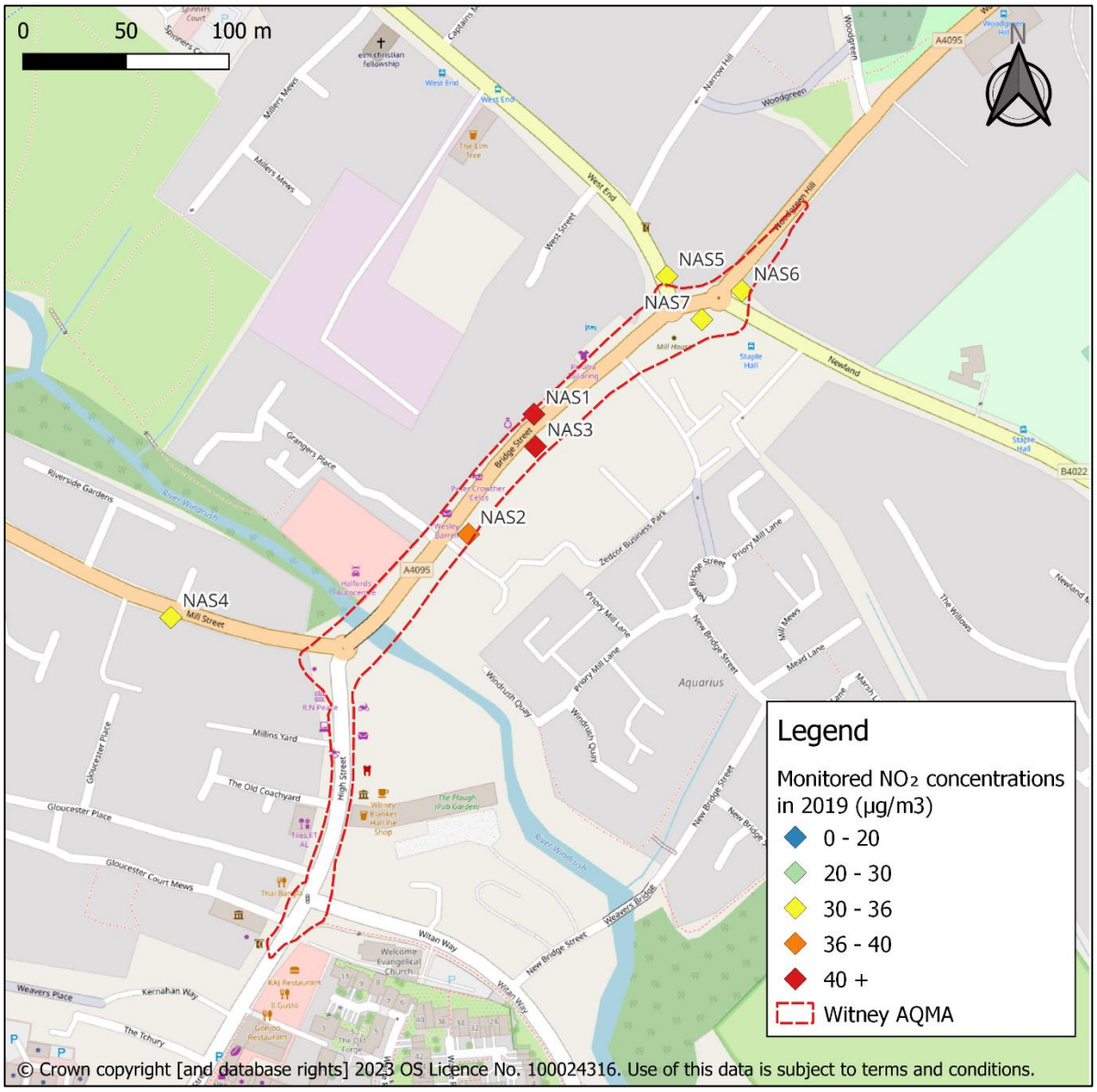
2.3 Monitoring network and 2017 – 2021 data

2.3.1 Witney

NO_2 is monitored at eight diffusion tube locations in Witney as of 2021. Seven of these sites are located within and around the AQMA (Figure 2-4) and one of the sites (NAS44) was implemented in 2021 at 83 Oxford Hill, close to the East Witney Strategic Development Area.

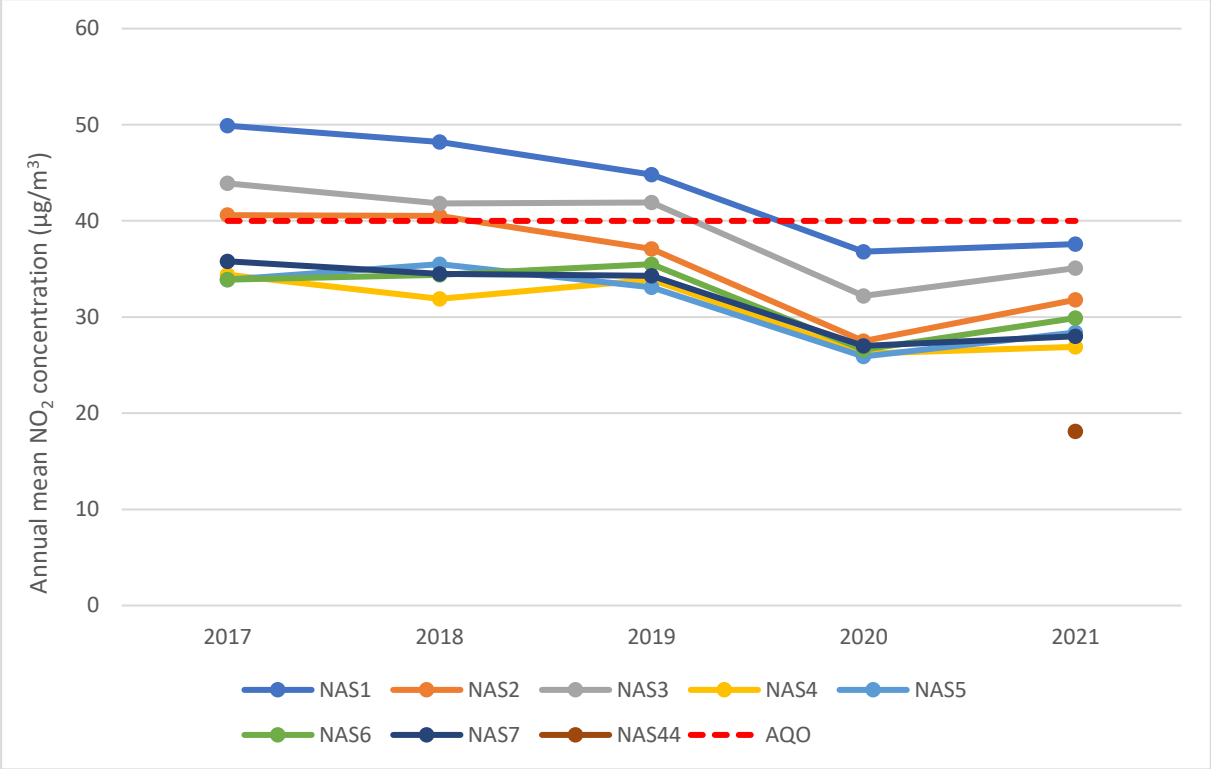
For the modelling study undertaken as part of this AQAP, we evaluated data from 2019 as this represented the most recent year, at the time of modelling, with available data that was not impacted by the COVID-19 pandemic and its associated lockdowns. In 2019, NAS1 and NAS3 exceeded the national air quality objective of 40 µg/m^3, and NAS2 was compliant but within 10% of the objective. These three sites are located on Bridge Street which lies in the centre of the AQMA.

Figure 2-4: Map of Witney AQAP with diffusion tube annual mean NO_2 concentrations for 2019



Air quality monitoring data for NO_2 in Witney over the last five years is presented in Figure 2-5. Three diffusion tube locations have exceeded the annual mean NO_2 Air Quality Objective (AQO) of 40 µg/m^3 in the last five years: NAS1, NAS2 and NAS3. All diffusion tubes were compliant in 2020 and 2021, but NAS1 was still within 10% of the 40 µg/m^3 limit.

Figure 2-5: Diffusion tube results for annual mean NO_2 concentrations for Witney between 2017 and 2021

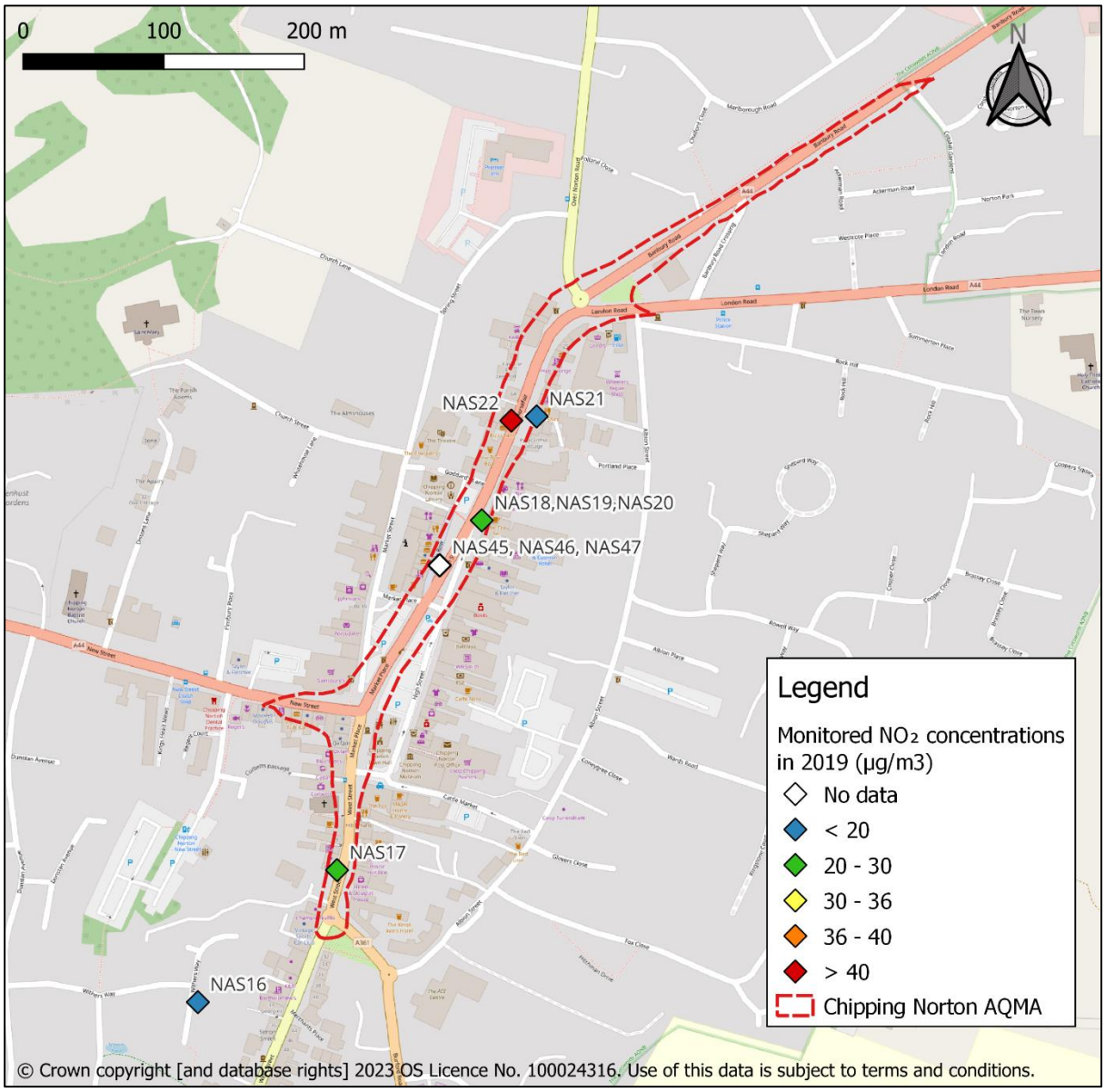


2.3.2 Chipping Norton

At the time of writing, NO_2 is currently monitored at six diffusion tube locations in Chipping Norton, all but one (NAS16) of which are located within the AQMA (see Figure 2-6). One of the monitoring sites is a triplicate site, which means that there are three diffusion tubes measuring NO_2 concentrations at the same location, with an average taken for increased precision.

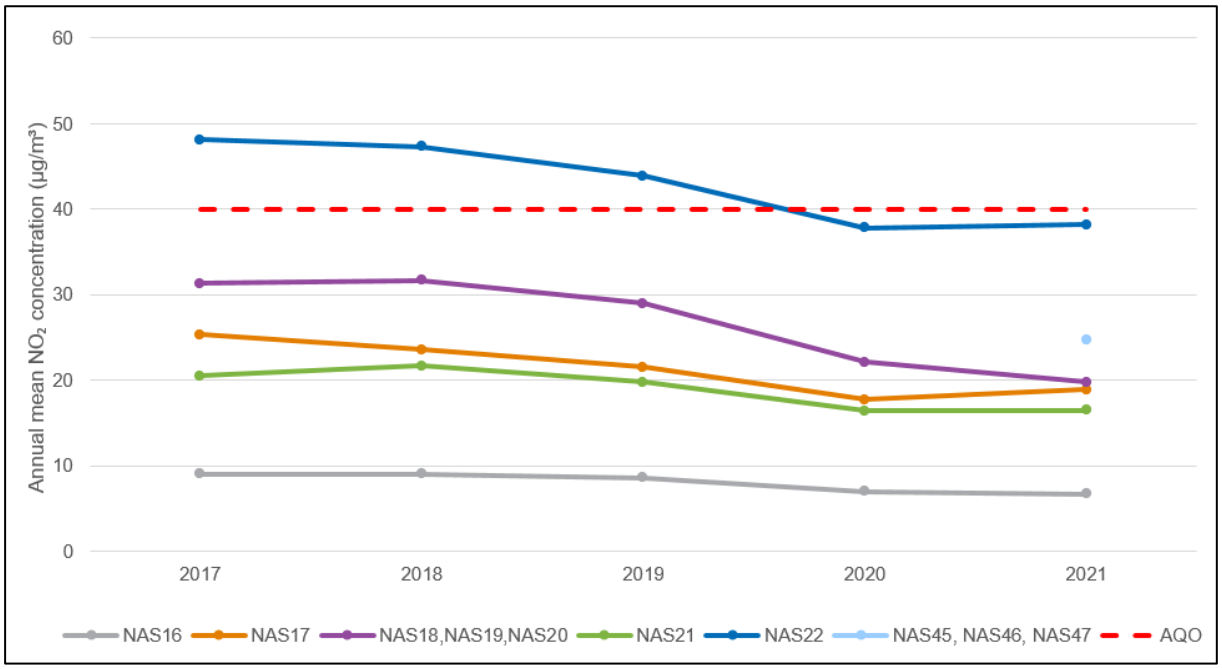
For the modelling study undertaken as part of this AQAP, we evaluated data from 2019 as this represented the most recent year at the time of modelling with available data that was not impacted by the COVID-19 pandemic and its associated lockdowns. Triplicate site “NAS45, NAS46, NAS47” was introduced to the monitoring network in 2021 and its location is shown in Figure 2-6 for reference.

Figure 2-6: Map of Chipping Norton AQAP, with diffusion tube annual mean NO_2 concentrations for 2019



Air quality monitoring data for NO_2 in Chipping Norton over the last five years is presented in Figure 2-7. One location, NAS22, exceeded the annual mean NO_2 Air Quality Objective (AQO) of 40 µg/m^3 in the last five years. NAS22 was in exceedance of the AQO in 2017-2019 and was compliant in 2020 and 2021, though still within 10% of the AQO (>36 µg/m^3).

Figure 2-7: Diffusion tube results for annual mean NO_2 concentrations, for Chipping Norton between 2017 and 2021



2.4 Impact of COVID-19

Much of the analysis in this report has been informed by trends from 2017 to 2021 due to 2022 data not being available at the time of developing the baseline model and model scenarios.

2020 and 2021 are considered to be impacted by the social restrictions placed on the UK as a result of the coronavirus pandemic, which had the effect of reducing traffic volumes across much of the UK, particularly during March to December in 2020, and in the first half of the year for 2021. The decision was made to take the most recent complete monitoring year not impacted by COVID-19 related restrictions, 2019, as the base year for air quality dispersion modelling carried out as part of this AQAP.

During 2020, NO_2 levels appear to correspond with the imposition and relaxation of the various national lockdowns and travel restrictions due to Covid, providing further evidence that the elevated levels are due to volume of traffic.

In 2021, concentrations of NO_2 demonstrated an increase compared to the previous year but remained lower than in 2019. This is believed to reflect the lockdown imposed during the beginning of the year, followed by the gradual lifting of pandemic restrictions as the year progressed.

2.5 Latest monitoring data 2022

Diffusion tube monitoring results for 2022 have become available during the time of writing this AQAP[5]. The results show that there were no exceedances of the AQO for annual mean NO_2 in Witney or Chipping Norton in 2022 at any diffusion tube location. In addition, only one of the diffusion tubes (NAS1) in Witney measured an annual mean within 10% of the AQO (>36 µg/m^3) with a NO_2 concentration of 36.1µg/m^3 at NAS1. No diffusion tubes in Chipping Norton measured an annual mean within 10% of the AQO (>36 µg/m^3).

It is important to recognise what this progress means for the Witney AQMA and the Chipping Norton AQMA. Defra guidance TG22 requires at least three consecutive years of monitored compliance before an AQMA could be considered for revocation.[6]

In the event that the Witney AQMA and Chipping Norton AQMA are revoked before this AQAP period is complete (2028), this AQAP could be taken forward to form the basis of an Air Quality Strategy, which from 2023 will be required of all local authorities in England which don't have, or which no longer have AQMAs remaining. This will ensure air quality remains a high-profile issue, and that West Oxfordshire District Council will be able to respond quickly should there be any deterioration in air quality.[7]

2.6 Summary of $PM_{2.5}$ in Witney and Chipping Norton

The UK Government is required to introduce legislation setting legal targets for $PM_{2.5}$ under the Environment Act 2021. In May 2022, the Department of Environment, Food and Rural Affairs (Defra) consulted the public for their proposed targets relating to $PM_{2.5}$, and in December 2022 the targets were published:

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

[5] WODC, Air Quality, 2023 https://www.westoxon.gov.uk/environment/noise-pests-pollution-and-air-quality/air-quality/

[6] LAQM Technical Guidance 2022, Section 3.57 https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf

[7] LAQM Technical Guidance 2022, Section 3.59 https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf

2. A Population Exposure Reduction Target for a reduction in $PM_{2.5}$ population exposure of 35% compared to 2018 to be achieved by 2040[8]

It should be noted that particulate matter, particularly $PM_{2.5,}$ may be harmful to health regardless of how low the concentration may be. As a consequence, there is no published 'safe' concentration of this pollutant and local authorities have a duty to try to reduce particulate matter concentrations as far as practicable.[9]

The population exposure reduction target will be assessed against a 2018 baseline. The metric to inform this target will be a three-year average of annual mean measurements at monitoring sites across England that are considered to be in locations representative of typical concentrations across a region. These are likely to comprise "urban background" or "suburban background" sites which align with population density. A three-year average will be used to reduce the impact of weather conditions for a particular year, and to focus on the underlying trend. The target is focused on long term exposure (rather than short term), as this is considered likely to drive the most significant health benefits.[10]

In December 2022, WODC commissioned an assessment of $PM_{2.5}$ in Chipping Norton and Witney from Ricardo. This assessment considered all available data which might be relevant to Witney and Chipping Norton, but it is important to note that monitoring for $PM_{2.5}$ is not and never has been carried out in West Oxfordshire.

Based on an assessment of projected annual mean $PM_{2.5}$ concentrations from Defra background maps, it is predicted that background $PM_{2.5}$ concentrations will be below the new annual mean concentration target of 10 µg/m^3, and the 35% population exposure reduction target would be likely be met in Witney and Chipping Norton. However, it is very important to understand that the source of this data is limited. The resolution of the Defra background maps is limited to 1 km, and the baseline and projected modelling does not include information specific to local activity or

[8] https://questions-statements.parliament.uk/written-statements/detail/2022-12-16/hlws449

[9] https://www.who.int/publications/i/item/9789240034228

[10] https://consult.Defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets/supporting_documents/Air%20quality%20targets%20%20Detailed%20Evidence%20report.pdf

concentrations within the AQMAs. The assessment showed that the Defra background maps did not show localised air pollutant hotspots, and concluded that monitoring of $PM_{2.5}$ within the AQMAs would provide additional and more localised information on $PM_{2.5}$ concentrations and how they are likely to change in the future.

WODC are currently investigating funding options to install indicative MCerts certified PM monitors at locations across the district.

The $PM_{2.5}$ assessment can be found in full in PM2.5 Assessment: Likelihood of achieving new PM2.5 targets in West Oxfordshire.

3 West Oxfordshire District Council's Air Quality Priorities

3.1 Public Health Context

There is strong evidence associating air pollution with adverse health effects. In 2019 Public Health England published an air pollution evidence review concluding that air pollution is the biggest environmental threat to health in the UK, with between 28,000 and 36,000 deaths a year attributed to long-term exposure[11]. Public Health England utilised evidence on the health risks attributed to long-term exposure to pollution drawn from the Committee on the Medical Effects of Air Pollution (COMEAP) report: Long-Term Exposure to Air Pollution: Effect on Mortality[12]. There is strong evidence that air pollution causes the development of coronary heart disease, stroke, respiratory disease and lung cancer, and also exacerbates asthma[13].

Though air pollution can be harmful to anyone, some people are more affected because of their characteristics, where they live and the concentration of air pollution they are exposed to day-to-day. Those who are more susceptible include older people, children, those with pre-existing cardiovascular or respiratory disease, pregnant women, communities in areas of higher pollution, deprived and low-income communities.

There are several air pollutants that are linked with having a detrimental impact on human health, for which AQMAs are commonly declared in the UK, including nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$) and sulphur dioxide (SO_2). In Witney and Chipping Norton, the primary pollutant of concern is NO_2.

[11] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/938623/Review_of_interventions_to_improve_air_quality_March-2019-2018572.pdf

[12] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/304667/COMEAP_long_term_exposure_to_air_pollution.pdf

[13] https://www.gov.uk/government/news/public-health-england-publishes-air-pollution-evidence-review

The Public Health Outcomes Framework (PHOF) reports that the fraction of mortality attributable to particulate air pollution for West Oxfordshire in 2019, 2020 and 2021, were 6.8%, 5.5% and 5.2% respectively. These percentages are similar to the national averages of 7.1%, 5.6% and 5.5% for the same years[14].

3.2 Planning and Policy Context

3.2.1 National Context

The UK Air Quality Strategy published by the Department for Environment, Food, and Rural Affairs (Defra) and Devolved Administrations, provides the policy framework for air quality management and assessment in the UK. It provides air quality standards and objectives for key air pollutants, which are designed to protect human health and the environment. It also sets out how the different sectors: industry, transport and local government, can contribute to achieving the air quality objectives. Local authorities play a particularly important role. The strategy describes the Local Air Quality Management (LAQM) regime that has been established, whereby every authority has to carry out regular reviews and assessments of air quality in its area to identify whether the objectives have been, or will be, achieved at relevant locations, by the applicable date. If this is not the case, the authority must declare an Air Quality Management Area (AQMA) and prepare an action plan which identifies appropriate measures that will be introduced in pursuit of the objectives.

The 2019 Clean Air Strategy sets out the case for action, with goals even more ambitious than EU requirements to reduce exposure to harmful pollutants. The Road to Zero sets out the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

The national Planning and Policy Framework (NPPF) 2023 sets out guidelines for planning authorities on a wide range of planning issues including air quality. Paragraph

[14] Public Health Outcomes Framework - Data - OHID (phe.org.uk)

183 of NPPF considers the role of planning in improving air quality or minimising the impact of each development on local air quality[15].

Finally, the recently published Environmental Improvement Plan 2023 features air quality as Goal 2, outlining the principle aims of the Plan, and how these will be achieved.[16]

3.2.2 Regional Context

Air quality is considered at a regional level in Oxfordshire with the individual local authorities working in coordination with Oxfordshire County Council. This grouping has produced useful resources describing air quality in the region[17].

There are a number of relevant regional policies summarised below.

3.2.2.1 Oxfordshire County Council Air Quality Strategy

The recently published OCC Air Quality Strategy[18] provides a shared goal for Oxon CC and aims to work in closer partnership with external partners, to improve the air quality of Oxfordshire. It will provide an opportunity to bring together and recognise existing work of the County Council and identify possible gaps which can be addressed.

3.2.2.2 Oxfordshire Local Transport & Connectivity Plan 2022-2050

The Oxfordshire Local Transport & Connectivity Plan (LTCP)[19] outlines a vision to deliver a net-zero Oxfordshire transport and travel system that enables the county to thrive whilst protecting the environment and making Oxfordshire a better place to live for all residents.

[15] https://www.gov.uk/guidance/air-quality--3

[16] https://www.gov.uk/government/publications/environmental-improvement-plan

[17] https://oxfordshire.air-quality.info/

[18] https://news.oxfordshire.gov.uk/efforts-to-reduce-air-pollution-launched-on-clean-air-day/

[19] https://www.oxfordshire.gov.uk/residents/roads-and-transport/connecting-oxfordshire/ltcp

“Environment”, “Health”, and “Healthy place shaping” are among the six key themes of the plan. The targets of the plan relating to air quality include:

By 2030:

- Replace or remove one out of every four current car trips in Oxfordshire
- Increase the number of cycle trips in Oxfordshire from 600,000 to 1 million cycle trips per week

By 2040:

- Deliver a net-zero transport network
- Replace or remove an additional one out of three car trips in Oxfordshire

By 2050:

- Deliver a transport network that contributes to a climate positive future

The LTCP policies are grouped according to policy focus area. The policy focus areas are:

- Walking and cycling
- Healthy place shaping
- Road safety
- Digital connectivity
- Public transport
- Environment, carbon and air quality
- Network, parking and congestion management
- Innovation
- Data
- Freight and logistics
- Regional connectivity
- Local connectivity

As part of the LTCP, area transport strategies will be produced during 2022 and 2023. A West Oxfordshire Area Strategy is proposed, including urban focus areas of Chipping Norton, Woodstock and surrounding parishes, Carterton, and Witney.

The previous Local Transport Plan (LTP4) included several policies, specific to Witney, which are still applicable. The status of these were reviewed in Appendix 1 of the LTCP. In brief, these policies included: a range of highway improvements, to improve traffic flow, and reduce the volume of traffic within the town centre; improving public transport services; and, improving cycle, wheeled and pedestrian routes.

3.2.2.3 Freight and Logistics Strategy 2022-2050

This strategy has been published in support of the Local Transport and Connectivity Plan (LTCP). It addresses some of the challenges associated with the movement of goods in Oxfordshire and sets out the actions required to deliver appropriate, efficient, clean and safe movement.

The strategy contains 47 actions split by long distance movement, local movement, last mile movement, monitoring and partnership working. The strategy is underpinned by the following key principles:

- Appropriate movement
- Efficient movement
- Net-zero movement
- Safe movement
- Partnership working

A trial of an Experimental Traffic Restriction Order (ETRO) was carried out in Burford in 2020. Following the results of the trial, showing benefits for Burford but negative impacts to neighbouring towns, it was considered that an area wide approach to environmental weight restrictions may help to share benefits across neighbouring communities. In 2022, the consideration of area wide restrictions across Oxfordshire was approved. This forms Action 10 of the Freight and Logistics Strategy: Conduct countywide study to establish an approach for area-based weight restrictions; and, Action 11: Fund development and delivery of the area based weight restriction

programme. This action, as well as other relevant measures from the Freight and Logistics Strategy, have been carried forward into this AQAP.

3.2.2.4 Active Travel Strategy (July 2022)

The Active Travel Strategy supports the LTCP in its vision to create an inclusive and safe net-zero Oxfordshire transport system. It focuses on active travel modes (walking, wheeling and cycling), which are key to delivering the County Council's policies and plans for the next 10 years and to mitigating some of the biggest challenges we face: climate emergency, public health, congestion, air quality and social inequality.

It sets out specific visions for walking, wheeling and cycling in Oxfordshire, and a target to increase the number of cycle trips to 1 million by 2031, county-wide, from our current level of 600,000.

It sets out five priorities for council action as follows:

- **Commitment and governance** – a clear promise at all levels across the council to treat walking and cycling as a policy priority
- **Walkable communities** – a compact urban realm with easy to reach destinations on foot and by cycle
- **Inclusive cycle networks** – that are safe, identifiable, visible, comprehensive and of high quality, including links across towns and villages
- **Managing motor traffic** – through measures such as modal filters, reducing traffic speeds, reducing road capacity and increasing the cost of parking
- **Building the cultural norm** – a local social consensus and practice that supports and promotes walking and cycling and enables residents to build their lives around active travel modes for local journeys

The Strategy sets out 79 actions which will form the basis for a yearly action plan which will be used to monitor progress and ensure cross-council coordination.

3.2.2.5 Connecting Oxfordshire: Local Transport Plan 2015-2031 Bus & Rapid Transport Strategy

The development of this Bus & Rapid Transport Strategy has drawn on evidence, public consultation and engagement with transport operators, user groups and transport experts at county and local levels.

In brief, the main elements of the strategy are:

- Integrated transport planning
- A cohesive and integrated bus network and provision of accessible, high-quality infrastructure
- Tackling congestion and delays by implementing bus priority or other traffic management measures
- Adapting the bus network to cater for more complex and dispersed journey patterns and new major development
- The development of mass rapid transit systems and routes between Oxford and a proposed new outer ring of Park & Ride sites
- The development or upgrading of new high quality Premium urban and interurban services in:
    - Oxford, especially within and linking to the growing Eastern Arc
    - The Science Vale area
    - Larger towns outside Oxford
    - Locations along some strategically important inter-urban routes
- Facilitating the penetration of bus services as close as possible to the heart of destinations such as town centres, employment areas and hospitals, to enabling good onwards access on foot
- The further development and extension of integrated ticketing
- The further development of the Quality Bus Partnership approach to focus on improving service punctuality/reliability, information and integration
- Improvements to the securing and use of developer contributions for bus development

- Enhanced partnership working with local planning authorities and use of the planning system to achieve better coordination between land use planning and future bus service provision.
- Integration with Science Transit to develop and champion new technology and research in bus operation and network development

This strategy is currently under review.

3.2.2.6 The Oxfordshire EV Infrastructure Strategy and LA policy

The Oxfordshire Electric Vehicle Infrastructure Strategy is a collaboration between the County, City and District Councils to provide an operational approach to enable and deploy charging infrastructure in Oxfordshire and lay the foundations for future projects.

The short term (2020 – 2025) objectives are to:

- Enable and deliver public EV charging across Oxfordshire
- Adopt a common approach to managing EV charging in Council car parks
- Enable residents without access to private off-road parking to access a range of options for EV charging
- Encourage new developments to include high quality EV charging infrastructure
- Set standards for the quality of public EV charging in Oxfordshire which supports development of a network which is high quality, open and accessible

The Strategy includes 17 policies, and the pipeline of projects in delivery phase at the time of the Strategy was envisioned to deliver 432 charging points by June 2022.

3.2.2.7 Oxfordshire Energy Strategy

The Oxfordshire Energy Strategy developed by the Oxfordshire Local Enterprise Group (OxLEP), provides the strategic framework to secure a smart, clean energy infrastructure across the county, drive countywide decarbonisation and ensure that Oxfordshire prospers from clean growth. It feeds into the Oxfordshire Local Industrial Strategy and will help inform Oxfordshire's growth ambitions up to 2031. The objectives are to:

1. Secure a smart, modern, clean energy infrastructure
2. Lead nationally and internationally to reduce countywide emissions by 50% compared with 2008 levels by 2030 and set a pathway to achieve zero carbon growth by 2050
3. Enhance energy networking and partnership working across Oxfordshire to focus on the low carbon energy challenges and funding opportunities created through the Clean Growth Strategy and the Oxfordshire Industrial Strategy

3.2.3 Local Context

Local policies, strategies and plans which are relevant to air quality in Witney and Chipping Norton are summarised in this section.

3.2.3.1 Local Plan 2031

The Local Plan for West Oxfordshire[20] sets out a vision of the District in 2031 and provides an overarching framework to guide and deliver that vision. The Local Plan is underpinned by delivery of sustainable development and has been shaped by ongoing engagement with local communities and organisations including other local authorities, the Oxfordshire Local Enterprise Partnership, the Buckinghamshire, Oxfordshire and Berkshire West Integrated Care System (BOB ICS), Thames Water, Natural England, Historic England and the Environment Agency. The Local Plan covers the 20-year period 1 April 2011 – 31 March 2031 with a regular review, typically every five years or so, to ensure it remains relevant and appropriate.

Relevant objectives detailed within the current Local Plan (2031) include:

CO1: Enable new development, services and facilities where the need to travel, particularly by car, can be minimised

CO11: Maximise the opportunity for walking, cycling and use of public transport.

[20] https://www.westoxon.gov.uk/planning-and-building/planning-policy/local-plan-2031/

CO15: Contribute to reducing the causes and adverse impacts of climate change, especially flood risk.

CO16: Enable improvements in water and air quality.

CO17: Minimise the use of non-renewable natural resources and promote more widespread use of renewable energy solutions.

These are supported by four policies: sustainable transport (T1), highway improvement schemes (T2), public transport, walking and cycling (T3) and parking provision (T4).

Policy T1: Sustainable Transport

Priority will be given to developments in areas with convenient access to a good range of services and facilities and where the need to travel by private car can be minimised. This would include the provision for superfast broadband to promote increased home working and telecommuting.

Policy T2: Highway Improvement Schemes

Development proposals which are likely to generate significant amounts of traffic, should be supported by a Transport Assessment (TA) and a Travel Plan. Where necessary contributions are to be sought to mitigate the impact of the development and support planned growth. Under this policy, a number of strategic highway infrastructure schemes are proposed and to be delivered as a part of the Local Plan such as improvements to the A40 between Witney and Oxford.

Policy T3: Public transport, walking and cycling

All new developments will be located and designed to maximise opportunities for walking, cycling and use of public transport where possible and contribute towards the provision of new and/or enhanced public transport, walking and cycling infrastructure. Where opportunities are more limited, measures such as the promotion of home working or car sharing/car clubs will be required.

Policy T4: Parking provision

Development proposals which significantly increase car parking demand will be expected to make appropriate public car parking provision or equivalent financial contributions.

There are a number of planned developments with the potential to impact on air quality in Witney and Chipping Norton. These can be viewed in terms of their location and spatial extent using the West Oxfordshire Local Plan 2031 interactive map[21].

Witney

WIT1: East Witney Strategic Development Area

Some 450 homes are planned in this area of land south-east of Oxford Hill, Witney, however the latest planning application was refused by WODC due to conflicts with various policies within the Local Plan. The development is expected to go ahead in the future, on submission of a planning application which is approved by all stakeholders.

The construction of the west facing slip roads at Shores Green junction are linked to this development to provide an alternative route from the A40 to the EWSDA. This route would be an alternative to the existing route, through Bridge Street (Witney AQMA). The planning application for this infrastructure has been approved and construction is expected to commence mid/late 2024.

WIT2: North Witney Strategic Development Area

Some 1400 homes are planned on land to the north of Witney. Initial proposals for 110 homes on land west of Hailey Road have been brought forward. A Secretary of State's decision dated 30 July 2020 has directed that the proposed development of 110 homes is "EIA development" within the meaning of the Town and Country (Environmental Impact Assessment) Regulations 2017. We understand this development is moving forward, with construction expected to begin in 2026. There has been discussion regarding the delivery of a second river crossing for Witney the "West End Link", together with a new northern distributor road connecting Hailey Road to New Yatt Road and onto Woodstock Road. These infrastructure projects are essential for the delivery of this development and intend to provide an alternative to Bridge Street when travelling to or from the north-east of Witney.

[21] https://westoxfordshire.maps.arcgis.com/apps/MapJournal/index.html?appid=e1c98b708d3f45feaec1cca13833cdac

WIT3: Woodford Way Car Park, Witney

Land at Woodford Way Car Park to accommodate around 50 new homes either as part of a residential or mixed-use scheme with other compatible town centre uses whilst retaining an appropriate amount of public car parking.

Chipping Norton

CN1 East Chipping Norton Strategic Development Area

The East Chipping Norton SDA is allocated for development under Policy CN1 of the West Oxfordshire Local Plan 2031. This comprises land east of Chipping Norton and comprises around 1200 homes. Transport evidence commissioned on behalf of the District Council by Oxfordshire County Council has tested the implications of a much larger scheme of up to 1,500 dwellings and concludes that if supported by an eastern link road not only would the traffic impact of the additional growth be able to be mitigated but there could also be a diversion of HGV movements from Chipping Norton Town Centre, thereby possibly having a beneficial effect in terms of improving air quality. In connecting the London Road to the B4026/ A361 the proposed eastern link road is likely to need to be routed across land in the ownership of the Town Council much of which is in use as allotments as well as an area of community woodland.

3.2.3.2 Local Plan 2041

Work has recently begun on reviewing the West Oxfordshire Local Plan 2031, to make sure that the planning policies and proposals are up to date and will effectively tackle vital issues such as climate change, nature's recovery, health and wellbeing, housing and economy. The new Local Plan will cover the period up to 2041. The objectives and policies discussed within the Local Plan 2031 are therefore potentially subject to change, unless already implemented.

The key dates for drawing up the new local Plan are expected to be:

- Informal (Regulation 18) plan preparation and consultation: June – November 2023 (complete)
- Formal publication of draft Local Plan (Regulation 19): June 2024
- Submission for independent examination: November 2024
- Examination and adoption: 2025

3.2.3.3 Climate Change Strategy for West Oxfordshire 2021 – 2025

The Climate Change Strategy was developed in line with commitments set out in the Council Plan (2020 – 2024) for how the Council's priorities for climate action across the district for 2021 – 2025 can be achieved[22].

The Strategy identifies five themes as the focus of local climate action:

1) Protecting & restoring natural ecosystems
2) Energy
3) Active travel & low-carbon transport
4) Standards in new development
5) Engage, support and educate

Each theme is accompanied by a set of strategic objectives. The Council will report annually on its progress against the objectives of the Strategy and, where appropriate, revise the document so it remains current.

3.2.3.4 The Carbon Action Plan 2020

West Oxfordshire District Council (the Council) declared a climate and ecological emergency making its pledge to become a carbon-neutral Council by 2030. The decision was taken at a meeting of Full Council on 26 June 2019. The Carbon Action Plan sets out the Council's pathway for how it will achieve the target of becoming carbon neutral.[23]

Although in itself, the Plan is unlikely to have a significant impact on air quality, it demonstrates the Council is leading by example to combat climate change and reduce its own emissions to air. The Plan describes four guiding principles which will form a common reference for all council projects, facilitating its trajectory for reaching carbon neutral by 2030.

[22] https://www.westoxon.gov.uk/environment/climate-action/climate-change-strategy/

[23] https://www.westoxon.gov.uk/environment/climate-action/our-route-to-carbon-neutral/

3.2.3.5 Witney Local Cycling and Walking Infrastructure Plan (LCWIP)

The Witney Local Cycling and Walking Infrastructure Plan (LCWIP) was approved by Cabinet on 23rd March 2023.

The LCWIP identifies destinations in Witney and the surrounding area that are accessible by walking and cycling and makes suggestions for how to improve these walking and cycling routes. It follows on from the Connecting Oxfordshire Local Transport Plan, and aims to have safe, convenient, and well-connected walking, wheeling and cycling networks that are accessible for people of all abilities, ages and backgrounds in Witney by 2033.

The LCWIP will play a critical role towards achieving measures under Witney's Priority 3 of this Action Plan and is included under measure W4, in Table 5-1: Witney Air Quality Action Plan Measures.

3.2.3.6 West Oxfordshire Parking Strategy 2016

West Oxfordshire District Council (WODC) adopted a Parking Strategy in 2016[24] to cover issues that relate to parking across the district up to 2031. In drafting the parking strategy, WODC undertook a study and formed recommendations based on the results. The Parking Strategy aims to meet the needs of users and support the objectives of the Council in the short and long term. The Parking Strategy took into account National and County wide policies such as 'National Planning Policy Framework' and 'Oxfordshire County Council – Connecting Oxfordshire Local Transport Plan 4 2015-31'. The study areas were Witney, Carterton, Chipping Norton, Woodstock, Burford and Railway Station car parks.

The Strategy identified the following recommended actions relevant to air pollutant emissions:

- Support OCC in the delivery and promotion of sustainable transport
- New car park equipment and signage, including cycle parking

[24] https://www.westoxon.gov.uk/parking-travel-and-visitors/parking-strategy/

- Support OCC to develop and promote Park and Ride scheme
- Quantify traffic and environmental impacts of proposals to expand car parks
- Consider installation of electric vehicle charge points

3.2.3.7 Sustainability Standards Checklist

As part of the planning process WODC expect developers and applicants to complete a Sustainability Standards Checklist to ensure the highest sustainability standards of energy and sustainable design are adopted in all new and retrofit developments. This ensures that sustainability is a key consideration at an early stage of the design process, encouraging developers to minimise the impact on air quality by including facilities for home working, active travel, car clubs and electric vehicle charging facilities.

3.3 Source Apportionment

The AQAP measures presented in this report are intended to be targeted towards the predominant sources of emissions within Witney and Chipping Norton: NOx, PM_{10}, and $PM_{2.5}$. By using a combination of local modelling inputs and Defra background concentration maps, a dispersion modelling study and a source apportionment exercise was carried out by West Oxfordshire District Council in early 2023 to better understand the pollution scene in Witney and Chipping Norton. See further detail of the model setup and verification for both Witney and Chipping Norton AQMAs in Modelling.

Initial source apportionment was calculated for 2019 using Defra background maps and averaged across 1 x 1 km grid squares covering the Witney and Chipping Norton AQMAs. Defra background maps provide estimates of background concentrations[25]

[25] Background concentrations are defined by Defra as "The total concentration of a pollutant comprises those from explicit local emission sources such as, roads, chimney-stacks, etc., and those that are transported into an area by the wind from further away. If all the local sources were removed, all that would remain is that which comes in from further away; it is this component that is called 'background'.
In many situations the background contribution may represent a significant or dominant proportion of the total pollutant concentration, so it is important that authorities give this careful consideration."

for specific pollutants based on the UK national compliance air quality model, which uses emissions data from the NAEI[26].

3.3.1 Witney

Figure 3-1 shows a map of modelled NO_2 concentrations across Witney in 2019. As previously mentioned, modelling was carried out for 2019 as this was the most recent year unaffected by the coronavirus pandemic with fully ratified monitoring data available at the time of modelling. NO_2 concentrations are elevated along street canyons, such as along Bridge Street, and near points of congestion, such as High Street between Witan Way and Mill Street where vehicle volume is high and vehicle speed is low due to traffic lights.

Figure 3-2 shows that the majority (53%) of NOx concentrations in Witney are apportioned to rural sources (which accounts for both naturally occurring NOx and NOx from agricultural sources – these categories are difficult to separate). The next largest source is road transport accounting for 22%, followed by domestic (11%) and industry and other (each 6%). It is worth noting that concentrations attributed to aircraft and rail relate to transboundary NOx emissions from activities outside of the area.

[26] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/background-maps/

Figure 3-1: Modelled NO_2 concentrations across Witney in 2019.

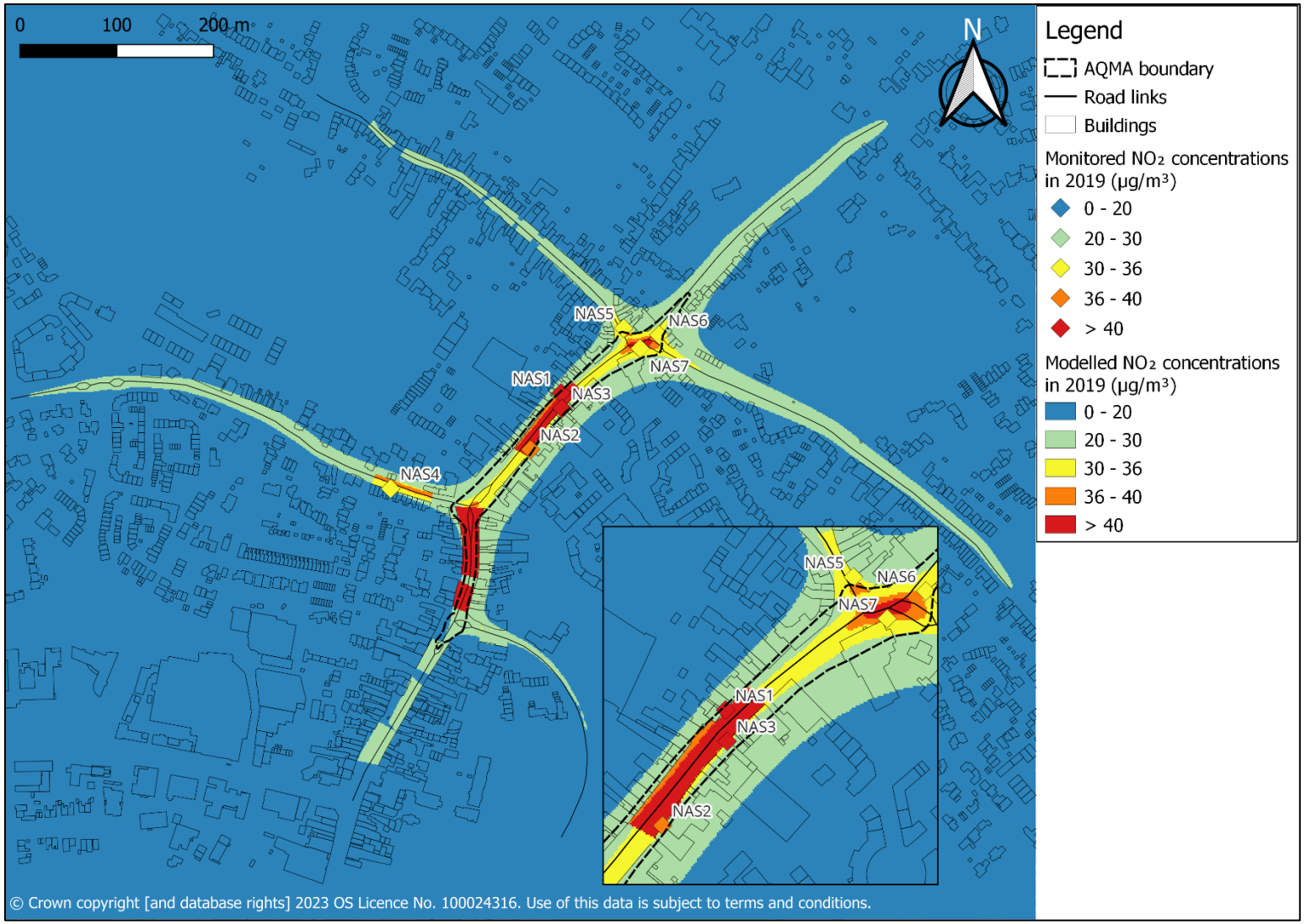
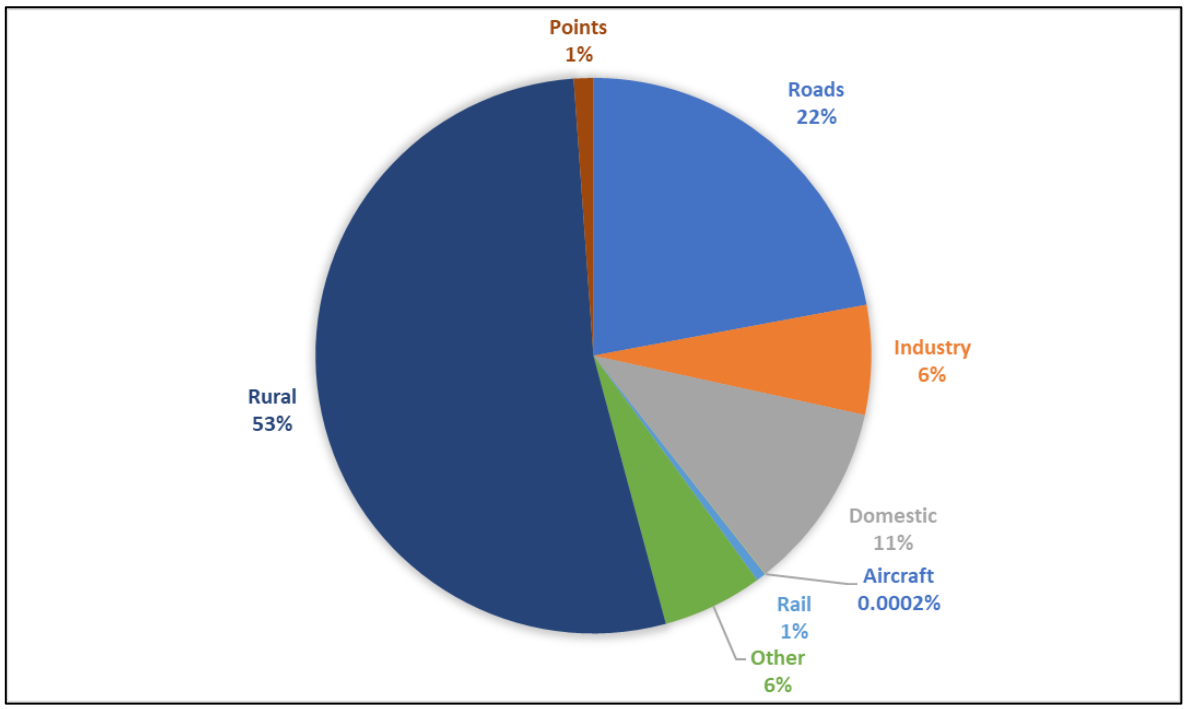


Figure 3-2: Average source apportionment for NOx concentrations in Witney AQMA based on Defra background maps



Detailed source apportionment was calculated for 2019 at each monitoring site across Witney to assess more specifically which vehicle types were contributing to NO_x, PM_{10}, and $PM_{2.5}$ emissions from road transport. Numbers and proportions of vehicle types within the fleet were based on traffic survey data. Figure 3-3, Figure 3-4, and Figure 3-5 show stacked bar charts of the source apportionment for all road transport and background sources at all monitoring sites within Witney for the baseline fleet in 2019 for NO_x, PM_{10}, and $PM_{2.5}$, respectively. The source apportionment by background and vehicle types in absolute modelled concentrations ($\mu g/m^3$) are displayed in further detail for NO_x, PM_{10}, and $PM_{2.5}$ in Table 3-1: NOx source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (µg/m3) for the baseline fleet, 2019 (modelled NO2 concentrations derived from the NOx to NO2 calculator), Table 3-3: PM10 source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (µg/m3) for the baseline fleet, 2019, and Table 3-5: PM2.5 source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (µg/m3) for the baseline fleet, 2019, respectively, and as percentage contribution (%) for NO_x, PM_{10}, and $PM_{2.5}$ in Table 3-2: NOx source apportionment by

background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (%) for the baseline fleet, 2019 (modelled NO2 concentrations derived from the NOx to NO2 calculator), Table 3-4: PM10 source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (%) for the baseline fleet, 2019., and Table 3-6: PM2.5 source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (%) for the baseline fleet, 2019, respectively.

Figure 3-3 shows that diesel cars were the greatest contributing vehicle type to NOx concentrations, followed by diesel LGVs then, varying between petrol cars, rigid HGVs, buses and coaches, depending on location.

Figure 3-3: Stacked bar chart showing NOx source apportionment for all road transport and background for monitoring locations within Witney (%), for the baseline fleet, 2019

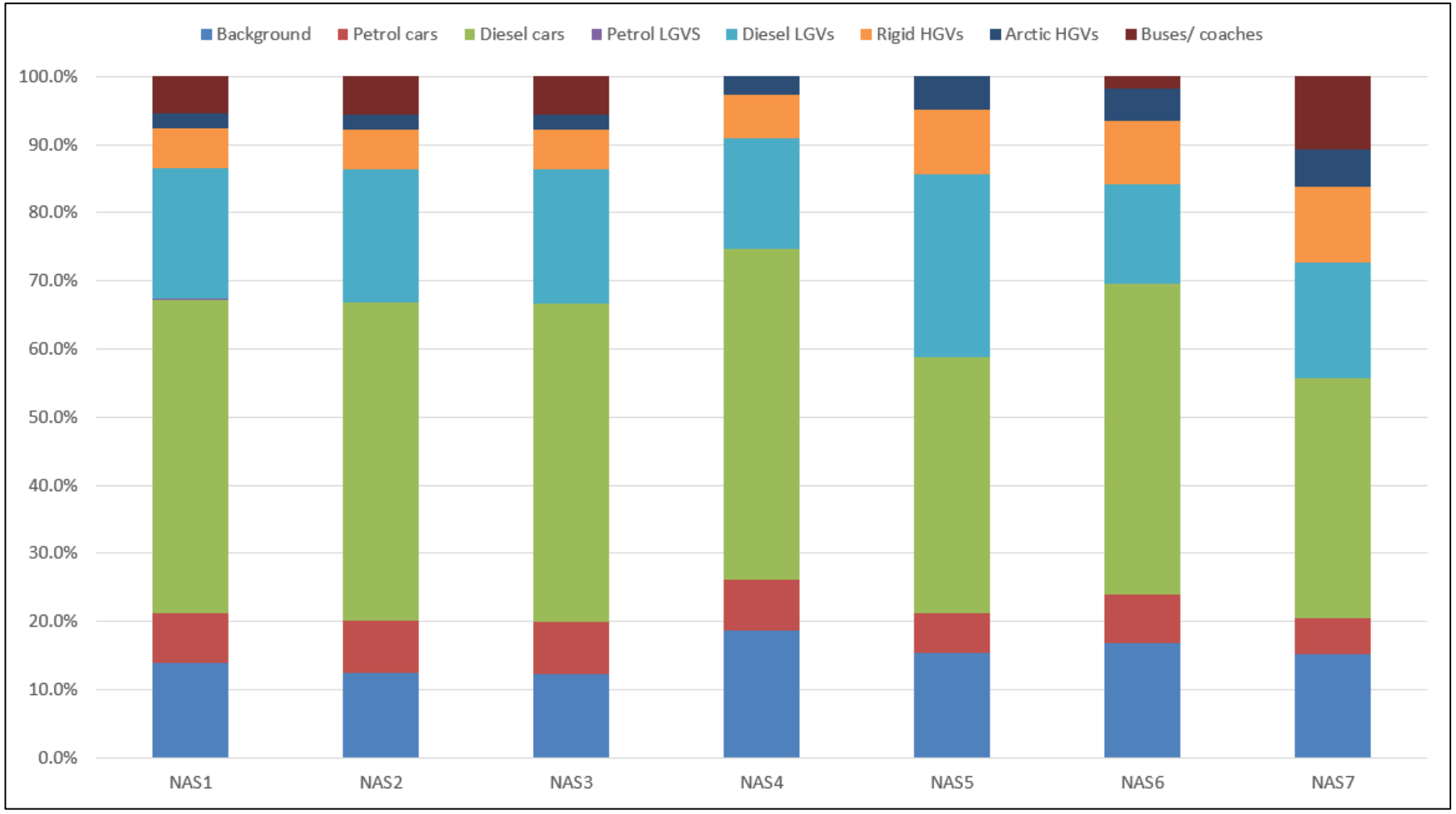


Table 3-1: NOx source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (µg/m^3) for the baseline fleet, 2019 (modelled NO_2 concentrations derived from the NOx to NO_2 calculator)

Site ID	Modelled background NOx concentration (µg/m^3)	Modelled road transport NOx concentration broken down by vehicle type (µg/m^3)							Total modelled NOx concentration (µg/m^3)	Total modelled NO_2 concentration (µg/m^3)	Total monitored NO_2 concentration (µg/m^3)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches			
NAS1	10.50	5.59	34.73	0.02	14.52	4.42	1.64	4.12	75.55	39.02	44.8
NAS2	10.53	6.32	39.24	0.02	16.41	4.99	1.85	4.65	84.01	42.43	37.1
NAS3	10.50	6.43	39.95	0.02	16.71	5.08	1.89	4.74	85.33	42.94	41.9
NAS4	10.57	4.20	27.43	0.01	9.15	3.65	1.48	0.00	56.49	31.13	33.9
NAS5	10.41	3.91	25.28	0.02	18.05	6.48	3.24	0.00	67.39	35.55	33.1
NAS6	10.41	4.33	28.21	0.01	8.95	5.82	2.92	1.07	61.74	32.86	35.5
NAS7	10.43	3.60	24.20	0.01	11.64	7.75	3.77	7.32	68.73	34.72	34.3

Table 3-2: NOx source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (%) for the baseline fleet, 2019 (modelled NO_2 concentrations derived from the NOx to NO_2 calculator)

Site ID	Modelled background NOx concentration (%)	Modelled road transport NOx concentration broken down by vehicle type (%)							Total modelled NOx concentration (µg/m^3)	Total modelled NO_2 concentration (µg/m^3)	Total monitored NO_2 concentration (µg/m^3)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches			
NAS1	13.9%	7.4%	46.0%	0.03%	19.2%	5.8%	2.2%	5.5%	75.55	39.02	44.8
NAS2	12.5%	7.5%	46.7%	0.03%	19.5%	5.9%	2.2%	5.5%	84.01	42.43	37.1
NAS3	12.3%	7.5%	46.8%	0.03%	19.6%	6.0%	2.2%	5.6%	85.33	42.94	41.9
NAS4	18.7%	7.4%	48.6%	0.02%	16.2%	6.5%	2.6%	0.0%	56.49	31.13	33.9
NAS5	15.4%	5.8%	37.5%	0.03%	26.8%	9.6%	4.8%	0.0%	67.39	35.55	33.1
NAS6	16.9%	7.0%	45.7%	0.02%	14.5%	9.4%	4.7%	1.7%	61.74	32.86	35.5
NAS7	15.2%	5.2%	35.2%	0.02%	16.9%	11.3%	5.5%	10.6%	68.73	34.72	34.3

Figure 3-4: Stacked bar chart showing PM_{10} source apportionment for all road transport and background for monitoring locations within Witney (%), for the baseline fleet, 2019

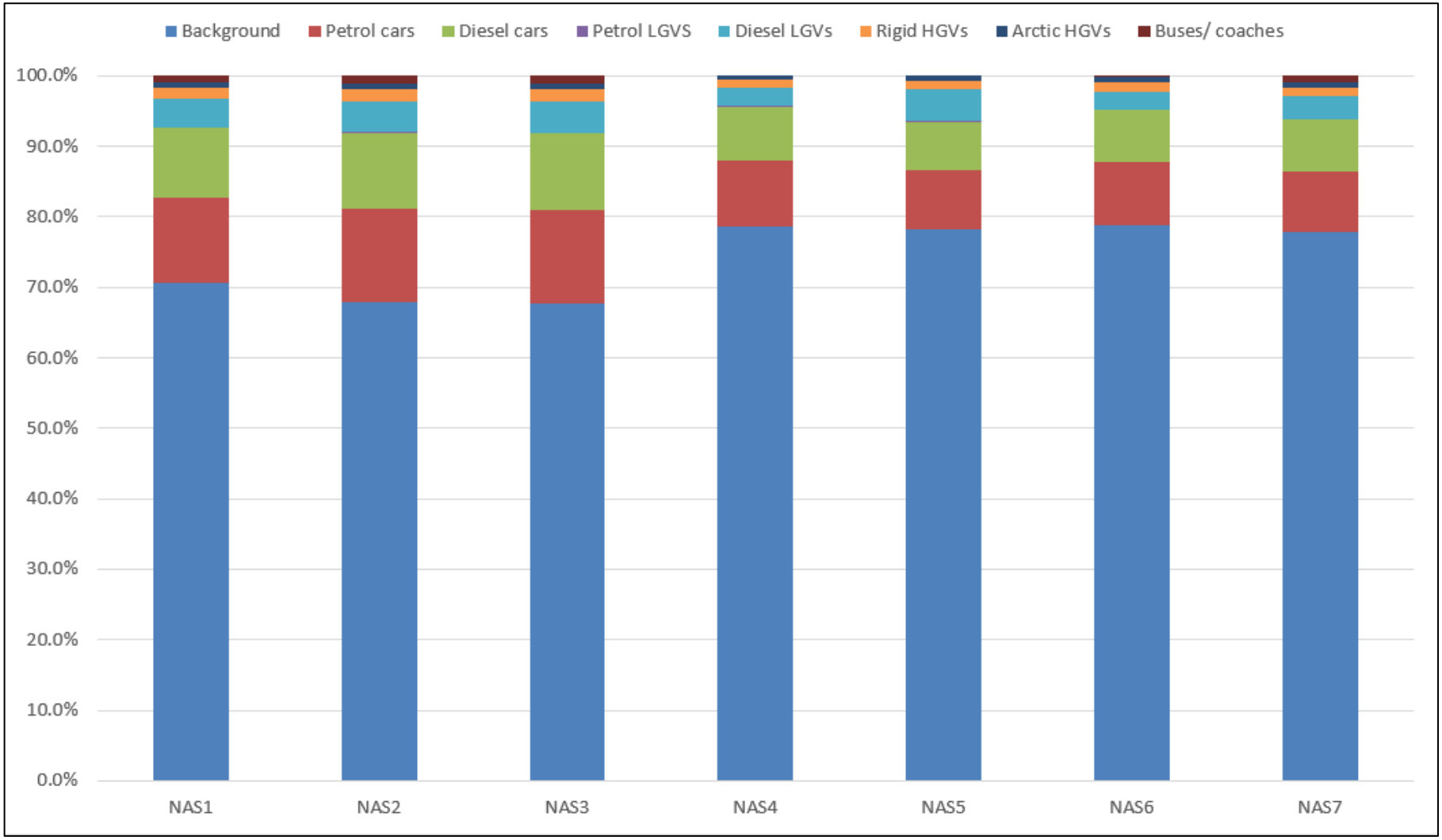


Table 3-3: PM_{10} source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney ($\mu g/m^3$) for the baseline fleet, 2019

Site ID	Modelled background PM_{10} concentration ($\mu g/m^3$)	Modelled road transport PM_{10} concentration broken down by vehicle type ($\mu g/m^3$)							Total modelled PM_{10} concentration ($\mu g/m^3$)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	
NAS1	14.63	2.50	2.04	0.01	0.83	0.32	0.17	0.20	20.70
NAS2	14.62	2.84	2.32	0.01	0.94	0.36	0.19	0.22	21.51
NAS3	14.63	2.89	2.36	0.01	0.96	0.36	0.20	0.23	21.63
NAS4	14.62	1.72	1.44	0.01	0.50	0.19	0.10	0.00	18.58
NAS5	14.62	1.54	1.30	0.01	0.86	0.22	0.12	0.00	18.67
NAS6	14.62	1.66	1.39	0.01	0.44	0.26	0.14	0.04	18.55
NAS7	14.62	1.60	1.39	0.01	0.62	0.23	0.12	0.18	18.78

Table 3-4: PM_{10} source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (%) for the baseline fleet, 2019.

Site ID	Modelled background PM_{10} concentration (%)	Modelled road transport PM_{10} concentration broken down by vehicle type (%)							Total modelled PM_{10} concentration ($\mu g/m^3$)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	
NAS1	70.7%	12.1%	9.9%	0.05%	4.0%	1.5%	0.8%	1.0%	20.70
NAS2	68.0%	13.2%	10.8%	0.06%	4.4%	1.7%	0.9%	1.0%	21.51
NAS3	67.6%	13.3%	10.9%	0.06%	4.4%	1.7%	0.9%	1.1%	21.63
NAS4	78.7%	9.2%	7.7%	0.03%	2.7%	1.0%	0.6%	0.0%	18.58
NAS5	78.3%	8.2%	7.0%	0.06%	4.6%	1.2%	0.6%	0.0%	18.67
NAS6	78.8%	8.9%	7.5%	0.03%	2.4%	1.4%	0.7%	0.2%	18.55
NAS7	77.9%	8.5%	7.4%	0.04%	3.3%	1.2%	0.7%	1.0%	18.78

Figure 3-5: Stacked bar chart showing $PM_{2.5}$ source apportionment for all road transport and background for monitoring locations within Witney (%), for the baseline fleet, 2019

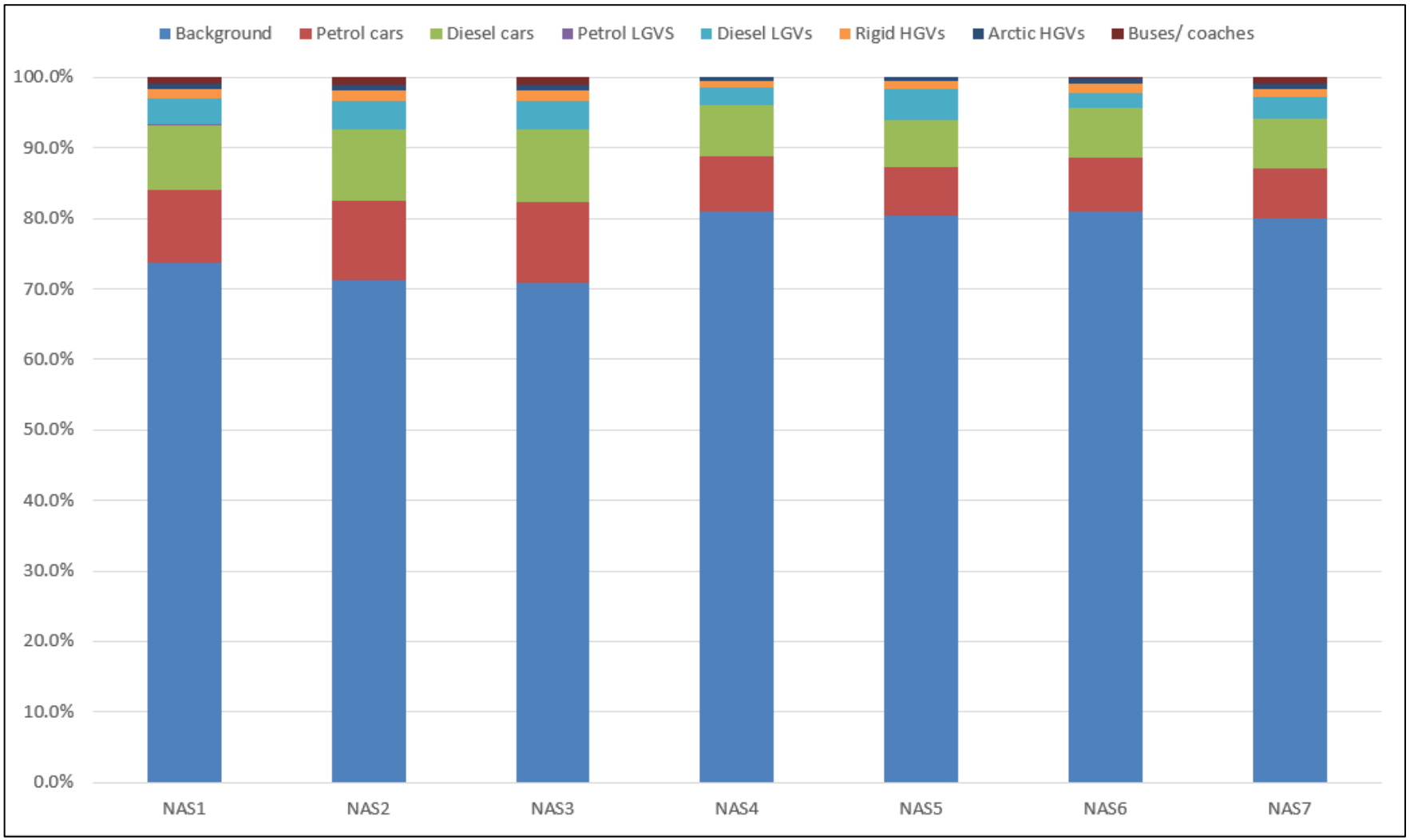


Table 3-5: $PM_{2.5}$ source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (µg/m^3) for the baseline fleet, 2019

Site ID	Modelled background $PM_{2.5}$ concentration (µg/m^3)	Modelled road transport $PM_{2.5}$ concentration broken down by vehicle type (µg/m^3)							Total modelled $PM_{2.5}$ concentration (µg/m^3)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	
NAS1	10.02	1.39	1.26	0.01	0.50	0.19	0.10	0.12	13.59
NAS2	10.01	1.58	1.43	0.01	0.57	0.21	0.11	0.14	14.06
NAS3	10.02	1.61	1.45	0.01	0.57	0.21	0.12	0.14	14.13
NAS4	10.01	0.96	0.90	0.003	0.31	0.12	0.06	0.00	12.36
NAS5	9.98	0.86	0.82	0.01	0.54	0.14	0.07	0.00	12.40
NAS6	9.98	0.93	0.87	0.003	0.27	0.16	0.08	0.02	12.32
NAS7	9.99	0.88	0.87	0.004	0.39	0.14	0.08	0.12	12.47

Table 3-6: $PM_{2.5}$ source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (%) for the baseline fleet, 2019

Site ID	Modelled background $PM_{2.5}$ concentration (%)	Modelled road transport $PM_{2.5}$ concentration broken down by vehicle type (%)							Total modelled $PM_{2.5}$ concentration (µg/m^3)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	
NAS1	73.7%	10.3%	9.3%	0.04%	3.7%	1.4%	0.7%	0.9%	13.59
NAS2	71.2%	11.2%	10.2%	0.05%	4.0%	1.5%	0.8%	1.0%	14.06
NAS3	70.9%	11.4%	10.3%	0.05%	4.1%	1.5%	0.8%	1.0%	14.13
NAS4	81.0%	7.7%	7.3%	0.03%	2.5%	0.9%	0.5%	0.0%	12.36
NAS5	80.5%	6.9%	6.6%	0.05%	4.3%	1.1%	0.6%	0.0%	12.40
NAS6	81.0%	7.5%	7.1%	0.02%	2.2%	1.3%	0.7%	0.2%	12.32
NAS7	80.1%	7.1%	7.0%	0.03%	3.1%	1.2%	0.6%	1.0%	12.47

3.3.2 Chipping Norton

Figure 3-6 shows a map of modelled NO_2 concentrations across Chipping Norton in 2019. As mentioned previously, modelling was carried out for 2019 as this was the most recent year unaffected by the COVID-19 pandemic with fully ratified monitoring data available at the time of modelling. NO_2 concentrations are elevated along street canyons, such as along Horse Fair, and near points of congestion, such as West Street between Cattle Market and New Street where vehicle volume is high and vehicle speed is low due to traffic lights.

There appears to be a highly localised exceedance at NAS22 where NO_2 concentrations exceed 40 µg/m^3, whereas the concentration at the adjacent monitoring site, NAS21, is below 20 µg/m^3. Both the monitored and modelled NO_2 concentrations in 2019 exhibit this pattern.

NAS22 is likely to be exposed to elevated concentrations as the narrow width of the road results in a more prevalent street canyon effect. NAS21 is located further back from the roadside in a side street outside of the street canyon, allowing greater scope for the dispersion of emissions. It is suggested that additional monitoring sites along Horse Fair could be installed to assess the variation in NO_2 concentrations in this area of exceedance.

Figure 3-7 shows that the majority (60%) of NOx concentrations in Chipping Norton are apportioned to rural (which accounts for both naturally occurring NOx and NOx from agricultural sources – these categories are difficult to separate). The next largest source is road transport accounting for 19%, followed by domestic (9%) and industry (6%). It is worth noting that concentrations attributed to aircraft and rail relate to transboundary NOx emissions from activities outside of the area.

Figure 3-6: Modelled NO_2 concentrations across Chipping Norton in 2019

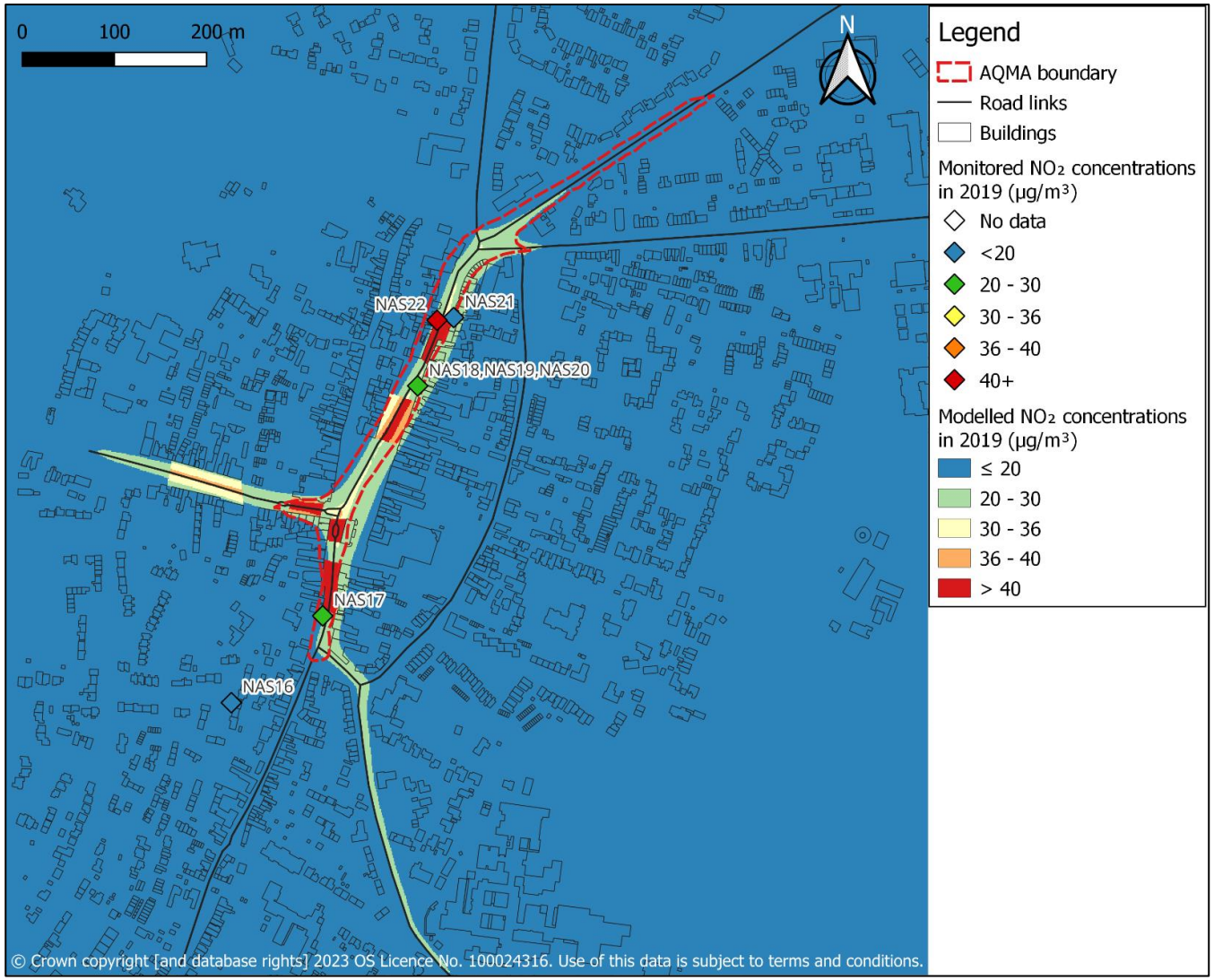
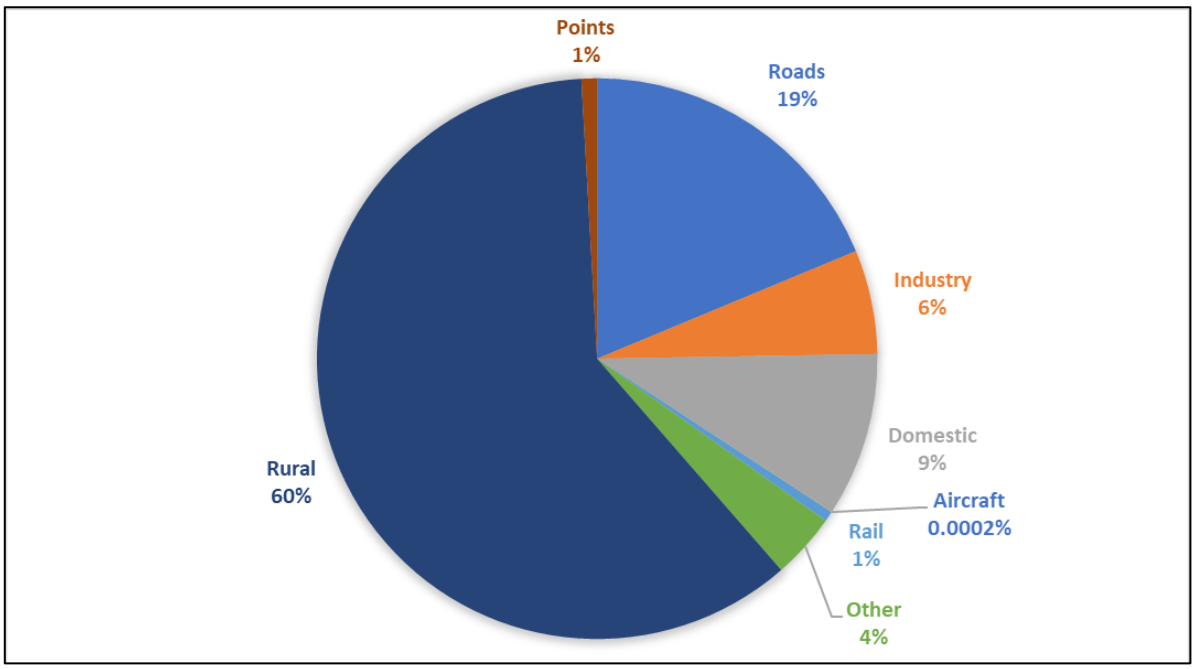


Figure 3-7: Average source apportionment for NOx concentrations in Chipping Norton AQMA based on Defra background maps



Detailed source apportionment was calculated for 2019 at each monitoring site across Chipping Norton to assess more specifically which vehicle types were contributing to NO_x, PM_{10}, and $PM_{2.5}$ emissions from road transport. Numbers and proportions of vehicle types within the fleet were based on traffic survey data. Figure 3-8, Figure 3-9, and Figure 3-10 show stacked bar charts of the source apportionment for all road transport and background sources at all monitoring sites within Chipping Norton for the baseline fleet in 2019 for NO_x, PM_{10}, and $PM_{2.5}$, respectively. The source apportionment by background and vehicle types in absolute modelled concentrations ($\mu g/m^3$) are displayed in further detail for NO_x, PM_{10}, and $PM_{2.5}$ in Table 3-7, Table 3-9 and Table 3-11Table 3-11: PM2.5 source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (µg/m3) for the baseline fleet, 2019 respectively, and in percentage contribution (%) for NO_x, PM_{10}, and $PM_{2.5}$ in Table 3-8, Table 3-10, Table 3-12, respectively.

For the monitoring site where local modelling data was not available (NAS16), no source apportionment of road NOx has been calculated because it is considered as an urban background site. A simplified source apportionment was therefore performed

based solely the Defra background maps (e.g. % background and % road contributions).

Figure 3-8 shows that for the monitoring sites with modelling data available, diesel LGVs were the greatest contributing vehicle to NOx concentrations, followed by diesel cars then rigid HGVs.

Figure 3-8: Stacked bar chart showing NOx source apportionment for all road transport and background for monitoring locations within Chipping Norton (%), for the baseline fleet, 2019

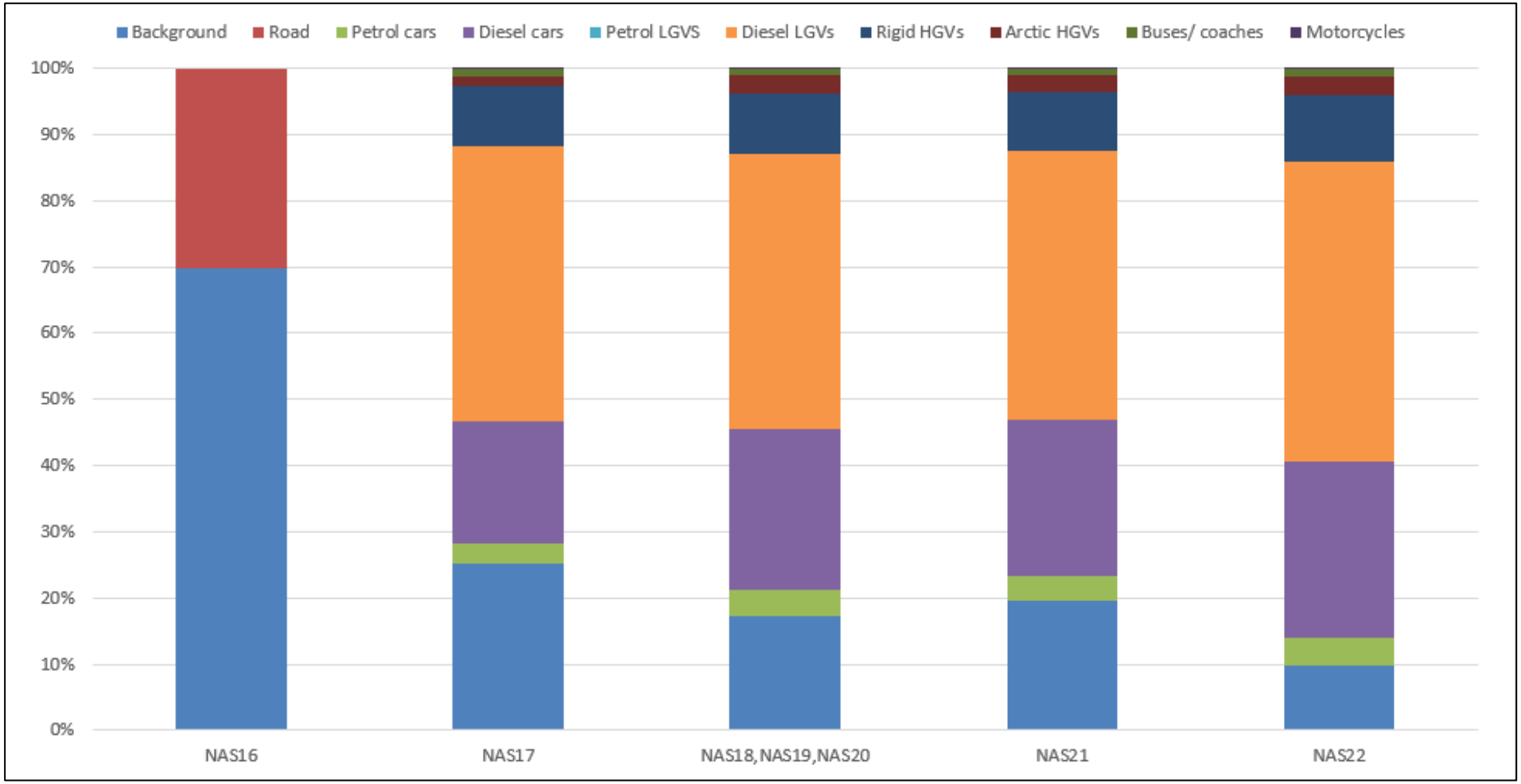


Table 3-7: NOx source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (µg/m^3) for the baseline fleet, 2019 (modelled NO_2 concentrations derived from the NOx to NO_2 calculator)

Site ID	Modelled background NOx concentration (µg/m^3)	Modelled road transport NOx concentration broken down by vehicle type (µg/m^3)								Total modelled NOx concentration (µg/m^3)	Total modelled NO_2 concentration (µg/m^3)	Total monitored NO_2 concentration (µg/m^3)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	Motorcycles			
NAS16	8.27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11.86	8.70	8.6
NAS17	8.35	0.97	6.13	0.02	13.74	3.05	0.43	0.42	0.01	33.13	19.94	21.5
NAS18, NAS19, NAS20	8.33	1.89	11.68	0.03	20.06	4.38	1.28	0.51	0.02	48.20	27.22	29.0
NAS21	8.32	1.63	10.06	0.02	17.29	3.78	1.11	0.44	0.02	42.67	24.60	19.8
NAS22	8.33	3.66	22.58	0.05	38.80	8.48	2.48	1.00	0.05	85.43	43.35	43.9

Table 3-8: NOx source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (%) for the baseline fleet, 2019 (modelled NO_2 concentrations derived from the NOx to NO_2 calculator)

Site ID	Modelled background NOx concentration (%)	Modelled road transport NOx concentration broken down by vehicle type (%)								Total modelled NOx concentration (µg/m^3)	Total modelled NO_2 concentration (µg/m^3)	Total monitored NO_2 concentration (µg/m^3)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	Motorcycles			
NAS16	69.7%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11.86	8.70	8.6
NAS17	25.2%	2.9%	18.5%	0.1%	41.5%	9.2%	1.3%	1.3%	0.04%	33.13	19.94	21.5
NAS18, NAS19, NAS20	17.3%	3.9%	24.2%	0.1%	41.6%	9.1%	2.7%	1.1%	0.1%	48.20	27.22	29.0
NAS21	19.5%	3.8%	23.6%	0.1%	40.5%	8.9%	2.6%	1.0%	0.05%	42.67	24.60	19.8
NAS22	9.8%	4.3%	26.4%	0.1%	45.4%	9.9%	2.9%	1.2%	0.1%	85.43	43.35	43.9

Figure 3-9: Stacked bar chart showing PM_{10} source apportionment for all road transport and background for monitoring locations within Chipping Norton (%), for the baseline fleet, 2019

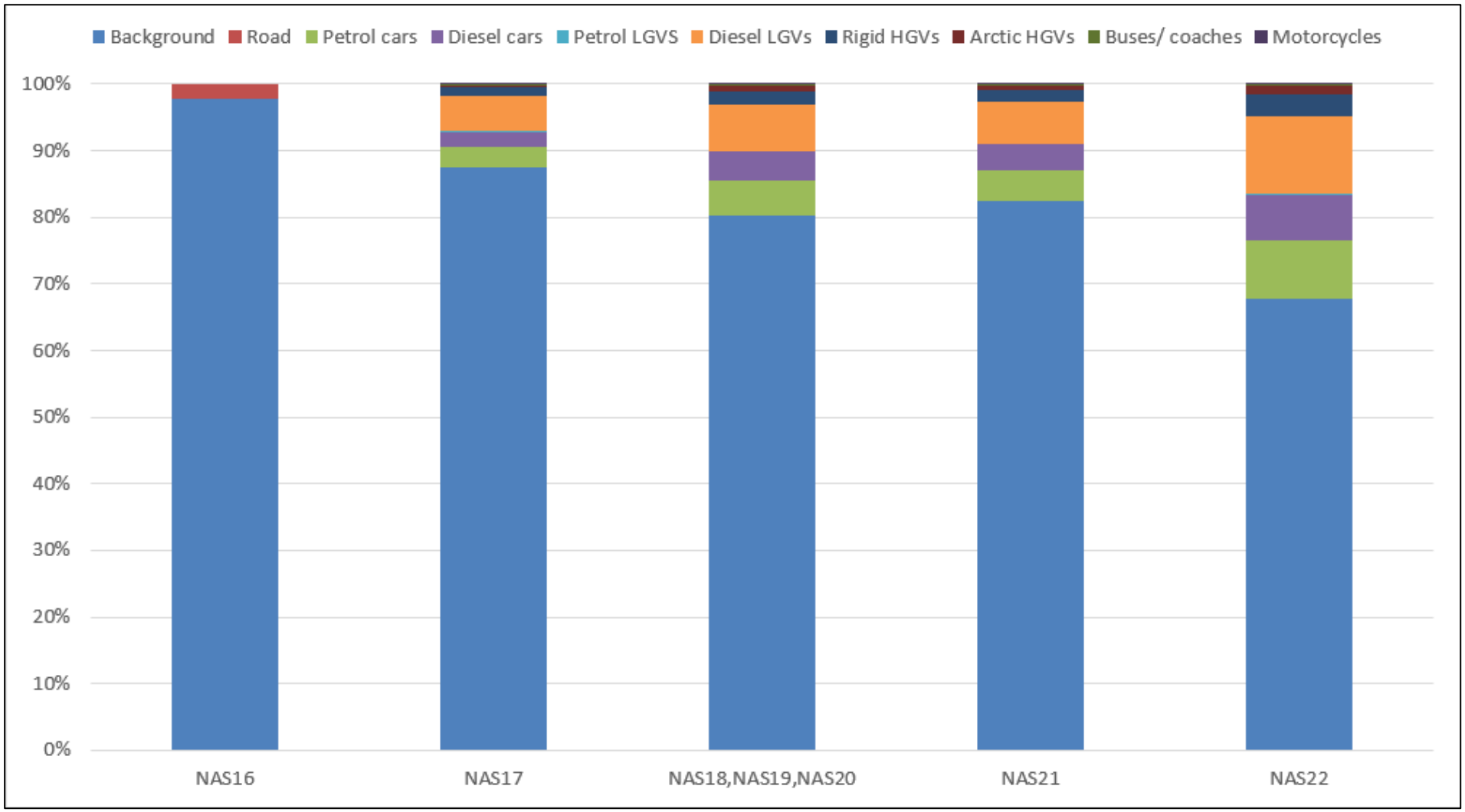


Table 3-9: PM_{10} source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (µg/m³) for the baseline fleet, 2019

Site ID	Modelled background PM_{10} concentration (µg/m³)	Modelled road transport PM_{10} concentration broken down by vehicle type (µg/m³)								Total modelled PM_{10} concentration (µg/m³)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	Motorcycles	
NAS16	13.39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13.70
NAS17	13.40	0.44	0.36	0.01	0.82	0.21	0.04	0.02	0.004	15.31
NAS18, NAS19, NAS20	13.39	0.88	0.71	0.02	1.18	0.33	0.13	0.03	0.01	16.69
NAS21	13.40	0.76	0.62	0.01	1.03	0.29	0.12	0.02	0.01	16.26
NAS22	13.40	1.70	1.38	0.03	2.28	0.64	0.26	0.05	0.01	19.76

Table 3-10: PM_{10} source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (%) for the baseline fleet, 2019

Site ID	Modelled background PM_{10} concentration (%)	Modelled road transport PM_{10} concentration broken down by vehicle type (%)								Total modelled PM_{10} concentration (µg/m³)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	Motorcycles	
NAS16	97.7%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	13.70
NAS17	87.6%	2.9%	2.4%	0.1%	5.3%	1.4%	0.3%	0.1%	0.03%	15.31
NAS18, NAS19, NAS20	80.3%	5.3%	4.3%	0.1%	7.1%	2.0%	0.8%	0.2%	0.04%	16.69
NAS21	82.4%	4.7%	3.8%	0.1%	6.3%	1.8%	0.7%	0.1%	0.04%	16.26
NAS22	67.9%	8.6%	7.0%	0.1%	11.5%	3.2%	1.3%	0.3%	0.1%	19.76

Figure 3-10: Stacked bar chart showing $PM_{2.5}$ source apportionment for all road transport and background for monitoring locations within Chipping Norton (%), for the baseline fleet, 2019

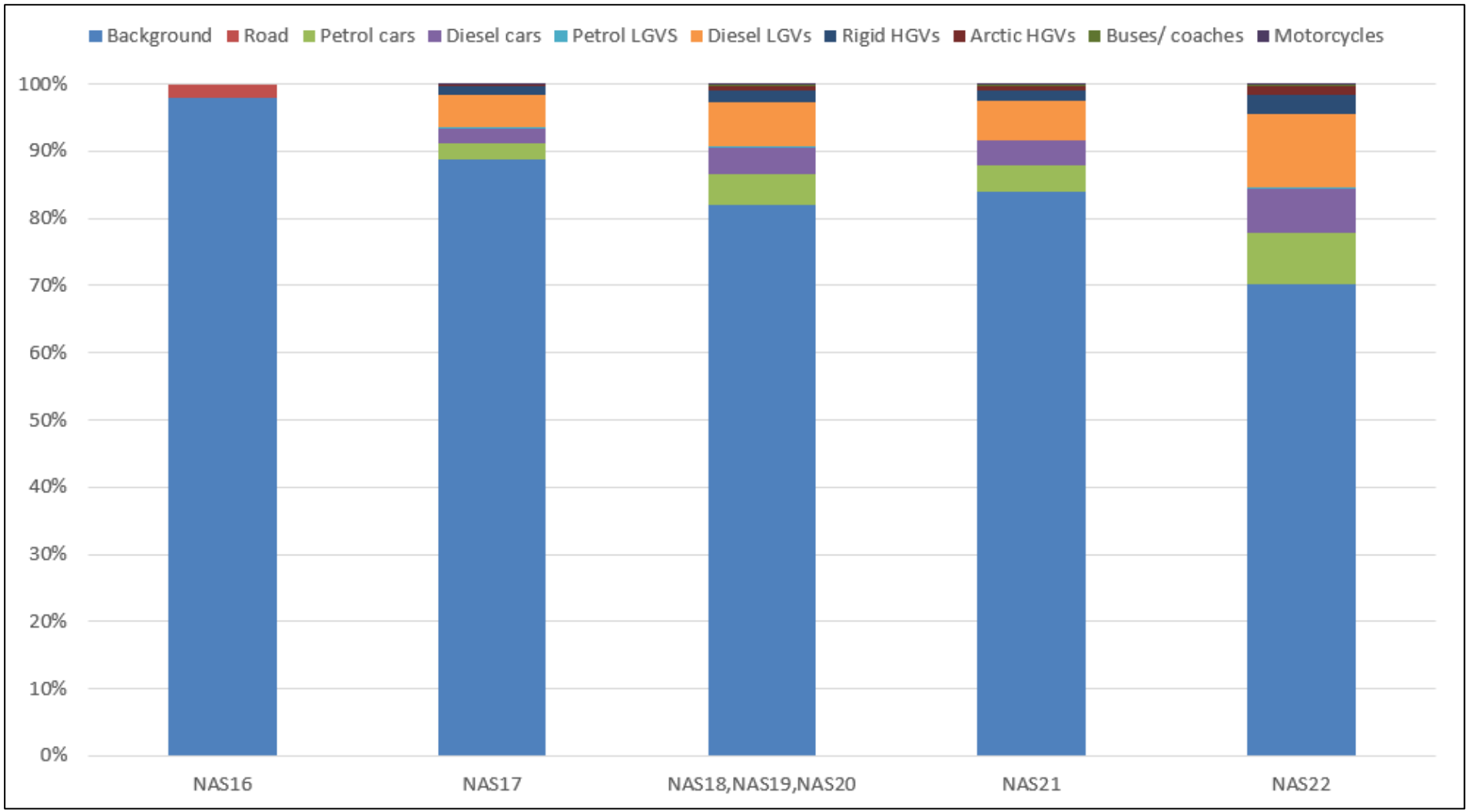


Table 3-11: $PM_{2.5}$ source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (µg/m³) for the baseline fleet, 2019

Site ID	Modelled background $PM_{2.5}$ concentration (µg/m³)	Modelled road transport $PM_{2.5}$ concentration broken down by vehicle type (µg/m³)								Total modelled $PM_{2.5}$ concentration (µg/m³)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	Motorcycles	
NAS16	8.81	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.00
NAS17	8.84	0.25	0.22	0.01	0.49	0.12	0.02	0.01	0.003	9.97
NAS18, NAS19, NAS20	8.81	0.49	0.44	0.01	0.70	0.19	0.08	0.02	0.005	10.74
NAS21	8.80	0.42	0.38	0.01	0.61	0.17	0.07	0.01	0.004	10.48
NAS22	8.81	0.94	0.85	0.02	1.36	0.37	0.15	0.03	0.01	12.54

Table 3-12: $PM_{2.5}$ source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (%) for the baseline fleet, 2019.

Site ID	Modelled background $PM_{2.5}$ concentration (%)	Modelled road transport $PM_{2.5}$ concentration broken down by vehicle type (%)								Total modelled $PM_{2.5}$ concentration (µg/m³)
		Petrol cars	Diesel cars	Petrol LGVS	Diesel LGVs	Rigid HGVs	Arctic HGVs	Buses/ coaches	Motorcycles	
NAS16	98.0%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.00
NAS17	88.7%	2.5%	2.3%	0.1%	4.9%	1.2%	0.2%	0.1%	0.03%	9.97
NAS18, NAS19, NAS20	82.0%	4.5%	4.1%	0.1%	6.5%	1.8%	0.7%	0.2%	0.05%	10.74
NAS21	84.0%	4.0%	3.6%	0.1%	5.8%	1.6%	0.7%	0.1%	0.04%	10.48
NAS22	70.3%	7.5%	6.8%	0.1%	10.8%	3.0%	1.2%	0.3%	0.1%	12.54

3.4 Required Reduction in Emissions

3.4.1 NOx and NO_2

3.4.1.1 Witney

The source apportionment identified that there were two locations where the national objective of 40 µg/m^3 were exceeded in Witney in 2019: NAS1 at 44.8 µg/m^3, and NAS3 at 41.9 µg/m^3. Both sites are located on Bridge Street, where air pollution is likely exacerbated due to the street canyon effect and congestion. At both NAS1 and NAS3, the largest contributor to NOx emissions was diesel cars, at 46.0% and 46.8%, respectively (Table 3-2: NOx source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (%) for the baseline fleet, 2019 (modelled NO2 concentrations derived from the NOx to NO2 calculator)). Table 3-13: NO2 concentration measured at the monitoring sites in Witney with an NO2 exceedance and the required reduction in NO2 to achieve compliance at these sites (based on 2019 measured data) shows that the required reduction in NO_2 concentrations at NAS1 is 10.7% and at NAS3 is 4.5%.

Table 3-14: Required reduction in NOx emissions from road traffic to achieve compliance at Witney monitoring sites (based on 2019 measured data) shows that the required NOx reduction from road traffic to achieve compliance with the national objective is 12.13 µg/m^3, or 15.24%, for NAS1, and 4.73 µg/m^3, or 6.55%, for NAS3. This has been calculated in accordance with Section 7.115 – 7.117 (and Box 7.6) of the Technical Guidance LAQM (TG22).

It is important to note that in the final stages of preparing this AQAP, 2022 monitoring data became available which shows the monitored NO_2 concentrations in Witney are currently complaint with the annual mean AQO.

Table 3-13: NO_2 concentration measured at the monitoring sites in Witney with an NO_2 exceedance and the required reduction in NO_2 to achieve compliance at these sites (based on 2019 measured data)

Site name	Measured NO_2 (µg/m^3)	Required NO_2 reduction (µg/m^3)	Required NO_2 reduction (%)
NAS1	44.8	4.8	10.7
NAS3	41.9	1.9	4.5

Table 3-14: Required reduction in NOx emissions from road traffic to achieve compliance at Witney monitoring sites (based on 2019 measured data)

Site name	NO_x background (µg/m^3)	Roadside NO_x from NO_2 calculator (µg/m^3)	Road NO_x to achieve compliance (µg/m^3)	Road NO_x reduction required, (µg/m^3)	Required road NO_x reduction (%)
NAS1	10.50	79.59	67.46	12.13	15.2
NAS3	10.50	72.18	67.45	4.73	6.6

3.4.1.2 Chipping Norton

The source apportionment identified that there was one location in Chipping Norton where the NO_2 national objective of 40 µg/m^3 was exceeded in 2019: NAS22 on Horse Fair at 43.90 µg/m^3 (Table 3-8: NOx source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (%) for the baseline fleet, 2019 (modelled NO2 concentrations derived from the NOx to NO2 calculator)). At this location, air pollution is likely exacerbated due to the street canyon effect and congestion. Table 3-15: NO2 concentration measured at monitoring sites in Chipping Norton with an NO2 exceedance and the required reduction in NO2 to achieve compliance at these site (based on 2019 measured data) shows that the required reduction in NO_2 concentrations at NAS22 is 8.9%.

Table 3-16: Required reduction in NOx emissions from road traffic to achieve compliance at Chipping Norton monitoring sites (based on 2019 measured data) shows that the required

NOx reduction from road traffic to achieve compliance with the national objective is 9.60 µg/m^3, or 12.23%. This has been calculated in accordance with Section 7.115 – 7.117 (and Box 7.6) of the Technical Guidance LAQM (TG22).

As for Witney, in the final stages of preparing this AQAP, 2022 monitoring data became available which shows the monitored NO_2 concentrations in Chipping Norton are currently complaint with the annual mean AQO.

Table 3-15: NO_2 concentration measured at monitoring sites in Chipping Norton with an NO_2 exceedance and the required reduction in NO_2 to achieve compliance at these site (based on 2019 measured data)

Site name	NO_x background (µg/m^3)	Required NO_2 reduction (µg/m^3)	Required NO_2 reduction (%)
NAS22	43.90	3.90	8.9%

Table 3-16: Required reduction in NOx emissions from road traffic to achieve compliance at Chipping Norton monitoring sites (based on 2019 measured data)

Site name	NO_x background (µg/m^3)	Roadside NO_x from NO_2 calculator (µg/m^3)	Road NO_x to achieve compliance (µg/m^3)	Road NO_x reduction required, (µg/m^3)	Percentage road NO_x reduction (%)
NAS22	8.33	78.48	68.88	9.60	12.23%

At NAS22, the largest contributors to NOx emissions were Diesel LGVs (45.4%), Diesel Cars (26.4%), and Rigid HGVs (9.9%) (Table 3-8: NOx source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (%) for the baseline fleet, 2019 (modelled NO2 concentrations derived from the NOx to NO2 calculator)). Implementing a range of measures that focus on a reducing of emissions from these vehicle types will reduce NOx emissions and improve local air quality to meet the national air quality objective.

3.4.2 Particulate Matter

Although there are no monitoring sites in Witney and Chipping Norton that monitor particulate matter, the dispersion models suggested that the PM_{10} and $PM_{2.5}$ concentrations at the monitoring site locations in 2019 did not exceed the national air quality objectives and were not within 10% of the national air quality objectives. The highest modelled particulate matter concentrations in 2019 in Witney were 21.63 µg/m^3 for PM_{10} (Table 3-3: PM_{10} source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (µg/m^3) for the baseline fleet, 2019), and 14.13 µg/m^3 for $PM_{2.5}$ (Table 3-5: $PM_{2.5}$ source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (µg/m^3) for the baseline fleet, 2019). In Chipping Norton, the highest modelled particulate matter concentrations in 2019 were 19.76 µg/m^3 for PM_{10} (Table 3-9: PM_{10} source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (µg/m^3) for the baseline fleet, 2019), and 12.54 µg/m^3 for $PM_{2.5}$ (Table 3-11: $PM_{2.5}$ source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Chipping Norton (µg/m^3) for the baseline fleet, 2019).

3.4.3 Scenario Modelling Testing

To understand the impact that different measures could have on the pollution scene in Witney and Chipping Norton, six scenarios were modelled on the 2019 baseline model for each pollutant. These were based on the shortlisted measure options, which largely focused on improving traffic flow and congestion by reducing the number of cars or HGVs in the AQMA. The six scenarios are outlined below:

1. 5% car reduction
2. 10% car reduction
3. 15% car reduction
4. 5% HGV reduction
5. 10% HGV reduction
6. 15% HGV reduction

Table E-2, Table E-3, and Table E-4 in Modelling shows the results of the pollutant concentration changes under each scenario in Witney for NO_2, PM_{10}, and $PM_{2.5}$, respectively. For all pollutants and monitoring sites, the scenario that resulted in the largest pollutant reduction was Scenario 3: 15% car reduction. Scenario 3 resulted in an average percentage concentration change of -5.77% for NO_2, -2.03% for PM_{10}, and -1.80% for $PM_{2.5}$ across all monitoring sites in Witney in 2019.

Table E-5, Table E-6, and Table E-7 in Modelling show the results of the pollutant concentration changes under each scenario in Chipping Norton for NO_2, PM_{10}, and $PM_{2.5}$, respectively. For all pollutants and monitoring sites, the scenario that resulted in the largest pollutant reduction was Scenario 3: 15% car reduction. Scenario 3 resulted in an average percentage concentration change of -2.87% for NO_2, -0.95% for PM_{10}, and -0.86% for $PM_{2.5}$ across all monitoring sites in Chipping Norton in 2019.

Scenario 3 resulted in the largest pollutant reduction for both Witney and Chipping Norton, but pollution concentrations were still not compliant in the AQMAs for the 2019 modelled scenario. However, it is important to note that the model does not account for improvements to the vehicle fleet between 2019 and 2022/2023 (e.g. upgrading of vehicles to higher Euro standards, and increased proportion of electric and hybrid vehicles in the fleet).

It is anticipated these changes that naturally occur with time will result in further reduction of concentrations compared to the 2019 modelled scenarios. 2022 diffusion tube monitoring results have recently become available for Witney and Chipping Norton and show compliance across all sites in 2022 (as presented in Section 2.5).

The concentration improvements may be indicative of improvements in the vehicle fleet in 2022 from 2019, as well as more general improvements as a result of changing behaviours (more working from home), and measures which have been implemented across Witney, Chipping Norton or the wider West Oxfordshire District between 2019 and 2023.

3.5 Key Priorities

3.5.1 Witney

As discussed in the Source Apportionment section (Section 3.3), the most significant of NO_2 pollution in the Witney AQMA after naturally occurring/agriculture is road

transport. Diesel vehicles are responsible for the majority of NOx emissions, with diesel cars comprising 35 – 49% of NOx concentrations at diffusion tube locations in the AQMA, and diesel LGVs comprising 15 – 27% of emissions (Table 3-2: NOx source apportionment by background and vehicle type (road transport emissions from major roads) at monitoring locations within Witney (%) for the baseline fleet, 2019 (modelled NO2 concentrations derived from the NOx to NO2 calculator)). The next greatest contributing vehicle class are rigid HGVs, petrol cars and buses/coaches. WODC have developed measures which target these sources, as well as broader measures which seek to reduce emissions from a range of sources.

Priority 1 – Bringing the Witney AQMA into compliance with the NO_2 annual mean Air Quality Objective (AQO)

Measures under Priority 1 have been designed to address specific areas of NO_2 exceedance within Witney. The modelling conducted along with the measured monitoring data confirms the presence of NO_2 hotspots within Witney. Source apportionment modelling shows the primary cause of this is road transport, specifically diesel cars and LGVs.

Key measures which fall under Priority 1 include:

- Witney Area Travel Plan (measure W1)
- West-facing slip roads at A40 Shores Green Junction (measure W3)
- Delivering EV charging infrastructure (measures WCN8, WCN16, WCN10, WCN11)
- Reducing the council's fuel consumption through vehicle fleet driver-awareness training
- Develop and promote appropriate HGV route map (measure WCN4)
- Using integrated planning to reduce need to travel by embedding policies in land use planning and guidance document (measure WCN17)
- Anti-Idling information campaign and enforcement (measures WCN12)

Priority 2 – Managing $PM_{2.5}$ exposure

Measures under Priority 2 include actions which seek to improve understanding of $PM_{2.5}$ concentrations and population exposure in Witney, and actions which seek to reduce $PM_{2.5}$ concentrations and population exposure.

Key measures which fall under Priority 2 include:

- Investigate funding sources to install particulate monitors, to gain a better understanding of the concentrations residents are exposed to
- Review options for developing domestic fuel burning policies, including consideration of the implementation of Smoke Control Areas, and restrictions or guidance on wood and coal burning stoves and bonfires (measure WCN18)
- Information campaign regarding domestic solid fuel best practice guidance (measure WCN19)
- Reviewing the air quality monitoring network in Witney and investigating options for introducing automatic monitoring of NO_2 and $PM_{2.5}$ (measure WCN22)

These measures focus on domestic sources because source apportionment of $PM_{2.5}$ in Witney, presented in Figure C-1 in PM2.5 Assessment: Likelihood of achieving new PM2.5 targets in West Oxfordshire, showed domestic combustion to be the largest source of $PM_{2.5}$ in the town.

Priority 3 – Improving accessibility into and around Witney by alternatives to private car – i.e. walking, wheeling, cycling and public transport

WODC recognise that the AQAP needs to introduce measures which encourage and enable residents and employees of, and visitors to Witney to use active transport (walking, wheeling and cycling) or public transport, rather than private cars.

Whilst achieving emissions reductions from these types of measures (often described as “modal shift”) is very much dependant on the attitudes and choices of individuals, there is much that can be done to make active and public transport more appealing and eventually the first consideration when travelling.

The benefits of active and public transport stretch beyond air quality and would lead to co-benefits in terms of reducing CO_2 emissions, in addition to the health and well-being benefits associated with active transport.

Key measures which fall under Priority 3 include:

- Witney Local Cycling and Walking Infrastructure Plan (LCWIP) (measure W4)
- Provision of secure cycle parking facilities (measures WCN1 and DC3)
- Improving the range, frequency and speed of, and accessibility to bus services to key destinations (measure WCN6)
- Community activation and promotional programmes to enable the community to benefit from the walking/cycling/green infrastructure improvements (measure WCN2)
- Embed 'Healthy Streets Approach' and Design Check Tool, into the relevant guidance and decision making processes to improve the human experience of streets and encourage walking and cycling (measure WCN3)
- Work with schools to develop a programme of walking and cycling measures and improve promotion and education of travel (measure WCN6)
- Work with bus operators to maintain a commercially sustainable and comprehensive network of services (measure WCN7)
- Improve access to active travel information (measure WCN5)
- Use developer funding to improve the frequency and availability of bus services in routes within Witney area (measures W5 and W6).

3.5.2 Chipping Norton

Priority 1 – Bringing the Chipping Norton Air Quality Management Area (AQMA) into compliance with the NO_2 annual mean Air Quality Objective (AQO)

Measures under Priority 1 have been designed to reduce NO_2 and NOx within Chipping Norton AQMA. As discussed in Section 3.3, the primary cause of NOx in the Chipping Norton AQMA is vehicle emissions. At diffusion tube location NAS22 on Horse Fair, diesel vehicles are responsible for over 71% of NOx emissions, with diesel LGVs comprising 45.4% and diesel cars comprising 26.4% of emissions. The next greatest contributing vehicle type are HGVs comprising 12.8%.

It is difficult to develop measures which specifically target diesel vehicles outside of charging schemes, such as Low Emission Zones or varied car parking charges

depending on vehicle type. This is not applicable to Chipping Norton as there are no vehicle parking charges in council owned car parks.

Measures under Priority 1 therefore aim to reduce car, LGV and HGV vehicle movements in Chipping Norton, smooth traffic flow, and improve vehicle technologies.

Key measures which fall under Priority 1 include:

- West Oxfordshire Area Travel Plan (measure CN1)
- Improve Transport Corridors (measure CN2)
- Reducing the council's fuel consumption through vehicle fleet driver-awareness training (measure DC2)
- Delivering EV charging infrastructure (measures WCN8, WCN16, WCN10, WCN11)
- Develop and promote appropriate HGV route map (measure WCN14)
- Using integrated planning to reduce need to travel by embedding policies in land use planning and guidance document (measure WCN17)
- Anti-Idling information campaign and enforcement (measures WCN12)

Whilst 2022 monitoring data indicates compliance across Chipping Norton, it is understood that measured annual mean NO_2 concentrations will need to be below 10% of the objective level for three consecutive years before the AQMA can be considered for revocation. Therefore, it is important to implement actions to improve NO_2 concentrations in the hotspot beyond the level of compliance, as well as securing sustained improvement in air quality in the long-term.

Priority 2 – Managing $PM_{2.5}$ exposure in Chipping Norton.

Measures under Priority 2 include actions which seek to improve understanding of $PM_{2.5}$ concentrations and population exposure in Chipping Norton, and actions which seek to reduce $PM_{2.5}$ concentrations and population exposure. Many of the actions under Priority 1 will help reduce $PM_{2.5}$ concentrations in Chipping Norton, as the road traffic sources which contribute to NO_2 emissions also contribute to $PM_{2.5}$ emissions.

These measures focus on domestic sources because source apportionment of $PM_{2.5}$ in Chipping Norton, presented in Figure C-1 in PM2.5 Assessment: Likelihood of

achieving new PM2.5 targets in West Oxfordshire, showed domestic combustion to be the largest source of $PM_{2.5}$ in Chipping Norton.

Key measures which fall under Priority 2 include:

- Investigate funding sources to install particulate monitors, to gain a better understanding of the concentrations that residents are exposed to
- Review options for developing domestic fuel burning policies, including consideration of the implementation of Smoke Control Areas, and restrictions or guidance on wood and coal burning stoves and bonfires (measure WCN18)
- Information campaign regarding domestic solid fuel best practice guidance (measure WCN19)
- Reviewing the air quality monitoring network in Chipping Norton and investigating options for introducing automatic monitoring of NO_2 and $PM_{2.5}$ (measure WCN22)

Priority 3 – Improve accessibility into and around Chipping Norton by alternatives to private car – i.e. walking, cycling and public transport.

WODC recognise that the AQAP needs to introduce measures which encourage and enable residents and employees of, and visitors to Chipping Norton to use active transport (walking, wheeling and cycling) or public transport, rather than private cars.

Accessibility of these sustainable transport options has been raised as a key issue facing Chipping Norton, with factors such as the topography and narrow streets, and a lack of suitable routes potentially contributing to low uptake of these options.

Whilst achieving emissions reductions from these types of measures (often described as “modal shift”) is very much dependant on the attitudes and choices of individuals, there is much that can be done to make active and public transport more appealing and eventually the first consideration when travelling.

The benefits of active and public transport stretch beyond air quality and would lead to real co-benefits in terms of reducing CO_2 emissions, in addition to the health and well-being benefits associated with active transport.

Key measures which fall under Priority 3 include:

- Chipping Norton Local Cycling and Walking Infrastructure Plan (LCWIP) (measure CN3)
- Provision of secure cycle parking (measures WCN1 and DC3)
- Improving the range, frequency and speed, and accessibility to bus services to key destinations (measure WCN6)
- Community activation and promotional programmes to enable the community to benefit from the walking/cycling/green infrastructure improvements (measure WCN2)
- Embed 'Healthy Streets Approach' and Design Check Tool, into the relevant guidance and decision making processes to improve the human experience of streets to encourage walking and cycling (WCN6)
- Work with schools to develop a programme of walking and cycling measures and improve promotion and education of travel (measure WCN4)
- Work with bus operators to maintain a commercially sustainable and comprehensive network of services (measure WCN7)
- Improve access to active travel information (measure WCN5)
- Use developer funding to improve the frequency and availability of bus services in routes within Chipping Norton area (measures CN4 and CN5).

4 Development and Implementation of West Oxfordshire District Council's AQAP for Witney and Chipping Norton

4.1 Consultation and Stakeholder Engagement

In developing 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 Table 4-1. In addition, we have undertaken the following to publicise the AQAP and the associated questionnaire to stakeholders:

- The documents were posted on WODC's Air Quality website
- Posts / articles on social media and in local press
- Questionnaires aimed at residents and visitors to the town, available both electronically via a link and in paper format at the Town Council office
- Steering group workshop was organised to discuss the proposed measures
- Steering group and statutory consultees were contacted by email for feedback on the draft document, and invited to take the questionnaire

The response to our consultation stakeholder engagement is given in Appendix, Section A.1

Table 4-1: Consultation Undertaken

Consultee	Consultation Undertaken
The Secretary of State	Yes
The Environment Agency	Yes
The Highways Authority	Yes
All neighbouring local authorities	Yes

Consultee	Consultation Undertaken
Other public authorities as appropriate, such as Public Health officials	Yes
Bodies representing local business interests and other organisations as appropriate	Yes

4.2 Steering Group

The AQAP Steering Group was established in January 2023. Members of the Steering Group included:

Witney and Chipping Norton

- Philip Measures (WODC Service Leader for Environmental Regulatory Services)
- Susan McPherson (WODC Senior Air Quality Officer)
- David Rudland (WODC Air Quality Officer)
- Karen Toomer (WODC Senior Manager for Environmental Regulatory Services)
- Lidia Arciszewska (WODC Member for the Environment)
- Janice Bamsey (WODC Principal Planning Policy Officer in Planning Policy)
- Kim Hudson (WODC Principal Planning Officer in Planning Policy)
- Katharine Eveleigh (OCC Health Improvement Practitioner)
- Chris Ashley (Policy Lead – Environment and Vehicles, Road Haulage Association)
- Rhys Williams (Regional Operations Manager, Road Haulage Association)

Witney

- Cllr Andrew Prosser (Cabinet Member for Climate Change, Witney District Councillor for Witney North)
- Cllr Liz Duncan (Witney Town Council Member)
- Louise Croot (WODC Climate Support Officer)

- Odele Parsons (OCC Senior Transport Planner – Cherwell & West Infrastructure Locality Team)
- Kevin Arnold (representative of the Windrush Bike Project local cycling group)
- Richard Martin (Witney High Street business owner, representative of local business, Committee Group Member of the Chamber of Commerce)

Chipping Norton

- Cllr Mark Walker (Chipping Norton Town Council Member)
- Hannah Kenyon (WODC Climate Change Manager)
- Natalie Moore (OCC Senior Transport Planner – Cherwell & West Infrastructure Locality Team)
- Robert Skillern (Gloucestershire County Council Highway Manager)

Communications ahead of the Steering Group Workshops

The respective Steering Groups were provided information about the AQAP process and the upcoming workshops by email, upon their invitation to the group.

The Steering Groups were invited by email to provide suggestions for measures for the AQAP measures longlists, for consideration at the first Steering Group workshops.

The longlisted measures were circulated to the Steering Groups ahead of the workshops, so that members could read and provide feedback on the measures longlist ahead of the workshops, and in the event they could not attend.

For Witney, feedback was received from a number of Steering Group members, and information was provided by OCC Highways ahead of the meeting concerning the ongoing Local Transport Plan (LTP) for Witney currently under development by OCC. It was agreed that the LTP be secured as a measure within the AQAP, but that the LTP was too early in the planning stage for any individual LTP measures to be incorporated to the AQAP at this stage.

Steering Group Workshops: 28th February 2023 (Witney) and 1st March 2023 (Chipping Norton)

Two online workshops were held for the Steering Groups to provide an overview air quality in Witney and Chipping Norton, and to discuss the longlist of AQAP measures. This included discussion of measures which had been compiled from existing regional and local policy, and how these could be introduced to Witney/Chipping Norton, in addition to discussion of "new thinking" measures.

The workshops were well attended and the discussions were productive. Steering Group members also had the opportunity to raise questions and give feedback using the Teams chatbox within the meetings, and by email following the workshops. Minutes from the workshops are provided in Steering Group Workshop minutes

Witney (28th February 2023).

Draft AQAP and measures shortlists

Following the workshops, the AQAP was drafted, and the measures longlists were refined to the shortlists. Summaries of the longlist measures are provided in Reasons for Not Pursuing Action Plan Measures, along with an indication of whether they were taken forward to the shortlists or not, and providing details including reasons why measures weren't taken forward.

The draft AQAP was circulated to the respective Steering Groups concurrent with the public consultation on 5th June 2023.

Future activities

The respective Witney and Chipping Norton Steering Groups will meet on at least an annual basis for the duration of the implementation of this AQAP.

These meetings will include:

- Reporting back on progress against AQAP measures from responsible owners, including reporting against KPIs, and highlighting any changes to timescales, funding, and barriers to delivery.
- Maintain AQAP as a "live" strategy, ensuring measures remain targeted and focused, and introducing new measures as needed.

5 AQAP Measures

5.1 AQAP Measures

The mitigation measures which have been agreed for Witney and Chipping Norton are shown in Tables 5-1 to 5-4. These measures were agreed through consultation with Steering Groups. The preliminary longlists of measures are presented in Appendix B: Reasons for Not Pursuing Action Plan Measures, including reasons for not carrying forward measures to the shortlists.

The tables of measures contain:

- 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:
    - "Low" – measures with a low target pollution reduction in the AQMAs are considered "soft" actions which may not directly cause reductions of pollutants but may indirectly result have a positive impact on air quality. Effectiveness of the measures may be constrained by engagement and/or enforcement.
    - "Medium" – measures with a medium target pollution reduction in the AQMAs include "technical" measures which will directly cause reductions of pollution, but the effectiveness of the measures may be constrained by engagement and/or enforcement.
    - "High" – measures with high target pollution reduction in the AQMAs include "technical "actions over which the lead authority has control and are unlikely to constrained by engagement and/or enforcement.
- The timescale for implementation.
- How progress will be monitored.

Please see future ASRs for regular annual updates on implementation of these measures.

5.2 Development of measures

5.2.1 Witney

The source apportionment exercise for Witney (Section 3.3) identified that in terms of background concentrations, the largest source of NOx concentrations in the AQMA is rural (53%) (combined naturally occurring NOx and agricultural sources), followed by road transport (22%), domestic (11%), industry (6%) and other (6%).

The source apportionment of NOx concentrations at the monitoring locations in Witney AQMA by vehicle type showed that the greatest contributions came from diesel cars (24 – 40%), followed by diesel LGVs (9 – 17%). Rigid HGVs comprised 4 – 8% of NOx concentrations, petrol cars 4 – 6%, buses/coaches 0 – 7%, artic HGVs 1 – 4%, and petrol LGVs <0.1%.

With these results in mind, it was identified that measures targeting cars, freight, and the general fleet, and domestic sources, would likely have the greatest impact in reducing NOx concentrations in Witney.

The key priorities established in section 3.5.1 also informed the measures selection process, as detailed in this section.

The actions which are considered priority measures are:

Measure W1: Witney Area Travel Plan

Measure W4: Witney LCWIP

Measure W3: Shores Green junction re-routing through-traffic out of the AQMA and onto the A40 (also the most favoured measure from the public consultation).

It should be noted that no detailed modelling has been carried out specifically for individual measures, rather the modelling which has been carried out for Witney (as summarised in section 3.4) provides the modelled concentration reduction associated with % reduction of cars in the AQMA, and HGVs in the AQMA.

This is because transport modelling will be carried out for various schemes considered under Measure W1 Local Transport Plan for Witney, as well as for scheme Measure W3 Shores Green Junction, which is being assessed in the LTP Feasibility Study, but is also an action secured through the West Oxfordshire Local Plan 2031. It is

anticipated that the outcome of the transport model for these options should link to a % reduction in cars and or HGVs. These could then be linked to the air quality modelling scenario of those % reductions at a later date, once the LTP feasibility assessment has been completed.

For the LCWIP, air quality modelling cannot be carried out because the uptake of cycling and walking and the modal shift from private car has not been quantified. However again, should the reduction in number of cars in the AQMA be estimated through implementation of the LCWIP, this could be linked to an air quality modelling scenario as presented in section 3.4 at a later date.

5.2.2 Chipping Norton

The source apportionment exercise for Chipping Norton (section 3.3) identified that in terms of background concentrations, the largest source of NOx concentrations in the AQMA is rural (53%) (combined naturally occurring NOx and agricultural sources), followed by road transport (22%), domestic (11%), industry (6%) and other (6%).

The source apportionment of NOx concentrations at the monitoring locations in Chipping Norton AQMA by vehicle type showed that the greatest contributions came from diesel cars (24 – 40%), followed by diesel LGVs (9 – 17%). Rigid HGVs comprised 4 – 8% of NOx concentrations, petrol cars 4 – 6%, buses/coaches 0 – 7%, artic HGVs 1 – 4%, and petrol LGVs <0.1%.

With these results in mind, it was identified that measures targeting cars, freight, and the general fleet, and domestic sources, would likely have the greatest impact in reducing NOx concentrations in Chipping Norton.

The key priorities established in section 3.5.2 also informed the measures selection process, as detailed in this section.

The actions which are considered priority measures in Chipping Norton are:

Measure CN1: West Oxfordshire Area Travel Plan.

Measure CN3: Chipping Norton LCWIP.

Measure WCN14: Develop and promote appropriate HGV route map (also most favoured measure from the public consultation).

Measure WCN10: Improve availability of rapid and ultra-rapid EV charging on and near the strategic road network and important link roads across Oxfordshire.

It should be noted that no detailed modelling has been carried out specifically for individual priority measures, rather the modelling which has been carried out for Chipping Norton (as summarised in Section 3.4.3 and Modelling) provides the modelled concentration reduction associated with % reduction of cars in the AQMA, and HGVs in the AQMA. This is because transport modelling will be carried out for various schemes considered under the West Oxfordshire Area Travel Plan (measure CN1), which is under development by OCC. It is anticipated that transport modelling may be conducted for interventions considered for Chipping Norton as part of this plan. A likely outcome of transport modelling is estimated % reduction in vehicles in the AQMA. These could then be linked to the air quality modelling scenario of those % reductions at a later date.

For the LCWIP (measure CN3), air quality modelling cannot be carried out because the uptake of cycling and walking and the modal shift from private car is very difficult to quantify. However, should the reduction in number of cars in the AQMA be estimated through development or implementation of the LCWIP, this could be linked to an air quality modelling scenario as presented in Section 3.4.3 a later date.

For measure CN14, it is anticipated that better routing of HGVs, plus other measures which will be delivered or introduced through the OCC Freight and Logistics Strategy 2022-2056, may result in reduced HGV numbers in the Chipping Norton AQMA. The exact reduction is unknown at this point, but if known at a later date, this could be linked to the air quality modelling for 5%, 10% and 15% less HGVs.

For measure CN10, and other measures which relate to provision of EV charging and infrastructure, these actions will effectively reduce numbers of cars on the road (replacing petrol and diesel cars with electric effectively removed NOx and NO_2 emissions, though not non-exhaust PM_{10} and $PM_{2.5}$). Again, it is currently not possible to quantify the exact reduction as it will be dependent on the rate of EV uptake. If the exact reduction in petrol/diesel cars through replacement with EVs is known at a later date, this could be linked to the air quality modelling for 5%, 10% and 15% fewer cars.

5.3 AQAP Measure Tables

The mitigation measures which have been agreed for Witney and Chipping Norton are shown in Table 5-1: Witney Air Quality Action Plan Measures, Table 5-2: Chipping Norton Air Quality Action Plan Measures and Table 5-3: Air Quality Action Plan Measures applicable to Witney & Chipping Norton. Table 5-4: WODC-specific AQAP measures. lists measures which are only applicable to the District Council offices or employees. Although these measures in themselves are unlikely to have a significant impact on the AQMAs, they have been included to demonstrate the Council's commitment to improving air quality.

Notes on Tables 5-1 to 5-4:

1. Main council responsible for measure

Oxfordshire County Council (OCC)	West Oxfordshire District Council (WODC)	Oxfordshire County Council and West Oxfordshire District Council (OCC & WODC)	Other

2. Expected timeframe for implementation: S (Short) = 1-2 years; M (Medium) = 3-4 years; L (Long) = 5+ years

3. Mitigation measure categories

Highway/road improvements	Public Transport	Electric Vehicles	Active Travel	Motoring	Freight	Other

Table 5-1: Witney Air Quality Action Plan Measures

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved[1]	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
W1	Development and delivery of the Witney Area Travel Plan, including feasibility study and options appraisal into traffic management options for Bridge Street.	Traffic Management	Strategic highway improvements, Reprioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2022	Plan will run from 2024 to 2040	OCC leading, WODC supporting.	Funding to deliver the plan will be sought from local development sites, and central government funding bids.	No	Partially funded	To deliver the whole plan >£10m; however schemes will be delivered individually as funding comes forward.	Planning	High. Implementation of actions developed within the plan are expected to achieve considerable reductions pollutant emissions in Witney. The key aim of the plan is to improve traffic flow and reduce congestion on Bridge Street, which would result in considerable reduction of NO_2 if achieved.	No. of measures developed within the Plan which will improve air quality in Witney.	OCC are currently undertaking an Options Feasibility Appraisal, including transport modelling of options.	The Plan will outline how the Oxfordshire LTCP vision and outcomes will be delivered in Witney. It will guide future scheme development, funding bids, responses to planning applications, developer contributions, and will support and enable sustainable growth.	S
W2	Improve Transport Corridors - A40 Highway improvement (extension of dual carriage way Witney-Eynsham, Park& Ride and bus lanes to/from Oxford)	Traffic Management	Strategic highway improvements, Reprioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2016	2026 (est)	OCC and its partners	Department for Transport retained Local Growth Fund, Oxfordshire Housing Growth Deal, Oxfordshire Local Enterprise Partnership, S106 contributions	No	Partially funded	>£10 million	Implementation	Medium. Reduced traffic density and smoother flow on the A40 south of Witney may help reduce through-traffic in Witney and reduced emissions from the south (downwind) of the town centre.	Reduction in local concentration of NO_2	Main planning approval obtained 2022	Due to global price rises, this will now be a phased development with each phase commencing as funding becomes available	M - L

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved[1]	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
W3	Access to Witney - West-facing slip roads at A40 Shores Green Junction and improvements at B4022 Oxford Hill junction.	Traffic Management	Strategic highway improvements, Reprioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2021	2025	OCC and its partners	Housing and Growth Deal (HGD) funds and Section 106 developer contributions	No	Fully funded	>£10 million	Planning	High. Reduce traffic density in Witney town centre particularly at A4095 Bridge Street by re-routing through-traffic to the A40 to travel around Witney rather than current access through Witney to via Ducklington Lane junction.	Reduction in local concentration of NO_2	Planning Approval 2022	None to date	S
W4	Delivery of the Witney Local Cycling and Walking Infrastructure Plan (LCWIP).	Transport Planning and Infrastructure	Cycle network, Other	2023	2033	OCC leading, WODC supporting.	Funding to deliver the plan will be sought from local development sites, and central government funding bids.	No	Partially funded	To deliver the whole plan >£10m; however schemes will be delivered individually as funding comes forward.	Implementation	Medium-high. Implementation of actions developed within the plan are expected to reduce pollutant emissions in Witney, depending on the uptake of walking and cycling by the public.	No. of measures secured within the Plan, % increase in uptake of cycling and walking.	Witney LCWIP Approved by Oxfordshire Council March 2023.	The LCWIP will identify cycling and walking infrastructure improvements for future investment in the short, medium and long term	S
W5	Use developer funding to improve the frequency of bus services in routes within Witney	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2015	Ongoing	OCC, WODC, bus operators, developers	Developer	No	Fully funded	Variable	Variable	Low. Improved frequency of bus routes could reduce NO_2 emissions if uptake of services is good. Measure is for mitigation so unlikely to significantly reduce current concentrations.	£ of developer funding used for increasing bus services.	Ongoing	Chronic congestion on A40 Witney and acute congestion/delays at Bridge St in Witney	M

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved[1]	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
W6	Use developer funding to ensure that new and, where possible, existing residential areas are connected by adequate levels of bus service to the main employment areas/sites in Witney.	Transport Planning and Infrastructure	Public transport improvements- interchanges stations and services	2015	Ongoing	OCC, WODC, bus operators, developers	Developer	No	Fully funded	Variable	Variable	Low. Improved frequency of bus routes could reduce NO_2 emissions if uptake of services is good. Measure is for mitigation so unlikely to significantly reduce current concentrations.	£ of developer funding for provision or extension of bus service.	Ongoing	Chronic congestion on A40 Witney and acute congestion/delays at Bridge St in Witney, away from main bus routes	M
W7	Pilot car sharing club scheme.	Alternatives to private vehicle use	Car clubs	2023	Ongoing	OCC and WODC and Enterprise CarClub	Commercial operator	No	Fully funded	Not known	Implementation	Low. This measure is dependent on uptake by the general public.	Number of participants in scheme, feedback of participants in scheme.	The Witney Car club pilot has commenced in April 2023 at Woodford Way car park.		S

Table 5-2: Chipping Norton Air Quality Action Plan Measures

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved[1]	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
CN1	Development and delivery of the West Oxfordshire Area Travel Plan (for areas including Chipping Norton).	Transport Planning and Infrastructure	Other	2023	Plan will run from 2024 to 2040	OCC leading, WODC supporting.	Funding to deliver the plan will be sought from local development sites, and central government funding bids.	No	Partially Funded	Currently Unknown	Planning	Medium to High. Area Travel Plan will include measures to reduce congestion and congestion related emissions in Chipping Norton.	No. of measures secured within the Plan which will improve air quality in Chipping Norton, % reduction in traffic	Planning has commenced and the plan is expected to be drafted Summer-Autumn 2023.	The Plan will outline how the Oxfordshire LTCP vision and outcomes will be delivered in West Oxfordshire. It will guide future scheme development, funding bids, responses to planning applications, developer contributions, and will support and enable sustainable growth.	S
CN2	Improve Transport Corridors - A44 Corridor Study	Traffic Management	Highway improvements, reprioritising road space,	2023 / 24	2050	OCC	Funding to deliver identified measures will be sought from local development sites, and central government funding bids.	No	Not yet funded	Currently Unknown	Drafting	Medium. Implementation of actions developed within the report are expected to reduce pollutant emissions in Chipping Norton.	No. of measures secured within the report which will reduce traffic density and improve the pedestrian and cyclist environment	Drafting of the report is expected to be completed June 2023	To be confirmed	S
CN3	Development and delivery of the Chipping Norton Local Cycling and Walking Infrastructure Plan (LCWIP).	Transport Planning and Infrastructure	Cycle network, Other	2023 / 24	2033 / 34	OCC leading, WODC supporting.	Funding to deliver the plan will be sought from local development sites, and central government funding bids.	No	Not yet funded	Currently Unknown	Drafting	Low. No reduction of pollutants from this measure, but implementation of actions developed within the plan are expected to reduce pollutant emissions in Chipping Norton, depending on uptake of walking and cycling by the public.	No. of measures secured within the Plan, % increase in uptake of cycling and walking, % decrease in private car use.	Chipping Norton LCWIP is being drafted and expected to be completed Autumn 2023	The LCWIP will identify cycling and walking infrastructure improvements for future investment in the short, medium and long term.	S

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved[1]	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
CN4	Use developer funding to improve the frequency of bus services in routes within Chipping Norton area.	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2015	Ongoing	OCC, WODC, bus operators, developers	Developer	No	Fully funded	Variable	Variable	Low. Improved frequency of bus routes could reduce NO_2 emissions if uptake of services is good. Measure is for mitigation so unlikely to significantly reduce current concentrations.	Value of developer funding used for increasing bus services and consequential improvement in services.	Ongoing	Only applicable for developments where existing public transport services are poor. Only likely to be successful for profitable routes which will fund themselves once the developer money has finished.	M
CN5	Use developer funding to ensure that new and, where possible, existing residential areas are connected by adequate levels of bus service to the main employment areas/sites in the Chipping Norton area.	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2015	Ongoing	OCC, WODC, bus operators, developers	Developer	No	Fully funded	Variable	Variable	Low. Improved frequency of bus routes could reduce NO_2 emissions if uptake of services is good. Measure is for mitigation so unlikely to significantly reduce current concentrations.	£ of developer funding for provision or extension of bus service.	Ongoing	Only applicable for developments where existing public transport services are poor. Only likely to be successful for profitable routes which will fund themselves once the developer money has finished.	M
CN6	Improving the range, frequency and speed, and accessibility to bus services to key destinations.	Alternatives to private vehicle use	Other	2018	2027	OCC	Developer Funding, Government Funding, OCC & Private Operators	No	Funded	Variable	Policy	Medium.	WCN6	Improving the range, frequency and speed, and accessibility to bus services to key destinations.	Alternatives to private vehicle use	Other
CN7	Rusty Riders cycling initiative	Promoting Travel Alternatives	Promotion of cycling	2024	ongoing	Chipping Norton Town Council	Chipping Norton Town Council	No	Fully funded	<£10K	Implemented	Low-medium	Number of attendees at events. Number of attendees who reduce car usage as a consequence of the scheme.	Monthly meetings established	Likely to be a seasonal effect, due to inclement weather conditions during the winter months.	S-M

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved[1]	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
CN8	Moss Filter	Other	Other	2025	2026	Chipping Norton Town Council	To be confirmed	No	Not Funded	£10K - £50K	Planning	Positive impact on various air pollutants, including those associated with climate change. To be installed near existing NO_2 diffusion tubes, which will provide data on effectiveness of removing this pollutant.	Reduction in NO_2 concentrations, observational reduction in dust deposition on surfaces	The measure is in the planning stages and requires funding.	Funding and community acceptance. If successful, may provide a case for additional filters to be installed in other areas with poor air quality.	M

Table 5-3: Air Quality Action Plan Measures applicable to Witney & Chipping Norton

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved1	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
WCN1	Provision of secure cycle parking, including covered cycle parking.	Promoting Travel Alternatives	Promotion of cycling	2016	TBC	WODC	TBC	No	No Funding	TBC	On hold	Low. This measure is dependent on public uptake of cycling, but could result in reduction of NO_2 emissions if the uptake is good and car journeys are replaced by cycling.	Number of bicycle parking spaces, number of journeys by bicycle.	On hold	WODC Currently have no plans to install new cycle stands in either town.	L
WCN2	Community activation and promotional programmes to enable the community to benefit from the walking/cycling/green infrastructure improvements.	Public Information	Other	2023	Ongoing	OCC and WODC	OCC/WODC/ Grant	No	Not funded	<10K	To be implemented	Low. This measure is dependent on public engagement, but could indirectly result in reduction of NO_2 emissions if efficient measures are suggested and implemented, and uptake is good.	Number of responses and engagement rate with community activation and promotional schemes.	Awaiting publication of LCWIP	Availability/cost of bicycles; reluctance to reduce car usage; availability of secure bike racks; safety	M
WCN3	Embed 'Healthy Streets Approach' and Design Check Tool, into the relevant guidance and decision making processes to improve the human experience of streets to encourage walking and cycling.	Policy Guidance and Development Control	Other	2024	TBC	OCC and WODC	Part of planning process	No	Part of the Planning Process	<10K	County Policy	Low. This measure is dependent on public uptake of walking and cycling, but improvements could increase uptake and result in reduction of NO_2 emissions if car journeys are replaced by walking and cycling.	Walking and cycling improvement measures and funding for improvement measures from planning process.	Awaiting integration into district planning policy	Developer co-operation, financial and topographical constraints, difficulties changing attitudes and behaviours	L
WCN4	Work with schools to develop a programme of walking and cycling measures and improve promotion and education of travel, including continuation of School Travel Plans.	Promoting Travel Alternatives	School travel plans	2022	Ongoing	OCC and WODC	OCC and WODC	No	No external funding required	<10k	ongoing	Low. This measure is dependent on uptake of walking and cycling, but promotion, tools and improvements could increase uptake and result in reduction of NO_2 emissions if car journeys are replaced by walking and cycling.	Number of schools engaged % of journeys to and from schools by walking or cycling, or no. schools with travel plan in place.	ongoing	Availability of safe routes for walking and cycling, changing attitudes and behaviour, wiliness of schools to participate.	M

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved1	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
WCN5	Improve access to active travel information.	Promoting Travel Alternatives	Personalised Travel Planning	2022	TBC	OCC and WODC	Various	No	Funded	<10K	Implemented	Low. Improved access to information may increase uptake of walking and cycling in and around Witney and Chipping Norton.	Information on active travel made available online. Number of times web resources are accessed	TBC		M
WCN7	Work with bus operators to maintain a commercially sustainable and comprehensive network of services.	Alternatives to private vehicle use	Other	2022	TBC	OCC and WODC	TBC	TBC	TBC	TBC	TBC	Medium. This measure is dependent on public uptake of cycling, but could result in reduction of NO_2 emissions if the uptake is good and car journeys are replaced by bus.	Number of bus services, frequency of buses, % journeys running on time, number of bus passengers using services, % of Witney and Chipping Norton with access to bus services.	TBC	Challenges changing attitudes towards public transport, providing services which meet demand with regard to journey time and places served	L
WCN8	Expansion of delivery of EV infrastructure across the district, at sites in Council ownership, with potential for electric bike- and scooter-charging hubs.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2023	2026	OCC	LEVI Fund	No	Fully funded	100K-500K	Planning	Medium. This measure is dependent on public uptake of charging infrastructure, but could result in significant reduction of NO_2 emissions if the uptake is good and diesel and petrol car journeys are replaced by electric.	Increase in no. and usage of new charging points.	Currently assessing public and community applications and network planning	Uptake of electric vehicles; availability of suitable locations and main electric infrastructure	S
WCN10	Improve availability of rapid and ultra-rapid EV charging on and near the strategic road network and important link roads across Oxfordshire.	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	TBC	TBC	OCC, National Highways and other government departments	Highways England and other government departments	No	Funded	TBC	Implementation	Medium. This measure should directly help encourage public uptake of EVs which could result in significant reduction of NO_2.	Number of charging points, use of charging points, locations served by charging.	Develop Redbridge Park and Ride Site close to A34 in Oxford by end of 2020	Identification of suitable locations with the necessary electric mains infrastructure	M
WCN11	Promotion of EV Charging through a district wide social media and webpage campaign.	Promoting Low Emission Transport	Other	2025	2026	WODC	WODC	No	Funded	<£10K	To be implemented	Low. This measure should indirectly help encourage public uptake of EVs which could result in significant reduction of NO_2.	Number of times social media posts and webpage resources have been accessed.	Campaign to be planned and implemented in 2025	Available departmental resources	M

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved1	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
WCN12	Anti-Idling information campaign.	Public information	Via the Internet/Other	2024	2025	WODC	WODC	No	Not funded	<10K	Not yet started.	Low. No direct reduction of pollutants from this measure, but if measure results in reduced idling will reduce emissions of pollutants.	Number of times web resources have been accessed, number of schools and businesses reached out to, incidences of idling.	Not yet started.	Changing attitudes	S
WCN13	Freight consolidation feasibility study (for Oxfordshire).	Freight and Delivery Management	Freight consolidation centre	2022	2025-2030	OCC and WODC Operators, businesses, and public sector organisations	Department for Transport, Developer Contributions, Charging schemes	No	Trial funding secured (Horizon Europe)	£1 million - £10 million	Planning	Low. If study shows a consolidation centre could be effective at reducing emissions, and if OCC process to construction of a consolidation centre, impact on concentrations in Witney and Chipping Norton will be greater.	Completion of study.	Ongoing	Complexity of freight system, need for goods, amounts of goods transported, market forces, modal shift, impacts on businesses and consumers	S
WCN14	Promote e HGV route map.	Freight and Delivery Management	Route Management Plans/ Strategic routing strategy for HGV's	2022	2025	OCC and WODC Operators, businesses, and public sector organisations	Department for Transport, Developer Contributions, Charging schemes	No	Fully funded	<£10k	Implementation	Medium. HGV routing to restrict through-routes to last mile delivery should have a considerable impact reducing emissions, but will be dependent on uptake by HGV drivers, and suitability of alternative routes that are suggested.	Number of HGVs travelling through AQMA.	Ongoing	Complexity of freight system, need for goods, amounts of goods transported, market forces, modal shift, impacts on businesses and consumers	S
WCN15	Area weight restriction feasibility study	Freight and delivery management	Route Management Plans/ Strategic routing strategy for HGV's	2023	2025	OCC and WODC	Not yet determined	No	Not funded	£1million - £10 million	Planning	Low to Medium. Removal of heaviest HGVs and associated reduction in emissions is dependent on how heavy HGVs are re-routed, and the comparative number and weight of vehicles required to replace the heaviest vehicles which need to travel within the restricted area.	Completion of review and plan to implement recommendations	Ongoing	Complexity of freight system, need for goods, amounts of goods transported, market forces, modal shift, impacts on businesses and consumers	S

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved1	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
WCN16	Support battery electric vehicle charging infrastructure requirements for freight.	Freight and Delivery Management	Other	2022	2025-2030	WODC, Operators, businesses, and public sector organisations	Department for Transport, Developer Contributions, Charging schemes	No	Not funded	To be determined	Planning	Low. Replacing freight vehicles with EV where possible will directly reduce emissions, and provision of infrastructure should help encourage uptake, but uptake still dependent on affordability and suitability of technology.	Number of suitable charging points provided for freight vehicles, number of freight vehicles replaced with electric or hybrid.	Ongoing	Complexity of freight system, need for goods, amounts of goods transported, market forces, modal shift, impacts on businesses and consumers	M
WCN17	Using integrated planning to reduce need to travel by embedding policies in land use planning and guidance documents.	Policy Guidance and Development Control	Other Policy	2022	Ongoing	OCC & WODC	OCC & WODC	No	Funded	100K-500K	Implementation	Low. Reducing need to travel could have a medium to high impact on reduction of pollutants, however within the context of mitigation of development and planning, impact may be reduced.	% of population with access to public and active transport routes.	Ongoing	Buy in from developers and other stakeholders such as private public transport sector	S
WCN18	Review options for developing domestic fuel burning policies, and guidance on wood and coal burning stoves and bonfires.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2023	2025	WODC	WODC AQ Team	No	Not funded	<10k	Not yet started.	Low. No direct reduction of pollutants from this measure, but if measure results in better fuel practices being implemented, this will reduce emissions of pollutants.	Development of a guidance documents, upgrading website	Not yet started.	No barrier.	S
WCN19	Information campaign regarding domestic solid fuel best practice guidance, and information on any policies introduced through previous measure.	Public information	Via the Internet/Other	2024	Annual Campaign	WODC	WODC AQ Team	No	Not funded	<10K	Not yet started.	Medium. Better fuel practices being implemented will reduce emissions of pollutants.	Number of times internet content and web resources have been accessed or viewed, number of houses, schools and businesses reached out to.	Not yet started.	Cost of living crisis, lack of regulation to enforce residential combustion. Will not reach people who are not on internet or social media	S

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved1	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
WCN20	Investigate options for development of Air Quality guidance for developers, setting out sets out requirements for developments in AQMAs, to prevent and mitigate adverse impacts to AQ. These should cover requirements for access to active and public transport, EV charging, and concepts such as 20minute neighbourhood plans.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2024	2026	WODC	WODC AQ Team	No	Fully funded	<10K	Not yet started.	Low. No direct reduction of pollutants from this measure, but if measure results in increased mitigation requirements from developers, this will reduce emissions of pollutants.	Development of a guidance document.	Not yet started.	Set out minimum standards, encourage and signpost best practice, future proof for low emission vehicles, ensure robust assessment of air quality impacts by developers and planning officers to help them make decisions, and adequate mitigation being agreed and enforced.	S
WCN21	Updating the Oxfordshire Air Quality information website.	Public information	Via the Internet/Other	2023	ongoing	OCC and District Councils	Defra / District Councils	Yes	Fully funded	100K-500K	In progress	Low. No direct reduction of pollutants from this measure, but information could help the public make choices which reduce their exposure.	Use of website.	Website launched. Ongoing need to update District specific information and data as required.	Usability and public reception of the site; long-term maintenance and keeping the site current.	S
WCN22	Reviewing the air quality monitoring network in Witney and Chipping Norton and investigating options for introducing automatic monitoring of NO_2 and $PM_{2.5}$.	Other	Other	2023	2025	WODC	Defra Air Quality Grant	Yes	Application to be submitted in 2023 or 2024	£10k - £50k	Not yet started.	Low. No direct reduction of pollutants from this measure, but information can help inform air quality management decision making.	Number of monitoring locations, number of automatic monitors.	Making initial enquiries and investigating costs.	Cost and staff resources.	S

West Oxfordshire District Council are committed to lead by example and have put plans in place to develop the following measures to reduce the emissions of the council staff within Witney. However, as the measures are unlikely to have a significant impact on the AQMA, this are listed separately to demonstrate the council's commitment.

Table 5-4: WODC-specific AQAP measures.

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
DC1	Promotion of home working and virtual meetings at WODC.	Promoting travel alternatives	Encourage / Facilitate home-working	2020	Ongoing	WODC	WODC	No	Fully Funded	£10k - £50k	Complete	Low. This measure will directly result in the removal of vehicles from the roads locally, however the scale of the impact from council employees will be small.	Number of employees working from home (% days of week), number and distance of commuting journeys reduced. Reduction in reported CO_2e	Complete	No barrier	S
DC2	Reducing the council's fuel consumption through vehicle fleet driver-awareness training.	Vehicle fleet efficiency	Driver training and ECO driving aids	2020	Ongoing	WODC/Ubico	WODC/Ubico	No	Partially funded	<£10	TBC	Low. This measure will directly result in the reduction of emissions from vehicles on local roads however the scale of the impact from council drivers will be small.	Number of drivers trained, reduction in reported CO_2e	TBC	Changing attitudes and behaviour	M
DC3	Expand and improve cycle facilities (including visitor parking, secure parking, changing rooms and lockers) across council buildings.	Transport Planning and Infrastructure	Cycle network	2022	TBC	OCC	TBC	TBC	TBC	TBC	TBC	Low. This measure is dependent on uptake of cycling by council employees, but improvements could increase uptake and result in reduction of NO_2 emissions if car journeys are replaced by walking and cycling.	Number of journeys by bicycle at WODC – aim to increase from 50,000 to 100,000 trips per week by 2031	TBC		TBC
DC4	Reduce and re-prioritise car parking space for council staff.	Promoting Travel Alternatives	Workplace Travel Planning	2022	TBC	OCC	TBC	TBC	TBC	TBC	TBC	Low. This measure will reduce emissions from WODC employee commuting by petrol/diesel cars, but scale is small for Chipping Norton AQMA.	Number of parking spaces, % of journeys by car, EV, bicycle, public transport and % of employees working from home.	TBC		TBC

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated /Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funded	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	Time Frame[2]
DC5	Review the council's travel and expense policies to prioritise sustainable transport.	Promoting Travel Alternatives	Workplace Travel Planning	2022	TBC	OCC	TBC	TBC	TBC	TBC	TBC	Low. This measure may indirectly reduce emissions from WODC employee commuting if effective measures are identified and implemented, but scale is small for Chipping Norton AQMA.	Revision or production of new policies, % of journeys by sustainable transport options at WODC.	TBC		TBC

Appendix A Response to Consultation

A.1 Steering Group / Statutory Consultee Consultation

Table A-1 Summary of Responses to Consultation and Stakeholder Engagement on the AQAP (references in brackets refer to the consultation document).

Consultee	Category	Response
<Insert consultee e.g. Chamber of Commerce>	<Insert category e.g. Business>	<Insert text e.g. Disagree with plan to remove parking on High Street in favour of buses and cycles; consider it will harm business of members>
Principal Planning Policy Officer	Consultee / Steering	It would be helpful to explicitly include 'wheeled' to active travel, given the population profile of the town and the requirement to address the needs of those with disabilities.
		Impact of 20mph speed limit (if any)? Has there been any work done to assess if there is any impact on air quality resulting from the speed reduction (either positive or negative). Perhaps this is something to consider as part of next iteration of AQMA plan?
		Map of Witney. Resolution appears to be a bit poor
		Section should be condensed (*reference to Section 3.2.2*)
		Local Context on page 21. Slight re-ordering of paragraphs to make clear whether referring to existing or emerging local plan as the distinction between the two is a bit blurred. Also mention Policy EH8 of Local Plan 2031 (Environmental Protection). (*reference to Section 3.2.3*)

Consultee	Category	Response
		The current key dates for the new local plan (which apply to the section in both the CN and Witney document) are now: • Initial scoping consultation (Regulation 18): August – October 2022 (COMPLETE) • Focused consultation on draft plan objectives, spatial strategy options and call for sites/ideas (Regulation 18): June/July 2023 • Consultation on preferred policy options/approaches (Regulation 18): November 2023 • Publication of pre-submission draft Local Plan (Regulation 19): June 2024 • Submission for independent examination: November 2024 Examination and adoption: 2025 (*reference to Section 3.2.3.1*)
		WIT1: East Witney Strategic Development Area on page 23. This application has now been refused. Although supportable in principle, some key issues such as connections to Witney town centre could not be agreed with the landowner. This should mention Shore's Green junction which forms an essential part of the SDA. WIT2: North Witney Strategic Development Area on page 24. This should make clear that WEL and the Northern Distributor Road form an essential element of the overall delivery of this site. (*reference to Section 3.2.3.1*)
		Scenario modelling testing on page 39. It is useful to see what impacts the six scenarios have on emissions but it would be useful to understand better how they link to the priorities (i.e. what reduction in car/ HGVs will these priorities achieve?). To properly understand this and target the correct measures, it would be useful to understand the origins and destinations of journeys and the reason for those journeys. (*reference to Section 3.4.3*)

Consultee	Category	Response
		Witney Area Travel Plan is not a measure as such, rather a plan. Would it be better to pick out the relevant measures from this? I note the WEL and the Northern Distributor Road are not included. (*reference to Section 3.5 – Priority 1*)
		refers to domestic fuel burning but there very little written text in the wider report regarding this so what is the background and evidence for this priority? (*reference to Section 3.5 – Priority 2*)
		sets a list of measures such as improve cycle parking. It also includes the LCWIP but this is a plan rather than a measure in itself. Perhaps it should refer to the relevant measures contained within this? (*reference to Section 3.5 – Priority 3*)
		It would be useful to include the key themes raised through the consultation within the main body of the report and how addressed (*reference to Section 4.1*)
		Table 5-1 – Air Quality Action Plan Measures on page 50 sets out the long list of measures but does not appear to include the West End Link and Northern Distributor Road? Should this also refer to the Witney High Street closure and the enhancements currently being proposed to improve the quality of this for pedestrians and cyclists?
	Consultee / Steering	Bus route – prioritise use of newer buses or EV through AQMA?
		No LCWIP routes in AQMA

Consultee	Category	Response
Health Improvement Practitioner		With funding from Active Oxfordshire, Windrush Bike Project run a bike library in Witney so that finances are not a barrier to children owning a bike. Children borrow a bike, when they have outgrown it they bring it back to the library and borrow a larger one. They take referrals from schools of children in receipt of free school meals, but also accept self referrals from any local families who are struggling financially.
		Include domestic combustion? Something more obviously linked to domestic combustion? (*reference to Page 1, Executive summary*)
		Need to put into context of the previous 10 broad topics Second priority, but the 10 actions listed above aren't clear in their links. I know mostly linked to traffic, but: 1) West Oxon has high number of people off grid; 2) The able to pay market doe install solid fuel burners, mostly for aesthetic reasons (*reference to priority 2, Page 2, Executive summary*)
		is there scope to describe/summarise population within the area? Eg no. of dwellings, LSOA, population demographic, schools, nurseries etc. (*reference to Section 2.1*)
		Include that there is no safe level of PM2.5 (*reference to Section 2.5*)

Consultee	Category	Response
		regarding monitoring PM2.5, possible interest from Birmingham Uni to study air pollution in market towns – mention of this may help to get funding? Good to see the wide confidence levels in this assessment and drawing on a point morework is needed to measure/understand PM2.5 levels. There is some possible interest from Birmingham Uni in understanding air pollution in Market Towns. Mention may prove useful hook to get some work/funding (*reference to Section 2.5*)
		possible location to describe population demographic and possible vulnerable groups. Link to CMO report? Also link to UCL report on health impact across lifetime? (*reference to Section 3.1*)
		Do you want to capture the Environmental Plan and the new Strategy due? (*reference to Section 3.2.1*)
		The recently published OCC Air Quality Strategy. It provides a shared goal for Oxon CC and aims to work in closer partnership with external partners to….. 3 pillars: reduce air pollution; distance population from air pollution; protect the most vulnerable. See Healthy Place Shaping at bottom of Built Environment Page (*reference to Section 3.2.2.1*)

Consultee	Category	Response
		Is this a thing or something to come? I can't find it on google, apart from traveline website. Not sure how well this is promoted. Public Health is piloting an e-bike scheme focused on vulnerable adults, to encourage cycling over car use. Could include Fire & Rescue Bikeability and Footsteps (safety advice for children to encourage walking). (*reference to Section 3.2.2.5*)
		Could include Better Housing Better Health service which improves energy efficiency in homes and identifies and reduces need for solid fuel burning. (*reference to Section 3.2.2.8*)
		Now Buckinghamshire, Oxfordshire and Berkshire West Integrated Care System (BOB ICS) (*reference to Section 3.2.3.1*)
		Electric charging? Encourage smaller cars? (*reference to Section 3.2.3.1 – Woodford Way Car Park*)
		Can you develop narrative around reduction for heat? What is the legacy around the energy crisis and increase in solid fuel. Include reference to working with trading standards on education of use of solid fuel burners. (*reference to Section 3.2.3.2 – CP1*)
		Whats the role of tree planting in this? What relevance to AQMA and options. (*reference to Section 3.2.3.2 – CP4*)
		How can e-bikes and cargo bikes be supported better in provision of spaces and charging and security. A rather cagey end to an ambition to move away from cars!

Consultee	Category	Response
		Consider digital screens with air pollution index or alerts of marketing on them? Of the new website or text alert? Secure some 'advertising' space (*reference to Section 3.2.3.13*)
		How are these mapped to AQ specifically? (*reference to Section 3.2.3.14*)
		If a second source, where in the action plan is heat related activity (*reference to Section 3.3*)
		Whats the congestion caused by? Where is the traffic travelling from and what length/reason are the journeys for? Any particular times of day? (*reference to Section 3.4.1*)
		Promotion of BHBH and energy efficient measures to explore heating need of solid fuels. Option of switching to heat pumps in the area? You mention domestic combustion is the largest source of PM2.5, but it seems a missed opportunity earlier in the report/executive summary to flag this and provide some hooks to do more work over the next 5 years, when PM2.5 may become more of an issue in relation to health. (*reference to Section 3.5 – Priority 2*)
		appealing and normal choices? Any economic benefits? Green economy Role of 20mph speed limit? (*reference to Section 3.5 – Priority 3*)

Consultee	Category	Response
		Cargo bike provision *(reference to Table 5.1 – Measure 10)*
		How is this followed up and enforced? Or audited to see the impacts of it? *(reference to Table 5.1 – Measure 13)*
		Liaison with Trading Standards team *(reference to Table 5.1 – Measure 31)*
		Work with relevant NHS teams to target residents with existing health conditions to include air quality advice, support and text alerts *(reference to Table 5.1 – Measure 32)*
		Not on paper/posters where people are idling at the time? Work with signage teams in transport centre for messaging? *(reference to Table 5.1 – Measure 34)*
		Number of sign ups to text alert/hits on webpage? *(reference to Table 5.1 – Measure 36)*
		Number the actions as difficult to reference actions. This table also needs to relate better to Table 5-1 as it is tricky to cross reference. The actions related to promoting travel alternatives, which are being covered in the LCWIP, should me marked as being taken forward within this plan ie change no to yes. Parking charges should be considered. EV car clubs, shared mobility services and community transport should be explored further. The quality of the bus services should be reviewed, in terms of reliability, frequency, comfort etc. Chipping Norton should be considered for the zero emission bus scheme. Multi modal transport hubs are an effective way of encouraging green and active travel. *(reference to Table B1)*

Consultee	Category	Response
		I assume staying in as will need to work together to deliver? *(reference to Table B1 – Row 21)*
		Checking to see if there are some more specific offers known about that could come in the next five years to Witney. *(reference to Table B1 – Row 31)*
Witney Town Council	Consultee / Steering	The Council would like to see a joined-up approach with Oxfordshire County Council as it has recently undertaken a similar project, resources could be pooled to resolve greater outcomes.
		The Council cannot see any reference to help reduce the reliance on polluting generators for mobile food outlets, like ice cream vans and coffee vans. The District Council promotes street vendors for the town, but the traders often have generators that are detrimental to air quality in the area. There are newer, less polluting technologies available, and the plan should be encouraging that.
		Measures 23-25: - More data is needed on vehicle types, how many HGVs are there going through Witney, and at what times etc. *(reference to Table 5.1 – Measure 23-25)*
		Log burning stoves and monitoring of fuel types that are being burnt should be carried out, as most of the actual stoves are exempt from the list of non-desirable devices. *(reference to Table 5.1 – Measure 31-32)*
		A visual display with real-time carbon emissions in congested areas (Bridge Street) would be beneficial, to increase awareness for road users. Use of technology like telraam, “Telraam is your citizen-powered solution for collecting multi-modal traffic data with a purpose-built, affordable, and user-friendly device. Our Telraam sensor continuously monitors a

Consultee	Category	Response
		street from a citizen's window, providing crucial data on various modes of transport, including motorised vehicles, cyclists, pedestrians, and more." Telraam.net The technology is out there and it's not prohibitively expensive. *(reference to Table 5.1 – Measure 36-37)*
Climate Change Officer	Consultee / Steering	Explain the causes of the pollutants – is it transport only or there other contributors Are there other pollutants of concern, in addition to NO2? Figure needs to be enlarged so that you can see the street names. (*reference to Section 2.1*)
		Should monitoring be widened beyond the AQMA in case adjoining areas are now also affected? (*Reference to Section 2.2)*
		Can 2022 results be included in Figure 2-4? (*Reference to Figure 2-4)*
		Include reference to these county plans: Oxfordshire Net Zero Action Plan and Route Map, OCC Climate Policy & Programmes. This builds on the Oxfordshire Strategic Vision for Long-Term Sustainable Development. Forthcoming Oxfordshire Health and Wellbeing Strategy. (*reference to Section 3.2.2*)
		Local context includes details of the location which may be better placed in the preceding section. The local context here should relate to plans/strategies. (*reference to Section 3.2.3*)

Consultee	Category	Response
		Carbon Action Plan not Climate Action Plan. The Plan promotes green and active travel to council offices, property and sites, and leisure centres. It aims to reduce staff and councillor business travel and ensure it is as sustainable as possible. Minimising emissions from the waste and environmental services fleet is also a key priority. Relevance to Chipping Norton AQMA would need to be explored. (*reference to Section 3.2.3.2*)
		Climate Change Strategy is a key document to promote active travel and low carbon transport. Both the Carbon Action Plan and Climate Change Strategy are currently being refreshed this summer. (*reference to Section 3.2.3.11*)
		Remove 'the checklist' in brackets. Biodiversity standards have been removed from the checklist. There is only one checklist for all development types. See new description of the checklist here. (*reference to Section 3.2.3.14*)
		Should the rural emissions (60%) be renamed 'agricultural'? What do these agricultural sources include? Perhaps needs more explanation as to 'background' emissions. (*reference to Section 3.3*)
		Was the national objective exceeded in two locations prior to 2022? (*reference to Section 3.4.1*)
		Which type of council vehicles does this include i.e. waste, car parking, grounds maintenance etc.? There is considerable congestion along Bridge Street due to a number of mini roundabouts, can this be reduced through traffic management? If buses/coaches are some of the highest contributors, should key measures under priority 3 be to encourage the use of electric buses/coaches or at least low carbon ones? Has origin-destination data been captured to assist with identifying alternative modes?

Consultee	Category	Response
		(*reference to Section 3.5 – Priority 1*)
		Support for replacement of heating systems (log burning stoves to ASHPs) as part of district-wide retrofit. (*reference to Section 3.5 – Priority 2*)
		Dependent on the purpose of vehicle trips and whether a switch in transport modes will help to reduce vehicle movements. (*reference to Section 3.5 – Priority 3*)
		If this measure includes delivery of the LCWIP then surely this is a medium or high benefit, as is the Witney Area Travel Plan. *(reference to Table 5.1 – Measure 2)*
		LEVI funding will be allocated to EVCP rollout in West Oxon, which is likely to involve council owned car parks and mini community hubs in rural areas. *(reference to Table 5.1 – Measure 7)*
		Needs to be combined with good cycle routes. *(reference to Table 5.1 – Measure 10)*
		Argue that directing developer funding to improve bus services and connections could result in greater benefits than cited, although developer contributions are limited. *(reference to Table 5.1 – Measure 21)*
		This measure could have a significant impact, but it is reliant on technology advancing and freight companies switching to EVs. *(reference to Table 5.1 – Measure 26)*

Consultee	Category	Response
		Spatial options for growth that reduce the carbon impact of development, including transport emissions, could have a significant impact as deal with the root cause. Change to medium? *(reference to Table 5.1 – Measure 29)*
		Reducing idling could have a significant impact, depends on the extent of the problem in Witney *(reference to Table 5.1 – Measure 34)*
		Dependent on how many Publica staff live in Witney. Does this measure relate to WODC only? *(reference to Table 5.1 – Measure 5)*
		What types of vehicles are included in the vehicle fleet (see comment above)? *(reference to Table 5.1 – Measure 21)*
Strategic Transport Lead (OCC)	Consultee	National planning context on page 10. Mention National Planning Policy Framework (NPPF) para 186 and Planning Practice Guidance https://www.gov.uk/guidance/air-quality--3 (*reference to Section 3.2.1*)
		To clarify these are not new policies but a review of progress made on policies included in LTP4 area strategies (*reference to Section 3.2.2.2*)
		This is no longer current policy - it was superseded by the active travel strategy (*reference to Section 3.2.2.5*)
		May be worth noting there is ongoing work to update / develop a new public transport strategy (*reference to Section 3.2.2.6*)
		Healthy streets policy adopted through LTCP, next step will be trialling the approach *(reference to Table 5.1 – Measure 13)*

Consultee	Category	Response
		Funding secured for trial in Oxford as part of a Horizon Europe funded project called Green-log. Estimated cost £1m - $10m, currently in planning phase *(reference to Table 5.1 – Measure 23)*
		Map developed and adopted in 2022 as part of Freight and Logistics Strategy, ongoing work to promote *(reference to Table 5.1 – Measure 24)*
		Should this be WODC as the planning authority? *(reference to Table 5.1 – Measure 29)*

A.2 Public Consultation Summary

A.2.1 Witney

The public consultation for Witney provided over 400 responses to the questionnaire, many of which provided constructive and insightful comments on the perception of air quality in the town, the measures proposed and, in some cases the provision of additional suggestions to combat the issue.

A.2.1.1 Diesel / Petrol Transportation

Of the responses to the questionnaire received, 82.25% used a petrol of diesel car as their main mode of transport.

Q2.1 Would you prefer to use active travel or public transport? If so which of the below would you chose?

	%
• Walking	23
• Cycling	13
• E-cycling	7
• E-scooting	3
• Public transport	30
• Not applicable	47
• No answer	7

Q2.2 What is currently preventing you using alternative modes of transport?

	%
• No safe routes	23
• No confidence / experience in cycling	10
• No safe place to store/secure bikes/scooters	14
• Buses do not serve your home area /no convenient bus stops	31
• Buses do not serve your destination area /no convenient bus stops	25
• Bus times are not convenient	43
• Bus journey times are too long	32
• Up front expense of purchasing a bike/scooter	10
• Health conditions	19
• British weather	25
• Not applicable	3
• No answer	3

Q4.1 Have you considered an electric vehicle (EV)

	%
• Yes	38
• No	59
• No answer	3

Why have you not considered or opted not to switch to an EV?

	%
• Cost, e.g. to purchase, of electricity, of battery replacement	34
• Environment (production & end of life)	19
• Grid capacity	2
• Battery range	18
• Availability of charging points	25
• Charging time	2
• Safety (battery)	2
• No answer	12

Discussion

From the survey, it is clear that the main form of transport is by petrol or diesel cars. However, 46% of respondents in this category would prefer to use alternative forms of transport, with the most popular being public transport (30%), followed by walking and cycling. This was reflected in the reasons for not using alternative transport, with 43% citing inconvenient bus times, 32% bus journeys too long, 31% no service in their home area and 25% no service at their destination area.

With regards to active travel, 23% were concerned about the safety of walking and cycling to and around Witney.

Health conditions were considered to be an issue for 19% of the responses. This was also captured in the comments, expressing concerns that the elderly, disabled and those with other debilitating conditions are not able to travel by active transport. In addition, as mentioned above, comments on the inadequacy of public transport were also made, as well as the impracticalities of using buses for the activities such as the weekly shop.

The comments also included concerns about the council being anti-car, and expecting everyone to stop using their cars. It should be noted that it is accepted not everyone who drives a car can switch to alternative forms of transport. The council understands that cars and vans are an essential part of businesses and residents

life, and appreciate there are some sections of the community who have no option but to travel by car. With regards to active travel and public transport, the aim of this AQAP is to establish what can be done to encourage those who can make the switch to do so safely and with as little inconvenience as possible.

With regards to switching to electric vehicles, the main reason for not doing so was cost (34%). Other reasons included availability of charging points (25%), environmental impacts (including worker exploitation) (19%) and battery range (18%).

A.2.1.2 Electric Vehicles

Of the total number of respondents to the survey, 6.7% use electric vehicles (EVs) as their main method of transport.

Q2.1 Would you prefer to use active travel or public transport? If so which of the below would you chose?

	%
• Walking	36
• Cycling	39
• E-cycling	11
• E-scooting	4
• Public Transport	25
• Not Applicable	32
• No Answer	7

Q2.2 What is currently preventing you using alternative modes of transport?

	%
• No safe routes	21
• No confidence / experience in cycling	7
• No safe place to store/secure bikes/scooters	14
• Buses do not serve your home area /no convenient bus stops	25
• Buses do not serve your destination area /no convenient bus stops	18
• Bus times are not convenient	32
• Bus journey times are too long	32
• Up front expense of purchasing a bike/scooter	4
• Health conditions	18
• British weather	21
• Not Applicable	11
• Blanks	7

Q4.1 Where do you normally charge your vehicle?

	%
• Home	93
• Work	7
• Car Park	14
• Other, please specify	0

Q4.2 Do you think Witney has sufficient public charging points

	%
• Yes	4
• No - where would you like to see additional charging points?	93
• No answer	4

Suggested locations for additional charging points (no. people who suggested each location in brackets):

- All car parks (9)
- Marriotts Walk (2)
- Sainsburys carpark (1)
- Waitrose / Witan Way car park (6)
- Town square (1)
- On street charging (1)

Other Comments:

The Charge points witney has are expensive considering how slow they are. Would benefit from faster charging, because no one wants to wait 4 hours for their car to charge on the ones in town. I am a district nurse and sometimes have to top up my car mid way through a shift..... they are just too slow for our needs. A 50kw or 100kw would be better.

Discussion

Of the 28 EV owners who responded to the survey, 61% said they would prefer to use alternative modes of transport. In this group, cycling and walking were the most popular (39% & 36%); followed by public transport (32%), with the least popular being e-cycling and e-scooting (11% & 4%).

The main reasons for not walking and cycling, were no safe routes and the British weather (both 21%) and no safe storage of bikes (14%). Public transport was chosen by 25% of respondents, and as with petrol/diesel cars, the main reasons selected for not making the switch included inconvenient bus times (32%), bus journeys too long (32%) and no service in home or destination areas (25% & 18%).

Health conditions were cited by 18% of the respondents for not changing to alternative methods of transport.

The majority of electric vehicle owners charged their vehicles at home (93%). Charging points at work and in car parks were used by 7% and 14% of EV users. In addition, 93% did not think Witney town centre had an adequate supply of charging points, with the most favourable locations for additional points being all car parks in the town centre, and the large car park on Witan Way. Other suggestions included Marriotts Walk, Town Square and on-street charging. An additional comment made was regarding the charging speed of the existing chargers, which is considered to be too slow. This installation of rapid chargers was suggested to address this issue.

A.2.1.3 Suggestions from Car Drivers which would Encourage them to use Public and Active Transport

Public Transport – General Suggestions

- Being able to wave down buses, particularly in the case of the elderly and disabled.
- Assistance carrying shopping onto and off buses / door to door solutions for the elderly and disabled
- Buses serving supermarkets
- Better access onto buses for disabled passengers, particularly at bus stops off the main routes
- On demand bus service
- Cheaper bus fares
- Smaller buses to suit number of passengers
- Buses more accessible for buggies and prams
- Encouraging WODC employees and council members to use public transport instead of their cars.

Public Transport – Location Specific

- Bus service between Combe and Witney seven days a week
- Improved service to Standlake
- Bus service to Colwell Green
- Faster bus journeys along the A40 to Oxford
- Bus service to Grove
- Bus service between Witney and Madley Park
- Improved service to Deer Park
- Improved service to Milton Park
- Improved service between Crawley and Witney
- Bus service to Aston
- Improved S7 bus service
- Fast tram/light rail link to Oxford

Active Transport – General Suggestions

- Free bike safety and awareness courses for adults
- Scheme to encourage businesses to provide cycles for employee use
- Encourage WODC employees and council members to use active transport
- Facilities for children to learn how to cycle safely with their parents
- Consider buggies and prams when designing footpaths

Active Transport – Location Specific

- Footpath from Manor Road to Station Lane Industrial Estate
- Cycle lane along A415 to Standlake
- Bladon to Witney cycle path
- Construct the Farmoor cycle route
- Cycle route from Charlbury to Witney avoiding hills
- Improve cycle path lighting from Madley Park, via Woodbank, to Witney

Other Improvements

- Limit town centre traffic to residents
- Provision of better facilities (shops) in villages
- Enforcement of High Street Closure
- Construct a ring road
- One way system in Witney town centre
- Stop non-bus and delivery vehicles using High Street and Market Square using ANPR to enforce

A.2.1.4 Active Travel

The results of the survey showed that 9% of those who took part used active travel as their main mode of transport in and around Witney.

Q2.1 What improvements would you like to see in Witney which would improve your active travel experience?

	%
• Safer dedicated routes	89
• A safe public place to store/secure bikes/scooters	45
• Public electric charging points for e-bikes and e-scooters	13
• Rental schemes for e-bikes/e-scooters	16
• No answer	13

General suggestions to improve the active travel experience included:

- Regular maintenance of cycle paths and footpaths, particularly with regards to potholes, general condition of surfaces, littering and overgrown vegetation;
- Development of a 'joined up' cycle path and footpath network;
- Cycle lanes on all roads
- Weight restrictions and speed cameras to reduce vehicles using the town centre;
- Signposts to key sites with walking and cycling times;
- Pedestrian priority at all traffic lights and clear signage at existing junctions where pedestrians have priority;
- Enforcement of the High Street closure to vehicles;
- Footpaths which negate the need to cross busy roads and roundabouts
- Wider pavements on Cord Street
- Improved signage
- Seating on footpaths
- Prevention of e-scooters and cyclists from using dedicated footpaths
- Improving cycle etiquette on shared paths

Suggestions which target specific locations:

- More pedestrian crossings between New Yatt Road and the town centre
- Maintenance of footpath behind Witney Community Hospital, linking Woodford Way and Moorland road;
- Resurfacing of Tower Hill and inclusion of a cycle lane;
- Cycle routes between Burford & Witney, Woodstock & Witney, Hanborough Station and Witney;
- Improved cycle and walking routes to Kingfisher Meadows etc which tie in with exciting "nice" walking routes along river etc to avoid busy roads and narrow pavements.

- Wider pavements on Corn Street
- Safer crossings on each junction of the Ducklington roundabout;

Discussion

The main concerns of those who mainly walk and cycle in and around Witney is the condition and safety of existing footpaths and cycle paths (89%). Safe cycle storage was a concern for 45% of respondents, with charging points and rental schemes for e-scooters and e-bikes being of least importance (13% & 16%).

The comments highlighted issues with cycle path and footpath maintenance, a need for 'joined-up' cycle network, improved signage on cycle and walking routes, more (effective) pedestrian crossings on busy roads and junctions, and the need for more signage in pedestrian priority areas.

A.2.1.5 Public Transport

Public transport was the least favoured mode of transport, with 2% of participants stating this was their main mode of transport.

Q2.1 What improvements would you like to see in Chipping Norton which would improve your Public Transport experience?

	%
• Routes to destinations currently not served	38
• More frequent service on existing routes	25
• More convenient bus times	25
• Shorter journey times	38
• Better information at bus stops	13
• Seating/shelter at bus stops	25
• More bus stops	0
• No answer	0

Q2.4 Would you be willing to pay higher fares to increase the number and frequency of rural services, if this reduced the number of vehicles travelling to and from the town centre, thus reducing air pollution?

	%
• Yes	25
• No	50
• No answer	38

Q2.5 Would you prefer to use active travel for some or all of your journeys currently by public transport? If so which of the below would you chose? (You may pick more than one):

	%
• Walking	38
• Cycling	13
• E-cycling	13
• E-scooting	0
• No answer	13

Q2.6 What is currently preventing you using active transport? (You may pick more than one)

	%
• No safe routes	25
• No confidence / experience in cycling	0
• No safe place to store/secure bikes/scooters	0
• Up front expense of purchasing a bike/scooter	13
• Health conditions	38
• British weather	25
• No answer	13

Discussion

Public transport was by far the least used form of transport used by the participants of the survey. However, of those who do use public transport, 38% would like to see an increase in the number of destinations served by buses and routes with shorter journey times. Improvements in frequency of services, more convenient bus times and improvements to bus stops where highlighted by 25% of respondents, with better information at bus stops a favoured improvement for 13%.

Only 25% of respondents would pay higher fares in order to improve the number and frequency of rural services, with 50% rejecting the idea. The results of this question are distorted as 38% did not respond, and one respondent selected both ‘Yes’ and ‘No’. However, the responses generally indicate a raise in fairs to improve rural services would not be acceptable.

Out of those who would prefer to use active travel, walking was preferred by 38% of the respondents, with cycling and e-cycling chosen by 13%. This was supported by 28% citing ‘no safe routes’ as the reason for not using active forms of transport. It should also be noted that health conditions prevented 38% from using active transport, which is likely to be a reflection of the age demographic of the respondents (average age: 69years old).

A.2.1.6 Questions Common to all Transport Modes

Travelling to School

Does the school promote Active Transport

	%
• Yes	36
• No	43
• N/A	20
• No answer	89

[a] Percentage relating to 'Yes', 'No' and 'N/A' are calculated using the total number who provided one of these answers (44). Percentage of those providing 'No answer' was calculated using the total number of participants in the survey (417).

If the answer to 3.1 above is no, would you like to see the school promote active travel and put in schemes such as walking bus, or cycling proficiency in place?

	Answer to previous question	%
• Yes	No	58[a]
• Yes	N/A	33[b]
• Yes	Blank	18[c]
• No	No	26[a]
• No	N/A	11[b]
• No	Blank	19[c]
• No answer	No	16[a]
• No answer	N/A	56b

[a] percentage calculated from total no. of 'No' answers to previous question (19)

[b] percentage calculated from total no. of 'N/A' answers to previous question (9)

[c] percentage calculated from total 'No Answer' answers to previous question (19)

Out of the 417 people who completed the survey, only 44 responded to the first question asking if their child's school encourage their pupils to use active transport to get to school.

Of the 44 respondents to this question, 36% confirmed their school did encourage active transport e.g. by encouraging walking, conducting cycling proficiency training, and promoting active travel in newsletters. However, 43% stated their child's school did not promote active travel. The remaining respondents answered 'not applicable', with some justifying this answer explaining their child(ren) travels to school by bus, and active travel is not an option. It is unclear whether those who did not justify this answer did not have children or, whether their child(ren) also travelled by bus/car out of necessity.

Of those who responded 'No' to the first question, 58% said 'Yes' they would like their child(ren)s school to promote active transport, with 33% of the 'Not Applicable' also responding with 'Yes'. In contrast, 26% and 11% of those responding 'No' or 'Not Applicable' to the first question, answered 'No' to this second question.

The second question was also answered by 138 respondents who provided no answer for the first. It is unclear if those who responded were parents/guardians with children in school or not, however the answers were almost a 50/50 split between 'Yes' (68%) and 'No' (70%).

From the results, some schools in Witney are encouraging their pupils to use some form of active travel to go to and from school. However, this is not the case for all schools, and consequently more could be done to work with schools to get more children walking and cycling where it is practicable and safe to do so. In addition, this was further supported by 58% of those who would like their school to encourage active travel, but currently have no such initiative in place.

Parking Charges

Would you support the re-introduction of paying for parking if this meant it reduced the number of vehicles travelling to and from the town centre, thus reducing air pollution?

	%
• Yes	2
• No	97
• Blanks	1

This question was only included within the survey for just over a week, before a request for it to be removed following concerns from the public that charging for car parks was potential a future consideration. The overwhelming response to this question was 'No', with 97% of those who responded to the survey before the removal of this question (333), opting for this answer.

Would you like to see a change in the number or type of HGVs passing through the town centre?

	%
• Yes	53
• No	44
• Blanks	3

There was no strong opinion regarding the number of HGVs using the centre of Witney, however those you answered 'Yes' were slightly in the majority at 53% compared with 44% who answered 'No'.

A.2.1.7 Mitigation Measures

Most Favoured Mitigation Measures

The most popular measures are listed in table 1 below, including the percentage of respondents which favoured each measure.

Table 1. Measures which would make the most positive impact on the respondents.

Measure No.	Description	% in favour
4	Access to Witney - West-facing slip roads at A40 Shores Green Junction and improvements at B4022 Oxford Hill junction.	11
21	Use developer funding to improve the frequency of bus services in routes within Witney	5
3	Improve Transport Corridors - A40 Highway improvement (extension of dual carriage way Witney-Eynsham, Park& Ride and bus lanes to/from Oxford)	4.6
2	Development and delivery of the Witney Local Cycling and Walking Infrastructure Plan (LCWIP).	4
7	Delivering EV infrastructure across the district, at sites in Council ownership, with potential for electricbike- and scooter-charging hubs.	1.7
1	Development and delivery of the Witney Area Travel Plan, including feasibility study and options appraisal into traffic management options for Bridge Street.	1.7

Table 2. Measure receiving less than 1% in favour (<4 respondents)

Measure No.	Description
6	Reducing the council's fuel consumption through vehicle fleet driver-awareness training
9	Installation of electric vehicle charging points in key locations.
10	Provision of secure cycle parking, including covered cycle parking.
12	Community activation and promotional programmes to enable the community to benefit from the walking/cycling/green infrastructure improvements.
13	Embed 'Healthy Streets Approach' and Design Check Tool, into the relevant guidance and decision making processes to improve the human experience of streets to encourage walking and cycling.
14	Work with schools to develop a programme of walking and cycling measures and improve promotion and education of travel, including continuation of School Travel Plans.
15	Work with bus operators to maintain a commercially sustainable and comprehensive network of services.
16	Expand and improve cycle facilities (including visitor parking, secure parking, changing rooms and lockers) across council buildings.
21	Use developer funding to improve the frequency of bus services in routes within Witney

22	Use developer funding to ensure that new and, where possible, existing residential areas are connected by adequate levels of bus service to the main employment areas/sites in Witney.
24	Develop and promote appropriate HGV route map.
25	Area weight restriction feasibility study
34	Anti-Idling information campaign.
35	Increased Anti-Idling enforcement.
36	Updating the Oxfordshire Air Quality information website.
No Answer	226

The measure which was considered to have the greatest positive impact of the lives of those who responded to the survey was Measure 4, the construction of the west facing slip roads on the Shores Green junction of the A40. This was favoured by 11% of respondents, double that of the next most popular measure, Measure 21, using developer funding to improve bus services. The popularity of Measure 21 (5% of respondents) reflects the one the most popular preferred travel alternative for those currently using petrol/diesel cars and electric cars. Public transport was the most favoured out of the petrol/diesel car drivers and third most popular of electric vehicle drivers.

Close behind Measure 21 was Measure 3 (improvements to the A40 transport corridor) and Measure 2 (development of the Witney LCWIP), favoured by 4.6% and 4% of respondents respectively. As with Measure 21, Measure 2 reflected the popularity of walking and cycling amongst those currently using petrol/diesel and electric cars, as well as those who currently use public transport.

The final two measures which were preferred by more than 1% of the respondents where Measure 7 (delivering EV infrastructure on sites owned by the council) and Measure 1 (development of the Witney Area Travel Plan).

The remaining measures which were selected (by <1% of respondents) where generally centred around active travel, charging for electric vehicles and public transport. Please refer to Table 2 for more information.

Mitigations Measures having the most Negative Impact

Table 3. Measures which would make the most negative impact on the respondents.

Measure No.	Description	% Against
30	Review options for parking management in Witney, including opportunities to increase modal shift to active and public transport.	27.6%
17	Reduce and re-prioritise car parking space for council staff (and introduce charges in council-owned public parking).	24.9%
1	Development and delivery of the Witney Area Travel Plan, including feasibility study and options appraisal into traffic management options for Bridge Street.	1.7%

Table 4. Measure receiving less than 1% against (<4 respondents)

Measure No.	Description

3	Improve Transport Corridors - A40 Highway improvement (extension of dual carriage way Witney-Eynsham, Park& Ride and bus lanes to/from Oxford)
4	Access to Witney - West-facing slip roads at A40 Shores Green Junction and improvements at B4022 Oxford Hill junction.
2	Development and delivery of the Witney Local Cycling and Walking Infrastructure Plan (LCWIP).
10	Provision of secure cycle parking, including covered cycle parking.
12	Community activation and promotional programmes to enable the community to benefit from the walking/cycling/green infrastructure improvements.
13	Embed 'Healthy Streets Approach' and Design Check Tool, into the relevant guidance and decision making processes to improve the human experience of streets to encourage walking and cycling.
16	Expand and improve cycle facilities (including visitor parking, secure parking, changing rooms and lockers) across council buildings.
35	Increased Anti-Idling enforcement.
9	Installation of electric vehicle charging points in key locations.
26	Support battery electric vehicle charging infrastructure requirements for freight.

31	Review options for developing domestic fuel burning policies, and guidance on wood and coal burning stoves and bonfires.
No Answer	244

Measures which prompted the most objection related to parking. This initially was mainly relating to Measure 17, which initially included a reference to charging for parking in council owned car parks – see phrase in brackets in Measure 17 description in Table 3. This measure was amended during the second week of the survey to remove this phrase, and also remove the question in the survey relating to parking charges and air pollution. From the feedback, 24.9% of those who took the survey objected to this measure. Measure 30 was the most unpopular measure overall, with 27.6% of respondents unhappy with the prospect of any changes with regard the current parking arrangements in Witney. The third most unpopular measure was Measure 1, which raised concerns regarding restrictions on traffic using Bridge Street, causing congestion and other problems in other parts of the town.

The remaining measures which were selected (by <1% of respondents) as potentially having a negative impact were: highways improvements, where there were concerns regarding disruption caused by the construction work; measures to improve facilities for cycling; installation of electric vehicle charging infrastructure; and domestic combustion. Please refer to Table 4 for more information.

Addition Suggestions Outside the Measures Presented.

Many of those who participated in the survey provided addition comments and suggestions regarding existing traffic measures within the town and possible additional measures which could improve air quality. The most popular of these are presented in Table 5.

Table 5. Most popular (suggested by >1% of respondents) addition suggestions.

Suggestion	%
Return to 30mph in selected areas - particularly routes outside the town centre	6.5
Re-open high street	2.4
Carterton/Bampton/Witney/Eynsham/Oxford rail line	2.2
Financial incentives to switch to electric vehicles/Affordable electric cars	1.4
WEL road	1.2
Reduce time to complete roadworks	1.2
Retain or extend Pedestrianise town centre	1.2

The existing 20mph speed limit across much of Witney was the most common comment made by 6.5% of respondents. The second most common comment was to re-open the High Street, which was initially closed to cars in response to the COVID outbreak. Contrary to requests to reopen the High Street, 1.2% would like to see the current pedestrian area retained, or even expanded, and 0.5% would like to see the area enforced. Other ideas around the High Street and Bridge Street included restricting buses, having restrictions on vehicles at certain times of the day, only allow electric vehicles to travel through the town centre, stop HGVs travelling through Bridge Street and using electric buses.

The full results of the survey are available as a separate document available on the website.

A.2.2 Chipping Norton

The public consultation for Chipping Norton provided 28 responses to the questionnaire, many of which provided constructive and insightful comments on the perception of air quality in the town, the measures proposed and, in some cases the provision of additional suggestions to combat the issue.

A.2.2.1 Diesel / Petrol Transportation

Of the responses to the questionnaire received, 50% used a petrol of diesel car as their main mode of transport.

Q2.1 Would you prefer to use active travel or public transport? If so which of the below would you chose?

	%
• Walking	21
• Cycling	14
• E-cycling	0
• E-scooting	0
• Public transport	29
• Not applicable	43
• No answer	7

Q2.2 What is currently preventing you using alternative modes of transport?

	%
• No safe routes	36
• No confidence / experience in cycling	0
• No safe place to store/secure bikes/scooters	14
• Buses do not serve your home area /no convenient bus stops	29
• Buses do not serve your destination area /no convenient bus stops	29
• Bus times are not convenient	36
• Bus journey times are too long	36
• Up front expense of purchasing a bike/scooter	0
• Health conditions	7
• British weather	7
• Not applicable	7
• No answer	3

Q4.1 Have you considered an electric vehicle (EV)

	%
• Yes	64
• No	29
• No answer	7

Why have you not considered or opted not to switch to an EV?

	%
• Cost, e.g. to purchase, of electricity, of battery replacement	32
• Environment (production & end of life)	7
• Grid capacity	7
• Battery range	7
• Availability of charging points	18
• Charging time	4
• Safety (battery)	0
• No answer	4

Discussion

From the survey, it is clear that the main form of transport is by petrol or diesel cars. However, 50% of respondents in this category would prefer to use alternative forms of transport, with the most popular being public transport (29%), followed by walking (21%) and cycling (14%). This was reflected in the reasons for not using alternative transport, with 36% citing inconvenient bus times and bus journeys too long and 29% no service in their home area and no service at their destination area.

With regards to active travel, 36% were concerned about the safety of walking and cycling to and around Chipping Norton.

Health conditions were considered to be an issue for 7% of the responses.

The above was supported by the additional comments which mainly focused on poor bus services and unsafe walking and cycling routes.

With regards to switching to electric vehicles, the main reason for not doing so was cost (32%). Other reasons included availability of charging points (18%), environmental impacts (7%) and charging infrastructure.

A.2.2.2 Electric Vehicles

Of the total number of respondents to the survey, 18% use electric vehicles (EVs) as their main method of transport.

Q2.1 Would you prefer to use active travel or public transport? If so which of the below would you chose?

	%
• Walking	60
• Cycling	40
• E-cycling	40
• E-scooting	20
• Public Transport	20
• Not Applicable	40
• No Answer	0

Q2.2 What is currently preventing you using alternative modes of transport?

	%
• No safe routes	60
• No confidence / experience in cycling	20
• No safe place to store/secure bikes/scooters	20
• Buses do not serve your home area /no convenient bus stops	20
• Buses do not serve your destination area /no convenient bus stops	40
• Bus times are not convenient	80
• Bus journey times are too long	20
• Up front expense of purchasing a bike/scooter	20
• Health conditions	60
• British weather	20
• Not Applicable	0
• Blanks	0

Q4.1 Where do you normally charge your vehicle?

	%
• Home	80
• Work	0
• Car Park	20
• Other, please specify	0

Q4.2 Do you think Chipping Norton has sufficient public charging points

	%
• Yes	60
• No - where would you like to see additional charging points?	40
• No answer	0

Suggested locations for additional charging points (no. people who suggested each location in brackets):

- All car parks (1)
- Street lamp posts (1)

Discussion

Of the 5 EV owners who responded to the survey, 60% said they would prefer to use alternative modes of transport. In this group, cycling, e-cycling and walking were the most popular (60%, 40% & 40%); followed by public transport and e-scooting (both 20%).

The main reasons for not walking and cycling, were no safe routes (60%). Public transport was chosen by 20% of respondents, and as with petrol/diesel cars, the main reasons selected for not making the switch included inconvenient bus times (80%), no service in home or destination areas (20% & 40%) and bus journeys too long (20%).

Health conditions were cited by 60% of the respondents for not changing to alternative methods of transport.

The majority of electric vehicle owners charged their vehicles at home (80%), with the remainder charging their vehicles in car parks. In addition, 40% did not think Chipping Norton town centre had an adequate supply of charging points. Suggested locations for additional charging points were all car parks and on-street charging using power from street lights.

A.2.2.3 Suggestions from Car Drivers which would Encourage them to use Public and Active Transport

Public Transport – General Suggestions

- More frequent bus services / better public transport

Public Transport – Location Specific

- Regular buses between Shipton under Wychwood and Chipping Norton

Active Transport – General

- More cycle lanes
- Safer roads, junctions and pedestrian crossings
- Road maintenance (potholes)
- Improving attitude of drivers towards cyclists

Active Transport – Location Specific

- Making Horsefair and High Street safer for walking

Other Improvements

- Less traffic
- Speed limit enforcement
- White lines down the edge of the road to demarcate the road from the verge
- Re-direct A44 traffic along the A3400 and past Little Rollright and the Rollright stones

A.2.2.4 Active Travel

The results of the survey showed that 21% of those who took part used active travel as their main mode of transport in and around Witney.

Q2.1 What improvements would you like to see in Witney which would improve your active travel experience?

	%
• Safer dedicated routes	83
• A safe public place to store/secure bikes/scooters	33
• Public electric charging points for e-bikes and e-scooters	17
• Rental schemes for e-bikes/e-scooters	17
• No answer	17

General suggestions to improve the active travel experience included:

- Pedestrian priority, particularly where pavements are narrow, forcing pedestrians onto the road
- Improvements in road condition
- Dedicated cycle routes
- Pedestrian routes away from roads
- More pedestrian areas
- Reduction in traffic numbers
- Reward scheme to encourage active transport to schools
- Employment and retail opportunities in the town

Suggestions which target specific locations:

- Less HGVs on narrow roads e.g. Horse Fair;

Discussion

The main concerns of those who mainly walk and cycle in and around Chipping Norton is the condition and safety of existing roads for walking and cycling (39%). Safe cycle storage was a concern for 33% of respondents, with charging points and rental schemes for e-scooters and e-bikes being of least importance (17%).

The comments further highlighted issues with cycle path and footpath maintenance, unsafe conditions for active travel within the town, and the large volume of traffic travelling through the town centre.

A.2.2.5 Public Transport

Public transport was the least favoured mode of transport, with 7% of participants stating this was their main mode of transport.

Q2.1 What improvements would you like to see in Chipping Norton which would improve your Public Transport experience?

	%
• Routes to destinations currently not served	50
• More frequent service on existing routes	50
• More convenient bus times	0
• Shorter journey times	0
• Better information at bus stops	50
• Seating/shelter at bus stops	0
• More bus stops	0
• No answer	0

Q2.4 Would you be willing to pay higher fares to increase the number and frequency of rural services, if this reduced the number of vehicles travelling to and from the town centre, thus reducing air pollution?

	%
• Yes	50
• No	50
• No answer	0

Q2.5 Would you prefer to use active travel for some or all of your journeys currently by public transport? If so which of the below would you chose? (You may pick more than one):

	%
• Walking	50
• Cycling	50
• E-cycling	50
• E-scooting	0
• No answer	0

Q2.6 What is currently preventing you using active transport? (You may pick more than one)

	%
• No safe routes	50
• No confidence / experience in cycling	50
• No safe place to store/secure bikes/scooters	0
• Up front expense of purchasing a bike/scooter	0
• Health conditions	0
• British weather	0
• No answer	0

Discussion

Public transport was by far the least used form of transport used by the participants of the survey. However, of those who do use public transport, 50% would like to see an increase in the number of destinations served by buses, and increase in frequency of existing services and an improvement in the information supplied at bus stops.

Only 50% of respondents would pay higher fares in order to improve the number and frequency of rural services, with 50% rejecting the idea.

Out of those who would prefer to use active travel, walking, cycling and e-cycling were equally the preferred options. However, the main reasons for not choosing active travel were no safe routes and no confidence in cycling.

A.2.2.6 Questions Common to all Transport Modes

Travelling to School

Does the school promote Active Transport

	%[a]
• Yes	0
• No	100
• N/A	0
• No answer	24

[a] Percentage relating to 'Yes', 'No' and 'N/A' are calculated using the total number who provided one of these answers (44). Percentage of those providing 'No answer' was calculated using the total number of participants in the survey (417).

If the answer to 3.1 above is no, would you like to see the school promote active travel and put in schemes such as walking bus, or cycling proficiency in place?

	Answer to previous question	%
• Yes	No	100[a]
• Yes	Blank	29[b]
• No	No	0[a]
• No	Blank	21[b]
• Blank	No	0[a]

[a] percentage calculated from total no. of 'No' answers to previous question (3)

[b] percentage calculated from total 'No Answer' answers to previous question (24)

Out of the 27 people who completed the survey, only 3 responded to the first question asking if their child's school encourage their pupils to use active transport to get to school and, all three provided the same response 'No'.

Of those who responded 'No' to the first question, 100% said 'Yes' they would like their child(ren)s school to promote active transport.

The second question was also answered by 12 respondents who provided no answer for the first. It is unclear if those who responded were parents/guardians with children in school or not, however the answers were almost a 50/50 split between 'Yes' (29%) and 'No' (21%).

From the results, it would appear active travel is not, as a rule, promoted by schools in Chipping Norton. However, due to the small number of respondents, any conclusion drawn from the results should be cautionary. Further study into the promotion of active travel in schools within the town will be required to establish the current status, and to determine if more work is needed to encourage active travel to and from school.

Parking Charges

Would you support the re-introduction of paying for parking if this meant it reduced the number of vehicles travelling to and from the town centre, thus reducing air pollution?

	%
• Yes	13
• No	87
• No answer	1

This question was only included within the survey for just over a week, before a request for it to be removed following concerns from the public that charging for car parks was potential a future consideration. The overwhelming response to this question was 'No', with 87% of those who responded to the survey before the removal of this question (15), opting for this answer.

Would you like to see a change in the number or type of HGVs passing through the town centre?

	%
• Yes	85
• No	11
• No answer	4

The majority of respondents (85%) would like to see a change in the number of HGVs travelling through the centre of Chipping Norton.

A.2.2.7 Mitigation Measures

Most Favoured Mitigation Measures

The most popular measures are listed in table 1 below, including the percentage of respondents which favoured each measure.

Table 1. Measures which would make the most positive impact on the respondents.

Measure No.	Description	% in favour
21	Develop and promote appropriate HGV route map.	26
22	Area weight restriction feasibility study	22
3	Improve Transport Corridors - A44 Corridor Study (Chipping Norton Short, Medium and Long Terms Measures)	17
1	Development and delivery of the West Oxfordshire Area Travel Plan (for areas including Chipping Norton).	11
6	Delivering EV infrastructure across the district, at sites in Council ownership, with potential for electric bike- and scooter-charging hubs.	4
25	Promotion of EV Charging through a county-wide communication and education package.	4

The measures which were considered to have the greatest positive impact of the lives of those who responded to the survey were Measures 21 & 22 (26% and 22% respectively). Both of these potentially address the number of HGVs travelling through the town, reflecting the high percentage of respondents who wanted to see a change in HGV numbers. Measure 1 was next most popular (17%), which may also may be related to HGV reduction as well as active and public transport improvements.

The final two measures identified as positive were Measure 6 and 25, both relating to improvements in EV charging infrastructure.

Mitigations Measures having the most Negative Impact

Table 2. Measures which would make the most negative impact on the respondents.

Measure No.	Description	% Against
27	Review options for parking management in Chipping Norton.	19
28	Review options for developing domestic fuel burning policies, and guidance on wood and coal burning stoves and bonfires.	7
20	Freight consolidation feasibility study (for Oxfordshire).	4

Measures which prompted the most objection related to parking. This initially was mainly relating to Measure 17, which initially included a reference to charging for parking in council owned car parks – see phrase in brackets in Measure 17 description in Table 3. This measure was amended during the second week of the survey to remove this phrase, and also remove the question in the survey relating to parking charges and air pollution. From the feedback, 24.9% of those who took the survey objected to this measure. Measure 30 was the most unpopular measure overall, with 27.6% of respondents unhappy with the prospect of any changes with regard the current parking arrangements in Witney. The third most unpopular measure was Measure 1, which raised concerns regarding restrictions on traffic using Bridge Street, causing congestion and other problems in other parts of the town.

The remaining measures which were selected (by <1% of respondents) as potentially having a negative impact were: highways improvements, where there were concerns regarding disruption caused by the construction work; measures to improve facilities for cycling; installation of electric vehicle charging infrastructure; and domestic combustion. Please refer to Table 4 for more information.

Additional Suggestions Outside the Measures Presented.

Many of those who participated in the survey provided addition comments and suggestions regarding existing traffic measures within the town and possible additional measures which could improve air quality. These are presented in Table 5.

Table 5. Additional suggestions.

Suggestion	%
Inclusion of green infrastructure within the town centre	7
Roadside pollution deflectors	4
Tax relief on home insulation	4
Congestion charge for traffic travelling through the town	4
Help for EV charging for homes with no private driveway	4
Parking enforcement to stop inconsiderate parking	4
Use of electric buses and public service vehicles	4
Encourage the use of electric HGVs	4

The additional suggestions provided by the respondents varied widely, but on the whole were aimed at reducing emissions or reducing exposure to air pollution within the town centre.

The full results of the survey are available as a separate document available on the website.

A.2.1 Email Responses

“Hi I would like to give my ideas for cutting air pollution in witney ...I know this hasn't been thought of before but how about making a road that you could get on ...let's say near shores Green....and travel around witney and get off near Ducklington roundabout .....just an idea ..... maybe you could have used some of the 3 million wasted thinking about it and actually did it .... to add... . I don't think it's fair mucking about with the town making difficult for people who actually work for a living until you have seen the effect of this .....many thanks”

“Regarding proposals to improve air quality in Witney and Chipping Norton, they do not seem very targeted. What work has been done to determine what are the reasons for people driving through the areas concerned? If it was clearly understood why people are choosing to drive in these areas, then specific measures could be taken to reduce traffic flow, which should be the main objective. Many of the proposals for improvement that have been put forward are not focussed on the problem but “may” lead to improvements. This sounds like it will lead to high expenditure on projects that achieve little other than making local people unhappy.”

“The air pollution in Bridge Street as you are well aware has been above EU and UK guidelines for years with no action plan to remedy it.

My GP recommended we move as myself and both children were on Inhalers (they have moved out now and neither child requires them anymore I am still here suffering)

The council is well aware of the thousands of vehicles that use this rd every day and no effort to limit or reroute traffic, in particular lorries.

This air pollution and traffic is exasperating the decay of listed/ historic buildings in a so called conservation area (where buildings have been left for 20 years to decay) listed building owners have legal requirements to conserve their buildings but the council are not even required to take into account, historic buildings, noise, flood risk, conservation areas etc when they treat the road.

The recent surface dressing caused an excessive dust problem that must have broken air quality regulations. Residents complained of breathing issues, eye issues etc. The road was then not swept for 72 hrs causing more air quality issues that lasted a couple of weeks. The contractors and council then hid behind the stones having being washed etc and non hazzardous but would enter into discussion on the safety of the excessive dust levels that was in the air for weeks outside and inside our listed building. I have photos and samples if you would care to see them.

The council also failed to implement a 15mph limit on the road that should have and would have helped reduce the added air pollution.

We could not open any windows for over a month. Firstly due to dust levels then due to the road works causing long delays and traffic to be sat stationary along the street with their engines running pumping fumes into residential properties.

Since the council has had no will and failed to manage the nitrogen dioxide levels for over 20 years in Bridge Street it wont surprise me that they will put down the surface dressing issue to a few weeks inconvenience and not take seriously the potential risk the high volume of dust in the air inside and out for over 2 weeks solid and any long term health implications that these dust particles can cause.

I insist that all this information is included into the air quality survey."

Appendix B Reasons for Not Pursuing Action Plan Measures

B.1 Witney

Table B.1: Action Plan Measures in Witney not pursued and the reasons for that decision

Action category	Action description	Take forward to shortlist?	Reason action is not being pursued (including Stakeholder views)
Traffic Management	Witney Area Travel Plan. Feasibility study and options appraisal into traffic management options for reducing Bridge Street Congestion.	Yes	No specific stakeholder feedback
Traffic Management	Improve Transport Corridors - A40 Highway improvement (extension of dual carriage way Witney Eynsham Park& Ride and bus lane to Oxford)	Yes but amended	Combine with similar measure
Traffic Management	West-facing slip roads at A40 Shores Green Junction and improvements at B4022 Oxfordshire Hill junction to be delivered by housing development at East Witney.	Yes	No specific stakeholder feedback
Traffic Management	Deliver the A40/Downs Road junction (all traffic movements) and other supporting highway improvement measures (Witney)	Yes but amended	Yes but combined with other similar measures in the longlist.
Traffic Management	Parking management and enforcement, to reduce and restrict car parking availability. Review options for parking management in Witney, including opportunities to increase modal shift to active and public transport.	No	This is a politically charged issue and charging for parking has been very unpopular in the past for Witney. Options for parking management need to be considered in more detail before commitment to any specific actions.
Traffic Management	20 mph roads for safer roads and to encourage active travel	No	Measure is completed so no need to take forward to shortlist.

Traffic Management	Increased Anti-Idling enforcement	No	WODC do not currently have the resources for this
Traffic Management	Parking control measures on Bridge Street, Witney (currently a small number of 30mins free parking slots, which might be encouraging short local trips by car?)	Maybe	A less specific measure about considering car parking management options may be more suitable **Candidate measure for future consideration**
Traffic Management	Speed enforcement	No	Not within WODC jurisdiction (speed enforcement is a police matter).
Alternatives to Private Vehicle Use	Park and Ride Scheme at Eynsham.	No	This scheme has benefits to Witney through provision of a cycling route from Eynsham to Oxford, but these benefits could be captured by other cycling related measures e.g. the LCWIP
Alternatives to private vehicle use	Review options for providing new coach parking where none exist and improving the facilities that do exist.	No	Ultimately not taken forward as not considered a priority for Witney at present, but to be kept under review in the future.
Alternatives to private vehicle use	Improving the range, frequency and speed of bus services to key destinations	Yes	Positive feedback from Stagecoach and others in Steering Group.
Alternatives to private vehicle use	Work with bus operators to maintain a commercially sustainable and comprehensive network of services	Yes	Positive feedback from Stagecoach and others in Steering Group.
Alternatives to private vehicle use	Use community transport for gaps in public transport	No	Not specific enough and not a priority for Witney at present, to be kept under review in the future. **Candidate measure for future consideration**
Alternatives to Private Vehicle Use	Car sharing club pilot scheme (electric) in Witney	Yes	

Promoting travel alternatives	Promotion of home working and virtual meetings	Yes	No specific stakeholder feedback
Promoting Travel Alternatives	Install new bicycle or motorcycle parking spaces where appropriate.	Yes but amended	Amended to "Provision of secure cycle parking, including covered cycle parking."
Promoting Travel Alternatives	Enhancing pedestrian and cycle routes through greenways and safe streets	No	Measure covered within the LCWIP, which will cover enhancement of pedestrian and cycle routes with recommended actions specific to Witney.
Promoting Travel Alternatives	Oxfordshire Rights of Way Improvement Plan	No	Measure covered within the LCWIP, which will cover enhancement of pedestrian and cycle routes with recommended actions specific to Witney.
Promoting Travel Alternatives	Identify key existing and potential routes for walking and cycling between main destinations or corridors and prioritise interventions to such routes through The Strategic Active Travel Network (SATN) project	No	Measure covered within the LCWIP, which will cover enhancement of pedestrian and cycle routes with recommended actions specific to Witney.
Promoting Travel Alternatives	Work with schools, and employers and business to develop a programme of walking and cycling measures and improve promotion and education of travel	Yes but amended	Amended to focus on working with schools.
Promoting Travel Alternatives	Increase number of officers dedicated to active travel and expand their range of professional backgrounds	No	Measure is completed so no need to take forward to shortlist.

Promoting Travel Alternatives	Review the council's travel and expense policies to prioritise sustainable transport	Yes	
Promoting Travel Alternatives	Update/improve active travel information	Yes	
Promoting Travel Alternatives	Provision of bicycles for those without	Maybe	Not specific enough, but to be kept under review in the future.
Promoting Low Emission Transport	Researching alternative, low-/zero-carbon fuel sources and opportunities to pilot new technologies to support transitioning away from fossil fuels to modes of ultralow-emission transport.	No	Measure considered too general and unlikely to specifically benefit Witney. **Candidate measure for future consideration**
Promoting Low Emission Transport	Delivering EV infrastructure across the district, at sites in Council ownership, with potential for electric bike- and scooter-charging hubs.	Yes	No specific stakeholder feedback
Promoting Low Emission Transport	Implementing standards for EV-charging infrastructure and active travel in new development.	Yes	Yes but combined with other similar measures in the longlist.
Promoting Low Emission Transport	Provide cycle and motorcycle parking spaces in more car parks and consider the provision of electric vehicle charging points.	Yes	Yes but combined with other similar measures in the longlist.

Promoting Low Emission Transport	Consider providing parking permit discounts for electric and low emission vehicles.	No	Charging for parking not being considered for Witney at this time.
Promoting Low Emission Transport	Consider the installation of electric vehicle charging points in key locations.	Yes but amended	Yes but combined with other similar measures in the longlist.
Promoting Low Emission Transport	Improve availability of rapid and ultra-rapid EV charging on and near the strategic road network and important link roads across Oxfordshire	Yes	Road Haulage Association supportive of measure. Already a committed action at county council level, through the OCC Freight and Logistics Strategy 2022 – 2054.
Promoting Low Emission Transport	Promotion of EV Charging through a county-wide communication and education package	Yes	
Promoting Low Emission Transport	Liaise with bus operators and OCC to prioritise low and zero emission buses in local bus fleet to routes through AQMA	No	ZEBRA grant award money for new zero emission buses to be rolled out at county level. Rural areas such as Witney very unlikely to be prioritised for new zero emission buses over busier urban areas within Oxfordshire, e.g. Oxford, Abingdon, Banbury, Didcot, Bicester etc. In addition to consideration of EV bus charging infrastructure, which is better situated at existing transport hubs.
Vehicle fleet efficiency	Reducing the council's fuel consumption through vehicle fleet driver-awareness training	Yes	No specific stakeholder feedback
Vehicle Fleet Efficiency	Reduce and re-prioritise car parking space for council staff and introduce charges in council-owned public parking	Yes	

Vehicle Fleet Efficiency	Accelerate zero emission bus scheme	No	ZEBRA grant award money for new zero emission buses to be rolled out at county level. Rural areas such as Witney very unlikely to be prioritised for new zero emission buses over busier urban areas within Oxfordshire, e.g. Oxford, Abingdon, Banbury, Didcot, Bicester etc. In addition to consideration of EV bus charging infrastructure, which is better situated at existing transport hubs. **Candidate measure for future consideration**
Vehicle fleet efficiency	Fleet Recognition scheme	No	Unsure what the uptake would be and how much of a difference it would make to Witney specifically. Not a priority for Witney at present, to be kept under review in the future.
Promoting Low Emission Plant	Transition away from fossil fuels and look into opportunities for direct-supply renewable energy	No	Measure considered too general and unlikely to specifically benefit Witney.
Transport Planning and Infrastructure	Expand and improve cycle facilities (including visitor parking, secure parking, changing rooms and lockers) across council buildings	Yes	Positive feedback from stakeholders. Cyclists concerned about risk of theft so security measures need to be considered with bike parking. Covered cycle parking also would be helpful for cyclists (protection of bikes from rain), so also covered in another measure in relation to non-council buildings.
Transport Planning and Infrastructure	Pilot network of shared micro-mobility services (bicycles, e-bikes or scooters)	No	Ultimately not taken forward as not considered a priority for Witney, but to be kept under review in the future. **Candidate measure for future consideration**
Transport Planning and Infrastructure	Improve Cycling Infrastructure through improving existing routes, maintenance and identifying areas for growth	Yes	Measure covered within the LCWIP, which will cover enhancement of pedestrian and cycle routes with recommended actions specific to Witney.

Transport Planning and Infrastructure	Use developer funding to improve the frequency of bus services in routes within Witney/Chipping Norton area	Yes	
Transport Planning and Infrastructure	Use developer funding to ensure that new and, where possible, existing residential areas are connected by adequate levels of bus service to the main employment areas/sites in the Witney/Chipping Norton area	Yes	
Transport Planning and Infrastructure	Implement measures to reduce delays to bus services	No	Not specific enough, but to be kept under review in the future.
Transport Planning and Infrastructure	Oxfordshire rail strategy	No	Not relevant to Witney (not served by rail).
Transport Planning and Infrastructure	Consider multi-modal travel option for transport planning, new developments and mobility hubs	Maybe	Not specific enough and ideas around transport planning including active and public transport access for new developments already incorporated into other measures. **Candidate measure for future consideration**
Transport Planning and Infrastructure	Development of a Local Cycling and Walking Infrastructure Plan (LCWIP) for Witney	Yes	
Freight and Delivery Management	Explore implementation of road user charging schemes	No	Measure is considered too drastic considering the scale of the exceedance issue in Witney. It's worth noting this measure came from the OCC Freight and Logistics Strategy 2022 – 2054. **Candidate measure for future consideration**

Freight and Delivery Management	Promote considerations about reducing the need for freight movement	No	Reducing the need for freight is highly complex and demand for goods is very unlikely to decrease. Many in the Steering Group were against, including Road Haulage Association in particular were strongly against, and provided lots of information regarding the complexity of achieving this measure. It's worth noting this measure came from the OCC Freight and Logistics Strategy 2022 – 2054.
Freight and Delivery Management	Freight consolidation feasibility study	Yes	Road Haulage Association gave negative feedback voicing concern over the additional costs which the freight industry would be faced with with the introduction of a freight measure, unless these costs could be accommodated by local or national government. Ultimately measure taken forward as this is already a committed action at county council level, through the OCC Freight and Logistics Strategy 2022 – 2054, and may have an impact on Witney.
Freight and Delivery Management	Develop and promote appropriate HGV route map	Yes	
Freight and Delivery Management	– Support battery electric vehicle charging infrastructure requirements	Yes	Already a committed action at county council level, through the OCC Freight and Logistics Strategy 2022 – 2054.
Freight and Delivery Management	Routing freight out of Bridge Street area (with exception of access for delivery) via new/improved Shores Green slip roads and Downs Road junction.	Yes	

Policy Guidance and Development Control	Embed 'Healthy Streets Approach' and Design Check Tool, into the relevant guidance and decision making processes to improve the human experience of streets to encourage walking and cycling	Yes	No specific stakeholder feedback
Policy Guidance and Development Control	Using integrated planning to reduce need to travel by embedding policies in land use planning and guidance documents. Example is 20 minute neighbourhood plan	Yes	
Policy Guidance and Development Control	Consider developing a Bonfire Policy	Yes but amended	Combined with others to "Review options for developing domestic fuel burning policies, including consideration of the implementation of Smoke Control Areas, and restrictions or guidance on wood and coal burning stoves and bonfires."
Policy Guidance and Development Control	Consider implementation of Smoke Control Areas	Yes but amended	Combined with others to "Review options for developing domestic fuel burning policies, including consideration of the implementation of Smoke Control Areas, and restrictions or guidance on wood and coal burning stoves and bonfires."
Policy Guidance and Development Control	Consider developing a domestic solid fuel policy	Yes but amended	Combined with others to "Review options for developing domestic fuel burning policies, including consideration of the implementation of Smoke Control Areas, and restrictions or guidance on wood and coal burning stoves and bonfires."
Policy Guidance and Development Control	Draft and publish developers guidance or Supplementary Planning Document which sets out requirements for developments in the area, to protect people and the environment from air pollution impacts.	Yes but amended	Amended to "Investigate options for development of Air Quality guidance for developers..." This was because an SPD was considered unsuitable in terms of the scale of the AQMAs and the level of exceedance.
Public Information	Community activation and promotional programmes to enable the community to benefit from the walking/cycling/green infrastructure improvements	Yes	Public health doing a lot in this area.
Public Information	Oxfordshire Air Quality Information Website	Yes	

Public information	Information campaign regarding domestic solid fuel	Yes	
Public information	Anti-Idling information campaign	Yes	
Other	Explore options for automatic monitoring of air quality in AQMAs, and provision of alerts.	Yes	

B.2 Chipping Norton

Table B-2: Action Plan Measures in Chipping Norton not pursued and the reasons for that decision

Action category	Action description	Take forward to shortlist?	Reason action is not being pursued (including Stakeholder views)
Traffic Management	Develop Transport Corridor Strategies - A44	No	Not impacting either AQMA, only relevant to wider district
Traffic Management	A new eastern link road to be delivered as an integral part of the East Chipping Norton Strategic Development Area (SDA). (Chipping Norton)	No	Not taken forward as not considered to provide significant benefit to traffic flow in Chipping Norton as a whole - route not designed to be an alternative to the town through-route, rather to provide access to the residents of the East Chipping Norton SDA.
Traffic Management	Parking management and enforcement, to reduce and restrict car parking availability. Review options for parking management in Chipping Norton.	No	This is a politically charged issue and charging for parking has been very unpopular in the past for Chipping Norton. Options for parking management need to be considered in more detail before commitment to any specific actions.
Traffic Management	20 mph roads for safer roads and to encourage active travel	No	Measure is completed so no need to take forward to shortlist.
Traffic Management	Increased Anti-Idling enforcement	No	WODC do not currently have the resources for this

Traffic Management	Speed enforcement	No	Not within WODC jurisdiction (speed enforcement is a police matter).
Traffic Management	Chipping Norton parking management - considering charging/limiting parking, considering new parking at further distance from town centre/away from AQMA with access to down centre or small park and ride. Limiting or removing short stay car parking on High Street, changes to signage/live parking updates to limit traffic circulating around searching for spaces.	Yes but amended	Amended to more general measure "Review options for parking management in Chipping Norton." This is a politically charged issue and charging for parking has been very unpopular in the past for Chipping Norton. Options for parking management need to be considered in more detail before commitment to any specific actions.
Traffic Management	Chipping Norton - consider removing or limiting to disabled-only parking near diff tube 22.	No	Not supported by Chipping Norton Town Council.
Alternatives to private vehicle use	Review options for providing new coach parking where none exist and improving the facilities that do exist.	No	Ultimately not taken forward as not considered a priority for Chipping Norton, but to be kept under review in the future. **Candidate measure for future consideration**
Alternatives to private vehicle use	Improving the range, frequency and speed of bus services to key destinations	Yes	Positive feedback from Stagecoach and others in Steering Group. The challenge is to get people to drop the car and get on the bus.
Alternatives to private vehicle use	Work with bus operators to maintain a commercially sustainable and comprehensive network of services	Yes	Positive feedback from Stagecoach and others in Steering Group.
Alternatives to private vehicle use	Use community transport for gaps in public transport	No	Not specific enough and not a priority for Chipping Norton at present, to be kept under review in the future. **Candidate measure for future consideration**
Promoting travel alternatives	Promotion of home working and virtual meetings	Yes	No specific stakeholder feedback
Promoting Travel Alternatives	Install new bicycle or motorcycle parking spaces where appropriate.	Yes but amended	Be more specific in shortlist. "Install new bicycle or motorcycle parking spaces where appropriate.

			Consider if covered bicycle storage can be provided to protect bicycles from rain damage".
Promoting Travel Alternatives	Improving conditions throughout the town and surrounding areas for pedestrians and cyclists, including accessibility to bus and rail services. (Chipping Norton)	Yes	Chipping Norton not currently well served in terms of cycling due to challenges with topography and narrow streets in the town centre. A measure relating to engaging with local cycling community might be helpful. This measure was amended/combined with the LCWIP.
Promoting Travel Alternatives	Enhancing pedestrian and cycle routes through greenways and safe streets	No	Measure covered within the LCWIP, which will cover enhancement of pedestrian and cycle routes with recommended actions specific to Chipping Norton.
Promoting Travel Alternatives	Oxfordshire Rights of Way Improvement Plan	No	Measure covered within the LCWIP, which will cover enhancement of pedestrian and cycle routes with recommended actions specific to Chipping Norton.
Promoting Travel Alternatives	Identify key existing and potential routes for walking and cycling between main destinations or corridors and prioritise interventions to such routes through The Strategic Active Travel Network (SATN) project	No	Measure covered within the LCWIP, which will cover enhancement of pedestrian and cycle routes with recommended actions specific to Chipping Norton.
Promoting Travel Alternatives	Work with schools, and employers and business to develop a programme of walking and cycling measures and improve promotion and education of travel	Yes but amended	Amended to focus on working with schools.
Promoting Travel Alternatives	Increase number of officers dedicated to active travel and expand their range of professional backgrounds	No	Measure is completed so no need to take forward to shortlist.
Promoting Travel Alternatives	Review the council's travel and expense policies to prioritise sustainable transport	Yes	
Promoting Travel Alternatives	Update/improve active travel information	Yes	
Promoting Travel Alternatives	Provision of bicycles for those without	No	Not specific enough, but to be kept under review in the future.

Promoting Low Emission Transport	Researching alternative, low-/zero-carbon fuel sources and opportunities to pilot new technologies to support transitioning away from fossil fuels to modes of ultralow-emission transport.	No	Measure considered too general and unlikely to specifically benefit Chipping Norton. **Candidate measure for future consideration**
Promoting Low Emission Transport	Delivering EV infrastructure across the district, at sites in Council ownership, with potential for electric bike- and scooter-charging hubs.	Yes but amended	Separated out to two measures, Delivering EV infrastructure across the district at sites in Council ownership taken forward, as in Council control. Electric bikes and scooter charging hubs not taken forward as not considered a priority for Chipping Norton at this time, but something to be kept under review for the future.
Promoting Low Emission Transport	Implementing standards for EV-charging infrastructure and active travel in new development.	Yes but amended	Yes but combined with other similar measures in the longlist.
Promoting Low Emission Transport	Provide cycle and motorcycle parking spaces in more car parks and consider the provision of electric vehicle charging points.	Yes but amended	Yes but combined with other similar measures in the longlist.
Promoting Low Emission Transport	Consider providing parking permit discounts for electric and low emission vehicles.	No	Charging for parking not being considered for Chipping Norton at this time.
Promoting Low Emission Transport	Consider the installation of electric vehicle charging points in key locations.	Yes but amended	Yes but combined with other similar measures in the longlist.
Promoting Low Emission Transport	Improve availability of rapid and ultra-rapid EV charging on and near the strategic road network and important link roads across Oxfordshire	Yes	
Promoting Low Emission Transport	Promotion of EV Charging through a county-wide communication and education package	Yes	
Promoting Low Emission Transport	Liaise with bus operators and OCC to prioritise low and zero emission buses in local bus fleet to routes through AQMA	No	ZEBRA grant award money for new zero emission buses to be rolled out at county level. Rural areas such as Chipping Norton very unlikely to be prioritised for new zero emission buses over busier urban areas

			within Oxfordshire, e.g. Oxford, Abingdon, Banbury, Didcot, Bicester etc. In addition to consideration of EV bus charging infrastructure, which is better situated at existing transport hubs.
Vehicle fleet efficiency	Reducing the council's fuel consumption through vehicle fleet driver-awareness training	Yes	No specific stakeholder feedback
Vehicle Fleet Efficiency	Reduce and re-prioritise car parking space for council staff and introduce charges in council-owned public parking	Yes	
Vehicle Fleet Efficiency	Accelerate zero emission bus scheme	No	ZEBRA grant award money for new zero emission buses to be rolled out at county level. Rural areas such as Chipping Norton very unlikely to be prioritised for new zero emission buses over busier urban areas within Oxfordshire, e.g. Oxford, Abingdon, Banbury, Didcot, Bicester etc. In addition to consideration of EV bus charging infrastructure, which is better situated at existing transport hubs. **Candidate measure for future consideration**
Vehicle fleet efficiency	Fleet Recognition scheme e.g. FORS or ECOSTARS.	No	Unsure what the uptake would be and how much of a difference it would make to Chipping Norton specifically. Not a priority for Chipping Norton at present, to be kept under review in the future.
Promoting Low Emission Plant	Transition away from fossil fuels and look into opportunities for direct-supply renewable energy	No	Measure considered too general and unlikely to specifically benefit Chipping Norton.
Promoting Low Emission Plant	Consider implementation of Smoke Control Areas	Yes but amended	Combined with others to "Review options for developing domestic fuel burning policies, including consideration of the implementation of Smoke Control Areas, and restrictions or guidance on wood and coal burning stoves and bonfires."

Transport Planning and Infrastructure	Expand and improve cycle facilities (including visitor parking, secure parking, changing rooms and lockers) across council buildings	Yes	Positive feedback from stakeholders. Cyclists concerned about risk of theft so security measures need to be considered with bike parking. Covered cycle parking also would be helpful for cyclists (protection of bikes from rain).
Transport Planning and Infrastructure	Pilot network of shared micro-mobility services (bicycles, e-bikes or scooters)	No	Ultimately not taken forward as not considered a priority for Chipping Norton, but to be kept under review in the future.
Transport Planning and Infrastructure	Improve Cycling Infrastructure through improving existing routes, maintenance and identifying areas for growth	Yes	Measure covered within the LCWIP, which will cover enhancement of pedestrian and cycle routes with recommended actions specific to Chipping Norton.
Transport Planning and Infrastructure	Use developer funding to improve the frequency of bus services in routes within Witney/Chipping Norton area	Yes	
Transport Planning and Infrastructure	Use developer funding to ensure that new and, where possible, existing residential areas are connected by adequate levels of bus service to the main employment areas/sites in the Witney/Chipping Norton area	Yes	
Transport Planning and Infrastructure	Implement measures to reduce delays to bus services	No	Not specific enough, but to be kept under review in the future.
Transport Planning and Infrastructure	Oxfordshire rail strategy	No	Not relevant to Chipping Norton (not served by rail).
Transport Planning and Infrastructure	Consider multi-modal travel option for transport planning, new developments and mobility hubs	No	Not specific enough and ideas around transport planning including active and public transport access for new developments already incorporated into other measures. **Candidate measure for future consideration**

Transport Planning and Infrastructure	Development of a Local Cycling and Walking Infrastructure Plan (LCWIP) for Chipping Norton.	Yes	
Freight and Delivery Management	Explore implementation of road user charging schemes	No	Measure is considered too drastic considering the scale of the exceedance issue in Chipping Norton. It's worth noting this measure came from the OCC Freight and Logistics Strategy 2022 – 2054. **Candidate measure for future consideration**
Freight and Delivery Management	Promote considerations about reducing the need for freight movement	No	Reducing the need for freight is highly complex and demand for goods is very unlikely to decrease. Many in the Steering Group were against, including Road Haulage Association in particular were strongly against, and provided lots of information regarding the complexity of achieving this measure. It's worth noting this measure came from the OCC Freight and Logistics Strategy 2022 – 2054.
Freight and Delivery Management	Freight consolidation feasibility study	Yes	Road Haulage Association gave negative feedback voicing concern over the additional costs which the freight industry would be faced with the introduction of a freight measure, unless these costs could be accommodated by local or national government. Ultimately measure taken forward as this is already a committed action at county council level, through the OCC Freight and Logistics Strategy 2022 – 2054, and may have an impact on Chipping Norton.
Freight and Delivery Management	Develop and promote appropriate HGV route map	Yes	Already a committed action at county council level, through the OCC Freight and Logistics Strategy 2022 – 2054.
Freight and Delivery Management	– Support battery electric vehicle charging infrastructure requirements	Yes	Road Haulage Association supportive of measure. Already a committed action at county council level, through the OCC Freight and Logistics Strategy 2022 – 2054.

Policy Guidance and Development Control	Embed 'Healthy Streets Approach' and Design Check Tool, into the relevant guidance and decision making processes to improve the human experience of streets to encourage walking and cycling	Yes	No specific stakeholder feedback
Policy Guidance and Development Control	Using integrated planning to reduce need to travel by embedding policies in land use planning and guidance documents.	Yes	
Policy Guidance and Development Control	Consider developing a Bonfire Policy	Yes but amended	Combined with others to "Review options for developing domestic fuel burning policies, including consideration of the implementation of Smoke Control Areas, and restrictions or guidance on wood and coal burning stoves and bonfires."
Policy Guidance and Development Control	Consider developing a domestic solid fuel policy	Yes but amended	Combined with others to "Review options for developing domestic fuel burning policies, including consideration of the implementation of Smoke Control Areas, and restrictions or guidance on wood and coal burning stoves and bonfires."
Policy Guidance and Development Control	Draft and publish developers guidance or Supplementary Planning Document which sets out requirements for developments in the area, to protect people and the environment from air pollution impacts.	Yes but amended	Amended to "Investigate options for development of Air Quality guidance for developers..." This was because an SPD was considered unsuitable in terms of the scale of the AQMAs and the level of exceedance.
Public Information	Community activation and promotional programmes to enable the community to benefit from the walking/cycling/green infrastructure improvements	Yes	Public health doing a lot in this area.
Public Information	Oxfordshire Air Quality Information Website	Yes	
Public information	Information campaign regarding domestic solid fuel	Yes	
Public information	Anti-Idling information campaign	Yes	

Other	Explore options for automatic monitoring of air quality in AQMAs, and provision of alerts.	Yes	

Appendix C PM2.5 Assessment: Likelihood of achieving new PM2.5 targets in West Oxfordshire

C.1 Background

The UK Government is required to introduce legislation setting legal targets for $PM_{2.5}$ under the Environment Act 2021. In May 2022, the Department of Environment, Food and Rural Affairs (Defra) consulted the public for their proposed targets relating to $PM_{2.5}$, and in December 2022 the targets were published:

1. An Annual Mean Concentration Target for $PM_{2.5}$ levels in England to be 10 $\mu g/m^3$ or below by 2040
2. A Population Exposure Reduction Target for a reduction in $PM_{2.5}$ population exposure of 35% compared to 2018 to be achieved by 2040[27]

The population exposure reduction target will be assessed against a 2018 baseline. The metric to inform this target will be a three-year average of annual mean measurements at monitoring sites across England that are considered to be in locations representative of typical concentrations across a region. These are likely to comprise “urban background” or “suburban background” sites which align with population density. A three-year average will be used to reduce the impact of weather conditions for a particular year, and to focus on the underlying trend. The target is focused on long term exposure (rather than short term), as this is considered likely to drive the most significant health benefits.[28]

The Public Health Outcomes Framework (PHOF) reports that the fraction of mortality attributable to particulate air pollution for West Oxfordshire in 2019, 2020 and 2021,

[27] https://questions-statements.parliament.uk/written-statements/detail/2022-12-16/hlws449

[28] https://consult.Defra.gov.uk/natural-environment-policy/consultation-on-environmental-targets/supporting_documents/Air%20quality%20targets%20%20Detailed%20Evidence%20report.pdf

were 6.8%, 5.5% and 5.2% respectively. These percentages are similar to the national averages of 7.1%, 5.6% and 5.5% for the same years.[29]

C.2 Methodology

This section includes an assessment of the likelihood of the annual mean concentration and population exposure targets being achieved for both the Chipping Norton and Witney Air Quality Management Areas (AQMAs). The assessment applies a combination of both nearby Automatic Urban and Rural Network (AURN) pollutant concentration measurements and Defra background mapping for local authorities.

Defra background maps were used as part of the evidence base to determine the likelihood of the AQMAs achieving the new annual mean concentration target for $PM_{2.5}$ in the future (10 µg/m^3 or below by 2040). Air pollution background concentrations are published by Defra to support local authorities in carrying out review and assessment of local air quality as part of their duties under the Environmental Act 1995, as amended by the Environment Act 2021.[30] The modelling methodology is based on the UK Pollution Climate Mapping (PCM) approach, used to model the annual mean background and roadside concentrations for the UK. Defra background maps provide estimates of background concentrations for specific pollutants to understand the contribution of local sources to total pollutant concentrations.[31] They do not include information on localised air quality impacts within the AQMAs but do provide an evidence-based indication of how air quality concentrations are likely to change in future years for specified areas.

Measurements of pollutant concentrations from the AURN urban background monitoring site at Oxford St. Ebbes were also used to inform the analysis. As an urban background site located within 16 km and 30 km of the Witney and Chipping Norton AQMAs respectively, Oxford St Ebbes is considered to be a location representative of population exposure in both of the AQMAs. In accordance with the guidance, a

[29] Public Health Outcomes Framework - Data - OHID (phe.org.uk)

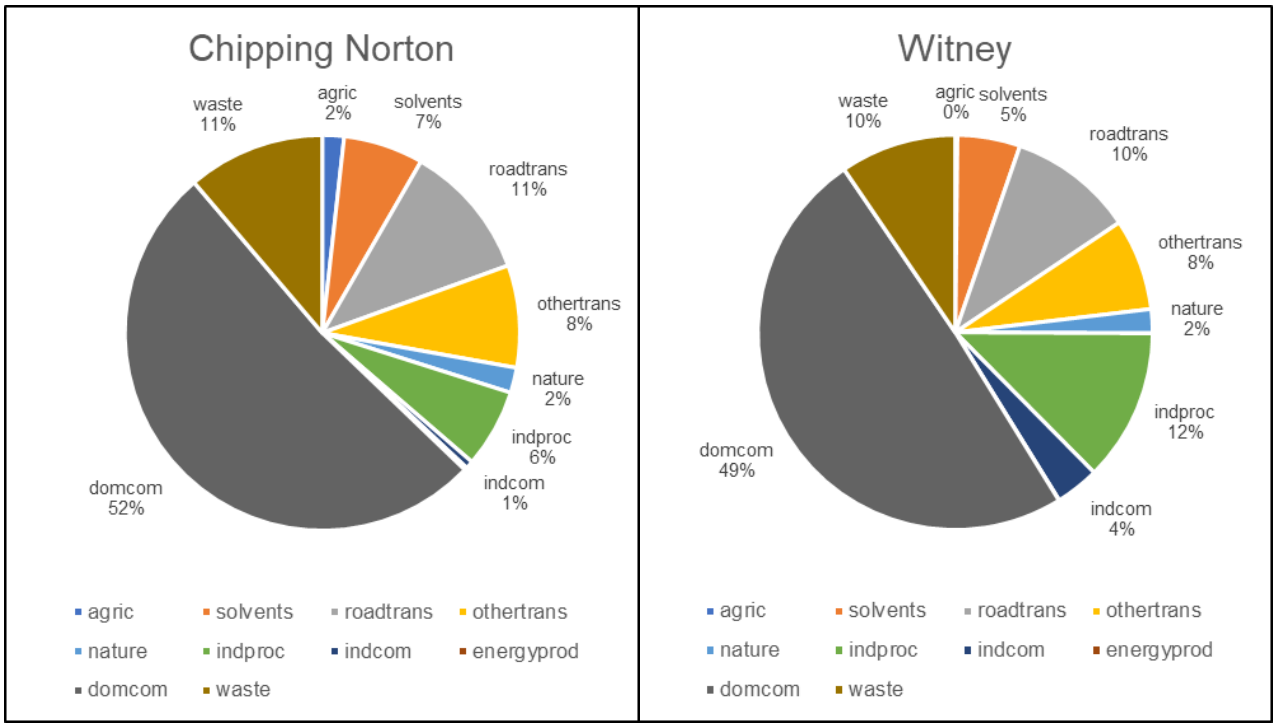
[30] https://laqm.defra.gov.uk/air-quality/air-quality-assessment/background-maps/

[31] https://uk-air.defra.gov.uk/research/air-quality-modelling?view=modelling

baseline concentration was calculated by obtaining a three-year $PM_{2.5}$ average using AURN data from 2016 to 2018 and from this, a population exposure target for 2040 was calculated. Statistical analysis of the air quality monitoring data from Oxford St Ebbes was performed using the Open Air[32] package in R.

Source apportionment of Defra background maps for $PM_{2.5}$ for 2019 are presented in Figure C-1 for Chipping Norton and Witney respectively.

Figure C-1: Source apportionment of $PM_{2.5}$ concentrations for Chipping Norton and Witney (2019)



Note:
agric = agriculture, forestry & land use change
solvents = solvent use
roadtrans = road transport
othertrans = other transport & mobile machinery
indproc = production processes
indcom = combustion in industry
energyprod = combustion in energy production & transformation
domcom = Combustion in Commercial, Institutional; Residential & Agriculture,
waste = waste treatment and disposal.

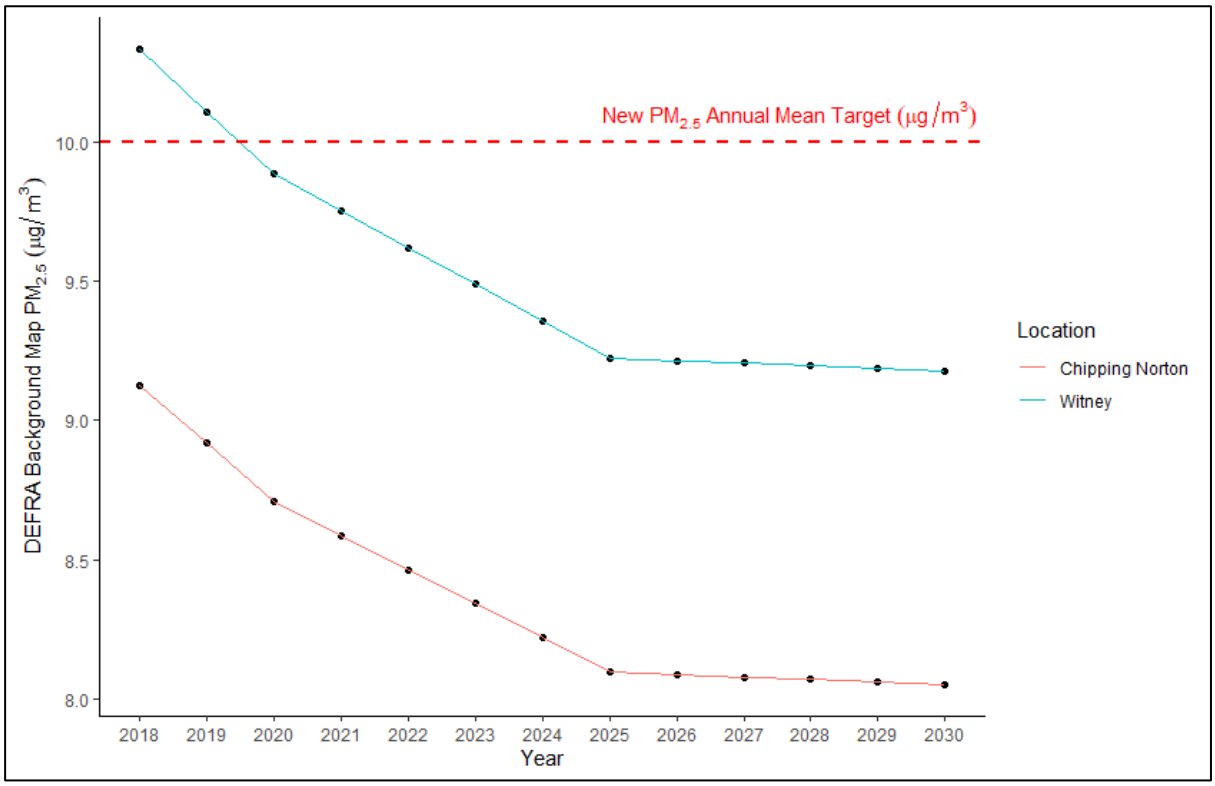
[32] https://davidcarslaw.github.io/openair/

C.3 Results

C.3.1 Annual mean PM2.5 concentration target

Modelled annual mean $PM_{2.5}$ concentrations provided by the Defra background maps for Chipping Norton and Witney are shown for the years 2018 to 2030 in Figure C-2. The plot shows that the background $PM_{2.5}$ concentrations in Chipping Norton and Witney are predicted to be below the new annual mean concentration target of 10 µg/m^3. Chipping Norton and Witney both exhibit similar trends in background annual mean $PM_{2.5}$ concentrations going forward, with higher concentrations predicted in Witney.

Figure C-2: Modelled background annual mean $PM_{2.5}$ concentrations for Chipping Norton and Witney for 2018-2030 using data obtained from Defra background maps. The red dashed line shows the new $PM_{2.5}$ annual mean target of 10 µg/m^3 to be achieved by 2040



The background maps are provided at a 1 km resolution and do not include information on localised air quality impacts within the AQMAs. This section therefore includes a comparison of both background and measured concentrations to provide information on how they relate to each other.

Figure C-3 compares the difference between the measured and background $PM_{2.5}$ annual mean concentrations at the Oxford St. Ebbes AURN site ($PM_{2.5}$ is not currently measured in the AQMAs). As expected for an urban background site, the measured $PM_{2.5}$ concentrations are similar to those provided by background maps and are within 3.35 µg/m^3. The decrease in the measured $PM_{2.5}$ annual mean concentration shown for 2020 and subsequent increase is likely to be the result of the COVID-19 pandemic lockdown measures.

Figure C-3: Comparison of Defra background annual mean $PM_{2.5}$ concentrations (red line) and measured annual mean $PM_{2.5}$ concentrations (blue line) at the Oxford St Ebbes AURN site for 2018 to 2022. The red dashed line shows the new $PM_{2.5}$ annual mean target of 10 µg/m^3 to be achieved by 2040.

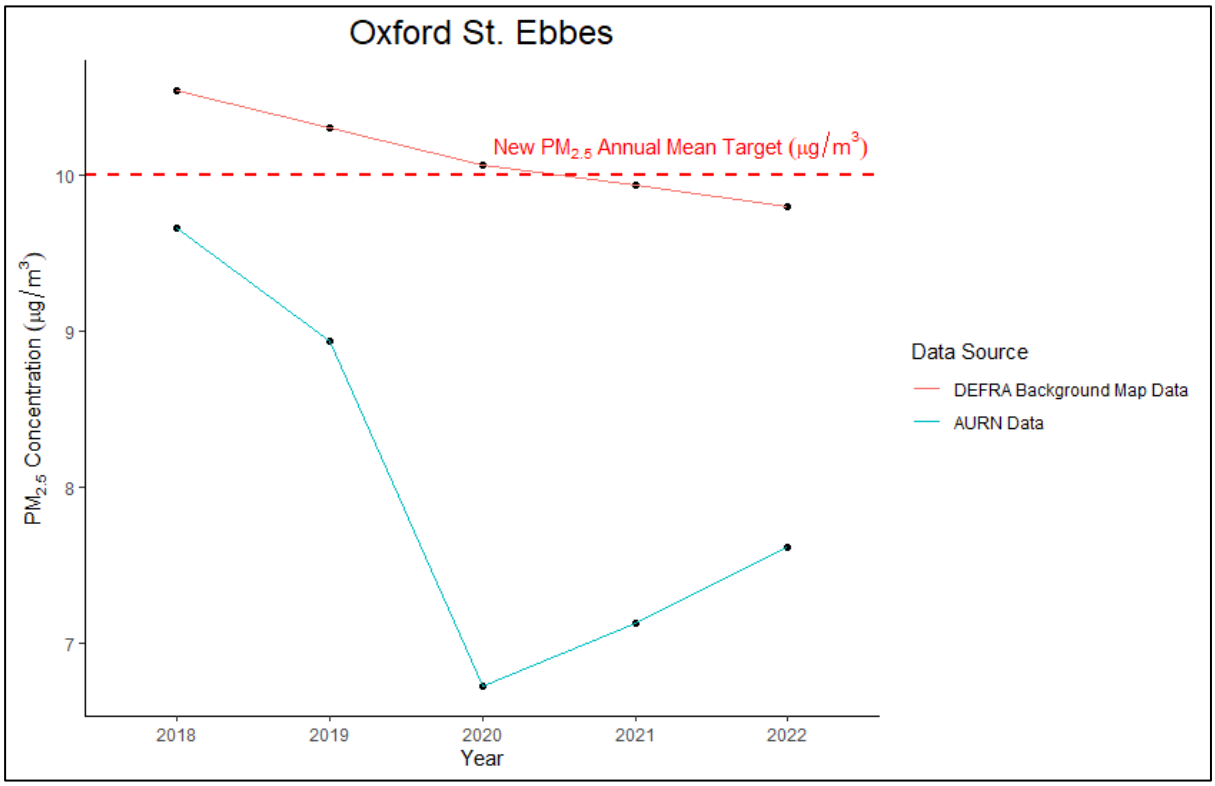
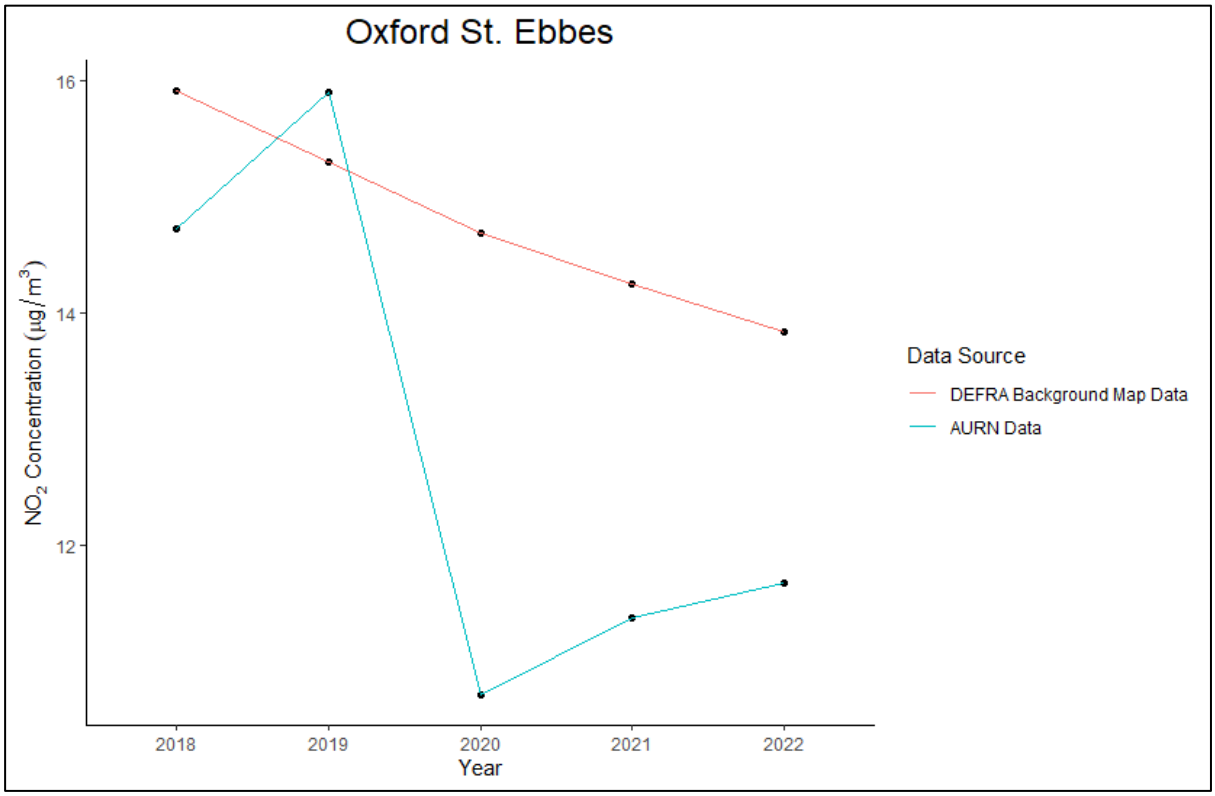


Figure C-4 compares the difference between the measured and background NO_2 annual mean concentrations at the Oxford St. Ebbes AURN site. A similar relationship between background and measured concentrations is observed for both $PM_{2.5}$ and NO_2. The measured NO_2 concentrations are similar to those provide by the background maps (within 1.19 µg/m^3 for 2018 – 2019 and within 3.99 µg/m^3 for 2020 – 2022). The background maps generally over-estimated the NO_2 concentrations except in 2019 where measured NO_2 exceeded the background NO_2 by 0.61 µg/m^3. A decrease was observed in the measured concentrations in 2020.

Figure C-4: Comparison of Defra background annual mean NO_2 concentrations (red line) and measured annual mean NO_2 concentrations (blue line) at the Oxford St Ebbes AURN site for 2018 to 2022.



There is currently no $PM_{2.5}$ monitoring in the Chipping Norton and Witney AQMAs and therefore NO_2 concentrations were used to investigate the relationship between the measured and background modelled concentrations for the AQMAs. The AQMA boundaries of Chipping Norton and Witney and measured NO_2 concentrations are shown in Figure C-5 and Figure C-6. Table C-1 shows the measured annual mean NO_2 concentrations at diffusion tube sites in Chipping Norton and Witney in 2021. As expected, the measured concentrations (16.5 – 38.2 µg/m^3 in Chipping Norton and 26.9 – 37.6 µg/m^3 in Witney) are higher than the background concentrations (6.77 µg/m^3 for Chipping Norton and 8.27 µg/m^3 for Witney) shown in Figure C-7.

Figure C-5: Measured 2021 annual mean NO_2 concentrations at diffusion tube sites in Chipping Norton.

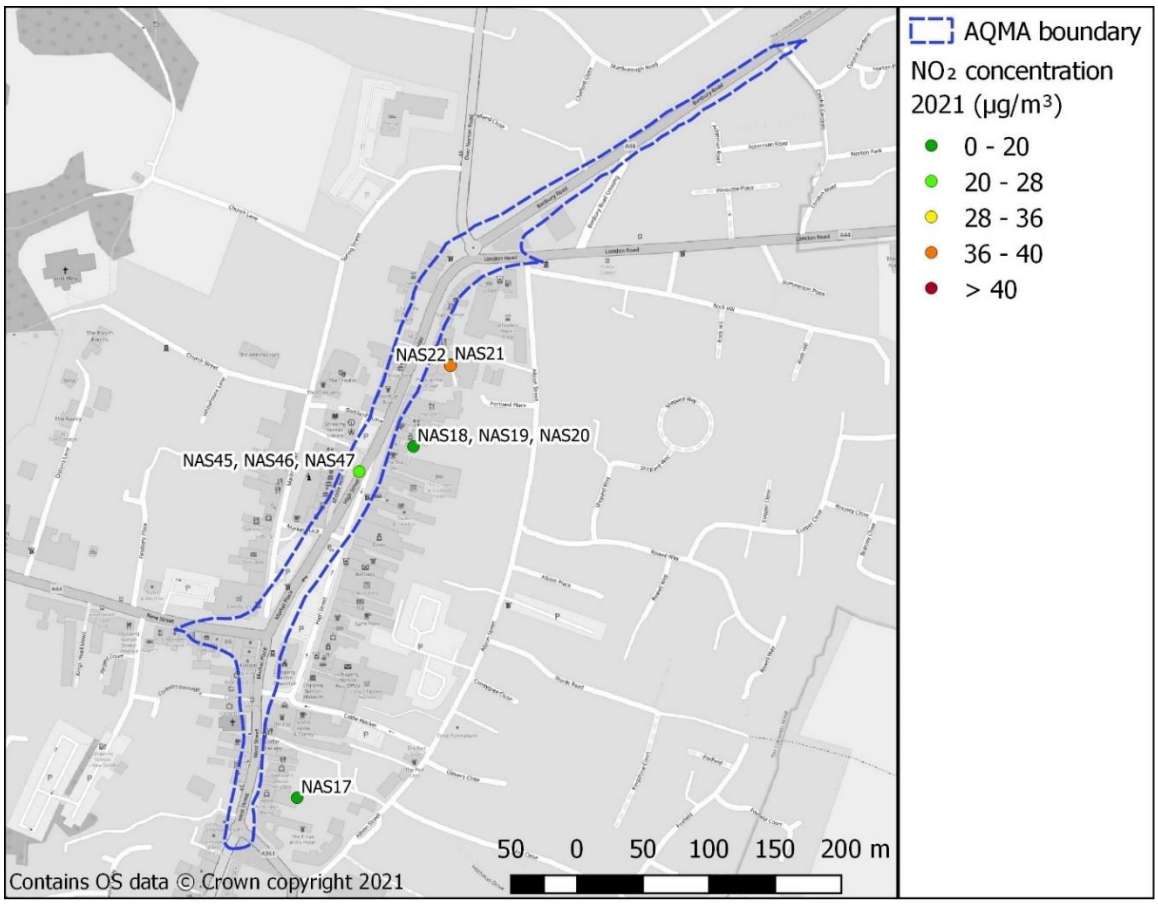


Figure C-6: Measured 2021 annual mean NO_2 concentrations at diffusion tube sites in Witney.

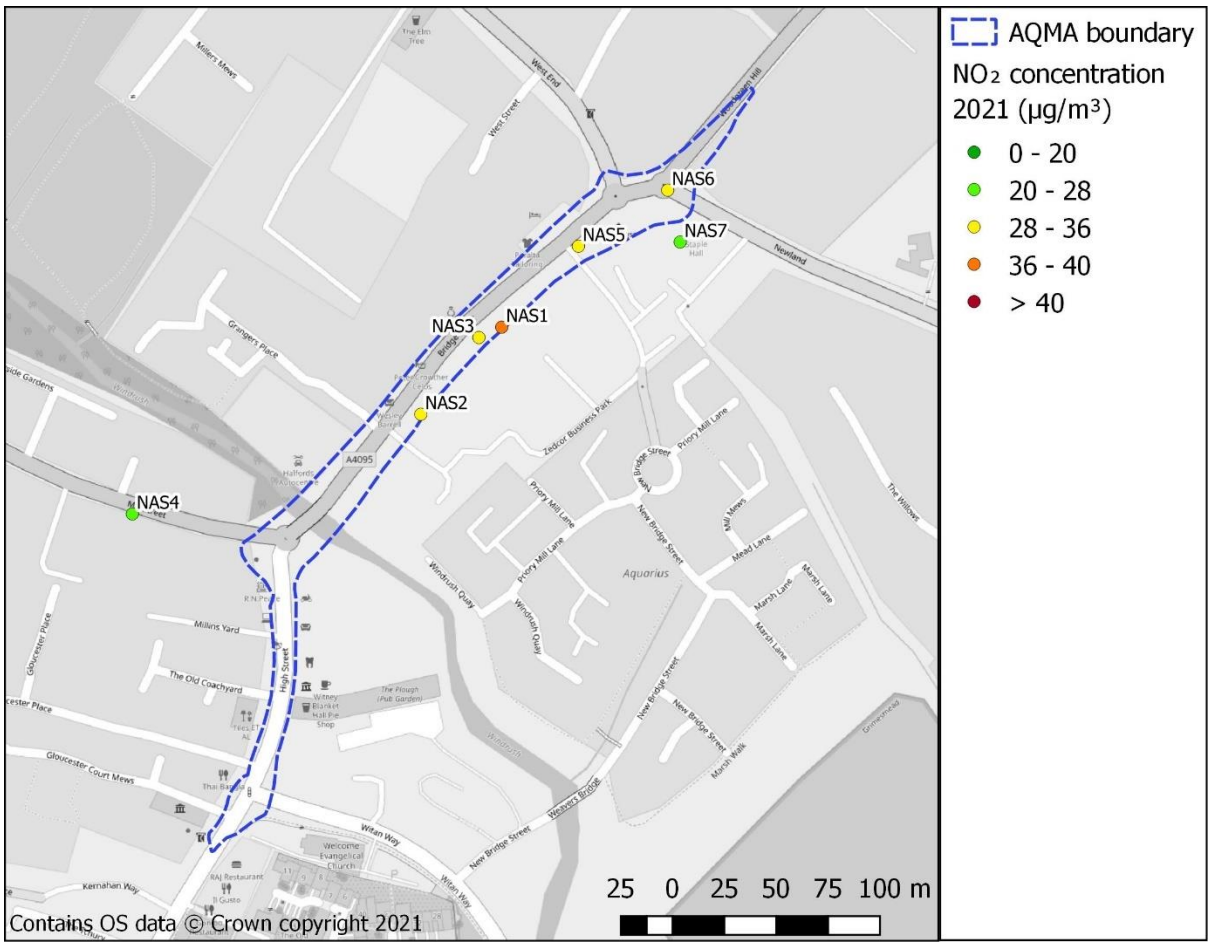
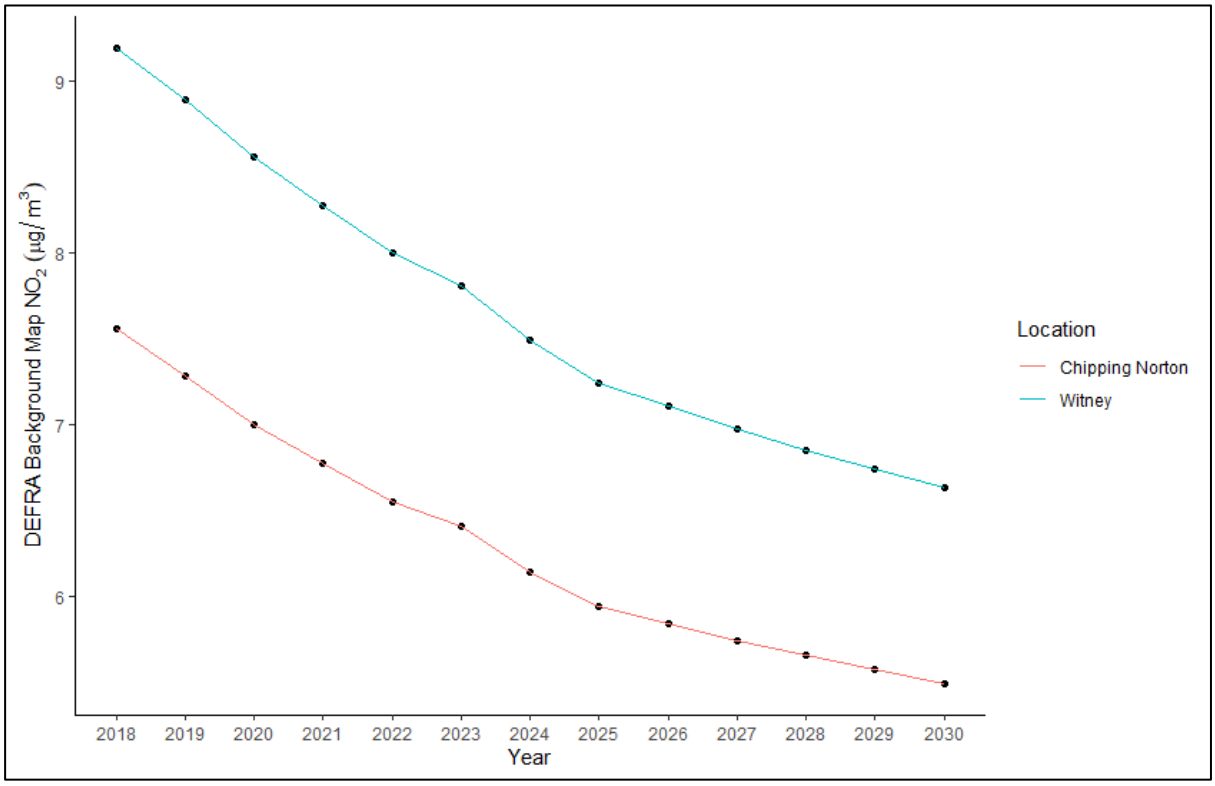


Table C-1: The measured NO_2 annual mean concentrations at locations within the Chipping Norton and Witney AQMAs

Location	Diffusion Tube ID	Annual Mean: Annualised and Bias Adjusted (µg/m³)	Comment
Chipping Norton AQMA	NAS17	18.9	
	NAS18	-	Triplicate Site with NAS18, NAS19 and NAS20 - Annual data provided for NAS20 only
	NAS19	-	Triplicate Site with NAS18, NAS19 and NAS20 - Annual data provided for NAS20 only

	NAS20	19.8	Triplicate Site with NAS18, NAS19 and NAS20 - Annual data provided for NAS20 only
	NAS21	16.5	
	NAS22	38.2	
	NAS45	-	Triplicate Site with NAS45, NAS46 and NAS47 - Annual data provided for NAS47 only
	NAS46	-	Triplicate Site with NAS45, NAS46 and NAS47 - Annual data provided for NAS47 only
	NAS47	24.7	Triplicate Site with NAS45, NAS46 and NAS47 - Annual data provided for NAS47 only
Witney AQMA	NAS1	37.6	
	NAS2	31.8	
	NAS3	35.1	
	NAS4	26.9	
	NAS5	28.4	
	NAS6	29.9	
	NAS7	28.0	

Figure C-7: Modelled background annual mean NO_2 concentrations for Chipping Norton and Witney for 2018-2030 using data obtained from Defra background maps.



Conclusion

The close similarities between the modelled background and measured $PM_{2.5}$ and NO_2 concentrations at the Oxford St. Ebbes AURN site show that the Defra background maps provide a reliable evidence-based indication of how air quality concentrations are likely to change in future years for specified areas. However, as expected, differences between the Defra background maps and measured NO_2 concentrations at the Chipping Norton and Witney AQMAs were observed due to the low resolution of the background maps. Therefore, they do not show localised air pollutant hotspots.

Monitoring of $PM_{2.5}$ within the AQMAs would provide additional and more localised information on $PM_{2.5}$ concentrations and how they are likely to change in the future.

C.3.2 Population exposure target

A population exposure baseline for $PM_{2.5}$ of 10.5 µg/m^3 was calculated for 2018 as a three-year average (2016 – 2018) of measurements made at the Oxford St. Ebbes AURN site. A 35% reduction in population exposure, in line with the population

exposure target would therefore equate to a 3.7 µg/m^3 reduction in $PM_{2.5}$ and a measured concentration of 6.8 µg/m^3 by 2040.

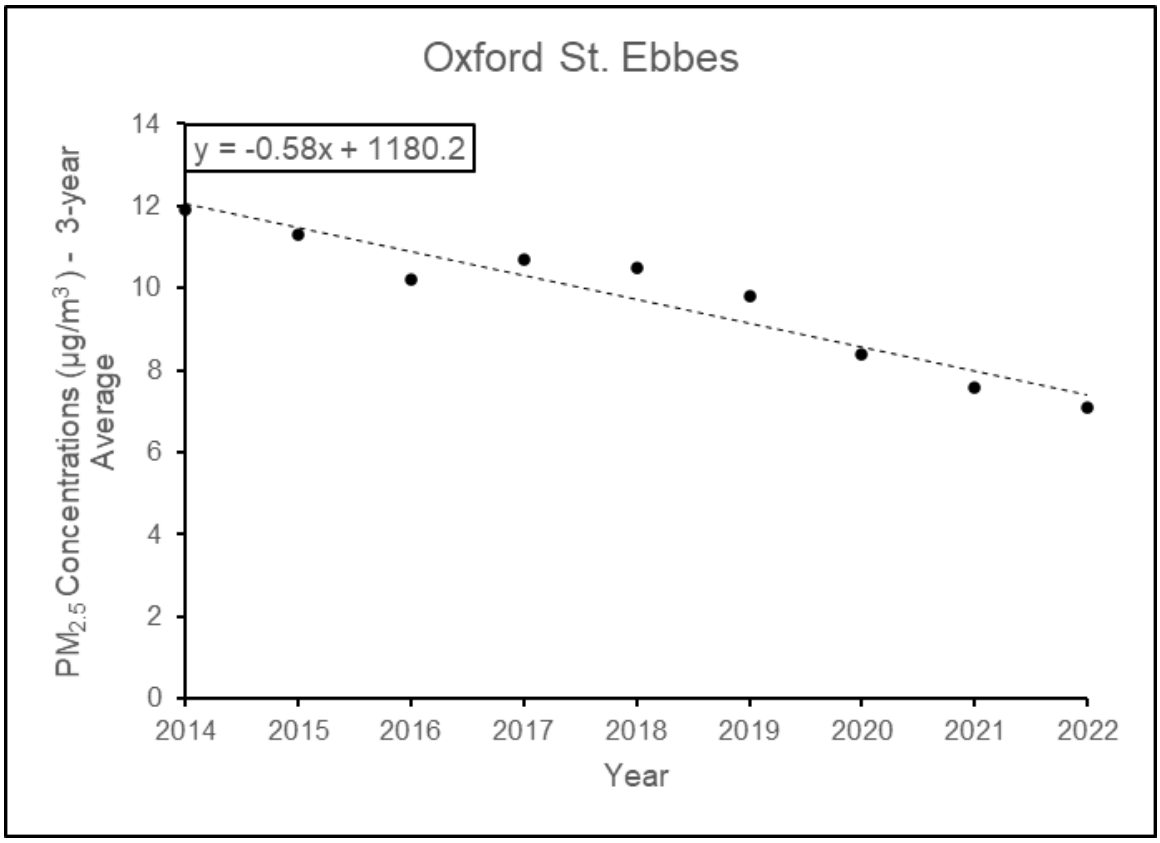
The three-year annual mean concentrations for $PM_{2.5}$ from 2014 to 2022 are shown in Table C-2 and Figure C-8. The most recent three-year annual mean concentration for $PM_{2.5}$ measured at Oxford St. Ebbes between 2020 – 2022 was 7.1 µg/m^3. A further reduction of 0.3 µg/m^3 would therefore be required to meet the population exposure target by 2040.

This section looks at trends in the measured $PM_{2.5}$ concentrations at the Oxford St. Ebbes site and emissions projections from the National Atmospheric Emissions Inventory (NAEI) and considers how likely the 6.8 µg/m^3 target is to being achieved by 2040.

Table C-2: Three-year averages of measured $PM_{2.5}$ concentrations at Oxford St. Ebbes from 2014 – 2022

	2014 *(01/01/2012 – 31/12/2014)*	2015 *(01/01/2013 – 31/12/2015)*	2016 *(01/01/2014 – 31/12/2016)*	2017 *(01/01/2015 – 31/12/2017)*	2018 *(01/01/2016 – 31/12/2018)*	2019 *(01/01/2017 – 31/12/2019)*	2020 *(01/01/2018 – 31/12/2020)*	2021 *(01/01/2019 – 31/12/2021)*	2022 *(01/01/2020 – 31/12/2022)*
3-year average $PM_{2.5}$ concentration (µg/m^3)	11.9	11.3	10.2	10.7	10.5	9.8	8.4	7.6	7.1

Figure C-8: Scatterplot of the three-year averages for $PM_{2.5}$ concentrations at Oxford St. Ebbes, AURN site. The linear regression equation is shown, and denotes a decreasing trend in $PM_{2.5}$



The three-year average $PM_{2.5}$ concentrations measured at Oxford St. Ebbes are shown in Figure C-8. The regression line and equation show a decreasing trend in the three-year averages from 2014 – 2022. The gradient of the line is -0.58 which indicates that on current trends, the required reduction of 0.3 µg/m^3 is likely to be met by 2040. However, the marked decrease from 2020 – 2022 is likely to be due to the effect of COVID-19 lockdown restrictions taking place in one or more of the averaged years.

To further investigate whether the 6.8 µg/m^3 target is likely to being achieved by 2040, trend-estimates were calculated from hourly $PM_{2.5}$ concentrations from the Oxford St. Ebbes site. Trend-estimates were calculated the Theil-Sen method included in the open-air package in R. Plots were produced for the last six and 10 year, to determine the short- and longer-term trends in $PM_{2.5}$ concentrations measured at the sites. Both plots shown in Figure C-9 and Figure C-10 showed a statistically significant downward trend. The six-year plot showed an estimated downward trend of –1.28 µg/m^3 per year, whilst the 10-year plot showed an estimated downward trend of –0.6 µg/m^3 per year. The larger decrease in $PM_{2.5}$ concentrations per year within the 6-year plot could again be associated with the COVID-19 lockdown measures and their effect on $PM_{2.5}$

concentrations, hence the 10-year plot reduction in $PM_{2.5}$ concentrations per year may be considered more indicative of future trends.

Figure C-9: De-seasonalised Theil-Sen trend estimate of $PM_{2.5}$ mean concentrations throughout the past 6 years, at Oxford St. Ebbes urban background site. The solid red lines show the trend estimate and the dashed red lines show the 95 % confidence intervals for the trend. The overall trend is shown to be –1.28 µg/m^3 per year. The 95 % confidence limits are stated in the square brackets. The trends are significant to the 0.001 level

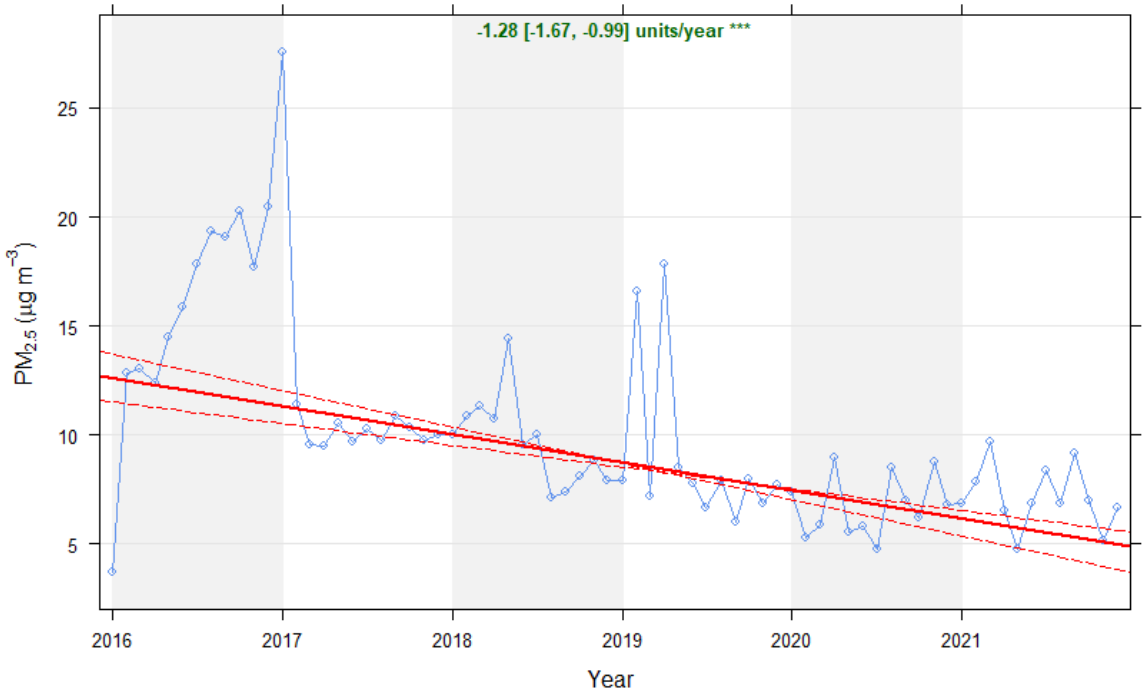
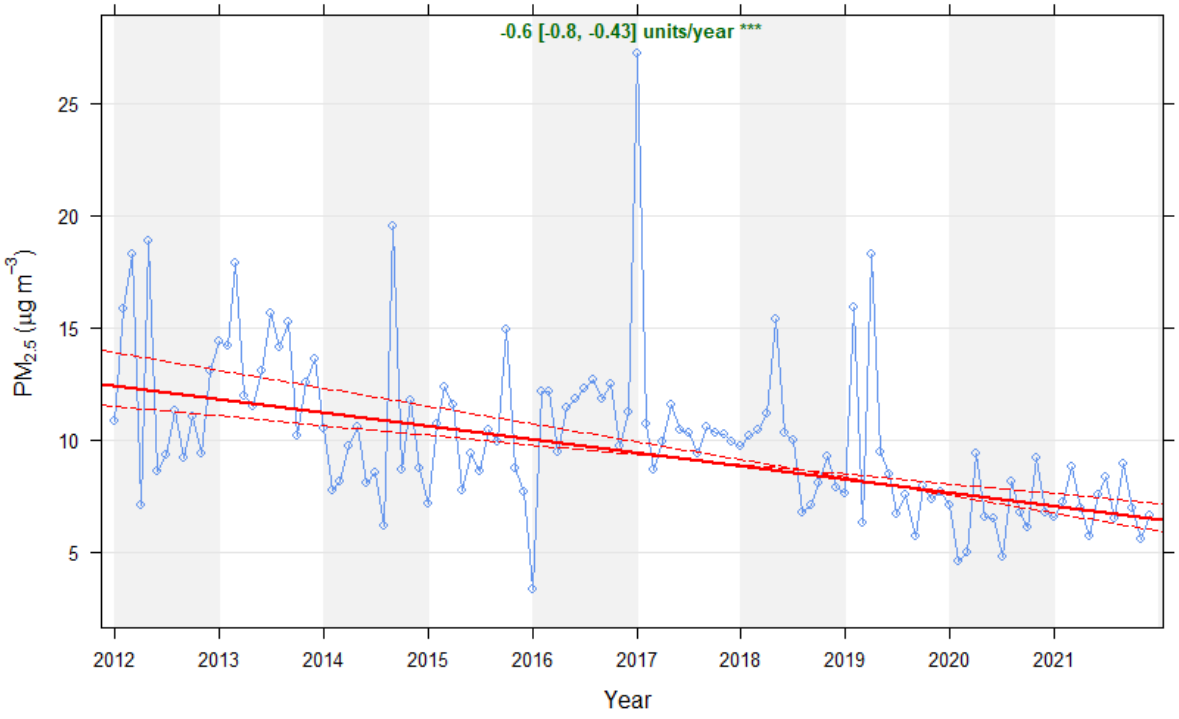
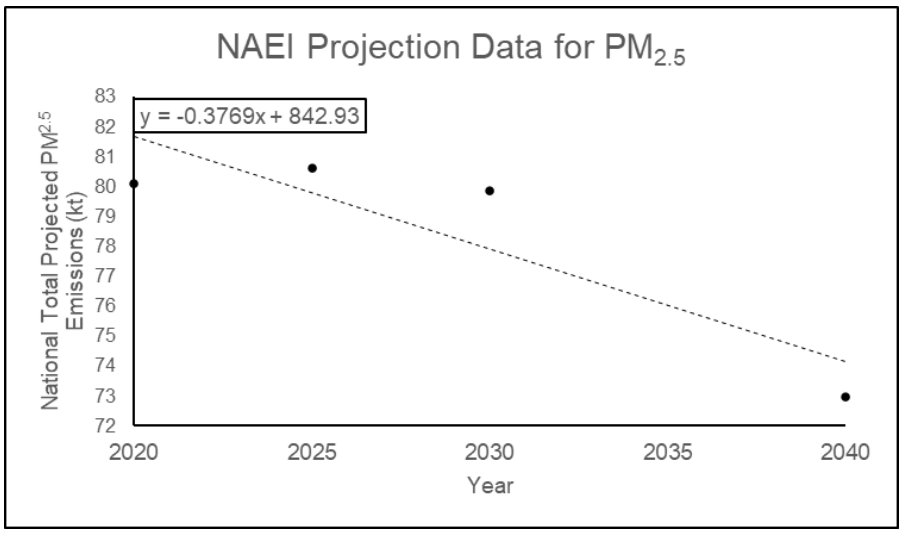


Figure C-10: De-seasonalised Theil-Sen trend estimate of PM2.5 mean concentrations throughout the past 10 years, at Oxford St. Ebbes urban background site. The solid red lines show the trend estimate and the dashed red lines show the 95% confidence intervals for the trend. The overall trend is shown to be –0.60 µg/m^3 per year The 95% confidence limits are stated in the square brackets. The trends are significant to the 0.001 level



Likely future trends in pollutant concentrations can also be predicted using emissions inventory projections. The Defra background maps applied to the source apportionment (Section 3.3), are derived from the national PCM model which uses emissions projections from the National Atmospheric Emissions Inventory (NAEI). The NAEI calculates and reports on the quantity of pollutants that are emitted to air. This impacts on the concentrations of pollution in the air, although there is not a direct relationship between the two as concentrations can be affected by weather patterns, chemical transformations, and pollutants emitted elsewhere. Figure C-11 shows the national emission projections for $PM_{2.5}$ for the years 2020, 2025, 2030 and 2040. A decrease in emissions of 8.9% is predicted between 2020 and 2040 and 9.5% between 2025 and 2040.

Figure C-11: Scatterplot showing the national total projected $PM_{2.5}$ emissions (kt) for the UK taken from the National Atmospheric Emissions Inventory report



Emissions of pollutants are also provided in the form of UK maps which give emissions of various pollutants on a 1 x 1 km resolution. Maps are currently available for 2020. The total $PM_{2.5}$ emissions from sources contained within the boundaries for Chipping Norton and Witney were 4.71 tonnes/km^2 and 16.81 tonnes/km^2 respectively.

Conclusion

A population exposure baseline for $PM_{2.5}$ of 10.5 µg/m^3 was calculated for 2018 as a three-year average (2016 – 2018) of measurements made at the Oxford St. Ebbes AURN site. A 35% reduction in population exposure, in line with the population exposure target would therefore equate to a 3.7 µg/m^3 reduction in $PM_{2.5}$ and a measured concentration of 6.8 µg/m^3 by 2040.

Analysis of the three-year averages of measured $PM_{2.5}$ concentrations at Oxford St. Ebbes from 2014-2022 shows that there is a decreasing trend for $PM_{2.5}$ concentrations with a gradient of –0.58 µg/m^3 per year. Analysis of the most recent six and 10 years of hourly data recorded at the site also shows that there is a decreasing trend for $PM_{2.5}$ concentrations with a trend-estimate of –1.28 and –0.60 µg/m^3 per year respectively. This is in line with national emissions projections which show a decrease in $PM_{2.5}$ emissions of 8.9% and 9.5 % and between 2020 – 2040 and 2025 – 2040 respectively.

Appendix D Steering Group Workshop minutes

D.1 Witney (28th February 2023)

Witney Air Quality Action Plan Steering Group Meeting Minutes

Date: 28/02/2023

Time: 10:00 – 12:00

1. Participants

Ricardo Team

1. Tom Adams – Principal Consultant
2. Abigail Pepler – Senior Consultant
3. Ella Wingard – Consultant
4. Melissa Nikkhah-Eshghi – Analyst Consultant

Witney Steering Group

	Name	Organisation/Position
1	Andrew Prosser	Witney District Councillor for Witney North, Town Councillor, Cabinet for Climate Change
2	Chris Ashley	Road Haulage Association
3	David Rudland	WODC Air Quality Officer
4	Katharine Eveleigh (Kate)	OCC Health Improvement Practitioner
5	Kevin Arnold	Windrush bike project
6	Jackie McLaren	Pollution Team District Council
7	Janice Bamsey	Principal Planner in Planning Policy
8	Karen Toomer	WODC Senior Manager
9	Lidia Arciszewska	WODC Member for the Environment
10	Liz Duncan	Witney Town Council Member
11	Louise Croot	Deputy Climate Manager
12	Odele Parsons	OCC Highways
13	Philip Measures	WODC Senior Manager
14	Rhys Williams	Road Haulage Association, Regional Operations Manager
15	Richard Martin	Business Representative, Committee group member of the Chamber of Commerce
16	Susan McPherson	WODC Senior Air Quality Officer

2. **Agenda and speakers *[Tom Adams, Ricardo]***
   - Welcome and introductions – Tom
   - Air quality context and overview - Melissa
   - Defra guidance and AQAP background – Tom
   - Source apportionment and emissions – Ella
   - Discussion of potential measures – Abigail

3. **Air Quality Context *[Melissa Nikkhah-Eshghi, Ricardo]***
   - Provided an overview of health impacts of air quality
   - Information on sources of about NO_2, NOx, PM_{10} and $PM_{2.5}$
   - New $PM_{2.5}$ targets (10 µg/m^3 or less by 2040, 35 % reduction in population exposure compared to 2018 baseline, by 2040)
   - $PM_{2.5}$ assessment in Witney to see if targets will be met. The lack of $PM_{2.5}$ measurement data meant urban background measurement data used from Oxford St. Ebbes as well as Defra background maps. It seems that targets will be met, but uncertainties as data used cannot capture $PM_{2.5}$ in pollution hotspots like AQMAs.

4. **Project Background *[Tom Adams, Ricardo]***
   - Provided an overview of the air quality action plan process and what is required. Action plan measures should be SMART.
   - The local air quality management criteria could act as a checklist for local authorities; the impact of some of measures needs to be quantifiable, will achieve this for witney through using the air quality model Ella has constructed.
   - Run through the report layout. Details will be provided to steering group members, and how it has contributed to the implementation of the plans. Minutes of these sessions will be in the appendix of the report. This is a part of the process Defra like to see evidenced.
   - Review of measures included 52 existing measures and 62 measures in total, 11 new thinking measures which will form a key part of our discussions today.

4) Discussion: Councils Role in Reduction in Air Pollution and its Health Effects

Richard Martin- First part: the entire thing is this a real or is this a compliance issue? Do councils address measures? Do they have to do it then put it [the action plan] away in a drawer and forget about it? All the data we come up with, is about the data where someone who has decided on levels that cause issues. Is there any real effect of air pollution in Witney that we can, see? I've never noticed any problems. You say there's a problem because it exceeds a number, but is there actually a problem are real people who are really suffering?

Tom Adams- Firstly, implementation of AQAP, the measures will be implemented. It is a living document, it will be revised and adapted, keeping an eye on measures to see if they've been implemented.

Richard Martin- How many measures have been implemented or not? Across plans in general?

Tom Adams- Every local authority has an action plan. From my experience we see evidence of measures being implemented; they are a really useful tool to improve AQ in area. Is there an AQ issue in Witney, the measurements Ella showed, the concentration is above AQ objectives. These legal limits are set based, levels of pollutants that are harmful to health on the long term. If you have a pollutant concentration above or close to objective. Negative implications to human health. World Health Organisation (WHO) has done studies on impact of air pollution. The WHO have set limits that are lower than the legal limits, due to health impacts associated to this.

Richard Martin- Have the health effects been researched on people in Witney?

Abigail- There is an extensive evidence base to back that up.

4) Chat Box Discussion- Health Impacts of AQ and Limit Values

[10:42] Eveleigh, Katharine - Oxfordshire County Council

On the question of impacts on health the Chief Medical Officers report outlines the impacts on health and the evidence. https://www.gov.uk/government/publications/chief-medical-officers-annual-report-2022-air-pollution

For Oxfordshire page 269 of the Joint Strategic Needs Assessment has some figures.
https://insight.oxfordshire.gov.uk/cms/system/files/documents/JSNA2022_Full_Oct22.pdf

[10:52] Richard Martin

With respect, Ms Eveleigh, most of the report you cite is about further reducing emissions in order to promote other objectives. Of course, one can justify using all sorts of peripheral evidence to promote laudable causes, but it is important not to confuse the one with the other. For instance the 'anti car movement' uses all sorts of evidence, including air pollution data, to further its cause, but it

5. AQ Modelling and Source Apportionment *[Ella Wingard, Ricardo]*

- 7 monitoring sites around AQMA, Bridge Street, Junction near Bridge Street
- Decrease in NO_2 concentrations, artificially low because of COVID-19 impacts. Using 2019 as it's the most recent year before pandemic.
- Where are the NOx emissions coming from 50 % rural sources naturally occurring background concentrations, road transport a quarter of NOx concentrations
- The breakdown of NOx emissions in Witney in 2019, traffic count data speed data, travel model, largest contributor diesel cars 48 %, diesel LGVs, 23 % = 71 % emissions
- Comparison of graph to the annual average daily traffic flow count – contribution of HGV to air pollution is disproportionate
- Really detailed model of the pollution scene in Witney
- Canyon like environment where pollution builds up; Witney is impacted by street canyon effect
- The output map shows 1 m resolution of NOx in Witney and measured NO_2 concentrations overlaid. Model in good agreement with measured NOx and able to capture exceedances well and street canyon effect
- Model is ready to run some scenarios of AQ measures. Also run for $PM_{2.5}$ and PM_{10} to determine likely impact of measures.

5) Discussion: HGVs in Source Apportionment

Chris Ashley- A note on HGVs being disproportionately causing emissions, but they don't contribute much to traffic. Slightly concerned on the HGV narrative developing here, need to understand the bigger picture. Whilst AQ is important, equally other factors like running an economy. Using 2019 in the model data, technology is improving, emissions reducing from HGVs got to be careful about understanding trends.

Tom Adams- It is important to clarify that. The point relating to HGVs, despite small HGV flow, the contribution to emissions forms a significant part of the pie chart. I wouldn't want that to be perceived we were pointing fingers at HGVs.

5) Discussion: Rural Contributions in NOx

Chris Ashley- Can some clarification be given on what does rural mean in NOx emissions? Naturally occurring background NOx or PM from naturally occurring cosmic dust. I'm not disputing where we can reduce emissions. We need to be careful not to be over-zealous and finding the balance going forward.

Abigail Pepler- Rural class of emissions is quite broad as it's from a national model, the rural component encapsulates naturally occurring and agricultural sources of NOx, it's difficult to separate the two at national modelling level.

5) Discussion: Data Used in AQ Modelling

Lidia Arciszewska- We are in 2023, how valid is it to use 2019 as a baseline for whatever we want to do.

Abigail Pepler- I can let Susan and David let you know what the 2022 data is looking like. To revoke an AQMA, you need 3-5 years evidence levels have been more than 10 % lower than the target value. An AQAP would be needed beyond this point. Additionally from 2023 all local authorities need to produce a AQ Strategy even when they don't have an AQMA, therefore this AQAP could form the basis of an AQ Strategy in the event the AQMA is revoked if concentrations continue to improve.

David Rudland- We have figures showing the 2022 levels are below 2019 levels, waiting for central government adjustment figures. If you're interested, I can show draft figures.

Tom Adams- 2019 is being used for modelling, to assess the impact of model, with or without measures, to get an indication of impact. We will use most up to date measurements in the plan, for most up to date image for Witney Good news on declining concentrations.

Lidia Arciszewska- The most important thing to understand the trend is going down. Are we including that into modelling or whatever we are doing.

Tom Adams- We just want to get a difference of a situation with or without measures. Yes, we will use that, broad answer, baseline year 2019, we will then relate to most current situation. It will reflect current AQ situation.

Lidia Arciszewska- There are no $PM_{2.5}$ measurements in Witney, how will we get data will it be extrapolation from national levels?

Tom Adams- We use national emission factors, how many vehicles on road in Witney and how much $PM_{2.5}$ and PM_{10} they emit at different speeds, so we can model the emissions from vehicles. Non-road source national modelling to inform that. In an ideal world we would verify on $PM_{2.5}$ measurements, we can use the adjustment from NOx can ensures modelled $PM_{2.5}$ concentrations are accurate.

Lidia Arciszewska- How did you decide the sources in Witney, e.g., HGVs?

Tom Adams- Traffic count data, average speed, national emission factors, which tell us the amount of emission that come from certain vehicle types at different speeds. Tells us emissions on roads.

Lidia Arciszewska- Thank you

Abigail Pepler- We can send an email for clarification if you would like.

6. Discussion of Measures *[Abigail Pepler, Ricardo]*

6a. Priorities in AQAP

- Run through new developments planned housing in grey, status is that the land has been allocated and secured, planning permission has not been secured.

Certainly, work underway to consider how this can be developed. Transport projects working with developers. Improvements Shores Green Junction the eat witney planning application.

- Local transport plan for West Oxfordshire including Witney conducting options appraisal study in progress and no preferred solutions yet.
- Doesn't come under jurisdiction of this AQAP.
- AQAP need to have key priorities for action areas. Usually at least 3 but can be more. We've provided some suggestions and welcome feedback:

1) Bringing Witney AQMA for NO_2 into compliance – should be easy considering decreasing trend
2) Managing $PM_{2.5}$ exposure – $PM_{2.5}$ assessment, monitoring, specific actions to target $PM_{2.5}$
3) Improving accessibility into and around Witney by alternative to private car – i.e. walking, cycling and public transport

Possible additional or alternative priorities could be

4) Improving AQ around schools
5) Reducing emissions from freight

6b. Modal Shift to Active Travel

Most of the measures we have collated from local and regional policies and strategies relate to modal shift, loads of work being done regional and local, strategy. The focus of the discussion should be on where we can go further, such as measures set at regional level which are quite broad and general, how can we apply the actions to Witney? If anyone knows of more specific work being done or has suggestions let us know. Highlight of some feedback from stakeholders in Witney such as suggestions of expansion of Windrush bike project to operate in libraries, last mile bike hire or park and cycle parks and carparks and bike racks, prioritisation on mini-roundabout junction in AQMA.

6b. Chat Box Discussion- Modal Shift to Active Travel

[10:46] **Chris Ashley**

On 20mph roads - important to note that emissions from HGVs increase below 30mph due to the mechanical need of changing gears to keep the vehicle moving.

On 20-minute neighbourhood plans, RHA has no objection to the principle - however, effective planning is needed to ensure the facilities/amenities the public expect within a 20-minute neighbourhood can be serviced by logistics firms.

[10:58] **Richard Martin**

Yes, it would certainly be easier to indoctrinate children into 'healthy habits' than persuade adults to change from doing the things they like.

[11:01] **Adams, Thomas**

This website contains some previous examples of raising awareness of air quality in schools across the UK https://laqm.defra.gov.uk/air-quality/action-planning/raising-awareness-education/

D.2 Chipping Norton (1st March 2023)

Chipping Norton Air Quality Action Plan Steering Group Meeting Minutes

Date: 01/03/2023

Time: 10:00 – 12:00

7. Participants

Ricardo Team

5. Tom Adams – Principal Consultant
6. Abigail Pepler – Senior Consultant
7. Ella Wingard – Consultant
8. Melissa Nikkhah-Eshghi – Analyst Consultant

Other Participants

	Name	Organisation/Position
1	Chris Ashley	Road Haulage Association, Policy Manager
2	David Rudland	WODC, Air Quality Officer
3	Katharine Eveleigh (Kate)	OCC, Health Improvement Practitioner
4	Jackie McLaren	WODC, Pollution Team, Senior Officer
5	Philip Measures	WODC, Senior Manager
6	Rhys Williams	Road Haulage Association, Regional Operations Manager
7	Susan McPherson	WODC, Senior Air Quality Officer
8	Bob Skillern	Gloucestershire County Council, Area Manager

9	George Sloan	Oxfordshire, Stagecoach
10	Kim Hudson	WODC Planning Policy Team, Principal Planner
11	Natalie Moore	OCC, Highways
12	Karen Toomer	WODC, Principal Officer

8. Overview of Air Quality Context *[presented by Melissa Nikkhah-Eshghi, Ricardo]*

- Health impacts of air quality
- Information on sources of about NO_2, NOx, PM_{10} and $PM_{2.5}$
- New $PM_{2.5}$ targets (10 µg/m^3 or less by 2040, 35 % reduction in population exposure compared to 2018 baseline, by 2040)
- $PM_{2.5}$ assessment in Chipping Norton to see if targets will be met. The lack of $PM_{2.5}$ measurement data meant urban background measurement data used from Oxford St. Ebbes as well as Defra background maps. It seems that targets will be met, but uncertainties as data used cannot capture $PM_{2.5}$ in pollution hotspots like AQMAs.

9. Project Background *[presented by Tom Adams, Ricardo]*

- Provided an overview of what the air quality action plan should include and how we apply it to Chipping Norton.
- Action plan is required by LAQM framework. It is a live document reviewed and developed, to ensure current measures are progressing and new measures are being brought forward.
- Get stakeholders involved in development and adoption of measures.
- Most effective action plans follow a step-by-step approach which enable suitable measures to be developed, detailed evidence base and with local knowledge and collaboration.
- SMART measures
- Main criteria listed under environment act, which is a checklist for our plan
- Quantification required- Will achieve this for Chipping Norton through using the air quality model Ella has constructed.
- Feasibility, cost-effectiveness, council collaborations with organisations, clear timescales and whether measures will meet AQ objectives.
- Report template available on LAQM website we will use this. We are in the development and implementation of action plan phase. Minutes of these sessions will be in the appendix of the report. Recent feedback shows this is a part of the process that is highly valued so they would like it evidenced.
- Team has done a review of extensive measures 59 measures in the longlist, 47 from existing policies and strategies. Following the workshop the longlist will be refined to a shortlist.

4) Chat Box Discussion- Useful Documents

[10:25] **Eveleigh, Katharine - Oxfordshire County Council**

In development is an Air Quality Strategy for the County Council, due to be published in June, if that might be useful to have a draft version of?

[10:26] **Pepler, Abigail**

That would definitely be helpful if a draft could be made available to us.

10. AQ Modelling and Source Apportionment *[Ella Wingard, Ricardo]*

- 6 monitoring sites around AQMA along West Street Marketplace, High St. Horse Fair and part of Banbury Road

- Decrease in NO_2 concentrations, artificially low because of COVID-19 impacts. Using 2019 as it's the most recent year before pandemic.
- Where are the NOx emissions coming from 60 % rural sources naturally occurring background concentrations and agriculture, road transport 20 % of NOx concentrations
- Diesel HGVs accounted for 15 % of emissions largest contributor to NOx, despite only making up 4 % of the fleet
- Comparison of graph to the annual average daily traffic flow count – contribution of HGV to air pollution is disproportionate
- Really detailed model of the pollution scene in Chipping Norton
- Canyon like environment where pollution builds up in Horsefair which was near monitoring site that exceeded NO_2 in 2019. This road and others impacted by street canyon.
- The output map shows 1 m resolution of NOx in Chipping Norton with measured NO_2 concentrations overlaid. Model in good agreement with measured NO_2 and able to capture exceedances well and the street canyon effect.
- Model is ready to run some priority AQ measures. Although we don't have local measurement data to verify against, we will model $PM_{2.5}$ and PM_{10}.

5) Discussion: HGVs Narrative in Source Apportionment

Chris Ashley- Concerned about HGV narrative and disproportionate emissions. Putting that into context, we do not dispute pollution comes from HGVs, but we need to have sensible policies in place to achieve that. We need to remember trends, this is old data, vehicles have been replaced, we can show charts where emissions have massively dropped. In spirit, in working together and solving issues, I want to flag the anti-HGV narrative.

Ella Wingard- Diesel cars and LGV also contribute, I just wanted to point out that HGVs contribute a small amount to the fleet composition but have high NOx emissions relative to that but they're still something we can consider.

Abigail Pepler- Not ideal to use 2019 data, but latest full and reliable year available due to COVID-19 effects in 2020 and 2021.

Chris Ashley- No I agree with you on that just one final point here is the big picture stuff. We have an economy to run, and we need to balance various outcomes, so that everyone is benefited.

Abigail Pepler- Useful points, good to understand different perspectives.

Philip Measures- Success of this depends on sensible and proportionate measures in this process. We are not relying solely on old data; the whole point of modelling is to project what the future emissions will be to see the benefit of measures we are looking at.

Kim Hudson- I agree we shouldn't point the finger at one source e.g., cars or HGVs. It's looking at all measures and a combination of actions to improve AQ. We should focus on things we can change and easy wins as well as longer term measures. We need to link benefits of better AQ to the economy to improve people's health through active travel. Looking at a holistic approach to improving AQ. Just wanted to make that point.

Abigail Pepler- Thanks Kim, as we go on you will see we have a wide range of measures targeting different areas.

5) Chat Box Discussion: HGVs

[10:35] Rhys Williams CMILT

Cars are a much bigger issue than HGV's, maybe the focus should be looking at that issue, rather than the HGVs, which are actually essential to the economy.

11. Discussion of Measures *[Abigail Pepler, Ricardo]*

6a. Priorities in AQAP

Housing development in East Chipping Norton which may bring about challenges such as increased traffic.

AQAP need to have key priorities can be at least 3 but can be more. We've put some suggestions and welcome feedback:

6) Bringing Chipping Norton AQMA for NO_2 into compliance
7) Managing $PM_{2.5}$ exposure
8) Improving accessibility into and around Chipping Norton by alternatives to private car – i.e. walking, cycling and public transport

Possible additional or alternative priorities could be

9) Improving AQ around schools
10) Reducing emissions from freight

6b. Modal Shift to Active Travel

Most work done on modal shift, loads of work being done regional and local, strategy. What's being done is: strategic active travel network project to identify new routes, key routes to prioritise, green ways, healthy streets approach, 20 mph roads, and design check tool. A lot of this is from existing district and strategies so good to hear from you all about priorities in Chipping Norton, what is not particularly well served in terms of cycling route and challenges with local topography with narrow streets.

6b) Chat Box Discussion- Modal Shift to Active Travel

[10:40] **Eveleigh, Katharine - Oxfordshire County Council**

With the new houses being built, are there plans to not use gas boilers and not install wood burners?

[10:41] **Moore, Natalie - Oxfordshire County Council**

A Local Cycling and Walking Infrastructure Plan (LCWIP) is also in development for Chipping Norton

[10:41] **Eveleigh, Katharine - Oxfordshire County Council**

Is there scope on the active travel to include activation projects, rather than just infrastructure changes, how will residents' behaviour be supported to use them.

[10:41] **Moore, Natalie - Oxfordshire County Council**

A Local Cycling and Walking Infrastructure Plan (LCWIP) is also in development for Chipping Norton

[10:41] **Eveleigh, Katharine - Oxfordshire County Council**

Is there scope on the active travel to include activation projects, rather than just infrastructure changes, how will residents' behaviour be supported to use them.

[10:43] **Eveleigh, Katharine - Oxfordshire County Council**

Re the topography, would e-bikes help? I note this slide is similar to Witney and one might prioritise this over "normal" bikes.

[10:45] **Chris Ashley**

Two points to make (also made yesterday with regards to Witney) - 1) Important to recognise that with 20mph roads, emissions from HGVs go up when travelling under 30mph due to the mechanical gear changes needed to keep the vehicle moving. 2) 20-minute neighbourhoods - no objection to the principle but effective local planning is needed to ensure that facilities/amenities expected by the public can be serviced by logistics firms.

[10:46] **Susan McPherson**

Mark should have been here - I have emailed him to see if he can join - it is unfortunate we don't have any representative from Chipping Norton itself.

[10:48] **Moore, Natalie - Oxfordshire County Council**

I can take the query regarding Mobility Hubs back to my team leader as our team are involved in one near to Woodstock

6b) Discussion: Modal Shifts in Active Travel

Chris Ashley- Bear in mind 20mph roads emissions for HGVs go up if they travel under 30mph, down to mechanics. 20-minute neighbourhood plans, we support that, but effective planning is required, need to make sure facilities and amenities can be serviced by logistic firms.

Philip Measures- I take the point Chris makes and it should be considered how to smooth the traffic rather than the speed limit. How best to smooth traffic flow, is there a natural speed limit anyway in Chipping Norton and Witney, that vehicles can't do much more than 20mph anyway because of the nature of traffic going through.

Abigail Pepler- Kate has mentioned in the chat, is there scope on active travel? That's a good point and it would be interesting to if anyone has opinions on what the uptake would be on active travel, as well as infrastructure. Has work been done on engagement locally, or will it be done?

Kate Eveleigh- Healthy place shaping team is looking at e-bikes and community activation side of things probably with the active travel colleagues. Something that public health is looking at.

Abigail Pepler- Any info in an email would be great to take forward to an action plan. Susan has made a note in the chat that Mark was meant to join he was a representative from Chipping Norton Town Council. Hopefully some feedback over email.

Kim Hudson- Interesting work being done by county council on mobility hubs, different types of hubs could be as small as a bus stop, info at hubs the ability to walk and cycle to hubs, for multi-modal transport to be made more seamless, I don't know what stage that's at but it's an interesting study. Car parking as well but we can discuss later.

6c- Modal shift to Measures that Encourage Public Transport

Modal shift away from private cars encouraging public transport. Two main bus operating companies in area including Stagecoach. Would be great to hear of the measures being addressed by Stagecoach. To make sure that our connections to public transport and bus services are put in place for due areas and, where possible, also existing areas that will take people

6c) Discussion: Modal Shifts in Public Transport

George Sloan- Good time for me to say a couple lines. Main challenges post-covid especially in rural areas, must be creative in developing network and connections, whilst being conscious of revenue and viability. We will start next week the 7-service replaced by s7 service, residents from Chipping Norton can get to Witney and Oxford. We work with council to decide when to decide the communities as in times of services. We have to be creative with how to generate revenue, and also serve the communities. The challenge is to get people to drop the car and get on the bus. But I think providing the connection to both Witney and Oxford will be a positive step for that area and will hopefully encourage more use leading to reduction in car usage.

Abigail- We may follow up over email to get detail. Is there anything else we could discuss in improving uptake of bus journeys?

George Sloan- In my opinion the standard of bus stops if they're covered or whatever is important. People can find themselves on the side of the road for more than 20 minutes, so it's useful to have sheltered bus stops or benches. It's good for people to turn up to a bus stop and get a bus. But there's no public input, it's run privately.

Philip Measures- I want to follow on from that and developing actions can focus on patronage on how to promote increase in it. Opportunities to go forward: how much scope there is to look at the emission standards of the buses using routes, and that also to be a selling point of people to be using the buses, so they're a part of the measures improving the AQ in AQMA.

George Sloan- EURO 6 standard in Chipping Norton, which is good. We work in partnership with Oxfordshire County Council, back end of 2023, and 2024, we will see delivery of those vehicles. 56 electric vehicles will be based in Oxfordshire, there's not scope for them to be in Chipping Norton.

6d- Freight

Freight is complex, it is needed it is important, we need to focus on measures to support freight industry. One measure is whether a freight consolidation centre would be feasible, to reduce HGV trips in last mile delivery. Chris mentioned it is not cost-effective and land-use. The study will be going ahead at the county council level. Looking into freight recognition scheme communicated to local businesses and other HGV operators. A freight recognition scheme, ECOSTAR provides guidance to making improvements, so it extends to other types of vehicles and council fleets, even if you have one vehicle they provide guidance and recognition for operating best practices. The aim is to reduce fuel consumption, so it reduces fuel usage and then AP reductions. Something that could be investigated.

6d) Discussion: Freight

Chris Ashley- Customers demand goods, you won't see goods without demand. The freight must get to where it must go. It's mathematics, or you distribute it over smaller vehicles which adds to pressures on the road space. A lot of vehicles from consolidation centre. Weight limits, it displaces freights, it doesn't stop it, it sends it different directions.

Philip Measures- To follow on from that point, the point of the feasibility study is to explore this. Greener vehicles to do final part of the delivery. You got greener transport going to spots particularly effected by pollution. There is a potential for smaller vehicles to be less polluting.

David Rudland- To recognise the pinch point, the south end of Horse Fair. Not everything is going to Chipping Norton and stopping it is going through it.

Abigail Pepler- Other measures could be appropriate HGV route map, to help guide the freight journeys. Some HGV movement could be redistributed to Easter link road, would involve assessment of impacts to the houses in the area.

Natalie Moore- The narrative on the housing development road and what would be needed. The way we are looking at the road, the road we have will be servicing the development. It will be built so it can take buses and HGVs, main point is for the actual development of itself. Where is the flow of traffic going? Not just HGVs, we've been constantly asked to look into it, where is traffic coming to and from. There's a predominant east west traffic than north and south. What we can take out of the town centre, if they are mainly doing east west movement, they need to go back up into the town centre back out via West Street and New Street, if they go out through A361, you know the road works perfectly. But there's a bit of caution about what we are saying that road will do. We thought we would flag that up.

Abigail Pepler- Thanks very useful information. Freight recognition schemes could also be an option like ECOSTARS.

Chris Ashley- Already very heavily regulated industry, we need to be persuaded by these schemes, as they are another regulatory tool.

Abigail Pepler- Thanks. It might be a case to investigate and do stakeholder focus groups to see if it can be relevant for Chipping Norton.

Philip Measures- We are looking into the council, the direction of travel for the council fleet, and standards we require of those and changes we've got regards to our council plate and licensing. We touched briefly on this yesterday but again there's a question for licensing taxi drivers and processes around that. Again, what standards are being demanded of them and determine what our policies are, so maybe we can bring that into this.

6d) Chat Box Discussion- Freight

[11:02] **Rhys Williams CMILT**

There are also commercial implications to using consolidation centres, hence why most have failed, as there is the risk of the customer getting 2 delivery charges, meaning higher cost to end user.

[11:04] **Kim Hudson**

There are also opportunities for the study to consider opps for customers to pick up goods in convenient locations which is already popular in certain stores/ to post office locations etc?

[11:06] **Rhys Williams CMILT**

We must not lose sight of the fact, the main route through Chippy is the A44, a main trunk road, originally built to take road freight, therefore if we are looking at removing or restricting road freight from using the A44 through route, then a viable HGV “friendly" road needs to be considered.

6e- Other Traffic Management

We’ve mentioned 20 mph roads, and Chris has made the important point that these are not beneficial to HGV. Philip has mentioned the potential benefit in smoothing traffic flow, and that often due to congestion this is the natural speed anyway. Urban traffic control systems at key junctions/traffic lights operating at peak times to improve traffic flow, increased anti-idling enforcements, car parking interventions. Anti-idling enforcement would need to be accompanied by an information campaign, inform the public why it’s bad for AQ, and what the statutory powers are in terms of fines for idling. Chipping Norton has a challenge for parking already, with a number of small car parks and often a lack of availability for spaces. Very complex issues, not sure if we will come up with solution today. Would be good to hear about feedback for this. One action could be to improve AQ in this area limiting the parking to disabled only. For example the on-street parking bays located near to diffusion tubes which have been in exceedance. Other option could be provision of more parking, further away from town centre, perhaps being served by park and ride, dependant on likely uptake.

6e) Discussion: Other Traffic Management

Chris Ashley- A quick point about 20 mph issue then you increase journey times. It impacts haulage industry because of increase of hours in drivers. Think strategically here, when drivers time is up, he has to pull up and park. That pulls into question parking spaces for HGVs. This has a knock-on effect not just locally.

Abigail Pepler- Another good point, good to see it from different sides.

Natalie- One of the potential schemes they looked at was potential schemes like gating. It ended pushing AQ issues further out so if traffic control systems are used, will monitoring be used to determine impacts if the AQ impacts?

Abigail Pepler- I assume any schemes like that would have a great deal of traffic modelling before decisions were made, and assessment of many different options.

David Hudson- We monitor outside that area so we can see the effect on the immediate impact on surrounding street outside the AQMA. But within Chipping Norton it's hard to say. An example in Gloucestershire where traffic control systems improved traffic flow and AQ emissions. We could see if we could do it in the same way.

Philip Measures- Smoothing traffic flow is important, but 20 mph is already in place. It's only a small area so shouldn't change journey times. Should improve journey times if traffic is smoothed and improve safety of pedestrians. There are benefits there.

Abigail Pepler- Can I ask Natalie what the status is of the travel plan? Potentially some of what's being discussed today could be taken further from a traffic transport modelling side.

Natalie Moore- First wave being drafted, finished sometime in Spring, and then the second wave that will include West Oxfordshire will draft around summer to autumn. Absolutely with regards to transport modelling there's a good opportunity to collaborate and interweave elements of various plans.

Kim Hudson- On the topic of car parking charges, politically they've been very unpopular with our members. This could change due to new members. You could put charges in, but you need people to access the centre, so this needs to be considered. Accessibility needs to be considered, otherwise it has a detrimental impact on the town centre and economy. So, this needs to be looked at from a wider perspective.

George Sloan- Relation into parking, you mentioned park and ride. Have you considered this or fleshed it out? It would be small scale

Abigail Pepler- It is an initial thought, some blue-sky thinking. If there's appetite for it, then we can include it as something to investigate further. Just to bring it us back to overall priorities of AQAP, and our suggested priority reducing private cars improving uptake of cycling, walking. We can't bring that forward it feedback shows little appetite for action.

6e) Chat Box Discussion- Other Traffic Management

[11:20] **Kim Hudson (External)**

Agree - it's balancing all the needs and the roads are slow within CN in any case due to traffic levels. The Witney study is making good progress and then the CN study will be in the next 'round' as I understand

[11:24] **Chris Ashley**

Point about 20mph speed limits is that, whilst we're happy to work through the issues, there are consequences that need to be taken into account - from our perspective, there are two main issues: 1) increased emissions, and 2) impact on strictly enforced drivers hours and the need for HGV parking facilities to mitigate this.

[11:25] **Kim Hudson**

The options for a P&R have been considered in the past but not in detail. It would be small scale with a shuttle bus but there's no easy options due to the road constraints.

6f- Improving Technologies

Encompasses a range of different technologies, promotion of homeworking, electric vehicle charging infrastructure roll-out and opportunities to further with improving accessibility and availability of charging. Other measures include investigating electric bike and scooter hubs, recharging infrastructure in terms of new developments. Researching low/zero carbon fuel sources and parking permit discounts for LEZ vehicles if parking charges are taken up.

6f) Discussion: Improving Technologies

Chris Ashley- EV vital a barrier stopping electric HGVs we don't nationally have charging infrastructure in place. Got to get infrastructure in place if you want vehicles that pollute less. Is it a similar issue for buses in terms of infrastructure?

George Sloan- Infrastructure challenge is enormous. But also, the challenge making sure we are still operational whilst the transition takes place. Whilst we are planning this we must consider where to put the fleet, how to run the fleet. Land is scarce in Oxfordshire. You raised the concern on charging infrastructure, the commercial opportunity for having a site for charging vehicles, everything will be out in day. Letting people use the charging hub in day. HGV sector can work together.

Chris Ashley- It's long-term work to manage expectations amongst colleagues on this call. But more broadly there are opportunities for different associations working together. It is a long way off.

George Sloan- The cost of all this, we have had support of ZEBRA scheme and funding, however infrastructure we have to bear the cost of, for HGV these schemes aren't in place for the industry.

Kim Hudson- Be mindful of where the charging points are put, so small scale park and ride outside of centre for example. Huge infrastructure challenges wider than Chipping Norton, future Oxford partnership are talking about this issue about infrastructure issues wanted to raise that.

6g- Targeting Particulates

Assessment of $PM_{2.5}$ has been commissioned which will be circulated. Considering $PM_{2.5}$ monitoring in Chipping Norton potentially with low-cost sensors. Development of domestic solid fuel policy together with or separately from a Bonfire policy. And consideration of smoke control areas. Does anyone have thoughts? We got feedback saying the evidence on wood burning is compelling.

6g) Discussion: Targeting Particulates

Philip Measures- My team would have to look at those, wood burning stoves have become popular. And some complaints have come into his team where wrong fuel has been used or devices are inappropriately, chimneys close to where people reside. The topography in certain areas. There is a balance. Negative consequences on environment. Need for my team to liaise and make a policy. Better advice and guidance are useful on bonfires and stoves.

6g) Chat Box Discussion- Targeting Particulates

[11:42] **Kim Hudson**

Wood burners may also become more popular with the cost of electricity increasing so important to increase awareness.

[11:43] **Eveleigh, Katharine - Oxfordshire County Council**

City have been running a Comfort Heaters campaign with Friends of the Earth recently

[11:44] **David Rudland**

To follow up Phil's point Smoke Control Areas are not the final word to control wood burning activities. This is mainly about control on use and selection of wood burning stoves. You can use outdoor barbecues, chimineas, fireplaces or pizza ovens in smoke control areas. Our main power is nuisance legislation to deal with extremes of wood burning.

6h- Engagement and Public Awareness

Air quality awareness website worked on county council level. There's a measure for community activation, school streets and work with schools. Collaboration with local cycling groups on infrastructure. There's opportunity to go further, how else can we support local groups and school travel plans. Feedback mentioned specific plans for schools, anti-idling awareness campaigns, using air quality sensors. AQ sensors might be done on AQ website can anyone comment?

6h) Chat Box Discussion- Engagement and Public Awareness

[11:46] **Moore, Natalie - Oxfordshire County Council**

Officers in the Travel Plans team will be able to provide you with information regarding School Travel Plans

[11:46] **Eveleigh, Katharine - Oxfordshire County Council**

Have links been made with the local Community Action Groups re engagement and the like - link to the climate action work?

[11:47] **Moore, Natalie - Oxfordshire County Council**

I think Councillor Sandra Coleman from Chipping Norton Town Council may be able to help with information on mobility groups / contacts for Chipping Norton

[11:48] **Eveleigh, Katharine - Oxfordshire County Council**

https://www.cagoxfordshire.org.uk/

Possible links on community activation - https://www.oxfordshire.gov.uk/residents/social-and-health-care/public-health-and-wellbeing/healthy-place-shaping#:~:text=Healthy%20place%2Dshaping%20is%20a,of%20belonging%2C%20identity%20and%20community.

6i) Other

Council could develop AQ supplementary planning document embedding healthy streets, 20-minute neighbourhoods and points ensuring developers provide for EV charging, for links to public and active travel routes. That could be taken forward if council and stakeholders are in agreement, as it could encapsulate quite a lot of points. Another point was reviewing travel and expense policies within council, making council fleet sustainable transport, and driver awareness training. Reducing and re-prioritising council staff and introduce charges in council-owned public parking for council staff and promotion of car clubs and car shares. Someone suggested taxi and broader licensing measures to incentivise low emission vehicles and restricting diesel emissions from vans.

6i) Discussion: Other

Kim Hudson- We probably don't have resources to have an SPD for AQ alone covered by other policy documents. Got policy in current local plans and new local plans. It's not my call but will it give you more than what we currently have?

Abigail Pepler- Discuss with your team, and let us know

David Hudson- Technical point to Kim if you have an SPD, it becomes out of date. We might better go for AQ guidance than an SPD.

Kim Hudson- An SPD takes longer to formalise and can become out of date. Local plan doesn't become out of date. Happy to go back to the team and speak to manager to see the best approach to feed back

7) Priority Measures to Assess Further *[Abigail Pepler]*

Defra best practice involves quantification of priority measures and technical guidance specifically suggests 3-5 to be taken forward for assessment. Here are our suggestions, we could put through our AQ model, building on baseline model Ella developed.

1) General 5, 10, 15 % reduction of HGVs on Horse Fair/Market Place/West Street
2) General 5, 10, 15 % reduction to cars on the street

Could link this to any transport modelling from OCC options appraisal for West Oxfordshire Travel Plan, link up to air quality model

It's difficult to quantify every measure directly e.g., cycling trips but we can see what the impact of a variety of measures would be through reduction in vehicles.

Modelling results will be circulated amongst steering group.

8) Next Steps *(Tom Adams)*

Thanks everyone for their contributions. An interesting and productive session. If there are any points to raise email us after the session.

Next steps in terms of AQAP process:

1) Distribute copy of slides and minuting minutes to all by email
2) Draft AQAP- Final short list of measures through refining measures and run AQ modelling and include results
3) Draft plan for public consultation where finalisation of action plan measures occur based off feedback.

Phillip Measures- Thanks for input, it's been interesting and lots of work has been done. I think the outputs should be positive form this work. Thanks to Thomas, Abigail and Ricardo for the work they've put in and pulling this morning's workshop together. It's been a good session. Thank you.

Appendix E Modelling

E.1 Witney

E.1.1 Model setup and verification

To determine traffic flows and traffic composition across the modelled roads in Witney, traffic count data, traffic models, and speed data were sourced from Oxfordshire County Council and sense checks were made against data from the Department for Transport.

Table E-1: Model verification for Witney of NO2 concentrations in 2019 in µg/m3 shows how the model was verified, in line with the Technical Guidance LAQM TG(22), with the use of Defra's NOx to NO_2 calculator. To evaluate model performance and uncertainty, the Root Mean Square Error (RMSE) for the observed vs predicted NO_2 annual mean concentrations was calculated, as detailed in TG(22). This guidance indicates that for an annual model, an RMSE of up to 4 µg/m^3 is ideal, and an RMSE of up to 10 µg/m^3 is acceptable. In this case the RMSE value was 3.46 µg/m^3, which shows good agreement between modelled and measured concentrations.

Table E-1: Model verification for Witney of NO_2 concentrations in 2019 in µg/m^3

Site ID	X	Y	Modelled road NOx	Monitored background NOx	Monitored NO_2	Monitored road NOx	Monitored : modelled NOx	Adjusted modelled road NOx	fNO2	Total modelled NO_2	Square error
NAS1	435848	210297	24.11	10.50	44.8	79.59	3.30	65.05	0.27	39.02	33.41
NAS2	435817	210238	27.24	10.53	37.1	60.38	2.22	73.49	0.27	42.43	28.41
NAS3	435849	210281	27.74	10.50	41.9	72.18	2.60	74.83	0.27	42.94	1.08

Site ID	X	Y	Modelled road NOx	Monitored background NOx	Monitored NO_2	Monitored road NOx	Monitored : modelled NOx	Adjusted modelled road NOx	fNO2	Total modelled NO_2	Square error
NAS4	435672	210198	17.02	10.57	33.9	52.12	3.06	45.92	0.28	31.13	7.67
NAS5	435913	210364	21.12	10.41	33.1	51.26	2.43	56.98	0.27	35.55	6.00
NAS6	435950	210357	19.02	10.41	35.5	57.59	3.03	51.32	0.26	32.86	6.97
NAS7	435930	210343	21.61	10.43	34.3	57.19	2.65	58.30	0.23	34.72	0.18
						Universal adj. factor	**2.70**			RMSE	**3.46**

E.1.2 Scenario Testing Results

Table E-2: Scenario testing results for NO_2 concentrations across monitoring sites in Witney. Values exceeding thenational air quality objective of 40 µg/m^3 are in bold

Site ID	Measured 2019 (µg/m^3)	Baseline 2019 (µg/m^3)	Scenario 1: 5% car reduction		Scenario 2: 10% car reduction		Scenario 3: 15% car reduction		Scenario 4: 5% HGV reduction		Scenario 5: 10% HGV reduction		Scenario 6: 15% HGV reduction	
			µg/m^3	% change	µg/m^3	% change	µg/m^3	% change	µg/m^3	% change	µg/m^3	% change	µg/m^3	% change
NAS1	**44.80**	39.02	37.78	-3.18%	37.29	-4.43%	36.8	-5.69%	38.23	-2.02%	38.20	-2.10%	38.16	-2.20%
NAS2	37.10	**42.43**	**41.12**	-3.09%	**40.54**	-4.45%	39.95	-5.84%	**41.66**	-1.81%	**41.62**	-1.91%	**41.58**	-2.00%
NAS3	**41.90**	**42.94**	**41.63**	-3.05%	**41.03**	-4.45%	**40.43**	-5.85%	**42.18**	-1.77%	**42.14**	-1.86%	**42.10**	-1.96%
NAS4	33.90	31.13	30.06	-3.44%	29.67	-4.69%	29.29	-5.91%	30.41	-2.31%	30.38	-2.41%	30.35	-2.51%
NAS5	33.10	35.55	34.77	-2.19%	34.23	-3.71%	33.69	-5.23%	35.20	-0.98%	35.11	-1.24%	35.01	-1.52%
NAS6	35.50	32.86	32.19	-2.04%	31.53	-4.05%	30.86	-6.09%	32.73	-0.40%	32.60	-0.79%	32.48	-1.16%

Site ID	Measured 2019 (µg/m³)	Baseline 2019 (µg/m³)	Scenario 1: 5% car reduction		Scenario 2: 10% car reduction		Scenario 3: 15% car reduction		Scenario 4: 5% HGV reduction		Scenario 5: 10% HGV reduction		Scenario 6: 15% HGV reduction	
			µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change
NAS7	34.30	34.72	34.05	-1.93%	33.39	-3.83%	32.72	-5.76%	34.59	-0.37%	34.46	-0.75%	34.32	-1.15%

Table E-3: Scenario testing results for PM_{10} concentrations across monitoring sites in Witney

Site ID	Baseline 2019 (µg/m³)	Scenario 1: 5% car reduction		Scenario 2: 10% car reduction		Scenario 3: 15% car reduction		Scenario 4: 5% HGV reduction		Scenario 5: 10% HGV reduction		Scenario 6: 15% HGV reduction	
		µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change
NAS1	20.70	20.58	-0.60%	20.45	-1.21%	20.33	-1.79%	20.69	-0.06%	20.68	-0.13%	20.66	-0.19%
NAS2	21.51	21.36	-0.72%	21.20	-1.45%	21.05	-2.16%	21.50	-0.08%	21.48	-0.15%	21.46	-0.23%
NAS3	21.63	21.47	-0.73%	21.31	-1.48%	21.15	-2.20%	21.61	-0.08%	21.60	-0.16%	21.58	-0.24%
NAS4	18.58	18.49	-0.44%	18.40	-0.95%	18.33	-1.31%	18.57	-0.04%	18.56	-0.09%	18.55	-0.13%
NAS5	18.67	18.55	-0.64%	18.42	-1.35%	18.32	-1.92%	18.66	-0.07%	18.65	-0.15%	18.63	-0.22%
NAS6	18.55	18.41	-0.79%	18.25	-1.65%	18.11	-2.37%	18.54	-0.10%	18.52	-0.19%	18.50	-0.29%
NAS7	18.78	18.63	-0.81%	18.46	-1.70%	18.32	-2.43%	18.76	-0.09%	18.74	-0.19%	18.73	-0.28%

Table E-4: Scenario testing results for $PM_{2.5}$ concentrations across monitoring sites in Witney.

Site ID	Baseline 2019 (µg/m³)	Scenario 1: 5% car reduction		Scenario 2: 10% car reduction		Scenario 3: 15% car reduction		Scenario 4: 5% HGV reduction		Scenario 5: 10% HGV reduction		Scenario 6: 15% HGV reduction	
		µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change
NAS1	13.59	13.51	-0.53%	13.44	-1.06%	13.37	-1.60%	13.58	-0.06%	13.57	-0.12%	13.56	-0.17%
NAS2	14.06	13.97	-0.64%	13.88	-1.28%	13.79	-1.92%	14.05	-0.07%	14.04	-0.14%	14.03	-0.21%
NAS3	14.13	14.04	-0.65%	13.94	-1.31%	13.85	-1.96%	14.12	-0.07%	14.11	-0.14%	14.10	-0.21%
NAS4	12.36	12.31	-0.39%	12.27	-0.77%	12.22	-1.16%	12.36	-0.04%	12.35	-0.08%	12.35	-0.12%
NAS5	12.40	12.33	-0.57%	12.26	-1.14%	12.19	-1.71%	12.39	-0.07%	12.39	-0.13%	12.38	-0.20%
NAS6	12.32	12.24	-0.70%	12.15	-1.40%	12.07	-2.10%	12.31	-0.09%	12.30	-0.18%	12.29	-0.26%
NAS7	12.47	12.38	-0.72%	12.29	-1.44%	12.20	-2.16%	12.46	-0.09%	12.45	-0.17%	12.44	-0.26%

E.2 Chipping Norton

E.2.1 Model setup and verification

To determine traffic flows and traffic composition across the modelled roads in Chipping Norton, traffic count data and speed data were sourced from Oxfordshire County Council and sense checks were made against data from the Department for Transport.

Table E-5 shows how the model was verified, in line with the Technical Guidance LAQM TG(22), with the use of Defra's NOx to NO_2 calculator. To evaluate model performance and uncertainty, the Root Mean Square Error (RMSE) for the observed vs predicted NO_2 annual mean concentrations was calculated, as detailed in TG(22). This guidance indicates that for an annual model, an RMSE of up to 4 µg/m^3 is ideal, and an RMSE of up to 10 µg/m^3 is acceptable. In this case the RMSE value was 2.41 µg/m^3, which shows good agreement between modelled and measured concentrations.

Table E-5: Model verification for Chipping Norton of NO2 concentrations in 2019 in µg/m3

Site ID	X	Y	Modelled road NOx	Monitored background NOx	Monitored NO_2	Monitored road NOx	Monitored : modelled NOx	Adjusted modelled road NOx	fNO2	Total modelled NO_2	Square error
NAS16	431203	226866	0.88	8.27	8.6	3.41	3.87	3.59	0.27	8.7	0.01
NAS17	431302	226960	6.08	8.35	21.5	27.91	4.59	24.78	0.28	19.9	2.43
NAS18, NAS19, NAS20	431405	227209	9.78	8.33	29.0	43.69	4.47	39.87	0.28	27.2	3.17
NAS21	431444	227283	8.42	8.32	19.8	24.59	2.92	34.36	0.28	24.6	23.04

Site ID	X	Y	Modelled road NOx	Monitored background NOx	Monitored NO_2	Monitored road NOx	Monitored : modelled NOx	Adjusted modelled road NOx	fNO2	Total modelled NO_2	Square error
NAS22	431426	227280	18.90	8.33	43.9	78.48	4.15	77.10	0.28	43.4	0.30
						Universal adj. factor	**4.08**			RMSE	**2.41**

E.2.2 Scenario Testing Results

Table E-6: Scenario testing results for NO_2 concentrations across monitoring sites in Chipping Norton. Values exceeding the national air quality objective of 40 µg/m³ are in bold

Site ID	Measured 2019 (µg/m³)	Baseline 2019 (µg/m³)	Scenario 1: 5% car reduction		Scenario 2: 10% car reduction		Scenario 3: 15% car reduction		Scenario 4: 5% HGV reduction		Scenario 5: 10% HGV reduction		Scenario 6: 15% HGV reduction	
			µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change
NAS16	8.60	8.70	8.67	-0.34%	8.63	-0.80%	8.59	-1.26%	8.69	-0.11%	8.68	-0.23%	8.66	-0.46%
NAS17	21.50	19.94	19.75	-0.95%	19.56	-1.91%	19.37	-2.86%	19.87	-0.35%	19.80	-0.70%	19.73	-1.05%
NAS18, NAS19, NAS20	29.00	27.22	26.90	-1.18%	26.57	-2.39%	26.24	-3.60%	27.12	-0.37%	27.02	-0.73%	26.92	-1.10%
NAS21	19.80	24.60	24.31	-1.18%	24.02	-2.36%	23.72	-3.58%	24.51	-0.37%	24.42	-0.73%	24.32	-1.14%
NAS22	**43.90**	**43.35**	**42.50**	-1.96%	**42.26**	-2.51%	**42.02**	-3.07%	**42.72**	-1.45%	**42.70**	-1.50%	**42.68**	-1.55%

Table E-7: Scenario testing results for PM_{10} concentrations across monitoring sites in Chipping Norton

Site ID	Baseline 2019 (µg/m³)	Scenario 1: 5% car reduction		Scenario 2: 10% car reduction		Scenario 3: 15% car reduction		Scenario 4: 5% HGV reduction		Scenario 5: 10% HGV reduction		Scenario 6: 15% HGV reduction	
		µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change
NAS16	13.70	13.69	-0.06%	13.68	-0.12%	13.68	-0.18%	13.70	-0.02%	13.70	-0.03%	13.69	-0.05%
NAS17	15.31	15.27	-0.28%	15.22	-0.56%	15.18	-0.83%	15.30	-0.09%	15.28	-0.17%	15.27	-0.25%
NAS18, NAS19, NAS20	16.69	16.60	-0.48%	16.52	-0.96%	16.44	-1.45%	16.66	-0.14%	16.64	-0.28%	16.62	-0.42%
NAS21	16.26	16.19	-0.44%	16.12	-0.87%	16.05	-1.30%	16.24	-0.13%	16.22	-0.25%	16.20	-0.38%
NAS22	19.76	19.69	-0.34%	19.63	-0.67%	19.56	-1.00%	19.74	-0.10%	19.72	-0.19%	19.70	-0.29%

Table E-8: Scenario testing results for $PM_{2.5}$ concentrations across monitoring sites in Chipping Norton

Site ID	Baseline 2019 (µg/m³)	Scenario 1: 5% car reduction		Scenario 2: 10% car reduction		Scenario 3: 15% car reduction		Scenario 4: 5% HGV reduction		Scenario 5: 10% HGV reduction		Scenario 6: 15% HGV reduction	
		µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change	µg/m³	% change
NAS16	9.00	8.99	-0.05%	8.99	-0.10%	8.98	-0.16%	8.99	-0.01%	8.99	-0.03%	8.99	-0.04%
NAS17	9.97	9.94	-0.24%	9.92	-0.49%	9.89	-0.73%	9.96	-0.07%	9.95	-0.14%	9.94	-0.22%
NAS18, NAS19, NAS20	10.74	10.70	-0.43%	10.65	-0.87%	10.60	-1.30%	10.73	-0.12%	10.72	-0.25%	10.70	-0.38%
NAS21	10.48	10.44	-0.39%	10.40	-0.78%	10.36	-1.17%	10.47	-0.11%	10.46	-0.23%	10.44	-0.34%
NAS22	12.54	12.50	-0.30%	12.46	-0.61%	12.43	-0.92%	12.53	-0.09%	12.52	-0.18%	12.51	-0.27%

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Infrastructure Plan
LTP	Local Transport Plan
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
OCC	Oxfordshire County Council
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less

$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
WODC	West Oxfordshire District Council

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Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP24-2114**
Date of issue	**June 2024**

Air Quality Action Plan Appraisal

The Action Plan sets out information on air quality obtained by the Council as part of the Local Air Quality Management process required under the Environment Act 1995 (as amended by the Environment Act 2021) and subsequent Regulations.

This Appraisal Report covers the Final Air Quality Action Plan (AQAP) for 2023 – 2028 submitted by West Oxfordshire District Council (WODC). Two distinct AQAPs for each of WODCs Air Quality Management Areas (AQMA) were submitted and appraised at Draft stage (AQAP23-1607 & AQAP23-1608). These have now been consolidated into one Final AQAP covering both AQMAs; the Chipping Norton AQMA and the Witney AQMA, both declared in 2005 for exceedances of the annual mean NO_2 objective.

The AQAP uses the Defra report template and is concise, well presented and clearly formatted, with some minor exceptions. Additional appendices have also been added, summarising the supporting assessment and modelling work that has been undertaken in development of the AQAP.

There were no exceedances of the NO_2 annual mean objective in either 2020 or 2021, although this is potentially in part related to the impacts of COVID-19. 2022 data also indicate no exceedances, so compliance appears to have been maintained coming out of the pandemic. The latest 2023 monitoring data has not been reported within the AQAP. The last exceedance was seen in 2019 at one location within the Chipping Norton AQMA (NAS22), and two locations within Witney AQMA (NAS1 and NAS3). There was also one site within 10% of the objective in 2019, NAS3 in the Witney AQMA. It should however be noted that the elevated annual mean NO_2 concentrations at NAS22 appear to be highly localised, as according to Figure 2-3, a site virtually opposite (NAS21) monitored less than 20 µg/m^3 in the same year.

Additional modelling was undertaken of the AQMAs in support of this AQAP, using 2019 as a baseline year as a conservative assessment. An additional assessment was also made against the new $PM_{2.5}$ targets within the AQAP (which used existing AURN monitoring data to conclude that both targets are likely to be met). WODC are now investigating options to install indicative PM monitors.

The AQAP goes on to set out the public health context, citing the 2019 PHE report. The Public Health Outcomes Framework has also now been referenced in response to appraisal commentary, with the fraction of mortality attributable to particulate air pollution for 2019, 2020 and 2021 cited for West Oxfordshire, and compared to national values, with the local values generally being slightly below the national trends.

Several local, regional and national scale policy documents have been referenced in the Plan. There are minimal significant changes to the policy context submitted at Draft stage, with no new documents having been summarised as compared to the Draft. The discussion of the Connecting Oxfordshire: Local Transport Plan 2015-2031 Cycle Strategy has been removed, it is not clear if the policy is no longer relevant.

The Local Plan is now to be extended to cover until 2041 (previously for 2031), and thus is expected to be adopted a year later in 2025. At a local level, the Local Plan will be integral to the success of the AQAP. There are seven objectives and four policies within the current 2031 Local Plan relevant to air quality, most specifically CO16: Enable improvements in water and air quality. This provides confidence that air quality concerns will be at the forefront of development within the district. There is one key development zone in East Chipping Norton, which will need to be monitored for the impact on air quality, particularly as the impacts will be sensitive to the inclusion of a new link road which is left uncertain within the AQAP. Any details on changes in the 2041 Local Plan remain vague, and it has been stated that impacts cannot be quantified at this time. It will therefore be incumbent on the Local Authority to proactively update the AQAP with this information incorporated at such time as these details have been formalised.

Source apportionment of NOx was carried out in early 2023 based on 2019 data, considering both total NOx and the sources of road NOx. Source apportionment was undertaken for both Witney and Chipping Norton AQMAs.

Within Witney AQMA, rural contributions make up approximately half the average NOx concentrations, with roads contributing 22%, as determined from Defra background maps. Domestic and industrial sources are also large contributors. Detailed modelling source apportionment indicates that of the road NOx, cars and LGVs are the most significant contributors, at approximately 50 and 20% respectively, though varying slightly at individual sites. Of those categories, diesels are the higher contributors.

Similarly, at the Chipping Norton AQMA rural contributions make up approximately 60% of the average NOx concentrations, with roads contributing 19%, as determined from Defra background maps. Domestic and industrial sources are also large contributors. Detailed modelling source apportionment at Chipping Norton AQMA indicates that of the road NOx, LGVs are the most significant contributors, at approximately 40-45% of the total. Cars are also significant contributors, at around 25-30% of the total. Of those categories, diesels are the higher contributors. HGVs are also an important contributor.

Particulate source apportionment at both AQMAs show background is by far the largest component of particulate concentrations. Particulate source apportionment is otherwise generally similar to NOx source apportionment in terms of the key contributors, though doesn't exhibit the same weighting toward diesels as emissions are more related to the traffic volume, rather than tailpipe emissions.

In response to the appraisal comments, clearer correlation between the source apportionment and the measures' derivation has been added to the AQAP, which enhances confidence that the key sources are being appropriately targeted. Source apportionment of NO_2 has not however been added, though the Council's comment that NO_x can generally be used to determine the key contributing sources is considered appropriate in this case.

The required reduction in NO_2 concentrations to achieve compliance, based on 2019 monitoring, was also calculated. A maximum reduction of road NO_x of 15.2% (at NAS1) and 12.2% (at NAS22) was assessed to have been required at Witney and Chipping Norton AQMAs respectively. Whilst concentrations have reduced since 2019, on that basis, this represents a significant but achievable challenge in achieving compliance with the objective.

Six scenarios for intervention have been modelled, ranging from 5-15% reductions in car traffic, and 5-15% reductions in HGVs. Whilst not explicitly tied to specific AQAP measures, these demonstrate what improvements might be possible if the associated traffic reductions can be achieved through a combination of the AQAP measures. A 15% reduction in car traffic resulted in the largest reductions, with an average percentage concentration change of -2.9% for NO_2, -1% for PM_{10}, and -0.9% for $PM_{2.5}$ across all monitoring sites in Chipping Norton in 2019, and of -5.7% for NO_2, -2% for PM_{10}, and -1.8% for $PM_{2.5}$ across all monitoring sites in Witney in 2019.

The measures were modelled in this way for the Draft AQAP as transport modelling for the schemes considered under the Local Transport Plans for the respective AQMAs has not yet

been carried out. This remains unchanged from the Draft AQAP. Again, it will be necessary for WODC to update the AQAP to account for these impacts when the information is available, as these are likely to be important factors in achieving and maintaining compliance for revocation of the AQMAs.

Priorities set in the AQAP for Witney and Chipping Norton AQMAs are similar, namely:

- Bringing the AQMAs into compliance with the NO_2 annual mean Air Quality Objective;
- Managing $PM_{2.5}$ exposure; and
- Improving accessibility into and around the AQMAs by alternatives to private car – i.e. walking, cycling and public transport.

On an individual measure basis, a total of 38 measures have been taken forward in the Plan; these have been grouped as 7 measures which are directed to the Witney AQMA, 6 for Chipping Norton AQMA, 20 for both AQMAs, and the remaining 5 more generally applicable to the whole of WODC. No new measures have been added since the Draft version.

The AQAP measures are generally focused on transport. WODC have identified Witney and West Oxfordshire Area Travel Plans, as well as Local Cycling and Walking Infrastructure Plans as priority actions for both AQMAs. Additional key measures flagged by WODC include the Shores Green junction measure (which focuses on re-routing through-traffic out of the Witney AQMA and onto the A40), the development and promotion of a HGV route map for Chipping Norton and improving availability of rapid and ultra-rapid EV charging across Oxfordshire.

Further measures focus primarily on public engagement and awareness. This includes updating information on the Council's website, school travel plans, anti-idling enforcement, air quality planning guidance and the 'Healthy Streets Approach'. Additional measures include looking at domestic burning of fuels.

The target reductions of pollution within the AQMA for all measures remain unspecified, rather a qualitative categorisation of the measures' impacts has been included to indicate which measures are likely to be the most effective. The Council present various reasons for this, primarily related to the early stage of development of some of the concepts. This to an extent more clearly explains the parametrisation approach taken to quantification than was available within the Drafts and is considered appropriate to the NO_2 concentrations reported,

under the caveat this is revisited when detailed proposals are available for the aforementioned schemes / measures.

Appendix E presents the additional modelling of baseline and scenario testing results, with no changes since the Draft. Impacts on NO_2 incrementally increase in the car reduction scenarios, starting at 1-2% reductions in scenario 1 (5% car reductions) and increasing to 2-3.5% reductions in scenario 3 (15% car reductions). The HGV reduction scenarios show lesser incremental increases, indicating that this vehicle class is a less significant contributor to total concentrations. At least one exceedance is seen in all scenarios, though this is based on 2019 data. A similar story is reflected in the PM calculations, though with no exceedances in any scenarios.

Details of the steering group responsible for the AQAP's development have also been provided, with involvement from several WODC departments, and local (parish) and regional (county) Councils and an independent consultant. Different steering groups have been established for each AQMA as well, including Town Council members for the respective AQMAs. The group appears to have had close involvement with the development of the actions specifically. Detailed minutes of a workshop conducted in early 2023 have been included in Appendix showing the discussions which have fed into the AQAP's production. Future activities of the steering group have been outlined, including the plan for annual meetings at a minimum to report on progress against AQAP measures.

Consultation and stakeholder engagement on the Final AQAP was completed. All relevant stakeholders have been included. A thorough summary of responses is provided in Appendix A, with the results of the survey having been discussed in detail.

The percentage of respondents in favour of individual AQAP measures has been included for both AQMAs. In Witney AQMA, measure 4 (Access to Witney - West-facing slip roads at A40 Shores Green Junction and improvements at B4022 Oxford Hill junction) is the most popular, followed by measure 21 which targets improvements to bus services. However, it should be noted there were 226 'no responses'. Negative responses to measures include for parking management in Witney and introducing charges in Council-owned public parking.

For Chipping Norton AQMA, an HGV route map was the most popular measure, followed by area weight restriction feasibility study. Parking management is unpopular for the Chipping Norton AQMA, as well as domestic fuel burning policies.

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP24-2114**
Date of issue	**June 2024**

Overall, the AQAP appears well compiled and is considered commensurate with the concentrations monitored most recently in the AQMA. In this context, the justifications around the limitations to the quantification of measures are recognised. The Final AQAP is therefore accepted so that the Council can now focus on implementation, however this is under the caveat that the assessment of impacts is updated with a more detailed analysis at such time as this information is available. This is because under strengthened Environment Act 2021, quantification of the impact of measures is a requirement, along with specifying a date at which air quality objectives can be expected to be achieved, and the two are very much correlated in this case.

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP24-2114**
Date of issue	**June 2024**

Commentary

- WODC have responded directly to comments on the Witney AQAP and have consolidated the separate Witney AQAP and Chipping Norton AQAP as recommended in Draft appraisal. The Council's proactive approach to these comments is welcomed.

- Formatting errors, such as red template text and cross-referencing errors, have also been updated.

- There should still be more analysis of the apparently highly localised exceedance at NAS22. According to Figure 2-3, the site virtually opposite (NAS21) is 50% lower. No further discussion on the possible reasons for the differences in annual mean NO_2 concentrations between NAS21 and NAS22. If the AQMA's validity is based on micro-scale concentrations, this could potentially be readily addressed without wider interventions. The sitting of the diffusion tube should be checked, and whether it is aligned with best practice in LAQM.TG(22), for example.

- The public health context section has been updated to include the Public Health Outcomes Framework indicator D01, as advised at Draft, and is considered sufficient to provide local context.

- The appraisal of the Draft AQAPs advised a more detailed assessment of the impacts of the Local Plan development projections to ensure that the currently achieved compliance will be maintained given the large developments anticipated, including the development zone anticipated in East Chipping Norton. The inclusion of a new link road remains uncertain in the Final AQAP. There has not been a significant update in regard to this comment, with WODC responding that it is not possible to assess the impacts of the Local Plan at this stage, as it is currently being reviewed to be updated to cover the period up to 2041. This limitation is acknowledged, though it is considered that a more robust assessment would be essential to ensuring the continued compliance of the AQMA in future, which should be provided as soon as this is possible.

- Whilst source apportionment has been provided for NO_x, PM_{10} and $PM_{2.5}$, it would be informative to provide this for NO_2, given the non-linear relationship between this and NO_x. This can be done using the methodology in Box 7.5 of LAQM.TG(22), if

not modelled. It is however not considered a requirement for the AQAP's acceptance in this case given the Council's stated justification.

- NAS16 is included in Figures 3-8 – 3-10, is potentially misleading, given it is showing a different analysis to the other sites. However, it is noted the text suitably justifies the discrepancy in trends, outlining this site did not have sufficient data for the same analysis.

- The required reduction in road NO_x emissions calculations that have been provided could still be more explicitly referenced in the measures table, though it is noted that this is likely to be conservative given the assessment year used. For example, there is no reference to the 15% and 12% reductions calculated as being required to achieve compliance in Witney and Chipping Norton AQMAs respectively, and which of the measures will directly contribute to this, and by how much.

- The date compliance is expected to be achieved with or without measures has not been estimated and should be included in the published version of the AQAP, and updated when more direct quantification of the measures' impacts is possible.

- The requirement for the quantification of measures was noted in the appraisals of the Draft AQAPs, however this has not been fully addressed in the Final. This makes it challenging to understand the relative merits of particular interventions. As per paragraph 2.85 of LAQM.TG(22), an AQAP should contain quantification of the emission impacts of measures as a minimum.

    - WODC have noted the Shores Green junction re-routing through-traffic out of the AQMA and onto the A40 does lend itself to modelling; modelling of this measure is strongly recommended when the information is available.

    - Various schemes in the Local Transport Plan for Witney are still under consideration by Oxfordshire County Council, and thus WODC have stated they are not suitable for air quality modelling currently. Transport modelling for the scheme considered under the Local Transport Plans for respective AQMAs has not been carried out, and this remains unchanged from the draft AQAP. It is strongly recommended that modelling of these interventions is completed when the information is available.

- The measures listed are generally more strategic in nature. It is appreciated the Local Transport Plan contains localised measures, and the A40 Shores Green Junction. Further specific, hyper local measures may bring additional benefits to the AQMA, especially given the 2019 monitored and modelled exceedances occur at only one location, particularly NAS22 which appears highly localised.

- WODC have pointed to meeting minutes to demonstrate the consideration of impact on emissions, social benefits, additional health benefits, additional environmental benefits, estimated financial cost, potential burden on the public, potential burden on businesses. It would be beneficial for a formalised cost / benefit analysis, with outcomes for individual measures to clearly display which measures are considered to be most cost effective, relative to the pollutant reductions they would achieve.

- WODC have confirmed the respective Witney and Chipping Norton AQMAs will meet annually at a minimum. These meetings will allow progress to be reported and tracked against KPIs, and ensuring the AQAP is a “live” strategy, and new measures can be introduced if required. These outcomes should be tracked through the AQAP’s implementation.

- Section 4 and Appendix A are now populated in full following the completion of public consultation and stakeholder engagement. Some direct reference to responses have been made in the main document, but it is not immediately clear whether there this has influenced the development and prioritisation of measures within the AQAP.

- Appendix B has also been populated, highlighting measures not taken forward to the AQAP, and the reasons behind these decisions. The main reasons for not taking forward measures are generally a lack of relevance, related to cost or that there was limited feedback on them. WODC have confirmed they intend to revisit the list at Steering Group meetings through the life of the AQAP, to see whether the landscape has changed, and whether they could then be implemented.

- It is noted WODC have taken a conservative approach in using 2019 as a baseline for the AQAP. Given 2023 monitoring data is likely available now, it would be helpful to account for the latest information to demonstrate a more realistic impact, given many won’t be fully implemented until at least 2024 now.

- It is acknowledged WODC have stated within the AQAP that if the AQMA is revoked within the life cycle of this AQAP, the Council will consider retaining an updated version of this Plan to form the basis of a local air quality strategy for the AQMAs (or the wider district) as per paragraph 4.12 of LAQM.PG(22), which would be a requirement if there were to be no AQMAs across the district.

This commentary is not designed to deal with every aspect of the Action Plan. It highlights a number of issues that should help the local authority in maintaining the objectives of its Action Plan, namely the improvement of air quality within the AQMA.

Issues specifically related to this appraisal can be followed up by returning the attached comment form to Defra, Welsh Government, Scottish Government or DOE, as appropriate

For any other queries please contact the Local Air Quality Management Helpdesk:
Telephone: 0800 0327 953
Email: LAQMHelpdesk@bureauveritas.com

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP24-2114**
Date of issue	**June 2024**

Notice for 2024

Changes to the Local Air Quality Management Framework

Through the Environment Act 2021 and Local Air Quality Management Statutory Policy Guidance 2022, the Local Air Quality Management (LAQM) framework has been considerably strengthened. This page highlights some of the changes for delivery to help you prioritise action for improved air quality:

Strengthened Criteria for Air Quality Action Plans (AQAPs)

The requirements and guidance around AQAPs have been strengthened under the Environment Act 2021 and the LAQM Statutory Policy Guidance 2022. Action plans must include:

- an assessment of source apportionment,
- provide the population living within the AQMA (where the data is available),
- specify the concentration emission reductions required,
- set out the measures being taken to secure the achievement and maintenance of air quality standards and objectives,
- specify clear timescales for the implementation of measures,
- specify the date air quality objectives are expected to be achieved,
- include quantification of the impacts of the proposed measures,
- detail how delivery partners will work together to implement the AQAP,
- set out a plan to monitor and evaluate the effectiveness of the plan,

Actions plans must be finalised within 18 months of an AQMA being declared and reviewed every five years thereafter.

Escalation Process for Reporting

Government is committed to increasing transparency by requiring timely and accurate publication of Annual Status Reports (ASRs) and AQAPs by local authorities, as set out in the Environmental Improvement Plan 2023. These documents are public-facing and serve to keep local communities informed of the steps being taken by their local authority to improve air quality.

To ensure ASRs and AQAPs are delivered on time, Defra introduced a reminder and warning letter system for Local Authorities. This system was set out in the LAQM Statutory Policy Guidance 2022 and started to apply from 30 June 2023.

If reporting requirements continue to be missed, the matter can be escalated to a Section 85 Secretary of State direction to the relevant Local Authority Chief Executive specifying action. You are advised to ensure all statutory reporting duties for LAQM are met on time.

Public Bodies Required to Contribute to Action Plans

The Environment Act 2021 amended the Environment Act 1995 to increase the number of public bodies that have a duty to co-operate with Local Authorities for LAQM. Air quality partners are certain other public bodies that a Local Authority identifies as having responsibility for a source of emissions contributing to an exceedance of local air quality objectives. This could be a neighbouring authority, National Highways, or the Environment Agency. Once identified, there is a statutory requirement for such public bodies to engage and to contribute actions they will take to secure achievement of the local air quality objective and to maintain achievement thereafter.

All tiers of local Government are also now required by law to collaborate to address exceedances of Air Quality Objectives. County councils, the Mayor of London and combined authorities have similar duties to air quality partners. The difference is that, when requested, they must contribute to an action plan being prepared by a Local Authority, regardless of whether the local authority has identified them as being responsible for a source of emissions.

Under the legislation, you may choose to request the support of another public body in the development of an AQAP and the same may be requested of your organisation.

Please refer to the LAQM Statutory Policy Guidance 2022 for more information. Should you require further assistance, please contact the LAQM Helpdesk:

Web: http://laqm.defra.gov.uk/helpdesks.html
FAQs: http://laqm.defra.gov.uk/laqm-faqs/
Tel: 0800 032 7953
Email: laqmhelpdesk@uk.bureauveritas.com
The Air Quality Hub also provides free online information and is a knowledge sharing resource for local authority air quality professionals: https://www.airqualityhub.co.uk/

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP24-2114**
Date of issue	**June 2024**

Appraisal Response Comment Form

Contact Name:	
Contact Telephone number:	
Contact email address:	UKLAQMAppraisals@aecom.com

Comments on appraisal/Further information:

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Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1607**
Date of issue	**June 2023**

Air Quality Action Plan Appraisal

The Action Plan sets out information on air quality obtained by the Council as part of the Local Air Quality Management process required under the Environment Act 1995 (as amended by the Environment Act 2021) and subsequent Regulations.

This Appraisal Report covers the Air Quality Action Plan (AQAP) for 2023 – 2028 submitted by West Oxfordshire District Council (WODC) in relation to the Witney Air Quality Management Area (AQMA) declared in 2005 for exceedances of the annual mean NO_2 objective, and works alongside a similar AQAP submitted for the Chipping Norton AQMA at the same time.

The AQAP uses the Defra report template and is concise, well presented and clearly formatted, with some minor exceptions. Additional appendices have also been added, summarising the supporting assessment and modelling work that has been undertaken in development of the AQAP.

With steady improvements having been made to local air quality in recent years, there were no exceedances of the NO_2 annual mean objective in either 2020 or 2021, potentially in part related to COVID-19. However, the 2022 data also indicate no exceedances which would indicate a continuation of this trend beyond the pandemic. The last exceedances were seen in 2019, at two locations within the AQMA. Additional modelling was undertaken of the AQMA in support of this AQAP, using 2019 as a baseline year as a conservative assessment. An additional assessment was also made against the new $PM_{2.5}$ targets within the AQAP as part of Appendix C (which used existing AURN monitoring data to conclude that both targets are likely to be met). The AQAP goes on to set out the public health context, citing the 2019 PHE report.

Several local, regional and national scale policy documents have been referenced in the Plan. At a national scale, the UK Air Quality Strategy, 2019 Clean Air Strategy and the Road to Zero are all cited. Air quality aspects of regional policies have also been outlined in detail. The strategies referenced include the: Oxfordshire County Council Air Quality Strategy (though not yet adopted), the Oxfordshire Local Transport & Connectivity Plan, the Freight and Logistics Strategy, Active Travel Strategy, Connecting Oxfordshire: Local Transport Plan, the Oxfordshire EV Infrastructure Strategy, and the Oxfordshire Energy Strategy.

At a local level, the 2031 Local Plan will be integral to the success of the AQAP. There are seven objectives and four policies within the current Local Plan relevant to air quality, most specifically CO16: Enable improvements in water and air quality. This provides confidence that air quality concerns will be at the forefront of development within the district. Three key developments have also been referenced, which will need to be monitored for their impact on air quality. Further plans included are the 2020 Climate Action Plan, the Climate Change Strategy for West Oxfordshire 2021-2025, the Witney Local Cycling and Walking Infrastructure Plan, the West Oxfordshire Parking Strategy 2016 and the Sustainability Standards Checklist. This comprehensive policy summary section provides confidence that the AQAP is commensurate with existing work in the sector.

Source apportionment of NOx was carried out in 2023 based on 2019 data, considering both total NOx and the sources of road NOx. Based on Defra's background maps, rural contributions make up approximately half the average NOx concentrations, with roads contributing 22%. Domestic and industrial sources are also large contributors. Of the road NOx, cars and LGVs are the most significant contributors, at approximately 50 and 20% respectively. Of those categories, diesels are the higher contributors. Particulate source apportionment is similar in terms of the key contributors, though doesn't exhibit the same weighting toward diesels as emissions are more related to the traffic volume, rather than tailpipe emissions. The background is by far the largest component of particulate concentrations.

The required reduction in NO_2 concentrations to achieve compliance, based on 2019 monitoring, was also calculated in Table 3.8. A maximum reduction of road NOx of 15.2% (at NAS1) was assessed to have been required. Whilst concentrations have reduced since 2019, on that basis, this represents a significant but achievable challenge in achieving compliance with the objective.

Five scenarios for intervention have been modelled, ranging from 5-15% reductions in car traffic, and 5-15% reductions in HGVs. Whilst not explicitly tied to specific AQAP measures, these demonstrate what improvements might be possible if the associated traffic reductions can be achieved through a combination of the AQAP measures. A 15% reduction in car traffic resulted in the largest reductions, with an average percentage concentration change of -5.7% for NO_2, -2% for PM_{10}, and -1.8% for $PM_{2.5}$ across all monitoring sites in Witney in 2019.

The measures have been modelled in this way for the Draft AQAP as transport modelling will be carried out for various schemes considered under Measure 1 Local Transport Plan for Witney, as well as for scheme Measure 4 Shores Green Junction, which is being assessed in the LTP Feasibility Study, which can be modelled at a later date.

The following priorities have been set in the AQAP and help define the measures selected, namely:

- Bringing the Witney AQMA into compliance with the NO_2 annual mean Air Quality Objective;
- Managing $PM_{2.5}$ exposure; and
- Improving accessibility into and around Witney by alternatives to private car – i.e. walking, cycling and public transport.

On an individual measure basis, a total of 37 measures have been taken forward in the Plan. These are generally focused on transport, including the Witney Area Travel Plan, the Witney Local Cycling and Walking Infrastructure Plan and electric vehicle charging infrastructure. HGVs are also targeted, with a freight consolidation centre feasibility study included. Funding has been identified for some of these measures, though the sources are not 100% clear.

Further measures focus on public engagement and awareness. This includes updating information on the website, school travel plans, anti-idling enforcement, air quality planning guidance and the 'Healthy Streets Approach'. Additional measures include looking at domestic burning fuels.

The target reductions of pollution within the AQMA for all measures were not specified, rather a qualitative categorisation of the measures' impacts has been included to indicate which measures are likely to be the most effective.

That said, additional modelling information has been provided in the appendices, most specifically within Appendix E, which presents the baseline and scenario testing results. Impacts on NO_2 incrementally increase in the car reduction scenarios, starting at 2-3% reductions in scenario 1 (5% car reductions) and increasing to 5-6% reductions in scenario 3 (15% car reductions). The HGV reduction scenarios show lesser incremental increases, indicating that this vehicle class is a less significant contributor to total concentrations. At

least one exceedance is seen in all scenarios, though this is based on 2019 data. A similar story is reflected in the PM calculations, though with no exceedances in any scenarios.

Details of the steering group responsible for the AQAP's development have also been provided, with involvement from several WODC departments, and local (parish) and regional (county) Councils and an independent consultant. The group appears to have had close involvement with the development of the actions specifically, but there is little detail on its role through implementation. Detailed minutes of a workshop conducted in February 2023 have been included in Appendix D showing the discussions which have fed into the AQAP's production.

Defra recommends that Directors of Public Health approve AQAPs. Sign off is not a requirement, however collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all. Please bear this in mind for the submission of the final AQAP and future iterations.

Overall, the AQAP appears well compiled and is considered commensurate with the concentrations monitored most recently in the AQMA, and is therefore accepted as a Draft. Several aspects can be considered best practice, including the detailed summary of the Steering Group involvement, and the stated intention to retain as an Air Quality Strategy should the AQMA be revoked. That said, improvements can still be made. Specific commentary to inform the final version, and future updates, is provided overleaf.

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1607**
Date of issue	**June 2023**

Commentary

- There is an opportunity to consolidate this AQAP with the Chipping Norton AQMA, since much of the content is transferable.

Response: This has been actioned.

- It is assumed red text from the template will be replaced within the Final AQAP.

Response: This has been actioned.

- There are cross referencing errors on pages 38 and 40 which should be updated.

Response: This has been actioned.

- The public health context section is fairly limited to generic text. More local context could be provided using the Public Health Outcomes Framework indicator D01. This could be moved from Appendix C.

Response: This has been actioned.

- Some assessment of the impacts of the Local Plan development projections would be beneficial, to ensure that the currently achieved compliance will be maintained given the fairly large developments anticipated.

Response: It is not possible to assess the impacts of the Local Plan at this stage, as it is currently being reviewed to be updated to cover the period up to 2041 (see report section 3.2.3.2). The objectives and policies discussed in the current Local Plan 2031 are therefore potentially subject to change, unless already implemented.

- Whilst source apportionment has been provided for NOx, PM_{10} and $PM_{2.5}$, it would be informative to provide this for NO_2, given the non-linear relationship between this and NOx. This can be done using the methodology in Box 7.5 of LAQM.TG(22), if not modelled.

Response: The source apportionment in its current form provided sufficient information to identify the key emissions sources in the AQMA and quantify the emissions reduction required.

- The required reduction in road NO_x emissions calculations that have been provided could be more explicitly referenced in the measures table. For example, there is no reference to the 15% reductions calculated as being required to achieve compliance, and which of the measures will directly contribute to this, and by how much.

Response: In relation to the 15% reduction required to achieve compliance, the required reduction in road NOx emissions calculations were based on the latest available data not affected by the COVID-19 lockdowns at the time of writing the AQAP: 2019. The now available 2022 monitoring data demonstrates there is no current non-compliance with the annual mean NO_2 AQO. Section 3.4.1.1 of the AQAP has been updated with a paragraph noting this.

As stated in TG22, it is likely that some measures lend themselves to detailed quantifiable analysis in terms of emissions reductions more so than others. It was considered that the measures in the actions table largely did not lend themselves to detailed quantifiable analysis. In most cases, this was due to measures not being sufficiently parameterised to model to quantify an expected emissions reduction. It is acknowledged that TG22 recommends focus on the top three to five measures that provide the most significant impact on emissions. As stated in section 5.1.1, the actions considered to be priority measures were:

- Measure 1: Witney Area Travel Plan
- Measure 2: Witney LCWIP
- Measure 4: Shores Green junction re-routing through-traffic out of the AQMA and onto the A40.

In relation to measure 1, specific traffic management schemes were still under consideration by OCC, and required assessment through traffic modelling, therefore these were not suitable to take forward to air quality modelling at this time. The Witney LCWIP is not suitable to assess quantitively, as it is not possible to accurately predict uptake. The Shores Green junction re-routing through-traffic out of the AQMA and onto the A40 does lend itself to modelling, however, there was no quantified estimated reduction in traffic in the AQMA as a result of the scheme. Therefore, a more generalised approach was taken to understand the impact of reducing the number of cars and HGVs in the AQMA – as summarised in Section 3.4.3.

- The AQAP determines qualitatively that the actions are likely to be effective, but doesn't accurately quantify any of the specific measures' impacts, which would help the reader to understand the relative merits of particular interventions. As per paragraph 2.85 of LAQM.TG(22), an AQAP should contain quantification of the emission impacts of measures as a minimum. This could be aided by dispersion modelling of the detailed measures, as is the stated intention within the AQAP. Once modelling has been completed for the specific measures after transport modelling is available, this should be added to the AQAP.

Response: (copied from second and third paragraphs in above bullet point.)

As TG22 notes, it is likely that some measures lend themselves to detailed quantifiable analysis in terms of emissions reductions more so than others. It was considered that the measures in the actions table largely did not lend themselves to detailed quantifiable analysis. In most cases, this was due to measures not being sufficiently parametised to model to quantify an expected emissions reduction. It is acknowledged that TG22 recommends focus on the top three to five measures that provide the most significant impact on emissions. As stated in section 5, the actions considered to be priority measures were:

- Measure 1: Witney Area Travel Plan
- Measure 2: Witney LCWIP
- Measure 4: Shores Green junction re-routing through-traffic out of the AQMA and onto the A40.

In relation to measure 1, specific traffic management schemes were still under consideration by OCC, and required assessment through traffic modelling, therefore these were not suitable to take forward to air quality modelling at this time. The Witney LCWIP is not suitable to assess quantitively, as it is not possible to accurately predict uptake. The Shores Green junction re-routing through-traffic out of the AQMA and onto the A40 does lend itself to modelling, however, there was no quantified estimated reduction in traffic in the AQMA as a result of the scheme. Therefore, a more generalised approach was taken to understand the impact of reducing the number of cars and HGVs in the AQMA – as summarised in Section 3.4.3.

We note the recommendation for more specific modelling of measures once more specific measures are selected, following OCC's Local Transport Plan feasibility assessment, and this will be considered as an option in the future, depending on available resources.

- The measures table is currently incomplete, full details will need to be provided within the Final AQAP.

Response: This has been actioned.

- With the exception of the first four measures, the measures listed are generally more strategic in nature. Further specific, hyper local measures may bring additional benefits to the AQMA, though it is appreciated that the topography may limit what is achievable.

Response: As discussed in Section 5.1.1, various transport schemes are being considered under Measure 1 Local Transport Plan for Witney, as well as for scheme Measure 4 Shores Green Junction, which are being assessed by OCC in their Local Transport Plan Feasibility Study.

- The development of the measures should give more weight to the source apportionment results, since these calculations are intended to drive the significant sources that should be targeted through action, in order to achieve the greatest improvements. Currently there is limited linkage between the two.

Response: Text added to section 5.1.1 to better explain the linkage between the source apportionment results and measures reads as follows:

"The source apportionment exercise for Witney (as presented in section 3.3) identified that in terms of background concentrations, the largest source of NOx concentrations in the AQMA is rural (53%) (combined naturally occurring NOx and agricultural sources), followed by road transport (22%), domestic (11%), industry (6%) and other (6%).

The source apportionment of NOx concentrations at the monitoring locations in Witney AQMA by vehicle type showed that the greatest contributions came from diesel cars (35-49%), followed by diesel LGVs (15-27%). Rigid HGVs comprised 6-11% of NOx concentrations, petrol cars 5-8%, buses/coaches 0-11%, artic HGVs 2-6%, and petrol LGVs <0.1%.

With these results in mind, it was identified that measures targeting cars, freight, and the general fleet, and domestic sources, would likely have the greatest impact in reducing NOx concentrations in Witney."

- The measures would also benefit from a detailed cost/benefit analysis, as it is currently unclear to the lay person which of the measures will be most cost effective, relative to the pollutant reductions they would achieve.

Response: During the development of the long list of measures, the refining of the short list of measures, and the discussions with the steering group, the following factors were considered as part of a cost-benefit analysis: impact on emissions, social benefits, additional health benefits, additional environmental benefits, estimated financial cost, potential burden on the public, potential burden on businesses. Minutes of the discussions with the steering group are in Appendix D.1.

- The AQAP could also provide more information on the intended funding streams supporting the measures, beyond seeking S106 payments. This would ensure greater confidence that the measures will be implemented.

Response: comment noted.

- The environmental externalities of the measures, such as the impact on climate change, could also be considered. The AQAP starts well in this regard, citing policies which are synergistic, but this isn't carried through to the measures.

Response: Climate change benefits have been considered as additional environmental benefits in development of the long list of measures, the refining of the short list of measures, and the discussion with the steering group. Additionally, there co-benefits in the measures where both air pollution emissions and CO_2 emissions will be reduced. For example, the scenario testing models a reduction in cars and HGVs, which will have a positive impact on carbon emissions.

- Whilst the Steering Group has clearly had a role to play in the development of the AQAP, it is unclear how implementation will be managed. The Steering Group should carry on through implementation, to ensure measures are taken forward effectively. Details of their work could be included within any future versions of the AQAP.

Response: A paragraph subtitled “Future activities” has been added to section 4.2 Steering Group which reads as follows:

“The respective Witney and Chipping Norton Steering Groups will meet on at least an annual basis for the duration of the implementation of this AQAP.

These meetings will include:

- *Reporting back on progress against AQAP measures from responsible owners, including reporting against KPIs, and highlighting any changes to timescales, funding, and barriers to delivery.*
- *Maintain AQAP as a “live” strategy, ensuring measures remain targeted and focused, and introducing new measures as needed.”*

- Whilst it is recognised that this is a Draft and the consultation as not yet been undertaken, please populate Section 4 and Appendix A summarising the responses to consultation. Best practice would involve adding direct cross references to sections in the main document where the comments have been addressed or have affected the content.

Response: This has been actioned.

- Appendix B has also been populated, highlighting measures not taken forward to the AQAP, and the reasons behind these decisions. The main reasons for not taking forward measures are generally political, related to cost or that there was limited feedback on them. These could be revisited through the life of the AQAP, to see whether the landscape has changed, and whether they could then be implemented.

Response: This is noted, and the list will be kept under consideration and revisited where appropriate (e.g. annual Steering Group meetings).

- Appendix E presents only results of the modelling. More details could be provided around the model’s set up and verification, so that the reader can more fully understand the uncertainties associated with the predictions. For example, the modelling does not predict exceedances at NAS1, but does at NAS2, which is the inverse to the monitoring. How has this been accounted for within the measures’ development, if at all, and what is the potential cause of this discrepancy?

Response: The following text regarding the model setup and verification has been added to Appendix E:

"To determine traffic flows and traffic composition across the modelled roads in Witney, traffic count data, traffic models, and speed data were sourced from Oxfordshire County Council and sense checks were made against data from the Department for Transport.

Error! Reference source not found.shows how the model was verified, in line with the Technical Guidance LAQM TG(22), with the use of Defra's NOx to NO2 calculator. To evaluate model performance and uncertainty, the Root Mean Square Error (RMSE) for the observed vs predicted NO_2 annual mean concentrations was calculated, as detailed in TG(22). This guidance indicates that for an annual model, an RMSE of up to 4 µg/m^3 is ideal, and an RMSE of up to 10 µg/m^3 is acceptable. In this case the RMSE value was 3.46 µg/m^3, which shows good agreement between modelled and measured concentrations."

In addition to this text, a table of the model verification was added to Appendix E.

There is a slight discrepancy in the modelling where the model predicts an exceedance as NAS1 and not as NAS2, which is the inverse of the monitoring data. However, both the monitored and modelled NO_2 concentrations for NAS1 and NAS2 are above 10% of the AQO (>36 µg/m^3). Additionally, the model's RMSE is 3.46 and within 10% of the AQO, thereby following the LAQM TG22 Guidance.

Due to their proximity to each other, both being in Bridge Street on the same road link and within a street canyon environment, this discrepancy was likely a result of the available meteorological data for the year 2019, and measures are likely to impact both sites equally in terms of emissions reductions.

- It would also be more informative to project forward the predicted concentrations, given 2019 is now several years ago. This would also demonstrate a more realistic impact, given many won't be fully implemented until at least 2024 now.

Response: A conservative approach was taken to the baseline model based on measured realistic data, rather than adding additional assumptions. For the future modelling scenarios, a conservative approach was also taken. It was anticipated that whilst the fleet mix would improve (new, less polluting vehicles on road), there could be

future increases in the number of vehicles in the fleet, associated with planned developments. Due to the lack of information regarding expected impact of planned developments on the traffic levels in the AQMA, a future scenario could not be accurately estimated. The conservative approach was therefore taken, estimating emissions and concentrations reductions for the baseline year for each modelling scenario.

- The revocation of an AQMA should be considered following three consecutive years of compliance with the relevant objective as evidenced through monitoring. Should the situation of no exceedances continue over five years, local authorities must proceed with plans to revoke the AQMA. The LAQM Technical Guidance 2022 is clear in this respect:

  "There should not be any declared AQMAs for which compliance with the relevant objective has been achieved for a consecutive five-year period." (Point 3.57, page 50).

  AQMAs should identify areas where air quality objectives are not being met or are likely to be at risk of not meeting them. Keeping AQMAs in place longer than required risks diluting their meaning and impacting public trust in LAQM.

Response: this is noted in the AQAP – see section 2.4. The Council are aware of the requirements for revocation, and will keep the monitoring data under review, and continue to consult with and take advice from Defra on the status of the Witney and Chipping Norton AQMAs. It is also noted from TG22 (3.54) that where 2020 is one of many consecutive years of compliance, an AQMA may be considered for revocation. However, as compliance based on diffusion tube monitoring only requires three years of compliance below 10% of the AQO (>36 µg/m^3), and as one of the Witney diffusion tubes remained within 10% of the AQO (>36 µg/m^3) in from 2020 to 2022, it is assumed that the criteria is not yet met for the Witney AQMA to be revoked.

- That said, it is stated within the AQAP that if the AQMA is revoked within the life cycle of this AQAP, the Council will consider retaining an updated version of this Plan to form the basis of a local air quality strategy for the AQMAs (or the wider district) as per paragraph 4.12 of LAQM.PG(22), which would be a requirement if there were to be no AQMAs across the district.

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1607**
Date of issue	**June 2023**

Response: This is noted in the AQAP – see section 2.5.

This commentary is not designed to deal with every aspect of the Action Plan. It highlights a number of issues that should help the local authority in maintaining the objectives of its Action Plan, namely the improvement of air quality within the AQMA.

Issues specifically related to this appraisal can be followed up by returning the attached comment form to Defra, Welsh Government, Scottish Government or DOE, as appropriate

For any other queries please contact the Local Air Quality Management Helpdesk:
Telephone: 0800 0327 953
Email: LAQMHelpdesk@bureauveritas.com

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1607**
Date of issue	**June 2023**

LAQM Guidance Notes – 2023

Through the Environment Act 2021 and updated Local Air Quality Management Statutory Policy Guidance 2022, the Local Air Quality Management (LAQM) framework has been considerably strengthened. This page highlights some of the changes for delivery to help you prioritise action for improved air quality:

1. Strengthened Criteria for Air Quality Action Plans (AQAPs)

Where a Local Authority is not meeting air quality objectives, they must create an AQAP setting out their intentions to improve air quality in the area. Without current action plans in place, Local Authorities risk negatively impacting their communities by not proactively working to reduce air pollution in the area.

The requirements and guidance around AQAPs were recently strengthened under the Environment Act 2021 and revised LAQM Statutory policy guidance, which Local Authorities must have regard to. The key criteria for action plans are that they:

- Set out the measures they will take to secure the achievement, and maintenance, of air quality standards and objectives;
- Specify a date by which each measure will be carried out; and
- Are revised no later than every five years.

2. New Escalation Process for Reporting

To ensure ASRs and AQAPs are delivered on time, Defra has introduced a new reminder and warning letter system for Local Authorities. This system was set out in the LAQM Statutory Policy Guidance 2022, published on 6 August 2022.

From 30 June 2023, Local Authorities with overdue ASRs and AQAPs will start to receive their first reminder letters. As set out in the Tables 1 and 2 below, if reporting requirements continue to be missed, the matter can be escalated to a Section 85 Secretary of State direction to the relevant Local Authority Chief Executive specifying action.

You are therefore advised to ensure all statutory reporting duties for LAQM are met on time. Please refer to the LAQM Statutory Policy Guidance 2022 for more information.

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1607**
Date of issue	**June 2023**

Table 1: Reminder and warning process for ASRs

Timescale	Enforcement	Recipient
Six months before deadline - **January**	**Pre-reminder letter**	From the Air Quality and Industrial Emissions (AQIE) Deputy Director to all local authority Chief Executives and relevant director/s - environment & public health reminding them of LAQM statutory requirements.
Two months before deadline - **April**	**Final pre-reminder letter**	From Defra's LAQM team to all Air Quality officers reminding them of June deadline
One month overdue - **July**	**Reminder letter**	From Defra's LAQM team to Air Quality Officer at non-submitting local authorities
Three months overdue - **September**	**Warning Letter**	From the AQIE Deputy Director to relevant director/s - environment & public health
Four months overdue - **October**	**Final Warning letter**	From the AQIE Deputy Director to relevant director/s - environment & public health
Six months overdue – **December**	**Ministerial letter:** Section 85 direction	Local Authority Chief Executive

Table 2 – Reminder and warning process for AQAPs - Due to be revised at least every five years

Timescale	Enforcement letter	Recipient
AQAP 2 months overdue (e.g.14 months post AQMA designation or 5 years & 2 months since previous AQAP publication)	**Reminder letter**	From Defra's LAQM team to Air Quality Officer at non-compliant Local Authority
AQAP 4 months overdue	**Warning Letter**	From the AQIE Deputy Director to Environment Health / Air Quality Manager at non-compliant Local Authority
AQAP 6 months overdue	**Final Warning letter**	From the AQIE Deputy Director to relevant Director at non-compliant Local Authority
AQAP 8 months overdue	**Ministerial letter**: Section 85 direction	Local Authority Chief Executive

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1607**
Date of issue	**June 2023**

3. Public Bodies Required to Contribute to Action Plans

The Environment Act 2021 amended the Environment Act 1995 to increase the number of public bodies that have a duty to co-operate with Local Authorities for LAQM. Air quality partners are certain other public bodies that a Local Authority identifies as having responsibility for a source of emissions contributing to an exceedance of local air quality objectives. This could be a neighbouring authority, National Highways, or the Environment Agency. Once identified, there is a statutory requirement for such public bodies to engage and to contribute actions they will take to secure achievement of the local air quality objective and to maintain achievement thereafter.

All tiers of local Government are also now required by law to collaborate to address exceedances of Air Quality Objectives. County councils, the Mayor of London and combined authorities have similar duties to air quality partners. The difference is that, when requested, they must contribute to an action plan being prepared by a Local Authority, regardless of whether the local authority has identified them as being responsible for a source of emissions.

Under the new legislation, you may choose to request the support of another public body in the development of an AQAP and the same may be requested of your organisation.

Please refer to the LAQM Statutory Policy Guidance 2022 for more information. Should you require further assistance, please contact the LAQM Helpdesk:

Web: http://laqm.defra.gov.uk/helpdesks.html
FAQs: http://laqm.defra.gov.uk/laqm-faqs/
Tel: 0800 032 7953
Email: laqmhelpdesk@uk.bureauveritas.com
The Air Quality Hub also provides free online information and is a knowledge sharing resource for local authority air quality professionals: https://www.airqualityhub.co.uk/

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1607**
Date of issue	**June 2023**

Appraisal Response Comment Form

Contact Name:	
Contact Telephone number:	
Contact email address:	UKLAQMAppraisals@aecom.com

Comments on appraisal/Further information:

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1608**
Date of issue	**June 2023**

Air Quality Action Plan Appraisal

The Action Plan sets out information on air quality obtained by the Council as part of the Local Air Quality Management process required under the Environment Act 1995 (as amended by the Environment Act 2021) and subsequent Regulations.

This Appraisal Report covers the Air Quality Action Plan (AQAP) for 2023 – 2028 submitted by West Oxfordshire District Council (WODC) in relation to the Chipping Norton Air Quality Management Area (AQMA) declared in 2005 for exceedances of the annual mean NO_2 objective, and works alongside a similar AQAP submitted for the Witney AQMA at the same time.

The AQAP uses the Defra report template and is concise, well presented and clearly formatted, with some minor exceptions. Additional appendices have also been added, summarising the supporting assessment and modelling work that has been undertaken in development of the AQAP.

With steady improvements having been made to local air quality in recent years, there were no exceedances of the NO_2 annual mean objective in either 2020 or 2021, potentially in part related to COVID-19. That said, there was a slight increase in 2021 as compared to 2020. However, the 2022 data also indicate no exceedances, so compliance has been maintained coming out of the pandemic. The last exceedance was seen in 2019, at one location within the AQMA (NAS22). This appears to be highly localised however, as according to Figure 2-3, a site virtually opposite (NAS21) monitored less than 20 µg/m^3 in the same year.

Additional modelling was undertaken of the AQMA in support of this AQAP, using 2019 as a baseline year as a conservative assessment. An additional assessment was also made against the new $PM_{2.5}$ targets within the AQAP as part of Appendix C (which used existing AURN monitoring data to conclude that both targets are likely to be met). The AQAP goes on to set out the public health context, citing the 2019 PHE report.

Several local, regional and national scale policy documents have been referenced in the Plan. At a national scale, the UK Air Quality Strategy, 2019 Clean Air Strategy and the Road to Zero are all cited. Air quality aspects of regional policies have been outlined in detail. The strategies referenced include the: Oxfordshire County Council Air Quality Strategy (though not yet adopted), the Oxfordshire Local Transport & Connectivity Plan, the Freight and

Logistics Strategy, Active Travel Strategy, Connecting Oxfordshire: Local Transport Plan, the Oxfordshire EV Infrastructure Strategy, and the Oxfordshire Energy Strategy.

At a local level, the 2031 Local Plan will be integral to the success of the AQAP. There are seven objectives and four policies within the current Local Plan relevant to air quality, most specifically CO16: Enable improvements in water and air quality. This provides confidence that air quality concerns will be at the forefront of development within the district. There is one key development zone in East Chipping Norton, which will need to be monitored for their impact on air quality, particularly as the impacts will be sensitive to the inclusion of a new link road which is left uncertain within the AQAP.

Further plans included are the 2020 Climate Action Plan, the Climate Change Strategy for West Oxfordshire 2021-2025, the Witney Local Cycling and Walking Infrastructure Plan, the West Oxfordshire Parking Strategy 2016 and the Sustainability Standards Checklist. This comprehensive policy summary section provides confidence that the AQAP is commensurate with existing work in the sector.

Source apportionment of NOx was carried out in 2023 based on 2019 data, considering both total NOx and the sources of road NOx. Based on Defra's background maps, rural contributions make up approximately 60% of the average NOx concentrations, with roads contributing 19%. Domestic and industrial sources are also large contributors. Of the road NOx, LGVs are the most significant contributors, at approximately 40-45% of the total. Cars are also significant contributors, at around 25-30% of the total. Of those categories, diesels are the higher contributors. HGVs are also an important contributor.

Particulate source apportionment is similar in terms of the key contributors, though doesn't exhibit the same weighting toward diesels as emissions are more related to the traffic volume, rather than tailpipe emissions. The background is by far the largest component of particulate concentrations.

The required reduction in NO_2 concentrations to achieve compliance, based on 2019 monitoring, was also calculated in Table 3.8. A maximum reduction of road NOx of 12.2% (at NAS22) was assessed to have been required. Whilst concentrations have reduced since 2019, on that basis, this represents a significant but achievable challenge in achieving compliance with the objective.

Five scenarios for intervention have been modelled, ranging from 5-15% reductions in car traffic, and 5-15% reductions in HGVs. Whilst not explicitly tied to specific AQAP measures, these demonstrate what improvements might be possible if the associated traffic reductions can be achieved through a combination of the AQAP measures. A 15% reduction in car traffic resulted in the largest reductions, with an average percentage concentration change of -2.9% for NO_2, -1% for PM_{10}, and -0.9% for $PM_{2.5}$ across all monitoring sites in Chipping Norton in 2019.

The measures have been modelled in this way for the Draft AQAP as transport modelling will be carried out for the scheme considered under Measure 1, the Local Transport Plan for Chipping Norton.

The following priorities have been set in the AQAP and help define the measures selected, namely:

- Bringing the Chipping Norton AQMA into compliance with the NO_2 annual mean Air Quality Objective;
- Managing $PM_{2.5}$ exposure; and
- Improving accessibility into and around Witney by alternatives to private car – i.e. walking, cycling and public transport.

On an individual measure basis, a total of 34 measures have been taken forward in the Plan. These are generally focused on transport, including implementing the West Oxfordshire Area Travel Plan, the Chipping Norton Local Cycling and Walking Infrastructure Plan and electric vehicle charging infrastructure. HGVs are also targeted, with a freight consolidation centre feasibility study included. Funding has been identified for some of these measures, though the sources are not 100% clear.

Further measures focus primarily on public engagement and awareness. This includes updating information on the website, school travel plans, anti-idling enforcement, air quality planning guidance and the ‘Healthy Streets Approach’. Additional measures include looking at domestic burning fuels.

The target reductions of pollution within the AQMA for all measures were not specified, rather a qualitative categorisation of the measures’ impacts has been included to indicate which measures are likely to be the most effective.

That said, additional modelling information has been provided in the appendices, most specifically within Appendix E, which presents the baseline and scenario testing results. Impacts on NO_2 incrementally increase in the car reduction scenarios, starting at 1-2% reductions in scenario 1 (5% car reductions) and increasing to 2-3.5% reductions in scenario 3 (15% car reductions). The HGV reduction scenarios show lesser incremental increases, indicating that this vehicle class is a less significant contributor to total concentrations. At least one exceedance is seen in all scenarios, though this is based on 2019 data. A similar story is reflected in the PM calculations, though with no exceedances in any scenarios.

Details of the steering group responsible for the AQAP's development have also been provided, with involvement from several WODC departments, and local (parish) and regional (county) Councils and an independent consultant. The group appears to have had close involvement with the development of the actions specifically, but there is little detail on its role through implementation. Detailed minutes of a workshop conducted in March 2023 have been included in Appendix E showing the discussions which have fed into the AQAP's production.

Defra recommends that Directors of Public Health approve AQAPs. Sign off is not a requirement, however collaboration and consultation with those who have responsibility for Public Health is expected to increase support for measures to improve air quality, with co-benefits for all. Please bear this in mind for the submission of the final AQAP and future iterations.

Overall, the AQAP appears well compiled and is considered commensurate with the concentrations monitored most recently in the AQMA, and is therefore accepted as a Draft. Several aspects can be considered best practice, including the detailed summary of the Steering Group involvement, and the stated intention to retain as an Air Quality Strategy should the AQMA be revoked. That said, improvements can still be made. Specific commentary to inform the final version, and future updates, is provided overleaf.

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1608**
Date of issue	**June 2023**

Commentary

- There is an opportunity to consolidate this AQAP with the Witney AQMA, since much of the content is transferable.

Response: This has been actioned.

- It is assumed red text from the template will be replaced within the Final AQAP.

Response: This has been actioned.

- There are cross referencing errors on page 13 of the document which should be updated.

Response: This has been actioned.

- There should be more analysis of the apparently highly localised exceedance at NAS22. According to Figure 2-3, the site virtually opposite (NAS21) is 50% lower, so if the AQMA is declared on the basis of something going on at a micro siting scale, this could potentially be readily addressed without wider interventions.

Response: Section 3.3.2 has been updated with the following text:

"There appears to be a highly localised exceedance at NAS22 where NO_2 concentrations exceed 40 µg/m^3, whereas the concentration at the adjacent monitoring site, NAS21, is below 20 µg/m^3. Both the monitored and modelled NO_2 concentrations in 2019 exhibit this pattern.

NAS22 is likely exposed to elevated concentrations as the narrow width of the road results in a more prevalent street canyon effect. NAS21 is located further back from the roadside in a side street outside of the street canyon, allowing greater scope for the dispersion of emissions. It is suggested that additional monitoring sites along Horse Fair could be installed to assess the variation in NO_2 concentrations in this area of exceedance."

- The public health context section is fairly limited to generic text. More local context could be provided using the Public Health Outcomes Framework indicator D01. This could be moved from Appendix D.

Response: This has been actioned.

- A more detailed assessment of the impacts of the Local Plan development projections would be beneficial, to ensure that the currently achieved compliance will be maintained given the fairly large development zone anticipated in East Chipping Norton. This is particularly relevant as the impacts will be sensitive to the inclusion of a new link road as part of this development, which is left uncertain within the AQAP. Whilst listed as being beneficial if this road is included, if it is not, presumably there will be significant adverse impacts.

Response: Comment noted.

- Whilst source apportionment has been provided for NOx, PM_{10} and $PM_{2.5}$, it would be informative to provide this for NO_2, given the non-linear relationship between this and NOx. This can be done using the methodology in Box 7.5 of LAQM.TG(22), if not modelled.

Response: The source apportionment in its current form provided sufficient information to identify the key emissions sources in the AQMA and quantify the emissions reduction required.

- The inclusion of NAS16 in Figures 3-3 – 3-5 is potentially misleading, given it is showing a different analysis to the other sites. If this is a background site, then a source apportionment showing road NOx is not really required. Likewise including this within the measures' analysis potentially skews this.

Response: NAS16 has been considered as a background site and has not been included in the road NOx source apportionment, as indicated by the NA values in Tables 3-3 to 3-5 and as explained in Section 3.3.2, "For the monitoring site where local modelling data was not available (NAS16), no source apportionment of road NOx has been calculated because it is classified as an urban background site. Here, a simplified source apportionment was performed based solely on the Defra background maps (e.g. % background and % road contributions)."

- The required reduction in road NO_x emissions calculations that have been provided could be more explicitly referenced in the measures table. For example, there is no

reference to the 12% reductions calculated as being required to achieve compliance, and which of the measures will directly contribute to this, and by how much.

Response: In relation to the 12% reduction required to achieve compliance, the required reduction in road NOx emissions calculations were based on the latest available data not affected by the COVID-19 lockdowns at the time of writing the AQAP: 2019. The now available 2022 monitoring data demonstrates that there is no current non-compliance with the annual mean NO_2 AQO. Section 3.4.1.2 of the AQAP has been updated with a paragraph noting this.

As stated in TG22, it is likely that some measures lend themselves to detailed quantifiable analysis in terms of emissions reductions more than others. It was considered that the measures in the actions table largely did not lend themselves to detailed quantifiable analysis. In most cases, this was due to the measures not being sufficiently parameterised to model / quantify an expected emissions reduction. It is acknowledged that TG22 recommends focus on the top three to five measures that provide the most significant impact on emissions. As stated in section 5.1.2, the actions considered to be priority measures were:

- Measure 1: West Oxfordshire Area Travel Plan.

  Transport modelling will be carried out for various schemes considered under the West Oxfordshire Area Travel Plan, which is under development by OCC. It is anticipated that transport modelling may be conducted for interventions considered for Chipping Norton as part of this plan. A likely outcome of transport modelling is estimated % reduction in vehicles in the AQMA. These could then be linked to the air quality modelling scenario of those % reductions at a later date.

- Measure 2: Chipping Norton LCWIP.

  Air quality modelling cannot be carried out because the uptake of cycling and walking and the modal shift from private car is very difficult to quantify. However, should the reduction in number of cars in the AQMA be estimated through development or implementation of the LCWIP, this could be linked to an air quality modelling scenario as presented in Section 3.4 at a later date.

- Measure 21: Develop and promote appropriate HGV route map.

  It is anticipated that better routing of HGVs, in addition to other measures which will be delivered or introduced through the OCC Freight and Logistics Strategy 2022-2056, may result in reduced HGV numbers in the Chipping Norton AQMA. The exact reduction is unknown at this point, but if known at a later date, this could be linked to the air quality modelling for 5%, 10% and 15% less HGVs.

- Measure 24: Improve availability of rapid and ultra-rapid EV charging on and near the strategic road network and important link roads across Oxfordshire.

  This will effectively reduce numbers of cars on the road (replacing petrol and diesel cars with electric effectively removed NOx and NO_2 emissions, though not non-exhaust PM_{10} and $PM_{2.5}$). Again, it is currently not possible to quantify the exact reduction as it will be dependent on the rate of EV uptake. If the exact reduction in petrol/diesel cars through replacement with EVs is known at a later date, this could be linked to the air quality modelling for 5%, 10% and 15% fewer cars.

- The AQAP determines qualitatively that the actions are likely to be effective but doesn't accurately quantify any of the specific measures' impacts, which would help the reader to understand the relative merits of particular interventions. As per paragraph 2.85 of LAQM.TG(22), an AQAP should contain quantification of the emission impacts of measures as a minimum. This could be aided by dispersion modelling of the detailed measures, as is the stated intention within the AQAP. Once specific modelling has been completed measure 1 after transport modelling is available, this should be added to the AQAP.

Response: please see the above response.

We note the recommendation for more specific modelling of measures once more specific measures are selected, following OCC's Local Transport Plan feasibility assessment, and this will be considered as an option in the future, depending on available resources.

- The measures table is currently incomplete, full details will need to be provided within the Final AQAP.

Response: This has been actioned.

- With the exception of the first three measures, the measures listed are generally more strategic in nature. Further specific, hyper local measures may bring additional benefits to the AQMA, especially given the 2019 monitored and modelled exceedances occur at only one location.

Response: As discussed in Section 5.1.2, various schemes are being considered under Measure 2 Chipping Norton Local Cycling and Walking Infrastructure Plan (LCWIP), as well as Measures 18 and 19 relating to bus services within Chipping Norton area.

Some hyper local measures, for example “Parking management and enforcement to reduce and restrict car parking availability” and “Consider removing or limiting to disabled-only parking near diff tube 22” under Traffic Management were suggested but rejected, as stated in Appendix B.2.

- The development of the measures should give more weight to the source apportionment results, since these calculations are intended to drive the significant sources that should be targeted through action, in order to achieve the greatest improvements. Currently there is limited linkage between the two.

Response: Text added to section 5.1.2 to better explain the linkage between the source apportionment results and measures. Reads as follows:

“The source apportionment exercise for Chipping Norton (as presented in section 3.3) identified that in terms of background concentrations, the largest source of NOx concentrations in the AQMA is rural (60%) (combined naturally occurring NOx and agricultural sources), followed by road transport (19%), domestic (9%), industry (6%) and other (4%).

The source apportionment of NOx concentrations at the monitoring locations in Chipping Norton AQMA by vehicle type showed that the greatest contributions came from diesel LGVs (41-45%), followed by diesel cars (19-26%). rigid HGVs comprised 9-10% of NOx concentrations, petrol cars 3-4%, artic HGVs 1-3%, buses/coaches 1%, and petrol LGVs 0.1%.

Diesel LGVs contributed the largest proportion of NOx emissions within Chipping Norton AQMA. However, it was difficult to get support or suggestions for actions to address diesel LGVs beyond the existing measures from the OCC freight strategy. With this in mind, it was identified that measures targeting cars, freight, and the general fleet, and domestic sources, would likely have the greatest impact in reducing NOx concentrations in Chipping Norton."

- The measures would also benefit from a detailed cost/benefit analysis, as it is currently unclear to the lay person which of the measures will be most cost effective, relative to the pollutant reductions they would achieve.

Response: During the development of the long list of measures, the refining of the short list of measures, and the discussions with the steering group, the following factors were considered as part of a cost-benefit analysis: impact on emissions, social benefits, additional health benefits, additional environmental benefits, estimated financial cost, potential burden on the public, potential burden on businesses. Minutes of the discussions with the steering group are detailed in Appendix D.

- The AQAP could also provide more information on the intended funding streams supporting the measures, beyond seeking S106 payments. This would ensure greater confidence that the measures will be implemented.

Response: comment noted.

- The environmental externalities of the measures, such as the impact on climate change, could also be considered. The AQAP starts well in this regard, citing policies which are synergistic, but this isn't carried through to the measures.

Response: Climate change benefits have been considered as additional environmental benefits in development of the long list of measures, the refining of the short list of measures, and the discussion with the steering group. Additionally, there are some co-benefits of the measures where both air pollution emissions and CO_2 emissions will be reduced. For example, the scenario testing models a reduction in cars and HGVs, which will have a positive impact on carbon emissions.

- Whilst the Steering Group has clearly had a role to play in the development of the AQAP, it is unclear how implementation will be managed. The Steering Group

should carry on through implementation, to ensure measures are taken forward effectively. Details of their work could be included within any future versions of the AQAP.

Response: A paragraph subtitled “Future activities” has been added to section 4.2 Steering Group which reads as follows:

“The respective Witney and Chipping Norton Steering Groups will meet on at least an annual basis for the duration of the implementation of this AQAP.

These meetings will include:

- Reporting back on progress against AQAP measures from responsible owners, including reporting against KPIs, and highlighting any changes to timescales, funding, and barriers to delivery.

- Maintain AQAP as a “live” strategy, ensuring measures remain targeted and focused, and introducing new measures as needed.”

- Whilst it is recognised that this is a Draft and the consultation as not yet been undertaken, please populate Section 4 and Appendix A summarising the responses to consultation. Best practice would involve adding direct cross references to sections in the main document where the comments have been addressed or have affected the content.

Response: This has been actioned.

- Appendix B has also been populated, highlighting measures not taken forward to the AQAP, and the reasons behind these decisions. The main reasons for not taking forward measures are generally a lack of relevance, related to cost or that there was limited feedback on them. These could be revisited through the life of the AQAP, to see whether the landscape has changed, and whether they could then be implemented.

Response: This is noted, and the list will be kept under consideration and revisited where appropriate (e.g. annual Steering Group meetings).

- Appendix C presents only results of the modelling. More details could be provided around the model's set up and verification, so that the reader can more fully understand the uncertainties associated with the predictions. For example, are the large differences in NO_2 concentrations at NAS21 and NAS22 (which have been replicated in the modelling) explained by meteorology alone, or are there other factors contributing to this?

Response: The following text regarding the model setup and verification has been added to Appendix E:

"To determine traffic flows and traffic composition across the modelled roads in Chipping Norton, traffic count and speed data was sourced from Oxfordshire County Council and sense checks were made against data from the Department for Transport.

Error! Reference source not found. shows how the model was verified, in line with the Technical Guidance LAQM TG(22), with the use of Defra's NOx to NO2 calculator. To evaluate model performance and uncertainty, the Root Mean Square Error (RMSE) for the observed vs predicted NO_2 annual mean concentrations was calculated, as detailed in TG(22). This guidance indicates that for an annual model, an RMSE of up to 4 $\mu g/m^3$ is ideal, and an RMSE of up to 10 $\mu g/m^3$ is acceptable. In this case the RMSE value was 2.41 $\mu g/m^3$, which shows good agreement between modelled and measured concentrations.

In addition to this text, a table of the model verification was added to Appendix E.

The large differences in NO_2 concentrations at NAS21 and NAS22 are seen in both the monitored and modelled concentrations from 2019. Discussion of these differences has been added to Section 3.3.2.

"There appears to be a highly localised exceedance at NAS22 where NO_2 concentrations exceed 40 $\mu g/m^3$, whereas the concentration at the adjacent monitoring site, NAS21, is below 20 $\mu g/m^3$. Both the monitored and modelled NO_2 concentrations in 2019 exhibit this pattern.

NAS22 is likely exposed to elevated concentrations as the narrow width of the road results in a more prevalent street canyon effect. NAS21 is located further back from the roadside in a side street outside of the street canyon, allowing greater scope for the

dispersion of emissions. It is suggested that additional monitoring sites along Horse Fair could be installed to assess the variation in NO_2 concentrations in this area of exceedance."

- It would also be more informative to project forward the predicted concentrations, given 2019 is now several years ago. This would also demonstrate a more realistic impact, given many won't be fully implemented until at least 2024 now.

Response: A conservative approach was taken to the baseline model based on measured realistic data, rather than adding additional assumptions. For the future modelling scenarios, a conservative approach was also taken. It was anticipated that whilst the fleet mix would improve (new, less polluting vehicles on road), there could be future increases in the number of vehicles in the fleet, associated with planned developments. Due to the lack of information regarding expected impact of planned developments on the traffic levels in the AQMA, a future scenario could not be accurately estimated. The conservative approach was therefore taken, estimating emissions and concentrations reductions for the baseline year for each modelling scenario.

- The revocation of an AQMA should be considered following three consecutive years of compliance with the relevant objective as evidenced through monitoring. Should the situation of no exceedances continue over five years, local authorities must proceed with plans to revoke the AQMA. The LAQM Technical Guidance 2022 is clear in this respect:

  "There should not be any declared AQMAs for which compliance with the relevant objective has been achieved for a consecutive five-year period." (Point 3.57, page 50).

  AQMAs should identify areas where air quality objectives are not being met or are likely to be at risk of not meeting them. Keeping AQMAs in place longer than required risks diluting their meaning and impacting public trust in LAQM.

Response: this is noted in the AQAP – see section 2.4. The Council are aware of the requirements for revocation, and will keep the monitoring data under review, and continue to consult with and take advice from Defra on the status of the Witney and Chipping Norton AQMAs. It is also noted from TG22 (3.54) that where 2020 is one of

many consecutive years of compliance, an AQMA may be considered for revocation. However, as compliance based on diffusion tube monitoring requires three years of compliance below 10% of the AQO (>36 µg/m^3), and one of the Chipping Norton diffusion tubes remained within 10% of the AQO (>36 µg/m^3) in from 2020 to 2022, it is assumed that the criteria is not yet met for the Chipping Norton AQMA to be revoked.

- That said, it is stated within the AQAP that if the AQMA is revoked within the life cycle of this AQAP, the Council will consider retaining an updated version of this Plan to form the basis of a local air quality strategy for the AQMAs (or the wider district) as per paragraph 4.12 of LAQM.PG(22), which would be a requirement if there were to be no AQMAs across the district.

Response: This is included in the AQAP – see section 2.5.

This commentary is not designed to deal with every aspect of the Action Plan. It highlights a number of issues that should help the local authority in maintaining the objectives of its Action Plan, namely the improvement of air quality within the AQMA.

Issues specifically related to this appraisal can be followed up by returning the attached comment form to Defra, Welsh Government, Scottish Government or DOE, as appropriate

For any other queries please contact the Local Air Quality Management Helpdesk:
Telephone: 0800 0327 953
Email: LAQMHelpdesk@bureauveritas.com

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1608**
Date of issue	**June 2023**

LAQM Guidance Notes – 2023

Through the Environment Act 2021 and updated Local Air Quality Management Statutory Policy Guidance 2022, the Local Air Quality Management (LAQM) framework has been considerably strengthened. This page highlights some of the changes for delivery to help you prioritise action for improved air quality:

1. Strengthened Criteria for Air Quality Action Plans (AQAPs)

Where a Local Authority is not meeting air quality objectives, they must create an AQAP setting out their intentions to improve air quality in the area. Without current action plans in place, Local Authorities risk negatively impacting their communities by not proactively working to reduce air pollution in the area.

The requirements and guidance around AQAPs were recently strengthened under the Environment Act 2021 and revised LAQM Statutory policy guidance, which Local Authorities must have regard to. The key criteria for action plans are that they:

- Set out the measures they will take to secure the achievement, and maintenance, of air quality standards and objectives;
- Specify a date by which each measure will be carried out; and
- Are revised no later than every five years.

2. New Escalation Process for Reporting

To ensure ASRs and AQAPs are delivered on time, Defra has introduced a new reminder and warning letter system for Local Authorities. This system was set out in the LAQM Statutory Policy Guidance 2022, published on 6 August 2022.

From 30 June 2023, Local Authorities with overdue ASRs and AQAPs will start to receive their first reminder letters. As set out in the Tables 1 and 2 below, if reporting requirements continue to be missed, the matter can be escalated to a Section 85 Secretary of State direction to the relevant Local Authority Chief Executive specifying action.

You are therefore advised to ensure all statutory reporting duties for LAQM are met on time. Please refer to the LAQM Statutory Policy Guidance 2022 for more information.

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1608**
Date of issue	**June 2023**

Table 1: Reminder and warning process for ASRs

Timescale	Enforcement	Recipient
Six months before deadline - **January**	**Pre-reminder letter**	From the Air Quality and Industrial Emissions (AQIE) Deputy Director to all local authority Chief Executives and relevant director/s - environment & public health reminding them of LAQM statutory requirements.
Two months before deadline - **April**	**Final pre-reminder letter**	From Defra's LAQM team to all Air Quality officers reminding them of June deadline
One month overdue - **July**	**Reminder letter**	From Defra's LAQM team to Air Quality Officer at non-submitting local authorities
Three months overdue - **September**	**Warning Letter**	From the AQIE Deputy Director to relevant director/s - environment & public health
Four months overdue - **October**	**Final Warning letter**	From the AQIE Deputy Director to relevant director/s - environment & public health
Six months overdue – **December**	**Ministerial letter:** Section 85 direction	Local Authority Chief Executive

Table 2 – Reminder and warning process for AQAPs - Due to be revised at least every five years

Timescale	Enforcement letter	Recipient
AQAP 2 months overdue (e.g.14 months post AQMA designation or 5 years & 2 months since previous AQAP publication)	**Reminder letter**	From Defra's LAQM team to Air Quality Officer at non-compliant Local Authority
AQAP 4 months overdue	**Warning Letter**	From the AQIE Deputy Director to Environment Health / Air Quality Manager at non-compliant Local Authority
AQAP 6 months overdue	**Final Warning letter**	From the AQIE Deputy Director to relevant Director at non-compliant Local Authority
AQAP 8 months overdue	**Ministerial letter**: Section 85 direction	Local Authority Chief Executive

Local Authority:	**West Oxfordshire District Council**
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3. Public Bodies Required to Contribute to Action Plans

The Environment Act 2021 amended the Environment Act 1995 to increase the number of public bodies that have a duty to co-operate with Local Authorities for LAQM. Air quality partners are certain other public bodies that a Local Authority identifies as having responsibility for a source of emissions contributing to an exceedance of local air quality objectives. This could be a neighbouring authority, National Highways, or the Environment Agency. Once identified, there is a statutory requirement for such public bodies to engage and to contribute actions they will take to secure achievement of the local air quality objective and to maintain achievement thereafter.

All tiers of local Government are also now required by law to collaborate to address exceedances of Air Quality Objectives. County councils, the Mayor of London and combined authorities have similar duties to air quality partners. The difference is that, when requested, they must contribute to an action plan being prepared by a Local Authority, regardless of whether the local authority has identified them as being responsible for a source of emissions.

Under the new legislation, you may choose to request the support of another public body in the development of an AQAP and the same may be requested of your organisation.

Please refer to the LAQM Statutory Policy Guidance 2022 for more information. Should you require further assistance, please contact the LAQM Helpdesk:

Web: http://laqm.defra.gov.uk/helpdesks.html
FAQs: http://laqm.defra.gov.uk/laqm-faqs/
Tel: 0800 032 7953
Email: laqmhelpdesk@uk.bureauveritas.com
The Air Quality Hub also provides free online information and is a knowledge sharing resource for local authority air quality professionals: https://www.airqualityhub.co.uk/

Local Authority:	**West Oxfordshire District Council**
Reference:	**AQAP23-1608**
Date of issue	**June 2023**

Appraisal Response Comment Form

Contact Name:	
Contact Telephone number:	
Contact email address:	UKLAQMAppraisals@aecom.com

Comments on appraisal/Further information:

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