



Cherwell District Council Air Quality Action Plan

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

March 2017

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Report Reference number	sg 02 AQAP2017 AQ
Date	March 2017

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 Cherwell between 2017 and 2020.

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

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion³. Cherwell District Council is committed to reducing the exposure of people in Cherwell to poor air quality in order to improve health.

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

- Policy guidance and development control
- Promoting low emission transport
- Promoting travel alternatives to private vehicle use
- Transport planning and infrastructure
- Public information

Our priorities are:

- Priority 1 – Strengthening local policy to improve air quality and its role in protecting health;
- Priority 2 – Reducing NO_x emissions from cars in all AQMAs;
- Priority 3 – Ensuring new developments encourage and facilitate low emission and alternative transport;
- Priority 4 – Ensuring transport infrastructure delivery takes account of air quality improvement potential within AQMAs;
- Priority 5 – Raising awareness of poor air quality and encouraging improvement actions by vehicle users and fleet managers.

¹ Environmental equity, air quality, socioeconomic status and respiratory health, 2010

² Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

³ Defra. Abatement cost guidance for valuing changes in air quality, May 2013

In this AQAP we outline how we plan to effectively tackle air quality issues. It is recognised that Public Health and Highways Authority matters are beyond Cherwells direct control and partnership working to deliver the measures outlined is essential.

We recognise that there are a large number of air quality policy areas that are further outside of our influence (such as vehicle emissions standards agreed in Europe), but for which we may have useful evidence, and so we will continue to work with regional and central government on related policies and issues.

Responsibilities and Commitment

This AQAP was prepared by the Public Protection Service of Cherwell District Council with the support and agreement of the following departments:

Cherwell District Council:

- Public Protection
- Environmental Protection Team
- Bicester Delivery Team
- Procurement Team
- Planning Policy Team
- Corporate Performance Team
- Communications Team

Oxfordshire County Council:

- Oxford, Cherwell and West Locality Team

The draft AQAP (August 2016) was approved to go to public consultation by the Councils Executive at their meeting on 3 September 2016.

An online survey was launched and ran from 12 October 2016 to 8 January 2017. The survey format and text is shown in Appendix C. Consultees were invited to participate via links in press releases, the council website, emails, letters and social media. The responses to this online survey are presented in Appendix D.

This AQAP will be subject to an annual review and appraisal of progress each year will be reported in the Annual Status Reports (ASRs) produced by Cherwell District,

Cherwell District Council

as part of our statutory Local Air Quality Management duties, and to the Councils Executive.

If you have any comments on this AQAP please write to us using the following details and quoting AQAP in the title / header:

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1 Introduction

This report outlines the actions that Cherwell District Council will deliver in order 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 Cherwell area.

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

This Plan will be reviewed every five years at the latest and progress on measures set out within this Plan will be reported on annually within Cherwell District's air quality ASR.

2 Summary of Current Air Quality in Cherwell District

Cherwell District Council has identified four areas where air quality does not meet national air quality objectives for nitrogen dioxide. The locations of these four Air Quality Management Areas (AQMA) can be found on our website at

www.cherwell.gov.uk/airqualitymanagement. There are two in Banbury, one in Bicester and one in Kidlington. These concentrations are largely related to road traffic emissions.

AQMA No.1 in Hennef Way exceeds the annual and hourly mean objectives for nitrogen dioxide.

AQMA No.2 between Oxford Road to Southam Road, Banbury, including a section of High Street exceeds the annual mean objective for nitrogen dioxide.

AQMA No.3 on a section of Bicester Road, Kidlington to the north of the Water Eaton Lane controlled junction exceeds the annual mean objective for nitrogen dioxide.

AQMA No.4 between the mini roundabout in Kings End through Queens Avenue to the Field Street mini roundabout, including St Johns, exceeds the annual mean objective for nitrogen dioxide.

The latest monitoring indicates nitrogen dioxide concentrations are trending downwards in most places. This includes within the AQMA, although concentrations in the AQMA remain above the national air quality objective levels for nitrogen dioxide. Further information can be found in the latest Annual Status Report which can be downloaded at the website above. Monitoring locations and the latest monitoring data can also be found using the interactive map on <https://oxfordshire.air-quality.info/>.

3 Cherwell District's Air Quality Priorities

3.1 Public Health Context

Four AQMAs have been identified with people exposed to sufficiently poor air quality to require legal intervention under Environment Act 1995, which this action plan contributes to. Table 3.1 shows the number of residential properties within the AQMAs.

Table 3.1 – Residential properties within AQMAs

AQMA	Description	Nitrogen Dioxide Concentration ($\mu\text{g}/\text{m}^3$) ^a	Approximate No. residential properties within AQMA
AQMA No.1	Hennef Way, Banbury	59.8	3
AQMA No.2	Banbury	40.9	86
AQMA No.3	Kidlington	41.1	5
AQMA No.4	Bicester	46.0	111

Notes:

^a 2015 Concentration at relevant exposure reported in ASR 2016

These AQMAs are localised areas representing the worst affected places. The main source of pollutants in these AQMAs is traffic emissions. Traffic emissions are not localised i.e. journeys originating and terminating within the AQMA so measures to address emissions district-wide are collated as general measures.

It is anticipated that most general measures to reduce emissions will also contribute to reducing PM_{2.5} emissions from vehicles.

Where local measures to reduce pollutant concentrations are identified, these measures have been related to that specific AQMA.

Oxfordshire County Councils Joint Strategic Needs Assessment (JSNA) provides information about Oxfordshire's population and the factors affecting health, wellbeing, and social care needs and can be found at <http://insight.oxfordshire.gov.uk/cms/joint-strategic-needs-assessment>

Air quality is included in Section 4.2.8 of the 2016 JSNA under the “Wider Determinants; Environment” section and recognises:

- Poor air quality is known to have negative impacts on health.
- In the more densely populated areas of the county, and those which experience high traffic flows, increased levels of air pollution are of concern. In these areas, road traffic is the most significant source of pollutant emissions.
- There are currently 13 AQMAs in Oxfordshire, where the annual mean objective for nitrogen dioxide is being exceeded (four in Cherwell, one covering the whole of Oxford, three in South Oxfordshire, three in Vale of White Horse and two in West Oxfordshire).
- Trends in air quality across some of Oxfordshire’s long-standing AQMAs show signs of improvement, with reductions in concentrations of nitrogen dioxide over recent years. However, new AQMAs are still being identified.
- Air Quality and Mortality Estimates in 2010 the UK Committee on the Medical Effects of Air Pollutants estimated that removing all man-made, particulate matter air pollution could save the UK population approximately 36.5 million life years over the next 100 years, and would be associated with an increase in UK life expectancy from birth, of six months on average.
- The calculated attributable proportion of deaths associated with air pollution, among those aged 25 and over in Oxfordshire, was 5.6% in 2010. However, given the uncertainties this could, in fact, be somewhere between 0.9% and 11%. For 2013 it was estimated that 5.3% of all-cause mortality among people aged 30 and over in Oxfordshire was attributable to particulate air pollution from man-made sources. This value has fluctuated between 5.1% and 5.6% over the years between 2010 and 2013 but it is not possible to tell whether or not changes are statistically significant.
- The national and regional averages in 2013 were 5.3% (England) and 5.2% (South East). Meanwhile, the proportion of mortality attributable to man-made air pollution in the districts ranged from 5% (in West Oxfordshire) to 5.6% (in Oxford) with the other three districts at 5.3%.

-The quantification of mortality burden associated with long term nitrogen dioxide concentration exposure is not currently available.

3.2 Planning and Policy Context

3.2.1 Cherwell Local Plan Part 1

The Cherwell Local Plan Part 1 was adopted in July 2015. It sets out proposals to support the local economy and the community between 2011 and 2016. This can be downloaded from the Cherwell District Council website or by following this [link](#).

Sustainable development is a key part of this Plan focussing proposed growth in and around Banbury and Bicester and limiting growth in rural areas. The Plan sets out planning policies grouped around three themes; Developing a Sustainable Local Economy, Building Sustainable Communities and Ensuring Sustainable Development. Section C outlines how these themes will be delivered in Bicester, Banbury, Kidlington and villages and rural areas.

The need to consider the effects of development on air quality, and how they can contribute towards improvements, is identified as a key challenge to ensuring sustainable development. Commuters in Cherwell travel relatively long distances to work and reducing travel by car and managing traffic congestion are identified as key challenges. Maximising the opportunity to shift from dependency on cars to sustainable modes of transport is also identified.

Relevant objectives and policies which may contribute to improvements in air quality within the AQMAs are referred to below. Further detail can be found in the adopted Local Plan.

The strategic objectives (SO) for ensuring sustainable development include minimising carbon emissions, promoting decentralised and renewable or low carbon energy where appropriate (SO11), reducing the dependency on the private car with increasing the attraction of public transport, cycling and travel by foot (SO13).

Policy SLE4 includes new developments to provide financial and/or in-kind contributions to mitigate the transport impacts of development. All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest possible use of public transport, walking and cycling. Encouragement will be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. Development which is not suitable for the

roads that serve the development and which have a severe traffic impact will not be supported.

Policies ESD 1 – ESD 5 address carbon emission reductions. These include a requirement that all new residential development will be expected to incorporate sustainable design and construction technology to achieve zero carbon development. All new non-residential development will be expected to meet at least BREEAM 'Very Good' (ESD 3). The encouragement of decentralising energy systems in developments e.g. district heating or combined heat and power (ESD 4). Support for renewable and low carbon provision wherever adverse impacts can be addressed satisfactorily is part of ESD 5.

Policy ESD10 includes the requirement for air quality assessments where development proposals would be likely to have a significantly adverse impact on biodiversity by generating an increase in air pollution.

Policy BSC 8 acknowledges the local environment has a fundamental impact on the health and well-being of local people. By providing facilities such as local open space this allows for activities such as walking and cycling, promoting healthy lifestyles.

Policy ESD 17 refers to providing opportunities for walking and cycling by maximising the opportunity to maintain and extend green infrastructure links and connecting the towns to the urban fringe and the wider countryside beyond.

Section C of The Cherwell Local Plan Part 1 contains the policies for Cherwells Places and includes detailed site-specific policies for large strategic developments. This includes a new zero-carbon mixed use development including 6000 homes at North West Bicester (Bicester 1: North West Bicester Eco-town).

The Infrastructure Delivery Plan (IDP) is appended to the Local Plan Part 1 and details projects to facilitate the proposed development growth. Some of these will contribute to improvements in air quality within the AQMAs. The IDP is reviewed on an annual basis.

3.2.2 Cherwell Local Plan Part 2

Cherwell District Council is currently preparing Cherwell Local Plan 2011-2031 (Part 2) which will contain non-strategic site allocations and development management policies.

An Issues Consultation Paper was published in January 2016. Related documents can be on the Cherwell District Council website or following this [link](#).

3.3 Source Apportionment

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

Source apportionment exercises have been undertaken. These are presented in the following reports which can be found on www.cherwell.gov.uk/airqualitymanagement:

- Further Assessment - Hennef Way (2013)
- Banbury Source Apportionment (2015)
- Kidlington Source Apportionment (2015)
- Detailed Assessment – Bicester (2015)

The source apportionment aspects of these reports have been revised using the most recent emission factors (including petrol / diesel vehicle apportionment), background concentrations and monitoring results. The traffic survey data used is the same.

A summary of sources is shown in Table 3.2 below. The data used to inform these calculations is shown in Appendix B:

Table 3.2 Summarised NO₂ concentrations in AQMAs apportioned by source

AQMA	NO ₂ Concentration	% NO ₂ by Source				
		Background	Cars	LGVs	HGVs	Buses
1 (Hennef Way)	59.8 µg/m ³	32%	39%	17%	10%	2%
2 (Banbury)	40.9 µg/m ³	32%	39%	13%	10%	6%
3 (Kidlington)	41.1 µg/m ³	35%	41%	9%	6%	9%

4 (Bicester)	46.0 $\mu\text{g}/\text{m}^3$	27%	50%	8%	2%	13%
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3.3.1 AQMA No.1 Hennef Way, Banbury - Source Apportionment

The source apportionment works reported in the 2013 Further Assessment for Hennef Way, Banbury were based on an exceedence of the annual mean objective not being predicted by the modelling undertaken. Uncertainties were identified in the monitoring i.e. significantly above the objective at the property boundary but significantly below at the property façade facing away from the roadside, which translated into the modelling. Subsequent monitoring at relevant exposure is reported in the Updating and Screening Assessment 2015 and Annual Status Report 2016. Monitoring at both façades, at different heights on the roadside façade and at the property boundary fence have been reported and show exceedences at the roadside façade. The worst of these exceedences has been used for the source apportionment in this AQMA.

The worst case NO_2 of $59.8 \mu\text{g}/\text{m}^3$ is apportioned to:

- $6.3 \mu\text{g}/\text{m}^3 \text{NO}_2$ (10.5%) Regional Background
- $12.9 \mu\text{g}/\text{m}^3 \text{NO}_2$ (21.6%) Local Background
- $23 \mu\text{g}/\text{m}^3 \text{NO}_2$ (38.5%) Cars of which,
 - $19.8 \mu\text{g}/\text{m}^3 \text{NO}_2$ (33.1%) Diesel Cars
- $10.2 \mu\text{g}/\text{m}^3 \text{NO}_2$ (17.1%) Light Goods Vehicles
- $6.1 \mu\text{g}/\text{m}^3 \text{NO}_2$ (10.2%) Heavy Goods Vehicles
- $1 \mu\text{g}/\text{m}^3 \text{NO}_2$ (1.7%) Buses

Cars are the main contributor (38%) to this NO_2 concentration. Diesel car emissions are attributed to the majority of these car related emissions with 33% of the total, $19.8 \mu\text{g}/\text{m}^3$. This diesel car fraction is larger than the total background NO_2 concentrations of $19.2 \mu\text{g}/\text{m}^3$.

Light goods vehicles, of which the majority are diesel, make up the next highest proportion (17.1%) of this concentration, with HGVs accounting for 10% and buses a much smaller fraction (1.7%).

3.3.2 AQMA No.2 Banbury - Source Apportionment

The worst case NO₂ of 40.9 µg/m³ is apportioned to:

- 8.9 µg/m³ NO₂ (21.8%) Regional Background
- 8.7 µg/m³ NO₂ (21.3%) Local Background
- 19.2 µg/m³ NO₂ (46.9%) Cars of which,
 - 16.4 µg/m³ NO₂ (40.1%) Diesel Cars
- 6.3 µg/m³ NO₂ (15.4%) Light Goods Vehicles
- 5 µg/m³ NO₂ (12.2%) Heavy Goods Vehicles
- 2.8 µg/m³ NO₂ (6.8%) Buses

Cars are the main contributor (46.9%) to this NO₂ concentration. Diesel car emissions are attributed to the majority of these car related emissions with 40.1% of the total, 16.4 µg/m³. The total background concentration of NO₂ (17.6 µg/m³) is attributed to 43.1% of the total.

Light goods vehicles, of which the majority are diesel, make up the next highest proportion (15.4%) of this concentration, with HGVs accounting for 12.2% and buses a smaller fraction (6.8%).

3.3.3 AQMA No.3 Bicester Road, Kidlington - Source Apportionment

The worst case NO₂ of 41.1 µg/m³ is apportioned to:

- 6.4 µg/m³ NO₂ (15.6%) Regional Background
- 7.8 µg/m³ NO₂ (19.0%) Local Background
- 16.8 µg/m³ NO₂ (40.9%) Cars of which,
 - 14.3 µg/m³ NO₂ (34.8%) Diesel Cars
- 3.5 µg/m³ NO₂ (8.5%) Light Goods Vehicles
- 2.6 µg/m³ NO₂ (6.3%) Heavy Goods Vehicles

- 3.9 $\mu\text{g}/\text{m}^3$ NO₂ (9.5%) Buses

Cars are the main contributor (40.9%) to this NO₂ concentration. Diesel car emissions are attributed to the majority of these car related emissions with 34.8% of the total, 14.3 $\mu\text{g}/\text{m}^3$. The total background concentration of NO₂, 14.2 $\mu\text{g}/\text{m}^3$, is attributed to 34.8% of the total.

Buses make up the next highest proportion (9.5%) with 3.9 $\mu\text{g}/\text{m}^3$. Light goods vehicles make up the next highest proportion (8.5%) of this concentration, with HGVs accounting for a lower fraction of 6.3%.

3.3.4 AQMA No.4 Bicester - Source Apportionment

The worst case NO₂ of 46.0 $\mu\text{g}/\text{m}^3$ is apportioned to:

- 6.6 $\mu\text{g}/\text{m}^3$ NO₂ (14.3%) Regional Background
- 5.9 $\mu\text{g}/\text{m}^3$ NO₂ (12.8%) Local Background
- 22.8 $\mu\text{g}/\text{m}^3$ NO₂ (49.6%) Cars of which,
 - 19.5 $\mu\text{g}/\text{m}^3$ NO₂ (42.4%) Diesel Cars
- 3.6 $\mu\text{g}/\text{m}^3$ NO₂ (7.8%) Light Goods Vehicles
- 0.8 $\mu\text{g}/\text{m}^3$ NO₂ (1.7%) Heavy Goods Vehicles
- 6.2 $\mu\text{g}/\text{m}^3$ NO₂ (13.5%) Buses

Cars are the main contributor (46.9%) to this NO₂ concentration. Diesel car emissions are attributed to the majority of these car related emissions with 42.4% of the total, 19.5 $\mu\text{g}/\text{m}^3$. The total background concentration of NO₂ (12.5 $\mu\text{g}/\text{m}^3$) is attributed to 27.1% of the total.

Buses, 6.2 $\mu\text{g}/\text{m}^3$, make up the next highest proportion (13.5%) of this concentration with light goods vehicles accounting for 7.8 % and HGVs a much smaller fraction (1.7%).

3.4 Required Reduction in Emissions

The required reduction in emissions has been calculated in line with Defra's statutory Technical Guidance document (LAQM.TG16) to determine the road NO_x reduction

required to meet the annual mean air quality objective of $40 \mu\text{g}/\text{m}^3$ NO_2 . It is anticipated that this reduction will also achieve the hourly mean objective. Total oxides of nitrogen (NO_x) are used for the required reduction in vehicle emissions. This is routinely used for vehicle emissions standards instead of NO_2 . Vehicles emit nitrogen dioxide (NO_2) and nitrogen oxide (NO) which make up the total NO_x . The NO reacts with ozone in sunlight to create NO_2 . The relationship between NO_x emitted and ambient NO_2 is not linear so emission reductions are presented in NO_x .

3.4.1 AQMA No.1 Hennef Way, Banbury – Required Reduction

To reduce the total NO_2 concentration by $19.8 \mu\text{g}/\text{m}^3$ at the worst case monitoring location in this AQMA, a road NO_x reduction of $61.6 \mu\text{g}/\text{m}^3$ (52%) is required.

3.4.2 AQMA No.2 Banbury – Required Reduction

To reduce the total NO_2 concentration by $0.9 \mu\text{g}/\text{m}^3$ at the worst case monitoring location in this AQMA, a road NO_x reduction of $11.1 \mu\text{g}/\text{m}^3$ (16%) is required.

3.4.3 AQMA No.3 Bicester Road, Kidlington – Required Reduction

To reduce the total NO_2 concentration by $1.1 \mu\text{g}/\text{m}^3$ at the worst case monitoring location in this AQMA, a road NO_x reduction of $11.2 \mu\text{g}/\text{m}^3$ (17%) is required.

3.4.4 AQMA No.4 Bicester – Required Reduction

To reduce the total NO_2 concentration by $6 \mu\text{g}/\text{m}^3$ at the worst case monitoring location in this AQMA, a road NO_x reduction of $25.6 \mu\text{g}/\text{m}^3$ (30%) is required.

3.5 Key Priorities

The key priorities for action are:

- Priority 1 – Strengthening local policy to improve air quality and its role in protecting health;
- Priority 2 – Reducing NO_x emissions from cars in all AQMAs;
- Priority 3 – Ensuring new developments encourage and facilitate low emission and alternative transport;
- Priority 4 – Ensuring transport infrastructure delivery takes account of air quality improvement potential within AQMAs;

- Priority 5 – Raising awareness of poor air quality and encouraging improvement actions by vehicle users and fleet managers.

4 Development and Implementation of Cherwell District AQAP

4.1 Consultation and Stakeholder Engagement

In developing this AQAP, we have worked with other local authorities and agencies to improve local air quality. Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in Table 4.1. A public online survey portal was used to facilitate the consultation. A copy of this survey is presented in Appendix C.

The following stakeholder engagement was undertaken to direct people towards this consultation survey:

- Online consultation link
- Local press release
- Social media press release
- Letter drops to properties within and close to AQMAs
- Steering group meetings

The response to our consultation / stakeholder engagement is shown in Appendix D.

Table 4.1 – Consultees from Schedule 11 of EA 1995

Consultee
Secretary of State
Environment Agency
Highways authority
Neighbouring local authorities
Other public authorities as appropriate, such as Public Health officials
Bodies representing local business interests and other organisations as appropriate

4.2 Steering Group

An officer level steering group was set up to consider the actions in Tables 5.1 to 5.5 with representatives from:

Cherwell District Council Planning Policy

Cherwell District Council Environmental Protection

Cherwell District Council Bicester Delivery Team

Cherwell District Council Communications

Oxfordshire County Council Localities, Policies and Programmes Teams

Two steering group meetings were run in 2016 to further develop the measures proposed.

Several steering group meetings were run in 2013 to develop action measures for AQMA No.1 – Hennef Way. These actions were not taken further due to the uncertainties raised over an exceedence occurring at a relevant receptor (identified in the 2013 Further Assessment report) and Defra requiring further monitoring to address this uncertainty. These measures are included in tables 5.1 – 5.5.

5 AQAP Measures

Table 5.1 to 5.5 show the Cherwell District AQAP measures. It contains:

- a list of the actions that form part of the plan
- the responsible individual and departments/organisations who will deliver this action
- expected benefit in terms of pollutant emission and/or concentration reduction
- the timescale for implementation

Updates on the implementation of these measures will be reported on in future Annual Status Reports which will be available to download at www.cherwell.gov.uk/airqualitymanagement.

Measures included in the consultation where there has been no funding and / or commitment to undertake these measures are included in Table 6.1. These will be retained as measures which could improve air quality but are not being progressed until funding and commitment can be secured to undertake these.

Measures that will not be pursued and the reasons why are shown in Table A.1 in Appendix A.

Table 5.1 – Air Quality Action Plan General Measures

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Target Pollution Reduction in the AQMA	Cost	Comments
G.1	Explore the Local Plan including Low Emission Vehicle uptake measures being incorporated into new developments	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	CDC	2016/17	2017/18	Medium	Low	Local Plan Part 2 will consider measures to encourage low emission vehicle take-up through development management policy.
G.2	All major developments to include Emission statements and mitigation strategies within an appropriate air quality assessment submitted at the application stage.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	CDC	2016/17	2017/18	Medium	Low	Emission statements and mitigation strategies will be required in air quality assessments. This will be included in development management policies as part of Local Plan Part 2 development.
G.3	Damage cost calculations to be included in air quality assessments to show the financial impact of developments.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	CDC	2016/17	2017/18	Low	Low	Damage Cost calculations will be required in air quality assessments. This will be included in development management policies as part of Local Plan Part 2 development.

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Target Pollution Reduction in the AQMA	Cost	Comments
G.4	Travel plans submitted with development proposals will make reference to their contribution to an air quality mitigation strategy. Progress will be reported to OCC post development completion.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	OCC	n/a	In place	Low	Low	Travel plans are co-ordinated and progress checked by OCC. Measures to address air quality specifically can be adopted through the development control process in partnership with CDC. These should be included in the Local Air Quality Management Annual Status Report.
G.5	Air Quality actions to be included in the Local Transport Plan	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	OCC	2015	2016	Medium	Low	LTP4 (2016 update) includes an annex on actions to address air quality. On-going measure development and updates to LTP4 should represent changes in air quality. Maintain close links between OCC and CDC.
G.6	Air Quality included in the Public health framework Joint Strategic Needs Assessment	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	OCC	2015	2015	Low	Low	JSNA includes a statement on air quality. To maintain, update and progress actions as part of the annual review process.

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Target Pollution Reduction in the AQMA	Cost	Comments
G.7	Low emission vehicles to be included in taxi licensing policy to encourage their take up and use within the district.	Policy Guidance and Development Control	Other Policy	CDC	2017/18	2018	Low	Low	At the next Taxi licensing policy review measures to encourage low emission vehicles will be included.
G.8	Low emission plant, vehicle, delivery and fleet requirements to be included in sustainable procurement section of CDC procurement policy.	Policy Guidance and Development Control	Sustainable procurement guidance	CDC	2017	2018	Medium	Low	To include "Consideration will be given to minimise oxides of nitrogen and particulate emissions whenever plant & vehicles are purchased, deliveries made or contracts procured" in the CDC procurement policy.
G.9	Low emission plant, vehicle, delivery and fleet requirements to be included in OCC procurement policy.	Policy Guidance and Development Control	Sustainable procurement guidance	OCC	2017	2018	Medium	Low	

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Target Pollution Reduction in the AQMA	Cost	Comments
G.10	Air pollution and action measures awareness raising campaign	Public Information	Via other mechanisms	CDC	2017	2017/18	Low	Low	No funding has been identified for a project. Scope of this campaign to be determined. Minimum will be within existing council communication channels promoting existing schemes e.g. liftshare, easeitoxford, oxon-air, council website.

Table 5.2 – AQMA No.1 Hennef Way Air Quality Action Plan

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Target Pollution Reduction in the AQMA	Cost	Comments
1.1	Banbury Park and Ride Bus service around M40 junction	Alternatives to private vehicle use	Bus based Park & Ride	OCC	2017/18	tbc	Medium	Medium	Feasibility to be investigated within next area strategy review within LTP4
1.2	Lift share scheme	Alternatives to private vehicle use	Car & lift sharing schemes	OCC	current	current	Low	Low	oxfordshire.liftshare.com is operational
1.3	Corporate policy encouraging home working where possible and equipment provision.	Promoting Travel Alternatives	Encourage / Facilitate home-working	CDC	current	current	low	Low	CDC transport policy encourages home working and regularly reviews work travel.
1.4	Promote use of canal towpath routes	Promoting Travel Alternatives	Promote use of rail and inland waterways	CDC / Canal and Rivers Trust	2017/18	tbc	Low	Low	
1.5	Promote use of rail to get into Banbury	Promoting Travel Alternatives	Promote use of rail and inland waterways	CDC / Chiltern Rail	2017/18	tbc	Low	Low	

Table 5.3 – AQMA No.2 Banbury Air Quality Action Plan

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Target Pollution Reduction in the AQMA	Cost	Comments
2.1	Banbury Park and Ride Bus service around M40 junction	Alternatives to private vehicle use	Bus based Park & Ride	OCC	2017/18	tbc	Medium	Medium	Feasibility to be investigated within next area strategy review within LTP4
2.2	Banbury wide car club	Alternatives to private vehicle use	Car Clubs	Banbury CAG	2017	tbc	low	Low	Banbury CAG progressing this. Funding shortfall currently identified.
2.3	Corporate policy encouraging home working where possible and equipment provision.	Promoting Travel Alternatives	Encourage / Facilitate home-working	CDC	current	current	low	Low	CDC transport policy encourages home working and regularly reviews work travel.
2.4	Promote use of canal towpath routes	Promoting Travel Alternatives	Promote use of rail and inland waterways	CDC / Canal and Rivers Trust	2017/18	tbc	Low	Low	
2.5	Promote use of rail to get into Banbury	Promoting Travel Alternatives	Promote use of rail and inland waterways	CDC / Chiltern Rail	2017/18	tbc	Low	Low	Promote use of rail to get into Banbury

Table 5.4 – AQMA No.3 Kidlington Air Quality Action Plan

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Target Pollution Reduction in the AQMA	Cost	Comments
3.1	Lift share campaign at Water Eaton Park and ride	Alternatives to private vehicle use	Car & lift sharing schemes	OCC	2017	2017	Low	Low	Water Eaton traffic drives through this AQMA. Promote lift share to encourage sharing to the park and ride.
3.2	Promote use of canal towpath routes	Promoting Travel Alternatives	Promote use of rail and inland waterways	CDC / Canal and Rivers Trust	2017/18	tbc	Low	Low	
3.3	Promote use of rail to get into Bicester	Promoting Travel Alternatives	Promote use of rail and inland waterways	CDC / Chiltern Rail	2017/18	tbc	Low	Low	Promote use of rail to get into Bicester
3.4	Investigate traffic light management to reduce north side queuing.	Traffic Management	UTC, Congestion management, traffic reduction	OCC	2017	tbc	Medium	Low	Traffic is currently optimised using MOVA system. Possible use of system to optimise for sensitivity of air quality receptors to be investigated.

Table 5.5 – AQMA No.4 Bicester Air Quality Action Plan

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Target Pollution Reduction in the AQMA	Cost	Comments
4.1	Bicester Park and Ride Bus service	Alternatives to private vehicle use	Bus based Park & Ride	OCC	2015	2016	Medium	Delivered	Potential to include alternative vehicle charging at this site to encourage low emission vehicle transport
4.2	Promote Oxford Parkway station for journeys into Bicester	Alternatives to private vehicle use	Rail based Park & Ride	Chiltern Rail	2016	2016	Low	Low	Oxford Parkway alternative to travel to Bicester. Potential to advertise easitoxford.
4.3	Low emission delivery plans	Freight and Delivery Management	Delivery and Service plans	OCC	2017	tbc	Low	Low	Assess feasibility to introduce low emission delivery vehicle requirements.
4.4	Bicester active travel i.e. walking and cycling campaign	Promoting Travel Alternatives	Intensive active travel campaign & infrastructure	CDC	2016	2017	high	tbc	Healthy new town priority to encourage active travel i.e. walking and cycling
4.5	Wayfinding campaign	Promoting Travel Alternatives	Other	CDC	2016	2017		tbc	Wayfinding campaign to signpost walking and cycling routes around Bicester.

Measure No.	Measure	EU Category	EU Classification	Lead Authority	Planning Phase	Implementation Phase	Target Pollution Reduction in the AQMA	Cost	Comments
4.6	Central corridor works in LTP	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, inc Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	OCC					
4.7	Develop Satellite Catapult project	Promoting Travel Alternatives	Other	CDC	2017	tbc	Low	Medium	This project is being developed in Bicester, looking at ways to use the satellite catapult to map, communicate and educate on air quality and travel data.
4.8	Develop school project using air quality sensors	Public Information	Via other mechanisms	CDC	2017	tbc	Low	Low	Drayson technology sensors are being considered for use to develop a project working with schools.

Table 6.1 – Measures without commitment and / or funding

Measure	EU Category	EU Classification	Target Pollution Reduction in the AQMA	Comments
Targeted business-led employee lift share schemes for Banbury - Brackley employee journeys and local industrial estates i.e. Wildmere and Overthorpe	Alternatives to private vehicle use	Car & lift sharing schemes	Low	No dedicated OCC Travel Choices Team and no funding for Business travel choices. Work with business travel is done through development control.
Identify school journeys on this route e.g. Banbury - Middleton Cheney to monitor and promote school travel plans	Promoting Travel Alternatives	School Travel Plans	Low	No dedicated OCC Travel Choices Team and no funding for Business travel choices.

Measure	EU Category	EU Classification	Target Pollution Reduction in the AQMA	Comments
Green Wall Barrier between carriageway and receptor	Transport Planning and Infrastructure	Other	Medium	No commitment or source of funding identified
Targeted Banbury - Brackley employee journeys and local industrial estates i.e. Wildmere and Overthorpe workplace travel plan promotion	Promoting Travel Alternatives	Workplace Travel Planning	Low	No dedicated OCC Travel Choices Team and no funding for Business travel choices. Work with business travel is done through development control.
Electric Vehicle Charging in CDC owned car parks	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	Low	No funding for this was identified.
Priority parking for lift share permit holders in CDC owned car parks	Alternatives to private vehicle use	Car & lift sharing schemes	Low	No funding for this identified. Lift share permit system and assign priority parking for permit holders.
Identify school journeys in Bicester AQMA to monitor and promote school travel plans	Promoting Travel Alternatives	School Travel Plans	Medium	School traffic was highlighted through the consultation as a key issue in this AQMA. No funding was identified for this. There is no dedicated OCC Travel Choices Team and no funding for Business travel choices.
Bicester wide car club	Alternatives to private vehicle use	Car Clubs	Low	There is a car club run by developers on the Elmsbrook development. No funding for a Bicester wide car club was identified.
Create Clean Air Zones which encompass the AQMA's	Promoting Low Emission Transport	Low Emission Zone (LEZ)	Medium	Central Governments Joint Air Quality Unit released Clean air zone framework guidance. LTP4 includes reference to Clean Air Zones. No funding has been identified to progress this measure.

Appendix A: Reasons for Not Pursuing Action Plan Measures

Table A.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)
Air quality neutral development	Major developments in or within 100 metres of an AQMA will be air quality neutral	Difficult to enforce. No definition of air quality neutral. Arbitrary 100 metre distance may be open to challenge.
Bus based Park and ride	Removal of Water Eaton Park and Ride to reduce travel to this park and ride facility. .	The park and ride facility reduces journeys into neighbouring authorities AQMA.
Rail based Park & Ride	Promotion of rail based park and ride	Banbury and Bicester stations are located in areas which may encourage journeys through AQMAs.
Environmental Permits	Environmental permit based actions	Transport is the main contributor to pollutants in the AQMAs.
Freight Consolidation Centre	Freight Consolidation Centre	Main emission source is cars
Freight Partnerships for city centre deliveries	Freight Partnerships for city centre deliveries	Main emission source is cars
Quiet & out of hours delivery	Quiet & out of hours delivery	Main emission source is cars
Route Management Plans/ Strategic routing strategy for HGV's	Route Management Plans/ Strategic routing strategy for HGV's	Main emission source is cars
Public information via television	TV campaign	Limited impact
Anti-idling enforcement	Anti-idling enforcement campaign	Idling hasn't been identified as a significant issue in any AQMA.
Reduction of speed limits,	Reduction of speed limits	Speeding or faster moving traffic has not been identified as an issue. Hennef Way dual carriageway has a

Cherwell District Council

20mph zones		speed reduction to 50 mph in place currently.
Road User Charging (RUC)/ Congestion charging	Congestion charging in towns	No zone for congestion charging identified.
Testing Vehicle Emissions	Roadside testing of vehicle emissions campaigns	
Workplace Parking Levy, Parking Enforcement on highway	Workplace Parking Levy, Parking Enforcement on highway	Roadside parking not identified as a significant issue.
Vehicle Retrofitting programmes	Vehicle Retrofitting programmes	
Transport Planning and Infrastructure	Purchasing the 3 houses within AQMA No.1	Not improving air quality or the neighbourhood with empty properties.

Appendix B: Source Apportionment Calculations

The source apportionment and emission reduction calculations were undertaken using the Defra LAQM NO_x to NO₂ calculator V 4.1 and national background mapping as recommended in LAQM Technical Guidance TG16 (April 2016). The following inputs were used:

-Year of monitoring used: 2015

-2015 diffusion tube monitoring as reported in ASR 2016

-Estimated Regional Concentrations above the surface layer:

Ozone 61 mg m⁻³

Oxides of nitrogen 12 mg m⁻³ as NO₂

Nitrogen dioxide 10 mg m⁻³

-All UK Traffic Mix

Fraction NO_x emitted from local road vehicles as NO₂ - 0.23979

Appendix C: Consultation - Online Survey

Appendix D: Survey Consultation Responses

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
AQS	Air Quality Strategy
ASR	Air quality Annual Status Report
CRT	Canal and River Trust
Defra	Department for Environment, Food and Rural Affairs
EU	European Union
LAQM	Local Air Quality Management
NO	Nitrogen Oxide
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
tbc	To be confirmed