Warwick District Council

Air Quality Action Plan

In fulfilment of Part IV of the Environment Act 1995, as amended by the Environment Act 2021

Local Air Quality Management

July 2025

Information	Warwick District Council Details
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Report Reference Number	WarwickDC_AQAP_2025
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EXECUTIVE SUMMARY

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in the Warwick District area between 2025 – 2030. The AQAP sets out how the local authority will exercise its functions to secure the achievement of the air quality objectives.

Implementation of the outlined measures will result in compliance with the relevant objective(s) being maintained.

The relevant Air Quality Management Areas (AQMAs) addressed by this action plan are outlined below:

- Warwick AQMA – declared for nitrogen dioxide in 2004, amended 2008
- Leamington Spa AQMA - declared for nitrogen dioxide in 2004, amended 2008

This action plan replaces the previous action plan which ran from 2015. Projects delivered through the past action plan include:

- Warwick District Council's (WDC) Low Emission Strategy Guidance was superseded by an Air Quality Supplementary Planning Document (SPD) which has been adopted;
- Funding for a footpath/cycleway link between Myton Road and Fusiliers Way – funded through Community Infrastructure Levy (CIL) serving schools and new housing and existing housing and existing employment areas.
- 'Choose How You Move in Warwick District' programme, in conjunction with Betterpoints, which included rewards for participants making active and sustainable travel choices across the District;
- Bath Street traffic improvement scheme – CIL funded project and use of WDC land to reduce traffic in AQMA area of Leamington and improve public transport terminus;
- Installation of 20 twin headed EV charging points in off-street car parks within Leamington, Warwick and Kenilworth;
- WDC website includes links to maps showing the locations of EV charging points in the District; and,
- The Warwickshire Active Travel website

Air pollution is associated with several adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The UK Health Security Agency (formally Public Health England) has estimated that the costs of air pollution in England to health and social care services could reach between £5.3 and 18.6 billion between 2018 and 2035[3]. WDC is committed to reducing the exposure of people in the Warwick District to poor air quality to improve health.

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

We have developed actions that can be considered under ten 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
- Transport planning and infrastructure
- Traffic management
- Vehicle fleet efficiency

Our priorities are:

- Priority 1 – to maintain air pollutant concentrations below current air quality objectives and where practicable, reduce emissions further;
- Priority 2 - to work collaboratively with WCC to ensure that wider transport measures are delivered, in particular to increase the use of active travel and public transport and reduce the use of private vehicles, and to increase the proportions of low and zero emission vehicles where modal shift is not feasible;
- Priority 3 – to work collaboratively across the local authorities in Warwickshire and with Public Health within WCC to reduce emissions of particulates and NOx from a range of sources within the District; and
- Priority 4 – report on an annual basis to DEFRA the implementation of the measures set out in this report, as well as monitored concentrations, working towards revocation of the AQMAs and maintaining a downward trend.

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 WDC's 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 WDC's direct influence.

RESPONSIBILITIES AND COMMITMENT

This AQAP was prepared by the Environmental Protection team of WDC with the support and agreement of the following officers and departments:

- Development Management (WDC)
- Travel Planning (WCC)
- Greenspace Manager (WDC)
- Transport Planning, including monitoring and modelling (WCC)
- Planning Policy (WDC)
- Climate Change (WDC)
- Public Health (WCC)

- Environmental Health (WDC)
- Licensing (WDC)

This AQAP has been approved by:

- Chris Elliott (WDC Chief Executive)
- Darren Knight (WDC Chief Executive)
- Betty Gong (WDC Finance)
- Jim Sinnott (WDC Safer, Healthier and Active Communities Portfolio Holder)
- Marianne Rolfe (WDC Head of Service – Community Protection)
- Andrew Rollins (WDC Section 151 Officer)
- Graham Leach (WDC Monitoring Officer)
- Warwick District Council cabinet meeting – 03/09/2025

This AQAP has been signed off by Dr Shade Agboola, Director of Public Health at Warwickshire County Council.

The following Air Quality Partners / stakeholders have contributed to the development of the AQAP and will be committed to delivery of actions:

- Warwickshire County Council (WCC) (Transport and Public Health)
- Neighbouring Authorities (through consultation)
- Internal Local Authority Representatives for example the climate change team, planning officers representing both development management and strategic planning, parking officer, licensing etc.

This AQAP will be subject to an annual review and appraisal of progress in the Annual Status Reports (ASRs) produced by WDC, as part of our statutory Local Air Quality Management duties. The AQAP will be reviewed and updated every five years at the latest.

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

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INTRODUCTION

This report outlines the actions that Warwick District Council (WDC) will deliver between 2025 and 2030 to reduce concentrations of air pollutants and exposure to air pollution; thereby positively impacting on the health and quality of life of residents and visitors to the Warwick area. The purpose of the report is to set out how the local authority will exercise its functions to achieve the relevant air quality objectives. This action plan is the final version for submission to DEFRA, following a wider consultation which occurred from May 5th 2025 to June 16th 2025, prior to adoption.

This report has been produced in recognition of the legal requirement on the local authority to achieve and maintain Air Quality Objectives under Part IV of the Environment Act 1995, as amended by the Environment Act 2021, 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 WDC's air quality ASR.

SUMMARY OF CURRENT AIR QUALITY IN WARWICK DISTRICT COUNCIL

2.1 AIR QUALITY MANAGEMENT AREAS

Air quality in Warwick is generally good when compared with national air quality objectives. Concentrations at site W13, a monitoring location within the Leamington Spa AQMA exceeded the NO_2 annual mean air quality objective with an annual average of 42.5µg/m^3 in 2022, and exceedances prior to 2020 (2020 and 2021 being affected by travel restrictions due to the Covid pandemic and hence reduced NO_2 concentrations). There were no exceedances at any monitoring site in 2023 or 2024, although one site in Leamington Spa was within 10% of the objective in 2023. There have not been any exceedances of the objective in the Warwick AQMA since 2019.

There have been no recent exceedances of either of the PM_{10} air quality objectives and $PM_{2.5}$ concentrations.

All measurements are subject to uncertainty, and data from diffusion tubes are adjusted in relation to the laboratory and preparation method (a process termed bias adjustment) to improve the accuracy of annual means. However, DEFRA in recognition of this inherent uncertainty, recommend that the revocation of an AQMA should only be considered following three consecutive years of annual mean nitrogen dioxide concentrations being lower than 36 µg/m^3 (i.e., 10% below the annual mean objective). In addition, pollutant concentrations may vary significantly from one year to the next, due to the influence of meteorological conditions, and WDC should be reasonably certain that any future exceedances (that might occur in more adverse meteorological conditions) are unlikely, before revoking an AQMA. This AQAP considers these inherent uncertainties, while also taking a proportionate approach. It is therefore considered that the Warwick AQMA will be revoked following the compliant results reported in 2024 as outlined in the 2025 ASR, with the Leamington AQMA revoked in 2027 assuming three consecutive years of concentrations below 36 µg/m^3.

The latest ASRs on air quality from WDC are available here.

The relevant AQMAs addressed by this AQAP are outlined below.

Table 1 – Relevant Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality within the AQMA influenced by National Highways roads?	Level of Exceedance: Declaration	Level of Exceedance: Current Year (2024)	Number of Years Compliant with Air Quality Objective
Leamington Spa AQMA	Dec-04 Amended 2008	NO_2 Annual Mean	An area of South Town, Leamington Spa, centred on High Street, Clemens Street and Bath Street.	No	52.9µg/m^3	30.9 µg/m^3 (W13)	2 years
Warwick AQMA	Dec-04 Amended 2008	NO_2 Annual mean and hourly mean	An area in the centre of Warwick, encompassing properties along High Street, Jury Street, Bowling Green Street, Theatre Street, Northgate, The Butts, Smith Street, Church St and part of Saltisford, and also including a number of nearby properties. This AQMA is now declared for both annual and hourly mean nitrogen dioxide objectives.	No	58.3µg/m^3	24.5 µg/m^3 (W62)	5 years

2.2 PUBLIC EXPOSURE

The number of properties within each of the AQMAs have been counted as follows: the Warwick AQMA contains 74 properties and the Leamington Spa AQMA contains 606 properties. The average number of residents per property across Warwickshire is 2.3[4]. Therefore, the estimate of public exposure in the Warwick AQMA is 170 and within the Leamington Spa AQMA is 1,394. In Leamington Spa, there are several town houses converted into multiple flats, so this method may be an overestimate of exposure. It should also be noted that the majority, if not all, of the population, even within AQMAs are not exposed to air quality concentrations above air quality objectives.

[4] https://api.warwickshire.gov.uk/documents/WCCC-808477336-714

WARWICK DISTRICT COUNCIL'S AIR QUALITY PRIORITIES

3.1 PUBLIC HEALTH CONTEXT

Air pollution is a major public health risk ranking alongside cancer, heart disease and obesity. A review by the World Health Organisation (WHO) concluded that long-term exposure to air pollution reduces life expectancy by increasing the incidence of lung, heart and circulatory conditions. The Department of Health and Social Care's advisory Committee on the Medical Effects of Air Pollutants (COMEAP) has estimated that long-term exposure to man-made air pollution in the UK has an annual impact on shortening lifespans, equivalent to 28,000 to 36,000 deaths (COMEAP, 2018). Poor air quality can affect health at all stages of life. Those most affected are the young and old. In the womb, maternal exposure to air pollution can result in low birth weight, premature birth, stillbirth or organ damage. In children, there is evidence of reduced lung capacity, while impacts in adulthood can include diabetes, heart disease and stroke. In old age, a lifetime of exposure to air pollution can result in reduced life-expectancy and reduced wellbeing at end of life. There is also emerging evidence for a link between air pollution and an acceleration of the decline in cognitive function (DEFRA, 2019).

Poor air quality disproportionately affects the poorest and most vulnerable in our communities including children. Public health not only aims to improve health but also reduce health inequalities by using an evidence-based approach to make recommendations on the delivery of health and wellbeing services. As such, this AQAP will support work underway within the public health arena.

The Public Health Outcome Framework (PHOF) for England recognises the burden of ill health resulting from poor air quality. PHOF Indicator D01 reports that 5.1% of deaths in Warwick during 2023 were attributable to particulate matter ($PM_{2.5}$) (undertaken using the 'new method'), which is marginally lower than the West Midlands (5.2%) and the England (5.2%) average.

3.2 PLANNING AND POLICY CONTEXT

3.2.1 WARWICK CORPORATE STRATEGY

The Warwick Corporate Strategy has the vision of making "Warwick District a great place to live, work and visit by improving lives and our environment" and includes Corporate Strategy principles of putting sustainability at the heart of decision making and planning and investing for the long-term benefit for the people and environment of the District. The strategy contains high level commitments to deliver low cost, low carbon energy across the District, and creating vibrant, safe and healthy communities of the future. This AQAP therefore supports the Corporate Strategy through the implementation of measures supporting improved air quality.

3.2.2 LOCAL PLAN

The Warwick District Local Plan 2011 – 2029 was adopted in September 2017. The key policy relating to air quality is TR2 Traffic Generation, which states:

Any development that results in significant negative impacts on air quality within identified Air Quality Management Areas or on the health and wellbeing of people in the area as a result of pollution should be supported by an air quality assessment and, where necessary, a mitigation plan to demonstrate practical and effective measures to be taken to avoid the adverse impacts.

The Local Plan states that transport is the primary cause of all the declared AQMAs in Warwick District and that proposals should be assessed against WDC's Low Emission Strategy Guidance Planning (April 2014) (which has since been superseded by the Air Quality Supplementary Planning Document January 2019).

Stratford-on-Avon District Council and WDC are working together to produce a new South Warwickshire Local Plan to cover the combined geographic area. The process is at an early stage and adoption is expected in December 2027.

3.2.3 NET ZERO CARBON DEVELOPMENT PLAN DOCUMENT

The Net Zero Carbon Development Plan Document (2024) (NZC DPD) provides new and extended policies to those found in the Local Plan with regard to climate change and sustainable buildings. The DPD outlines the issues we are facing in terms of climate change to facilitate delivery of the Council's commitments to Net Zero. The Net Zero Carbon Supplementary Planning Document (2024) (NZC SPD) aims to assist applicants in implementing the policies of the NZC DPD by providing technical guidance to inform the design of developments. While these documents do not directly relate to air quality, the move towards non-fossil fuel energy will have an associated reduction in nitrogen dioxide and particulate matter emissions.

3.2.4 AIR QUALITY & PLANNING SUPPLEMENTARY PLANNING DOCUMENT

The Air Quality & Planning Supplementary Planning Document (2019) establishes the principle of Warwick District as an emission reduction area and requires developers to use reasonable endeavours to minimise emissions and, where necessary, offset the impact of development on the environment. The objectives of the guidance are:

- Improve the consideration of air quality & health impacts in the planning process, in line with national / local policy and practice.
- to help ensure consistency in the approach to dealing with air quality and planning in the District;
- to highlight the existing policy framework in the District, and emphasise the importance of air quality as a material planning consideration;
- to identify the circumstances where detailed assessments and/or low emission strategies will be required as part of planning applications;
- to provide guidance on measures that can be implemented to mitigate the potentially harmful impacts of new developments on air quality in the District;
- to provide guidance on the use of planning conditions and Section 106 obligations to improve air quality; and
- to encourage co-benefits of reducing Carbon and noise emissions.

The SPD sets out the approach to assessing air quality depending on specific screening criteria. The document also sets out example mitigation measures depending on the results of the air quality assessment.

3.2.5 WARWICKSHIRE'S LOCAL TRANSPORT PLAN

Warwickshire's fourth Local Transport Plan (LTP4) was adopted by WCC in July 2023. The Local Transport Plan sets out WCC's overall transport strategy and general policies, through which the county's transport network will be managed and improved.

LTP4 supports WCC's response to the climate emergency and the county's moves towards Net Zero carbon.

LTP4 will be supported by a series of Area Strategies, including one for Warwick, which are currently under development. These will outline in detail schemes within each of the Districts within the LTP process. The development of individual Area Strategies will address these key issues together with a more holistic look at

how transport can benefit each area, including an exploration of the links between transport, air quality and public health, and other wider community benefits.

With regards to the consultation on LTP4, Environment and wellbeing were at the top of respondents' concerns. With the focus of the LTP on the environment, including net zero, the AQAP aligns closely with WCC's strategy for the lifetime of the LTP.

3.2.6 WARWICKSHIRE'S LOCAL CYCLING AND WALKING INFRASTRUCTURE PLAN

Warwickshire's Local Cycling and Walking Infrastructure Plan (LCWIP) is a long-term, county-wide plan for investment in walking, wheeling and cycling routes and Active Travel Zones. It was approved by WCC in February 2024.

The key aim of the Warwickshire LCWIP is, 'To create a safe and attractive environment for walking, wheeling and cycling, so that they become the natural choices for shorter journeys and outdoor recreation in Warwickshire'.

3.2.7 WARWICKSHIRE ELECTRIC VEHICLE CHARGING INFRASTRUCTURE STRATEGY 2017-2026

Published in 2017, the Electric Vehicle Charging Infrastructure Strategy (EVCIS) supports the implementation of a world class charging infrastructure in Warwickshire. The EVCIS vision is:

Warwickshire County Council will provide the infrastructure necessary to enable residents, businesses and communities to use electric vehicles every day and for any purpose. Electric Vehicle Users will be confident that they will be able to recharge their vehicles quickly and conveniently, taking advantage of their lower cost operation and in doing so making a major contribution to air quality in the County through reduced emissions from road transport.

3.2.8 BUS SERVICE IMPROVEMENT PLAN (BSIP)

Warwickshire's Bus Service Improvement Plan (BSIP) was approved in 2021 and updated in 2023. The BSIP sets out the vision and plan for improving bus services and increasing bus patronage in Warwickshire in line with the aspirations in the National Bus Strategy.

3.3 SOURCE APPORTIONMENT

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

A source apportionment exercise was carried out by WDC in support of this Action Plan (see Appendix C for details) using the latest available data from 2023. It should be noted that the site called A425 represents diffusion tube W46 in Warwick, that A429 represents the triplicate diffusion tube site covering W33, W34 and W35, and A425N represents W43. In Leamington Spa, the High Street is representative of diffusion tube site W13. All locations are shown in Figure C-1 (Warwick locations) and Figure C-2 (Leamington Spa) in Appendix C. This identified that within the AQMA, the percentage source contributions were as follows:

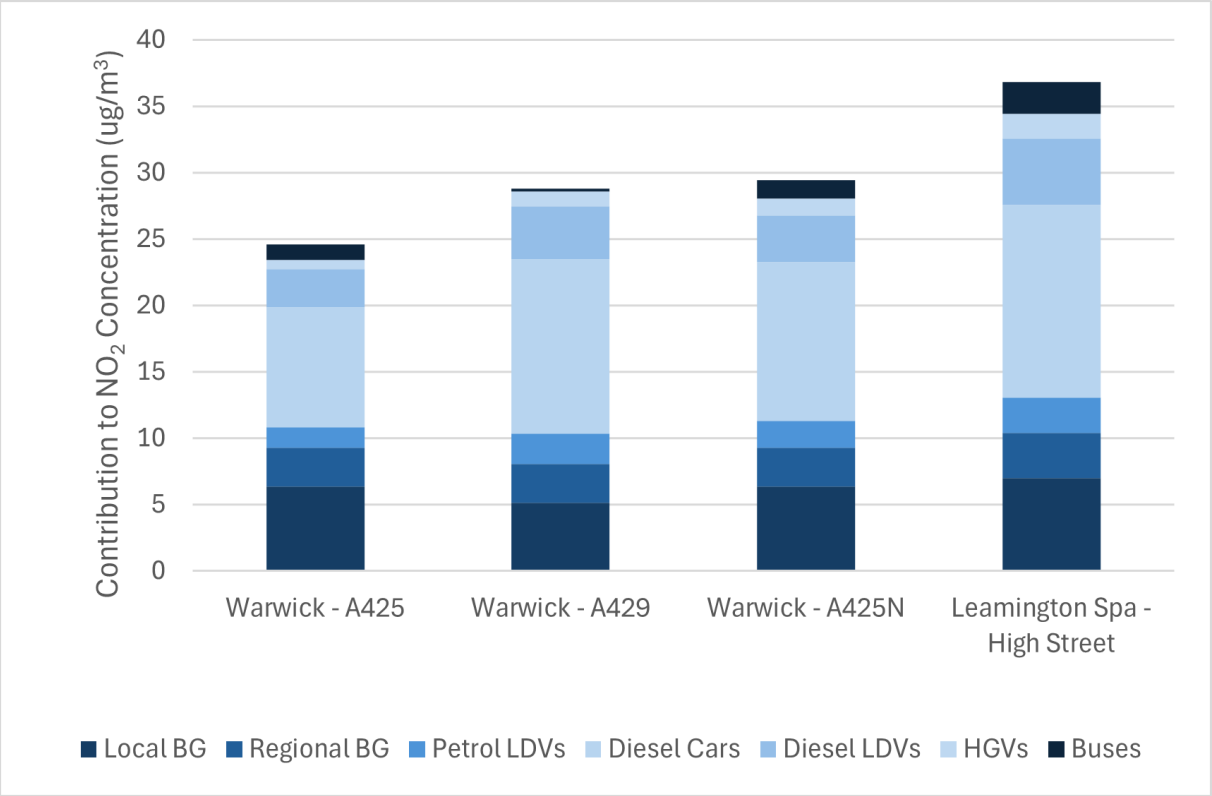

Figure 1 Source Apportionment (2024) for four locations in Warwick and Leamington Spa

In three of the four locations assessed diesel cars are the highest contributor to NO_2 concentration, with local background being the next largest contributor. The Warwick A425 location has these contributors the other way around, although diesel cars are still the largest road vehicle contributor. Actions within this plan should therefore target private vehicles, particularly (in the case of NO_2) the diesel fleet.

Leamington Spa has the highest proportion of NO_2 from diesel vans, HGVs and buses of the four locations, suggesting that interventions targeting deliveries and the bus fleet would have more impact in Leamington Spa than Warwick, although the actual contribution of these vehicle types in relation to overall emissions is still relatively small.

3.4 REQUIRED REDUCTION IN EMISSIONS

In 2023 and 2024 in WDC, there were no locations with exceedances of the air quality objectives, and hence no specific reduction in emissions is required to achieve the objectives. A calculation has been undertaken to assess the percentage Road NOx reductions required to achieve 36 µg/m^3 at W13 diffusion tube in Leamington Spa (2023 data) as this is the only diffusion tube over 36 µg/m^3. A reduction of 3.9% road emissions is required to achieve 36 µg/m^3. This calculation has been undertaken in line with Technical Guidance TG22, Box 7.6. However, although compliance with air quality objectives is important, from a health perspective, a general reduction in emissions of the key pollutants (including PM_{10} and $PM_{2.5}$) may provide better health outcomes than focussing on hotspot locations. For this reason, wider, more strategic measures have been included, and the Council will be working towards ongoing improvements in pollutant concentrations below the current air quality objectives.

3.5 KEY PRIORITIES

The air quality objectives have been achieved at relevant locations in 2023 and 2024, however the need to reduce concentrations, even below the current air quality objective level is recognised, to maximise health improvements.

In terms of NO_2, road transport is the largest source and therefore to reduce NO_2 concentrations, reductions need to focus particularly on diesel vehicles, mainly cars and LGVs, and to a lesser extent HGVs.

$PM_{2.5}$ has a wide range of sources and in order to assist with reductions in $PM_{2.5}$, WDC will be introducing measures to reduce greenhouse gas emissions (which should also reduce $PM_{2.5}$ due to a reduction in combustion) and ensure that domestic solid fuel burning is further addressed through information campaigns.

In terms of traffic related $PM_{2.5}$, most emissions are from brake, trye and road wear, rather than from the tailpipe. For this reason, the switch to electric vehicles will not reduce particulate matter to the same extent as it does for nitrogen dioxide, although the use of regenerative braking in electric vehicles will help reduce brake wear. Nevertheless, actions are included to reduce vehicle use (for example by encouraging active forms of travel).

It Is noted that secondary particulate matter (formed by chemical reactions in the atmosphere) is an important source of both PM_{10} and $PM_{2.5}$. The Council is mindful that there is likely to be emerging guidance from Government on reducing $PM_{2.5}$ emissions through the planning system, which may also include precursors (chemicals that react in the atmosphere to form secondary particulate matter), which will also be implemented as required.

As a result of the source apportionment outlined above, the following priorities have been identified:

- Priority 1 – to maintain air pollutant concentrations below current air quality objectives and where practicable, reduce emissions further;
- Priority 2 – to work collaboratively with WCC to ensure that wider transport measures are delivered, in particular to increase the use of active travel and public transport and reduce the use of private vehicles, and to increase the proportions of low and zero emission vehicles where modal shift is not feasible;
- Priority 3 – to work collaboratively across the local authorities in Warwickshire and with Public Health within WCC to reduce emissions of particulates and NOx from a range of sources within and out with the borough; and
- Priority 4 – report on an annual basis to DEFRA the implementation of the measures set out in this report, as well as monitored concentrations, working towards revocation of the AQMAs and maintaining a downward trend.

4. DEVELOPMENT AND IMPLEMENTATION OF WARWICK DISTRICT COUNCIL'S AQAP

4.1 CONSULTATION AND STAKEHOLDER ENGAGEMENT

In developing/updating this AQAP, we have worked with other local authorities, WCC and internally to raise the profile and improve local air quality. Schedule 11 of the Environment Act 1995, as amended by the Environment Act (2021), requires local authorities to consult the bodies listed in Table . Consultation based on this document was be undertaken both online and directly with the wider stakeholders listed in Table A.1.

The response to our consultation stakeholder engagement is provided in Appendix A: Response to Consultation.

Table 2 – Consultation Undertaken

Consultee	Consultation Undertaken
The Secretary of State	Yes, draft report to be submitted to DEFRA
The Environment Agency	Not directly as not relevant to AQMAs
National Highways	Not directly as not relevant to AQMAs
All neighbouring local authorities	Yes, consulted on as part of the wider consultation
Any National Park authority as appropriate	Not relevant to the AQMAs
The County Councils (if a District Council)	Yes, Transport and Public Health
Other public authorities as appropriate, such as Public Health officials	Yes – see above
Bodies representing local business interests and other organisations as appropriate	Undertaken through online consultation

4.2 STEERING GROUP

A Steering Group was set up to take this Action Plan revision forward. A Steering Group meeting was held on 26th June 2024 facilitated by Air Quality Consultants Ltd. Discussions have focused on each of the categories of actions and sought updates on current actions and new actions were also discussed. Attendees represented a wide range of stakeholders and Council departments. In attendance were representatives of:

- Development Management (WDC)
- Travel Planning (WCC)
- Greenspace Manager (WDC)
- Transport Planning, including monitoring and modelling (WCC)
- Planning Policy (WDC)
- Climate Change (WDC)
- Public Health (WCC)
- Environmental Health (WDC)

Separate meetings were then undertaken with a range of individuals, some who couldn't make the Steering Group, and others from whom more detail on measures was required. Discussions focussed on specific measures such as parking strategy review or actions included in the Climate Change Action Programme.

Once the AQAP has been adopted, the Steering Group will meet annually to update progress on actions within the Annual Status Report, and strengthen the linkages between other key policy areas, such as the Local Transport Plan and Net Zero Carbon Development Plan.

AQAP MEASURES

Table 3.1 shows the WDC AQAP measures. It contains:

- A list of the actions that form part of the plan;
- The departments/organisations responsible for delivering this action;
- Estimated cost of implementing each action;
- Expected benefit in terms of pollutant emission and/or concentration reduction;
- The timescale for implementation; and
- How progress will be monitored.

NB: Please see future Annual Status Reports (ASRs) for regular annual updates on implementation of these measures.

Table 3.1 – Air Quality Action Plan Measures

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Date	Organisations Involved	Funding Source	DEFRA AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments/Potential Barriers to Implementation
1	Work towards implementing Park and Ride south of Warwick and Leamington.	Alternatives to private vehicle use	Bus based Park & Ride	Ongoing	Throughout the timescale of the AQAP	WCC, WDC, Developers	Developer S106 Funded	NO	Part Funded	>£10 million	Planning	Difficult to quantify, but should increase bus patronage, hence reducing vehicle emissions within the AQMAs	Implementation of P&R	500 space park and ride scheme at Europa Way has been committed and is required to be developed prior to occupation of residential development along this corridor. Collaboration between WDC as planning authority, WCC as Transport Authority and Developer. Discussions ongoing. Needs to be implemented in combination with parking charge increases in town centre (which is WDC issue). There have been various car parks redeveloped, reducing parking provision overall.	Some of the assumptions on which P&R have been based (through feasibility study) may need to be reviewed considering future working patterns for key employers in the area post-Covid. Ideally should be implemented with electric bus fleet (not agreed). Collaboration between developer, WCC and WDC. Could be the subject of a future funding bid application to contribute towards the cost of operating all-electric buses should funding streams become available virtue of the Government. The scheme is subject to a reserved matters planning application which is currently being determined by WDC.
2	Prioritise and implement projects as set out in the Local Cycling and Walking	Promoting Travel Alternatives	Promotion of cycling	2023	2029	WCC, WDC	tbc	NO	Unfunded	various	Planning	n/a	Projects Completed	Warwickshire Local Cycling and Walking Infrastructure Plan was adopted in February 2024. The LCWIP reviews and	Over 300 LCWIP schemes: implementation is dependent on external funding.

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Date	Organisations Involved	Funding Source	DEFRA AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments/Potential Barriers to Implementation
	Infrastructure Plan													updates the walking and cycling network development plans for each of the five boroughs and Districts and sets out proposals and priorities for a countywide programme of walking, wheeling and cycling schemes for the next 10 years and beyond.	
3	Ensure that planning applications with potential air quality impacts are fully assessed for their impacts, at relevant locations using appropriate methodologies including cumulative impacts where necessary and appropriate mitigation implemented	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	Ongoing	Ongoing	WDC	WDC	NO	Funded through staff time	£10k – 50k	Implementation	Difficult to quantify as over long time period, but could ensure large improvements over long timescales	Planning Applications with AQ mitigation/ S106 agreements (as reported in ASR)	-Air quality assessments asked for on a regular basis and mitigation sought where necessary. Type 1, 2, and 3 mitigation should be included when submitting planning applications to ensure developers are taking steps to mitigate air quality impacts	Business as usual, but will need to keep up with any changes, for example on new requirements for $PM_{2.5}$ in planning. Supplementary Planning Document on Air Quality still in place, which assists with this process.
4	Work with planning policy colleagues to ensure that the new South Warwickshire Local Plan fully addresses air quality issues with appropriate policies included	Policy Guidance and Development Control	Other policy	Ongoing	Ongoing	WDC	WDC	NO	Funded through staff time	< £10k	Planning	Difficult to quantify as over long time period, but could ensure large improvements over long timescales	Planning policy relevant to air quality included in new Local Plan	Early stage in the South Warwickshire Local Plan process – keep working collaboratively	
5	Implement 15-minute neighbourhoods, or similar schemes, to increase use of active travel	Policy Guidance and Development Control	Other policy	Ongoing	Ongoing encouragement of active travel	WDC Planning	WDC	NO	Funded through staff time	£1 million - £10 million	Planning	Difficult to quantify as over long time period, but could ensure large improvements over long timescales	Implementation of 15-minute neighbourhoods	For settlements to be sustainable, it is beneficial to maximise opportunities for people to be able to meet their regular day to day needs within a reasonable walking distance of home. The principles of the 20-minute neighbourhood have	Timescales likely to be relatively long at the scale which may make a difference.

Measure No.	Measure	Category	Classification	Estimated Year Measure to be Introduced	Estimated / Actual Completion Date	Organisations Involved	Funding Source	DEFRA AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Target Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments/Potential Barriers to Implementation
														underpinned the development of the 'settlement design analysis' undertaken on some settlements across South Warwickshire with a view to this informing the evolution of the spatial strategy options. There is a case that this might form the basis of a policy within the SWLP. Consultation showed support for the concept and for ensuring that key infrastructure is located close to where people live. 20-minute neighbourhoods mentioned in Warwick Corporate Strategy. TRACC tool being used to analyse existing developments. WCC are currently working with colleagues in District and borough council planning departments to support the development of the Health Impact Assessment process, both as part of the Local Plan development and as part of the planning application process. This includes supporting the inclusion of active travel within new developments.	
6	Decarbonising Council Buildings – Heat Decarbonisation Plan. Ensure all electricity used by WDC is from renewable sources.	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	Ongoing	2029	WDC	Small internal budget, relying mainly on external funding (for example Heart of England Community energy, Salix Public Sector Decarbonisatio	No	Partially funded (funding is main constraint)	£1 million - £10 million	Implementation	3251.14 tCO2e per year (for total decarbonisation from climate change action programme)	Carbon reductions from Council Buildings	Heat decarbonisation plan currently in draft based on energy audits on 10 main Council buildings. Strategy of decarbonising existing Council buildings therefore being formed. Difficult to fund whole building	PSDS is based on funding per tonne of carbon saved and doesn't cover whole retrofit. Lots of historic Council buildings which are difficult and expensive to improve fabric of building. Replacement of gas with

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							n Scheme funding)							retrofits, so undertaking work as funding for specific aspects becomes available. Currently focussing on solar and replacement of fluorescent lighting with LED.	electric heating also difficult to fund.
7	Decarbonising Council Travel (ensure Council fleet is electric by 2025, incentivise active travel and personal vehicle switch to EV)	Promoting Low Emission Transport	Other	Ongoing	2025	WDC	Various	No	Part Funded		Implementation	252.8 tCO2e per year	No. of staff participating within Sustainable Travel Initiative. Business mileage travelled by staff in diesel or petrol vehicles – shown as a percentage from 2019 baseline. Business miles travelled using the Council's Electric Fleet Vehicles	There are currently 13 electric vehicles available to WDC increased to be used by Lifeline, Housing, Planning and Neighbourhood Services. This accounts for >85% of the fleet of vehicles available to the Council.	No chargers at Council buildings as leased buildings, which makes charging more complicated. Each team has own vehicles rather than overall fleet strategy. Each team has their own vehicles rather than an overall fleet strategy.
8	Increase Public Awareness of air quality issues, including reducing exposure, focus on active travel and domestic solid fuel burning.	Public Information	Via the Internet	Ongoing	Ongoing implementation	WCC Public Health, WCC Active Travel Teams, WDC Environmental Health		Possible			Implementation	Difficult to quantify as over long time period and will work in collaboration with other actions		Collaborative working on information dissemination, for example with WCC public health, through Coventry and Warwickshire Air Quality Alliance, and in relation to transport (through Active Travel website). Input into Clean Air Day. Marketing of Warwickshire Car Share Scheme. Chloe – undertaking Health and Wellbeing work, helping out the NHS. May be opportunities for joint working on active travel. Continue provision of Travel Packs for new developments (outlining sustainable travel options). Targeted bus	Active travel website live https://www.warwickshire.gov.uk/active-travel-3 Many companies still operating a hybrid working policy for their employees, reducing the number of employees commuting to Warwick

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														campaigns (e.g. for young people). Community Rail Partnership encouraging people onto rail	
9	Support Low carbon South Warwickshire – On Road Transport actions (promoting active travel, driving shorter distances, supporting increase in EV, reducing freight emissions)	Vehicle Fleet Efficiency	Other	Ongoing	Ongoing	WDC	Various	No	Part Funded	High	Implementation	3,192,000 tCO2e by 2030. Potential reduction in emissions of increasing Electric Vehicles by 5% and 10% over and above the predicted increases are included in Table 6.1 at locations in Warwick and Leamington Spa.	Cycle Parking: Total number of spaces publicly available. Number of EV charge points on WDC owned land/assets. Average number of visits per charge point. Number of car club cars available in the District.	Promotion of electric vehicles through the Warwickshire Drive Electric Website. http://www.warwickshire.gov.uk/driveelectric. Moving towards electric/ cleaner contract vehicles such as refuse collection. Solar panels to supplement power use for refuse collection. Consider using ANPR data to track changes to fleet in Warwick and Leamington (in relation to proportion of EVs).	
10	Low carbon South Warwickshire – Domestic Energy (retrofit Council houses, supporting private house improvements, ensuring all new builds are net zero)	Promoting Low Emission Plant	Other Policy		2030	WDC	Variety of Government funding (see notes in Progress)	No	Partially funded	High	Implementation	1,213,000 tCO2e by 2030	Number of properties retrofitted	Delivered 300 measures for private and social properties (solar, ASHPs, insulation, windows, loft insulation etc – funded by current Green Homes Grant funding). Currently delivering on DESNZ schemes. More funding under new heat strategies. WDC continue to apply for funding when available. LARS – Local Authority Retrofit Scheme https://www.lgcplus.com/services/housing/government-launches-500m-local-authority-retrofit-scheme-18-12-2023/ LAD – Local Authority Delivery (funding for measures for properties which are on gas) HUG – Home Upgrade Grants – for off gas	Main barrier likely to be funding.

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														properties. Low Income households (postcodes, Indices of Multiple Deprivation). Additional potential funding regionally for 2026 onwards. Contact with Act on Energy – charity – they support on Green Homes Grant scheme and have money for case support worker to support vulnerable householders. Pilot scheme (Home Energy help – support households who are able to finance)	
11	Low carbon South Warwickshire – Non-Domestic Energy (work with partners and businesses to improve energy efficiency and reduce gas use)	Promoting Low Emission Plant	Other Policy	2024	2030	WDC	Unclear	No	Not funded	Unclear at this stage	Planning	796,000 tCO2e by 2030 (for total decarbonisation from climate change action programme)	Carbon reductions	Still in planning phase with no progress yet. Could be delivered through Coventry and Warwickshire Green Business Network.	Main barrier likely to be funding.
12	Emscote Rd Sustainable Transport Corridor Scheme	Promoting Travel Alternatives	Promotion of cycling	Ongoing (phased approach)	Unclear	WCC (Transport)	WCC, CIL, s106	No	First phase funded, but future phases not fully funded. £6.645m allocated from WCC capital investment fund.	>£10 million	Planning/Implementation	Has potential for large pollutant reductions (emissions/ concentrations) if fully delivered	Delivery of full scheme	The Emscote Road corridor is a key route between Warwick and Leamington which currently suffers significant congestion during peak hours due to capacity constraints at key junctions. Delays caused to bus services and the inadequacy of current cycling and pedestrian provision make sustainable transport alternatives unattractive. This action seeks to improve this provision through a high-quality, segregated, cycle superhighway connecting Warwick and Leamington and deliver capacity improvements at key pinch points along the	Funding is potential barrier. Scheme within LCWIP. However, a core scheme like this could also invite bike hire schemes into the area (where currently not the business case to do so)

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														corridor. Initial transport modelling and concept design undertaken. Now moving towards a detailed design. To be delivered in phases. First phase linking St Johns to St Nicholas Park (this phase is funded). Future phases not fully detailed and only partial funding in place.	
13	Europa Way Corridor Improvements	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Ongoing	unknown at this stage	WCC (Transport)	WCC (Transport) / funded by developers through s106 and s278 agreements. Allocated £3.6 million from Local Growth Fund	No	Part Funded	£1 million - £10 million	Implementation	Has potential for large pollutant reductions (emissions/ concentrations) if fully delivered	Delivery of full scheme	The A452 Europa Way programme consists of a series of highways and sustainable transport improvement schemes. WDC Local Plan has identified that approximately 4,500 homes will be built in the corridor by 2029. This programme will be a combination of developer led and funded schemes and Council led schemes. Work on the Europa Way corridor has begun and is ongoing.	Work on the Europa Way corridor is ongoing with section between Tachbrook Park Road and Olympus Avenue now open.
14	Warwick Town Centre Improvements	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Ongoing	2026	WCC (Transport)	WCC (Transport)Welcome Back Fund from HM Government via the European Regional Development Fund (ERDF)	No	Funded	£1 million - £10 million	Implementation	Has potential for large pollutant reductions (emissions/ concentrations) if fully delivered	Delivery of full scheme	Package of measures can be summarised by: Traffic management proposals to introduce one-way routing on The Butts and High Street / Jury Street to ease vehicle flows and provide opportunities to reallocate road space to other users Gateway improvements – reconfiguring the layout of highway junctions including Westgate, Eastgate and St Johns junctions to improve facilities for pedestrians and cyclists and enhance	Funding secured for Warwick town centre scheme, including road space reallocation to improve pedestrian and cycle facilities

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														the historic built environment by reducing the footprint of junctions and enhancing the public realm Improved connectivity for pedestrians and cyclists, including wider pavements and new crossing points for pedestrians and dedicated provision for cyclists with new cycle lanes / shared use cycleways and cycle-contraflow on some one-way streets. Consultation complete on St Johns. Shared use cycle link completed on Priory Road, and Northgate Warwick which is to be expanded to Eastgate, Westgate, St. Johns, and Emscote Road	
15	A452 Kenilworth to Leamington Spa cycle route (K2L)	Promoting Travel Alternatives	Promotion of cycling	Ongoing	2027	WCC (Transport)	in 2019 WCC allocated £4.75m towards the scheme	No	Fully funded	£1 million - £10 million	Implementation	potential for pollutant reductions within AQMAs	Delivery of full scheme	Five-kilometre cycle track between Kenilworth and Leamington Spa. The route is known as K2L and once complete will help people to make a range of journeys by bicycle on the Leamington – Kenilworth – Coventry corridor. Work underway on phases, with different phases progressing at different rates. Phase 1 delivered; phase 2 being worked on	Complicated as new bridge involved. Also land purchase required.
16	A429 Coventry Road cycle route	Promoting Travel Alternatives	Promotion of cycling	2024	2024	WCC (Transport)	The government's Getting Building Fund delivered through the Coventry and Warwickshire Local Enterprise Partnership, and the Cycle Rail Routes to	No	Fully funded	£500k - £1 million	Implementation	Potential for pollutant reductions due to modal shift	Delivery of full scheme	Completion scheduled for Autumn 2024. Work will deliver the southern section of the cycle route between St John's and the Grand Union canal, where it will make a connection to the Woodloes Park cycle link, a scheme that was completed earlier in 2023	

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							Stations Fund, administered by Sustrans								
17	Bath Street Improvement Scheme, Leamington Spa	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2024	2024	WCC (Transport)	CIL + S106/ s278	No	Partially Funded	£1 million - £10 million	Planning	Has potential for large pollutant reductions (emissions/ concentrations) if fully delivered	Delivery of full scheme	A scheme to address air quality issues in the Bath Street, Leamington has progressed. At concept design stage. Options include pedestrianisation of Bath Street, or bus only, improved bus waiting facilities, and improved connectivity for pedestrians and cyclists. Detailed costing exercise to be done.	Air Quality modelling has been undertaken for this scheme (by Ricardo).
18	Develop and implement a Freight Strategy which seeks, amongst other aims, to minimise the negative impacts from goods movements on air quality. Measures may include better routing of vehicles to avoid congestion, zero emission fuels, last mile delivery hubs	Freight and Delivery Management	Delivery and Service plans	2024	2025	WCC/ WDC	WCC	NO	Funded	£10k – 50k	Planning		Adoption of Freight Strategy	Currently high-level freight policy within LTP4 and WCC about to commission a freight strategy. Last mile deliveries and freight routing are key issues, which will require engagement with partners including National Highways (as much of freight on motorway network in Warwickshire)	No update, ongoing
19	Work with Warwickshire County Council to implement Bus Infrastructure Improvements across the WDC area	Transport Planning and Infrastructure	Bus route improvements	Ongoing	Throughout the timescale of the AQAP	WCC	WCC, WDC, Developer Funded	NO	Part-funded	£1 million - £10 million	Planning	Difficult to quantify, but should increase bus patronage, hence reducing vehicle emissions within the AQMAs and more widely	Implementation of Improvements	Work on scheme to extend green light for buses at junctions in Warwick and Leamington. Also trying to increase the provision of real time information at bus stops and implement multi operator ticketing across Warwickshire. £5.9m capital funding has been allocated by DfT for BSIP measures across Warwickshire. Priority measures will be agreed by WCC's	Awaiting Local Transport Fund allocations (should be 2025). Currently difficult to deliver as only revenue funding has been allocated, and no capital funding for bus priority schemes or multi operator ticketing (which required extending TfWM back-office operations). Seeking a contribution from a Developer towards delivering capacity improvements at key bus stops in Leamington town centre.

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														Cabinet in Summer 2025, with delivery in 2025/26 and 2026/27.	Feasibility work has been undertaken to upgrade bus infrastructure along key corridors as part of a wider Quality Bus Corridor (QBC) initiative
20	Work with Warwickshire County Council and bus operators to implement electric buses on routes within WDC	Vehicle Fleet Efficiency	Promoting Low Emission Public Transport	Ongoing	End of 2025	DfT, TfWM, WMCA, WCC	Stagecoach Midlands, DfT (ZEBRA2), WDC	NO	Funded	<£10 million	Implementation	Will make positive improvement within AQMAs as zero emission. Potential reduction in emissions of increasing buses to 100% electric are included in Table 6.1 at locations in Warwick and Leamington Spa.	Bus Connectivity Assessments required every 12 months – will track progress	Service 11 to Leamington been in operation since January 2023. Impacts the Leamington AQMA directly. X17 (serving University of Warwick, Leamington and Warwick), X18 (Coventry, Leamington and Stratford upon Avon) will be coming online January to March 2025. The all-electric buses will be powered by charging infrastructure installed at National Express Coventry's depot in Coventry and Stagecoach Midlands' depot in Leamington respectively. Further funding awarded through DfT's ZEBRA project will see an electric fleet introduced on service 1.	The all-electric buses will be powered by charging infrastructure installed at National Express Coventry's depot in Coventry and Stagecoach Midlands' depot in Leamington respectively.
21	Work with WCC on specific actions within the LTP Warwick Area Strategy	Policy Guidance and Development Control	Other Policy	2025	Throughout the timescale of the AQAP	WCC, WDC	WCC	NO	Funded through staff time	£10K to £50K	Implementation	Unknown until specific actions are agreed on in Area Strategy		Work to identify key local transport issues has taken place for each of the five District and borough Council areas. The development of individual Area Strategies will address these key issues together with a more holistic look at how transport can benefit each area, including an exploration of the links between transport, air quality and public health, and other wider community benefits. WCC has drafted	Will require further engagement between WCC and District and borough colleagues and additional internal WCC governance approval prior to adoption.

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														Rugby Area Strategy and will follow a consistent approach across the other areas which are well into production.	
22	Undertake Strategic Parking Review of Town Centres including an aim to encourage alternatives to private vehicles	Traffic Management	Emission based parking or permit charges	2024	Select	WDC, external consultants	WDC	NO	Funded	£10-50K	Planning	Unknown until Strategy agreed, but potential reductions from encouraging shift to EVs and encouraging Park and Ride/ active travel	Production of the Strategic Parking Review	Previous Parking strategy (2018 – 2028) not adopted. Will be procuring consultants to undertake a wider strategic review. Parking demand has changed since Covid. Any new parking Strategy should utilise car parks for encouraging low emission vehicles such as EVs. All the major car parks have EV charging infrastructure. Already some car park closures meaning a reduction in town centre spaces. The Strategy needs to be implemented in conjunction with Park and Ride. Potential for green initiatives on season tickets and other charging (without compromising revenue). Factor in cycle parking infrastructure.	WDC only deal with off street parking, on street parking under WCC remit. Need better understanding of current parking motivation etc, in order to encourage people to park further out and walk in. Railway Station carparks not within WDC remit, but will factor them into strategy.
23	Increase EV Infrastructure (on road and off road) across WDC	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Ongoing	2035	WDC, WCC	OZEV/ LEVI. Private & Internal Investment	NO	Part Funded	>£10 million	Implementation		Numbers of EV charge points	OZEV Funding for EV Charging points in off street car parks and street hubs. LEVI Funding – WCC awarded over £3million County wide predominantly for on street chargers. Consortium approach across Las.	Feasibility study undertaken up to 2035, but not enough power to cover numbers of chargers required.
24	Increase Smoke Control Area (SCA) and ensure that all new development is in an SCA	Policy Guidance and Development Control	Other policy	2025	2026	WDC	Within staffing budgets. Funding from DEFRA for SCAs	Potentially	Funded	<£10K	Planning	Unquantifiable, likely to have more effect in raising awareness of effects of solid fuel burning	Order approved for whole borough SCA	Briefing note for councillors already undertaken. Research into properties not on mains gas/ electricity ongoing.	Requires Committee approval and a public consultation exercise.

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25	Increase car club provision across WDC	Alternatives to private vehicle use	Car Clubs	2025	Ongoing	WDC, WCC	Developer Contributions? Private and Internal Investment	NO	Unfunded	unknown	Planning		Number of car club cars in WDC	Feasibility work undertaken, now need to agree and implement recommendations with WCC	
26	Investigate feasibility of increasing proportion of electric taxis in the fleet, through incentivising vehicle upgrades through licensing process	Promoting Low Emission Transport	Taxi emission incentives	2025	2029	WDC	not known	Potentially	Unfunded	unknown	Planning		Proportion of electric taxis/Euro 6 compliant in the fleet	Not yet started. WDC licensing team are planning a review of their taxi policy to ensure all taxis adhere to the Euro 6 level of CO2 emissions and encourage the use of hybrid and electric vehicles. Policy will also include expectations regarding anti-idling around taxi ranks. This is already being enforced by the licensing team.	An electric taxi exploration project was discontinued in 2019 due to lack of funding. Licensing has no control over Ubers or out-of-county vehicles. Electric vehicles are limited by lack of charging infrastructure, estimated cost of £82 million to install electric charging for hackney carriages.
27	Schools' education campaign to promote anti-idling initiatives	Public Information	Other	2025/2026	Ongoing	WDC	WDC, S106 Contributions	NO	Unfunded	Unknown	Planning		Reduced emissions surrounding schools	WDC are investigating the feasibility of an anti-idling campaign in schools which may include posters outside common areas for idling and leaflets which can be passed on to parents and guardians.	It is not feasible to enforce anti-idling penalties given we are not currently empowered to act under the relevant guidelines. Under the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002, approval for enforcement is linked to having an air quality management area (AQMA); we are hoping to revoke both within the next few years

5.1 TIMESCALES OF THE AQAP MEASURES

Many of the actions are ongoing throughout the timescale of this AQAP and include some major transport schemes such as the Park and Ride south of Warwick and Leamington Spa, projects within the LCWIP, specific schemes within the AQMAs such as the Emscote Road Sustainable Transport Corridor scheme, Europa Way Corridor Improvement and the A452 Kenilworth to Leamington Spa Cycle Route (K2L). Measures for completion in the shorter term include the A429 Coventry Road Cycle route and the Bath Street Improvement scheme. Some of the measures are still at an early stage, for example undertaking a parking review and developing a freight strategy. As these strategies are developed, more concrete actions are likely to become clearer, and these will be included within the annual reporting process. Where possible, actions will be evaluated for their effectiveness as they are implemented, and any information on how this will be undertaken is included in Table 3.1.

5.2 AIR QUALITY PARTNERS

WCC, as the transport authority are the main air quality partner responsible for implementing specific measures. WDC work with WCC on prioritising transport schemes within the District, and this will largely be undertaken through the Warwick Area Strategy (see section 0 for more detail). The new South Warwickshire Local Plan will also require joint working across WDC and Stratford on Avon District Council. It will be ensured that air quality is considered within this process (Action 4).

5.3 MAINTAINING SAFE AIR QUALITY

On implementing this AQAP across the 5-year period, we will ensure that air quality objectives are maintained. Strategic actions which will reduce emissions across the District have been included in the Plan in order that wider emission reductions should be apparent. Once the AQMAs are revoked (which is likely to be within the timescale of this plan), an Air Quality Strategy will be used to reduce emissions as far as is practicable.

QUANTIFICATION OF MEASURES

This section of the AQAP covers quantification and cost effectiveness of the measures included in Table 3.1. Most of the measures set out in Table3.1 are difficult to quantify. This is because the traffic impact of measures is difficult to quantify in relation to changes in traffic numbers, or fleet composition, or in some cases the measure is designed to reduce stop start traffic, or reduce idling, which cannot be easily quantified using available tools. Some measures do not have a direct influence on air quality emissions (such as those aimed at reducing exposure), and some are designed to encourage behaviour change to that of lower emissions, which again can be difficult to quantify.

Undertaking detailed modelling of actions is not considered proportional in view of the current compliance with air quality objectives.

Two of the measures (Measure 20 to 'Work with Warwickshire County Council and bus operators to implement electric buses on routes within WDC' and Measure 23 to 'Increase EV Infrastructure (on road and off road) across WDC') have included a high-level quantified analysis of reduction in road NOx and PM_{10} emissions at the same locations which were included in the source apportionment calculations. The EFT (version 12.01) has been run using 2026 fleet, at the four locations, and used to assess the reduction in road NOx assuming an additional 5% of electric cars, and 10% of electric cars (to approximate the outcomes of measure 23 and other measures to encourage a switch to electric cars), using the methodology set out in Defra's 2024 Supplementary Guidance on Determining the impact of air quality improvement measures. Likewise, the reductions in road NOx and PM_{10} emissions in 2026 have been estimated with the assumption that the bus fleet is all electric (to reflect measure 20). This is likely to have overestimated the reductions as the baseline, considering a lack of current data on the bus/ coach fleet, assumes that all buses and coaches are conventional buses. Also, it is unlikely that the fleet would be fully electric by 2026. For the scenario relating the electric buses, traffic data was further split using the default options in the EFT in order that it could be run with 'All Vehicle Types'.

Table .2 shows that across the AQMAs a 5% increase in electric cars would reduce Road NOx by approximately 3.5% in 2026, with a 10% increase in electric cars reducing road NOx by 7 to 7.5%. The corresponding reductions in PM_{10} are much smaller as electric vehicles still have PM_{10} emissions (from tyre, brake and road wear). Measure 20 to increase electric buses in the fleet, has a wider variation in effectiveness at different locations within the AQMAs, depending on the proportion of the bus fleet in the baseline. The higher effectiveness is in Leamington, where the proportion of buses are higher. As for cars, there is a higher reduction in NOx than PM_{10}.

Table 3.2 - Reductions in Road NOx and PM_{10} emissions at locations within the AQMAs (see Figure 1 for locations)

	Warwick AQMA			Leamington Spa AQMA
	7123 (A429)	17070 (A425N)	48523 (A425)	48720 (High Street)
% Reduction in Road NOx Emissions: 5% increase in EVs	3.8	3.6	3.6	3.3
% Reduction in Road PM_{10} Emissions: 5% increase in EVs	1.3	1.2	1.2	1.2
% Reduction in Road NOx Emissions:10% increase in EVs	7.6	7.2	7.2	6.6
% Reduction in Road PM_{10} Emissions:10% increase in EVs	2.5	2.5	2.5	2.3
% Reduction in Road NOx Emissions:100% electric buses	0.7	4.7	5.5	7.4

	Warwick AQMA			Leamington Spa AQMA
	7123 (A429)	17070 (A425N)	48523 (A425)	48720 (High Street)
% Reduction in Road PM_{10} Emissions: 100% electric buses	0.0	0.3	0.3	0.4

A summary of the consideration of the impact of the measures, and whether they can be quantified is set out in Table 3.3 below, with the criteria used as follows:

Impact: ***Very Low*** – No indirect or direct impacts on air quality; ***Low*** – would reduce emissions, but not measurable by air quality monitoring and would be termed 'negligible' using industry standard guidance for modelling the impacts of developments; ***Medium*** - a change could be predicted using an air quality model such as ADMS, but unlikely to be measurable by air quality monitoring, for example an improvement of up to 5% of the annual mean objective for NO_2 (2 µg/m^3); ***High*** – a change could potentially be monitored using standard monitoring techniques, i.e. an improvement of more than 5% of the annual mean objective for NO_2 (2 µg/m^3). It should be noted that the impact is largely based on NO_2.

Table 3.3 - Assumptions Related to Air Quality Impact in AQMAs

Action No.	Action	Assumptions for Quantification	Assumed air quality impact
1	Work towards implementing Park and Ride south of Warwick and Leamington.	There is no data available on the impacts in terms of taking private vehicles off the road. Some of the assumptions on which P&R have been based (through feasibility study) may need to be reviewed considering future working patterns for key employers in the area. Currently no assumptions on which to base quantification.	Low to medium
2	Prioritise and implement projects as set out in the Local Cycling and Walking Infrastructure Plan.	The LCWIP was adopted in 2024 but currently unclear which of the projects will be funded, hence there are no current assumptions on which to base quantification.	Low
3	Ensure that planning applications with potential air quality impacts are fully assessed for their impacts, at relevant locations using appropriate methodologies including cumulative impacts where necessary and appropriate mitigation implemented	Unable to be quantified as impacts on traffic and other sources of pollutants such as domestic emissions unknown at this stage but has the potential to effect relatively large air quality improvements over longer timescales. For example, if significant modal shift to active travel, or an increase in renewable energy is achieved, this will have corresponding benefits in local air pollutant emissions. The amount of pollutant emissions that can be reduced will depend on the size and type of the development and how much of a focus is given to emissions reduction beyond present policy.	Medium (to high over long term)
4	Work with planning policy colleagues to ensure that the new South Warwickshire Local Plan fully addresses air quality issues with appropriate policies included	Cannot be quantified at the current time. Potential for evidence base for South Warwickshire Local Plan to address air quality.	Medium (to high over long term)

Action No.	Action	Assumptions for Quantification	Assumed air quality impact
5	Implement 15-minute neighbourhoods, or similar schemes, to increase use of active travel	15-minute neighbourhoods may have a similar impact on modal shift to Low Traffic Neighbourhoods. Much of the work on the evaluation of 'Mini–Holland' Schemes (designed with significant investment to increase cycling and walking rates in 3 outer London Boroughs), including Low Traffic Neighbourhoods specifically, has been undertaken by Rachael Aldred and colleagues at University of Westminster[5]. Research, based on three years of study following the implementation of Transport for London's (TfL) Mini-Holland Programme, indicates that implementing LTNs within these schemes was more likely to result in reduced levels of car ownership, and a reduction in the average minutes of car use in any given week, by residents. Although they may have been implemented in a different context, this provides quantified evidence of the impacts of LTNs, Liveable Neighbourhood schemes. There are no data within Warwick which can be used to base any quantification.	Medium
6	Decarbonising Council Buildings - Heat Decarbonisation Plan. Ensure all electricity used by WDC is from renewable sources.	3251.14 tCO2e per year (for total decarbonisation from climate change action programme). No basis for converting this to NOx or PM emissions.	Medium
7	Decarbonising Council Travel (ensure council fleet is electric by 2025, incentivise active travel and personal vehicle switch to EV)	252.8 tCO2e per year for decarbonisation of Council Travel. No basis for converting this to NOx or PM emissions.	Low

[5] See http://rachelaldred.org/research/low-traffic-neighbourhoods-evidence/.

Action No.	Action	Assumptions for Quantification	Assumed air quality impact
8	Increase Public Awareness of air quality issues, including reducing exposure, focus on active travel and domestic solid fuel burning.	Providing information on air quality to the public would be with the aim to change behaviour, but difficult to quantify what that change might be (and hence resulting changes in emissions).	Low
9	Support Low carbon South Warwickshire - On Road Transport actions (promoting active travel, driving shorter distances, supporting increase in EV, reducing freight emissions)	3,192,000 tCO2e by 2030. No basis for converting this to NOx or PM emissions.	Medium
10	Low carbon South Warwickshire - Domestic Energy (retrofit Council houses, supporting private house improvements, ensuring all new builds are net zero)	1,213,000 tCO2e by 2030. No basis for converting this to NOx or PM emissions.	Low to medium in long term
11	Low carbon South Warwickshire - Non-Domestic Energy (work with partners and businesses to improve energy efficiency and reduce gas use)	796,000 tCO2e by 2030 (for total decarbonisation from climate change action programme). No basis for converting this to NOx or PM emissions.	Low
12	Emscote Rd Sustainable Transport Corridor Scheme	Transport modelling has been undertaken. Should reduce congestion as well as increase use of active travel and public transport. Dispersion modelling cannot be undertaken within current resources and not proportional to current issues. No readily available data on which to base an emissions assessment.	Low to medium
13	Europa Way Corridor Improvements	Unclear if any transport modelling has been undertaken. Improvements will be over longer term (4,500 new homes to be built along this corridor). Dispersion modelling cannot be undertaken within	Low to medium

Action No.	Action	Assumptions for Quantification	Assumed air quality impact
		current resources and not proportional to current issues. No readily available data on which to base an emissions assessment.	
14	Warwick Town Centre Improvements	Unclear if any transport modelling has been undertaken. Dispersion modelling cannot be undertaken within current resources and not proportional to current issues. No readily available data on which to base an emissions assessment.	Low to medium
15	A452 Kenilworth to Leamington Spa cycle route (K2L)	Unclear if any assessment has been undertaken. No available data on which to base an emissions assessment.	Low to medium
16	A429 Coventry Road cycle route	Unclear if any assessment has been undertaken. No available data on which to base an emissions assessment.	Low
17	Bath Street Improvement Scheme, Leamington Spa	Modelling undertaken by Ricardo but outputs not available at this time.	Medium
18	Develop and implement a Freight Strategy which seeks, amongst other aims, to minimise the negative impacts from goods movements on air quality. Measures may include better routing of vehicles to avoid congestion, zero emission fuels, last mile delivery hubs	At this stage the Freight Strategy has not been completed, and hence it is unclear what specific actions it may include. Therefore, any resulting potential behaviour change is unknown.	Unknown
19	Work with Warwickshire County Council to implement Bus Infrastructure Improvements across the WDC area	Unclear what effect this specific measure will have on behaviour (extending green light for buses, increasing real time information at bus stops etc.), and therefore cannot be quantified.	Low

Action No.	Action	Assumptions for Quantification	Assumed air quality impact
20	Work with Warwickshire County Council and bus operators to implement electric buses on routes within WDC	As noted above, the EFT has been run to estimate NOx and PM_{10} emissions reductions from this measure.	Low to Medium
21	Work with WCC on specific actions within the LTP Warwick Area Strategy	At this stage the Warwick Area Strategy has not been produced and hence it is unclear what specific actions it may include. Therefore, any resulting potential behaviour change is unknown.	Unknown
22	Undertake Strategic Parking Review of Town Centres including an aim to encourage alternatives to private vehicles	At this stage the action is to undertake a review of parking in town centres, and therefore the outcomes of that review, and any resulting potential behaviour change are unknown.	Unknown
23	Increase EV Infrastructure (on road and off road) across WDC	There is currently no data on what shift this might entail as will be dependent on level of interventions. As noted above, the EFT has been run to estimate NOx and PM_{10} emissions reductions from this measure, using the assumption of a 5% increase in electric cars and a 10% increase in electric cars. See Table for details.	Low to Medium
24	Increase Smoke Control Area (SCA) and ensure that all new development is in an SCA	Will not have any impact on NOx, but could potentially reduce $PM_{2.5}$ if accompanied by information campaign and resulting behaviour change (reduction in wood burning/ switch to seasoned wood)	Low to medium ($PM_{2.5}$)
25	Increase car club provision across WDC	Unclear how many cars would be taken off the road by an increased use in car clubs, therefore difficult to quantify.	Low

Action No.	Action	Assumptions for Quantification	Assumed air quality impact
26	Investigate feasibility of increasing proportion of electric taxis in the fleet, through incentivising vehicle upgrades through licensing process	Taxis are relatively small proportion of the fleet, and the same principles as calculated for Action 23 apply, but absolute reductions will be smaller. Cannot be quantified in detail as unclear as to the proportion of taxis on the road, how many taxis would become electric and how much mileage they would undertake per year.	Low
27	Schools' education campaign to promote anti-idling initiatives	Idling engines produces more pollution than those in motion, particularly for older and diesel cars. However, anti-idling campaigns have had mixed success in reducing the number of pollutants.	Low

To provide an indication of cost effectiveness, Table 3.4 has been determined using best professional judgement to clearly set out impact from table 3.3 above (i.e., effectiveness) and cost in a qualitative way. Although the impacts for many of the actions is judged to be low individually, as a package, and over a number of years, the impacts of the measures will cumulatively be much larger.

The analysis also accounts for the feasibility of implementing the measures, with those likely to progress given a higher priority than those which are acknowledged to be a challenge to implement. The feasibility score factors in influences such as accessibility to funding, resources being available and political backing.

Criteria to allow for the analysis of cost and feasibility are included below.

Cost: *Low* - < £50K; *Medium* - £50K-£500K; *High* - >£500K

Feasibility: *High* – measure has already been started, good political will and likely to be sufficient resources. *Medium* – possible to implement, but may require some further feasibility work, and/ or additional support and resources. *Low* – difficult to implement, lack of political will to implement, time and resource intensive.

Table 3.4 - Cost Effectiveness of AQAP Actions

Action No.	Action	Impact on Air Quality	Cost	Feasibility
1	Work towards implementing Park and Ride south of Warwick and Leamington.	Low to medium	High	Medium
2	Prioritise and implement projects as set out in the Local Cycling and Walking Infrastructure Plan	Low	Medium to High (depending on Project)	Medium
3	Ensure that planning applications with potential air quality impacts are fully assessed for their impacts, at relevant locations using appropriate methodologies including cumulative impacts where necessary and appropriate mitigation implemented	Medium (to high over long term)	Low	High
4	Work with planning policy colleagues to ensure that the new South Warwickshire Local Plan fully addresses air quality issues with appropriate policies included	Medium (to high over long term)	Low	High
5	Implement 15-minute neighbourhoods, or similar schemes, to increase use of active travel	Medium	High	Medium
6	Decarbonising Council Buildings - Heat Decarbonisation Plan. Ensure all electricity used by WDC is from renewable sources.	Medium	High	Medium
7	Decarbonising Council Travel (ensure Council fleet is electric by 2025, incentivise active travel and personal vehicle switch to EV)	Low	Medium	High
8	Increase Public Awareness of air quality issues, including reducing exposure, focus on active travel and domestic solid fuel burning.	Low	Low	High
9	Support Low carbon South Warwickshire - On Road Transport actions (promoting active travel, driving shorter distances, supporting increase in EV, reducing freight emissions)	Medium	High	High

Action No.	Action	Impact on Air Quality	Cost	Feasibility
10	Low carbon South Warwickshire - Domestic Energy (retrofit Council houses, supporting private house improvements, ensuring all new builds are net zero)	Low to medium in long term	High	Medium
11	Low carbon South Warwickshire - Non-Domestic Energy (work with partners and businesses to improve energy efficiency and reduce gas use)	Low	Unclear at this stage	Low
12	Emscote Rd Sustainable Transport Corridor Scheme	Low to medium	High	Medium
13	Europa Way Corridor Improvements	Low to medium	High	High
14	Warwick Town Centre Improvements	Low to medium	High	High
15	A452 Kenilworth to Leamington Spa cycle route (K2L)	Low to medium	High	High
16	A429 Coventry Road cycle route	Low	High	High
17	Bath Street Improvement Scheme, Leamington Spa	Medium	High	High
18	Develop and implement a Freight Strategy which seeks, amongst other aims, to minimise the negative impacts from goods movements on air quality. Measures may include better routing of vehicles to avoid congestion, zero emission fuels, last mile delivery hubs	Unknown	Low	High (for Strategy)
19	Work with Warwickshire County Council to implement Bus Infrastructure Improvements across the WDC area	Low	High	Medium
20	Work with Warwickshire County Council and bus operators to **implement** electric buses on routes within WDC	Low to Medium	High	High
21	Work with WCC on specific actions within the LTP Warwick Area Strategy	Unknown	Low	Medium
22	Undertake Strategic Parking Review of Town Centres including an aim to encourage alternatives to private vehicles	Unknown	Low	Medium

Action No.	Action	Impact on Air Quality	Cost	Feasibility
23	Increase EV Infrastructure (on road and off road) across WDC	Low to Medium	High	Medium to High
24	Increase Smoke Control Area (SCA) and ensure that all new development is in an SCA	Low to medium ($PM_{2.5}$)	Low	Medium
25	Increase car club provision across WDC	Low	Unknown	Low
26	Investigate feasibility of increasing proportion of electric taxis in the fleet, through incentivising vehicle upgrades through licensing process	Low	Unknown	Low
27	Schools' education campaign to promote anti-idling initiatives	Low	Low	High

WDC aims that the implementation of the outlined measures will result in the relevant objectives being maintained throughout the lifetime of the AQAP. Compliance is currently being achieved.

APPENDIX A: RESPONSE TO CONSULTATION

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

Consultee	Category	Response
Various comments submitted via the online survey	Residents	Over the 6-week consultation, a total of 138 responses were received. 133 of these were received from the online survey, with an additional 5 responses received via email. Of the 133 responses to the online survey, 78 chose to indicate their connections to the area, with 66 people indicating that they lived in the District and 28 responding that they worked here (multiple responses allowed). Personal experiences of air quality in the District: • Poor air quality causing respiratory issues and exacerbating pre-existing health conditions such as asthma • Traffic congestion in busy, narrow streets • Poor access to cycle and walking paths and buses meaning cars are the only option for transport • HGVs and lorries associated with HS2 contributing to poor air pollution • Wood burning stoves, particularly in the winter, meaning that smoke and particulates can be smelt and felt in the air • Idling by delivery drivers, buses, and outside schools at pick-up and drop-off times Many people only partly agreed with the measures detailed in the draft AQAP; of the 78 respondents to this question, 28 of participants partly agreed compared to 22 who agreed and 16 who did not agree (11 did not know). There was broad agreement that the draft AQAP could be improved; 71 people answered 'yes' or 'maybe' to improvement, whilst only 6 respondents indicated that there should be no changes. Potential improvements to the draft AQAP: • More focus on the prioritisation of pedestrians and cyclists above vehicles, and better access to cycle paths with a network across the District. Many people

Consultee	Category	Response
		suggested pedestrianisation of the Parade in Leamington Spa which is currently the subject of a public consultation (as of June 2025) by the Leamington Transformation Board • Improved biodiversity across the District by setting a target for tree planting • Implementation of an anti-idling/public awareness campaign to encourage people to switch off their cars when stationary, particularly around schools and in queuing traffic • More real-time monitoring; for example, being able to check a map online and see, in real time, the best and worst areas for air pollution across the District. WDC are consistently investigating the possibility of introducing more real time monitoring sensors, however we are aware of the problems with these. Generally, the well-established monitors are both very large and very costly, limiting us due to their requirement for large standalone units and the associated monitoring and instalment costs. Poor air quality is commonly associated with narrow streets and areas with frequent traffic, so we are consistently investigating the introduction of multiple, smaller units. We liaise regularly with neighbouring local authorities to discuss new technologies, and we have recently introduced 3 real time monitors from Airly in Leamington Spa which also monitor particulate matter; should these prove successful, we will look to introduce more. Our diffusion tube data gives good spatial coverage across Leamington Spa, Kenilworth, and Warwick, and this data is ratified against Automatic Urban and Rural Network (AURN) data, although these tubes do not provide data on particulate matter. We continue to search for a solution which would be able to give us the same coverage as diffusion tube data at both a reasonable cost and at a reasonable size • A ban on woodburning stoves/more action against people who use woodburning stoves. WDC are in the process of implementing a new District-wide smoke control area to ensure consistency across the District. DEFRA have chosen not to ban woodburning stoves and instead allow only approved models. We are considerate of those who use solid fuels as their sole heating source when discussing the use of woodburning stoves.

Consultee	Category	Response
		• Work towards the lower standards for acceptable air pollution published by the World Health Organisation (WHO). Research has shown that there are no acceptable 'safe' levels of air pollution, and WHO levels are stricter than those set by the UK government. WDC remain committed to reducing their air pollution levels to as low as feasibility possible. There were several additional comments for which the AQAP is not the platform to address: • Berry Circular Polymers – This is part of an ongoing complaint and collaboration with the Environment Agency. This issue is not considered part of the AQAP, and other legislation is being used to respond to this. • Birmingham airport expansion/overnight flights - This is currently the source of an ongoing objection to Solihull Council which is yet to receive a response • Dismissal of the need for the AQAP by citing well-known 'conspiracy theories' as evidence for this dismissal. The AQAP is a legal requirement driven by the scientific data collected from our District and beyond. WDC will not comment further on these responses.
Rugby Borough Council	Neighbouring local authority	No specific comments but noted the intention to produce a new South Warwickshire Local Plan to cover the combined geographic area of the two authorities.
Warwickshire County Council – Transport Department	Neighbouring local authority	Inappropriate to add comments due to their involvement in drafting the measures. Provided several amendments to measures in the draft plan which have been updated since the time of writing.
Warwickshire County Council – Public Health Department	Neighbouring local authority	Potential improvements to the draft AQAP: • Consider including indoor air pollution • Address pollution from others sources (e.g. manufacturing, agriculture, construction) Measures they would like to see implemented to improve the draft AQAP: • Targeted actions for groups disproportionately affected by the most vulnerable

Consultee	Category	Response
		• Collaboration for consistent messaging and air quality communication across Warwickshire • Specific targeting of diesel vehicles which are the top contributor to NO_2 emissions Additional comments: • Warwickshire County Council Public Health and Climate Change teams plan to promote the WMCA Air Quality Literacy course to all staff, followed by a reflective learning session • Public Health respond to planning applications for developments over 250 homes and can support developers to incorporate air quality adaptation and mitigation strategies
The Leamington Society	Local action group	• Requested better engagement with other organisations and local businesses • Organise an anti-idling campaign with enforcement and fines • Cleaner signage for existing cycle routes (e.g. Heathcote Road) • Support for the car sharing/car club schemes, but would also like a bike hire scheme to make bikes more accessible
Clean Air Leamington	Local action group	Members of Clean Air Leamington live/work/study in Warwick District and campaign for cleaner air across the District. Improvements to the plan: • More specific measures to make it easier to understand how these will be implemented and over what timescale • Measures should clearly state how they will directly reduce pollutants in the AQMA • Work towards World Health Organisation (WHO) guidelines which aspire to lower levels than those of the UK Government Measures they would like to see implemented to improve the draft AQAP: • Continued monitoring

Consultee	Category	Response
		• Compare further monitoring results with WHO guidelines • Focus on reducing transport emissions more generally • Reduce smoke pollution from wood-burning stoves by regularly reviewing potential actions • Quantify the impact of reducing private vehicle traffic in Leamington and Warwick, both in terms of air quality, quality of life and business • Take direct action to reduce vehicle idling • Greater recognition of public involvement and clear communication with the public so they can be better informed
Stratford-on-Avon District Council	Neighbouring local authority	Continued co-operation with neighbouring local authorities to address County wide issues and measures.
Solihull Metropolitan Borough Council	Neighbouring local authority	SMBC welcomes any proposed improvements in low emission infrastructure and increased uptake of low emission vehicles, as this will provide regional improvement. The two AQMAs are 1.2km and 0.8km from the shared border.

APPENDIX B: REASONS FOR NOT PURSUING ACTION PLAN MEASURES

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

Action category	Action description	Reason action is not being pursued (including Stakeholder views)
Environmental permits	Includes a range of actions relevant to charges through permit systems, large combustion plant permits going beyond BAT, measures to reduce pollution through IPPC permits etc	This category of actions is not relevant to the sources causing exceedances within Warwick and hence do not warrant specific actions within the AQAP

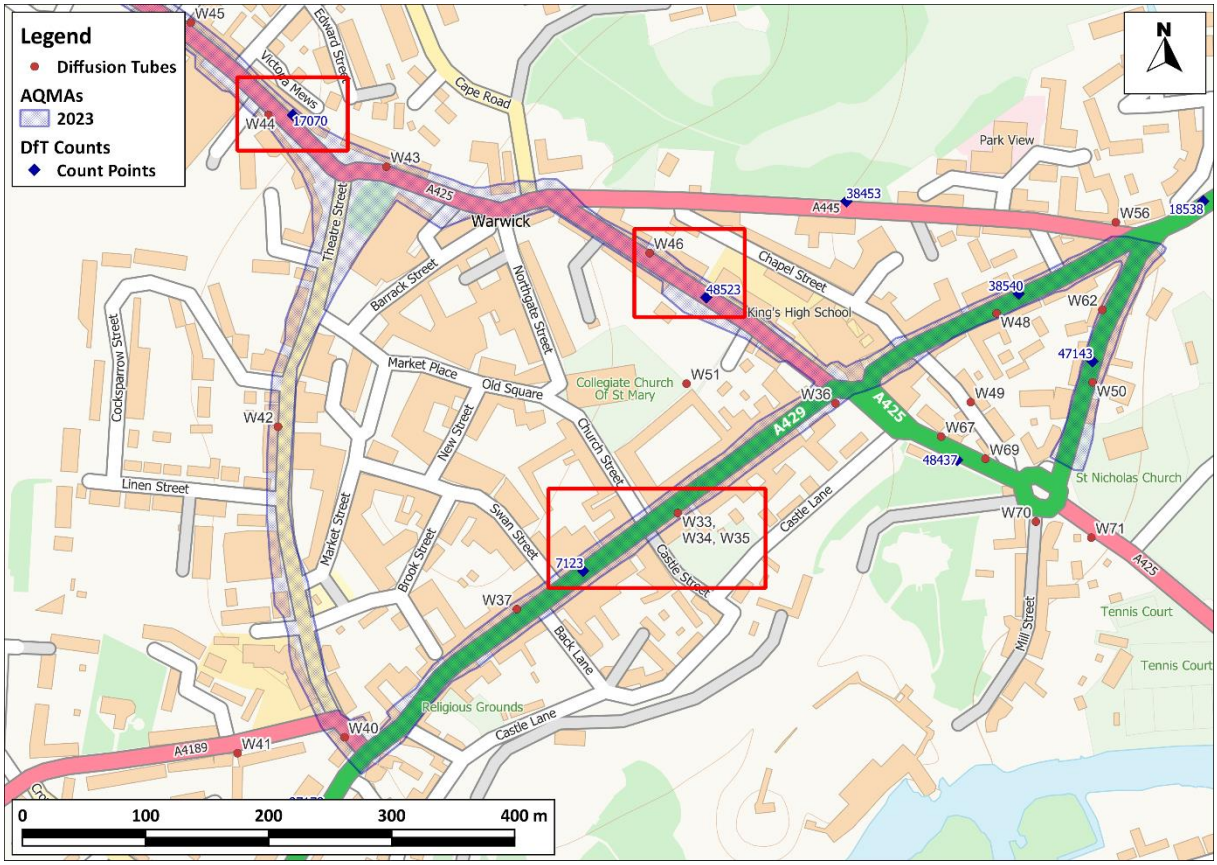
APPENDIX C: SOURCE APPORTIONMENT

The measures presented in this AQAP are intended to be targeted towards the predominant sources of emissions within the Council's area. Analysis has been undertaken within the AQMAs, to provide a context in relation to concentrations, using the methodology as set out in LAQM Technical Guidance (TG22), Box 7-5.

WARWICK AQMA

For Warwick, DfT traffic count data was used to calculate the contributions of different traffic sources to the overall concentration. Three points were selected within the AQMA in close proximity to a diffusion tube. Traffic data for 2022 were available for all the points used which are shown in Figure C - 1, and these have been applied to represent 2023, the year of latest monitoring data.

Figure C - 1 DfT traffic data and diffusion tube locations in Warwick (© Crown copyright and database rights 2024. Ordnance Survey AC0000806011)



The fleet breakdown at each site is shown in Table C.1.

Table C.1 - Fleet breakdown (percentages)

Category	48523 (A425)	7123 (A429)	17070 (A425N)
Car	87.2	87.8	87.3
LGV	10.3	10.1	9.7
Rigid HGV	1.0	1.1	1.4
Artic HGV	0.0	0.0	0.1
Bus and Coach	1.1	0.1	1.0
Motorcycle	0.4	0.9	0.6

The fleet breakdown was entered into the latest Emission Factor Toolkit (v12.1) and used to calculate the percentage NO_X contribution from each source at 32 kph (20 mph). Table C.2 shows the emissions contributions for each location.

Table C.2 - NO_X Emission breakdown (percentages)

Category	48523 (A425)	7123 (A429)	17070 (A425N)
Petrol Cars	10.0	10.7	10.0
Diesel Cars	59.1	63.5	59.4
Petrol LGVs	0.1	0.1	0.1
Diesel LGVs	18.4	19.2	17.4
Rigid HGVs	4.5	5.3	6.1
Artic HGVs	0.1	0.1	0.3
Buses	7.7	1.1	6.6
Motorcycles	0.0	0.1	0.1

The categories have been aggregated, and the NO_X emissions proportions applied to the local NO_2 contribution to give the contribution to the concentration from each source as shown in Table C.3

Table C.3 Source Apportionment for NO_2 (including percentages)

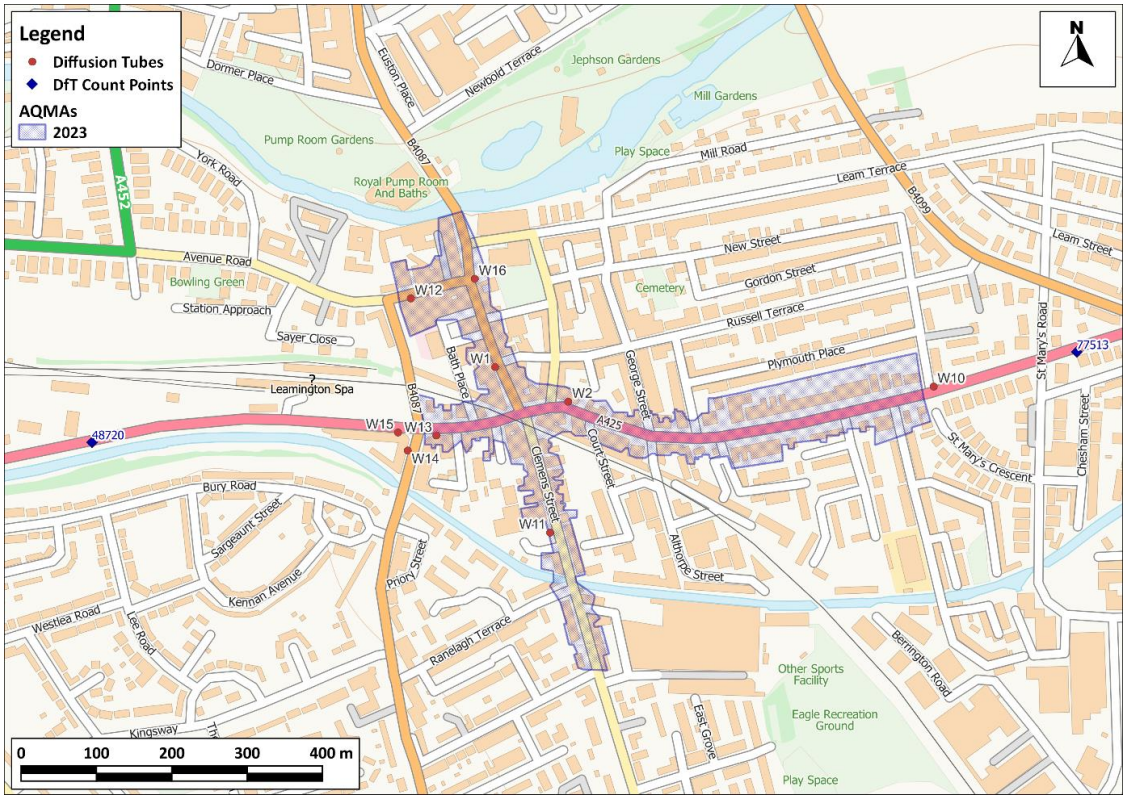
AQMA	48523 (A425)		7123 (A429)		17070 (A425N)	
Source	NO_2 µg/m^3	%	NO_2 µg/m^3	%	NO_2 µg/m^3	%
Diffusion Tube	24.6	100.0	28.8	100.0	29.4	100.0
Local BG	6.4	25.9	5.1	17.7	6.4	21.7
Regional BG	2.9	11.7	2.9	10.2	2.9	9.8
Petrol LDVs	1.6	6.3	2.3	7.9	2.1	7.0
Diesel Cars	9.1	36.9	13.2	45.7	12.0	40.7
Diesel LDVs	2.8	11.5	4.0	13.8	3.5	11.9
HGVs	0.7	2.9	1.1	3.9	1.3	4.4
Buses	1.2	4.8	0.2	0.8	1.3	4.5

The source apportionment for NO_2 shows that the predominant source of vehicle emissions is diesel cars and increasing the use of public transport and active travel and electrification of the fleet will be key to reducing emissions from this source.

LEAMINGTON SPA AQMA

For Leamington Spa, there are no DfT count points within the AQMA itself. However, there are points further along the main road running through the AQMA, and this dataset has been used to represent the traffic flow at the diffusion tube (W13 Wise Street/ High Street) assessed. Figure C - 2 shows the locations of the traffic counts and diffusion tubes.

Figure C - 2 Traffic Counts and diffusion tube locations in Leamington Spa Warwick (© Crown copyright and database rights 2024. Ordnance Survey AC0000806011)



The fleet breakdown is shown in Table C.4

Table C.4 - Fleet breakdown (percentages)

Category	High Street
Car	84.6
LGV	11.4
Rigid HGV	1.6
Articulated HGV	0.4
Bus and Coach	1.6
Motorcycle	0.4

The fleet breakdown was entered into the latest Emission Factor Toolkit (v12.1) and used to calculate the percentage NO_X contribution from each source at 32 kph (20 mph). Table C shows the emissions contributions.

Table C.5 - NO_X Emission breakdown (percentages)

Category	High Street
Petrol Cars	10.0
Diesel Cars	55.0
Petrol LGVs	0.1
Diesel LGVs	18.9
Rigid HGVs	6.1
Artic HGVs	1.0
Buses	8.9
Motorcycles	0.1

The categories have been aggregated, and the NO_X emissions proportions applied to the Local NO_2 contribution to give the contribution to the concentration.

Table C.5 - Source Apportionment for NO_2 (including percentages)

AQMA	High Street	
Source	NO_2 µg/m³	%
Diffusion Tube	36.8	100.0
Local BG	7.0	19.0
Regional BG	3.4	9.3
Petrol LDVs	2.7	7.2
Diesel Cars	14.5	39.4
Diesel LDVs	5.0	13.5
HGVs	1.9	5.1
Buses	2.4	6.4

The source apportionment for NO_2 shows that the predominant source of vehicle emissions is diesel cars and actions are included in the AQAP to change behaviour to reduce vehicle use and reduce emissions per vehicle (for example by encouraging the shift to electric vehicles through improving charging infrastructure).

CONCLUSIONS

In three of the four locations assessed diesel cars are the highest contributor to NO_2 concentration, with local background being the next largest contributor. The Warwick A425 location has these contributors the other way around, although diesel cars are still the largest road vehicle contributor.

Leamington Spa has the highest proportion of NO_2 from diesel vans, HGVs and buses of the four locations, suggesting that interventions targeting deliveries and the bus fleet would have more impact in Leamington Spa than Warwick.

GLOSSARY OF TERMS

Abbreviation	Description
ASHP	Air Source Heat Pump
ANPR	Automatic Number Plate Recognition
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 objectives
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
CIL	Community Infrastructure Levy
COMEAP	Committee on the Medical Effects of Air Pollution
DEFRA	Department for Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
DPD	Development Plan Document
EV	Electric Vehicle
EVCIS	Electric Vehicle Charging Infrastructure Strategy
HGV	Heavy Goods Vehicle
K2L	Kenilworth to Leamington
LAQM	Local Air Quality Management
LCWIP	Local Cycling and Walking Infrastructure Plan
LED	Light Emitting Diode
LEVI	Low Electric Vehicle Infrastructure
LGV	Light Goods Vehicle

LTP	Local Transport Plan
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NZC	Net Zero Carbon
OZEV	Office for Zero Emission Vehicles
PHOF	Public Health Outcomes Framework
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
SCA	Smoke Control Area
S106	Section 106 (planning obligation between local authority and landowner as part of planning permission)
TfWM	Transport for West Midlands
WCC	Warwickshire County Council
WDC	Warwick District Council

REFERENCES

Choose How You Move in Warwick District: https://www.warwickdc.gov.uk/info/20531/public_transport/1341/choose_how_you_move_in_warwick_district

locations of EV charging points: https://www.warwickdc.gov.uk/info/20535/car_parks/320/electric_charging_points

Active Travel website: https://www.warwickshire.gov.uk/activetravel

Policy Guidance LAQM.PG16: https://laqm.defra.gov.uk/documents/LAQM-PG16-April-16-v1.pdf

Technical Guidance LAQM.TG16: https://laqm.defra.gov.uk/documents/LAQM-TG16-April-21-v1.pdf

equivalent to 28,000 to 36,000 deaths: https://www.gov.uk/government/publications/nitrogen-dioxide-effects-on-mortality/associations-of-long-term-average-concentrations-of-nitrogen-dioxide-with-mortality-2018-comeap-summary

emerging evidence: https://www.gov.uk/government/publications/clean-air-strategy-2019

Public Health Outcome Framework: https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/1/gid/1000043/pat/6/par/E12000008/ati/101/are/E07000216/yrr/1/cid/4/tbm/1

Warwick District Local Plan 2011 – 2029: https://www.warwickdc.gov.uk/info/20410/new_local_plan

Air Quality Supplementary Planning Document January 2019: https://www.warwickdc.gov.uk/downloads/file/5043/air_quality_spd

Net Zero Carbon Development Plan Document (2024): https://www.warwickdc.gov.uk/downloads/file/8504/net_zero_carbon_dpd-adopted_may_2024

Net Zero Carbon Supplementary Planning Document (2024): https://warwickdc.oc2.uk/document/140

Air Quality & Planning Supplementary Planning Document (2019): https://www.warwickdc.gov.uk/downloads/file/5043/air_quality_spd

Warwickshire's fourth Local Transport Plan: https://www.warwickshire.gov.uk/localtransportplan

Warwickshire's Local Cycling and Walking Infrastructure Plan: https://www.warwickshire.gov.uk/cycling-warwickshire/developing-warwickshires-cycle-network/3