# Appendix A – Air Quality Action Plan

# Air Quality Action Plan 2014 - 2017
# Dacorum Borough Council

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

September, 2014

# Executive Summary

The Environment Act 1995 requires all local authorities to review air quality within their area. If it appears that any air quality "Objective" prescribed in the regulations and in the National Air Quality Strategy is not likely to be achieved then the local authority must designate the affected areas as Air Quality Management Areas (AQMAs). The Act then requires that an Air Quality Action Plan (AQAP) be produced for any areas designated as AQMAs, setting out the actions that the Council intend to take to achieve the air quality objectives.

In June 2012 the Council formally declared three identified areas where it was likely that the air quality objective for nitrogen dioxide ($NO_2$) would not be met. Following this, in March 2013 a Further Assessment was completed which indicated that the annual mean $NO_2$ objective continued to be exceeded within all three AQMAs. In respect of the High Street, Northchurch AQMA, it was advised that the boundary of this AQMA be revised to potentially incorporate any other residential locations within the area predicted >36µg/$m^3$. The boundary of this AQMA has since been amended to incorporate 84 – 96 High Street, Northchurch.

The Council works with the Local Transport Authority, (Hertfordshire County Council), to help secure improvements to the network. This AQAP aligns with the Local Transport Plan (LTP3).

The AQAP confirms the likely source of $NO_2$ is from transport and in particular from ambient background concentrations. The degree of improvement needed in order for the annual mean objective to be achieved is defined by the difference between the highest measured or predicted annual mean concentration and the 40 µg/$m^3$ objective level. Reductions of 22.2, 17.3 and 7.3µg/$m^3$ would be required in order for the objective to be achieved within the Lawn Lane, Hemel Hempstead, London Road, Apsley and High Street, Northchurch AQMAs respectively (based on 2011 data). Ambient background concentrations contributed the largest individual proportion to existing $NO_2$ concentrations within all three AQMAs followed by cars and LGVs on local roads.

The AQAP recommends twenty measures for implementation within the next three years, which are aimed at reducing levels of air pollution within the three AQMAs and improving air quality across the borough in general. It also sets out the framework of partnership working with other organisations, within which the actions have been developed and will be progressed and monitored.

It is acknowledged that the AQAP is a continuously evolving document involving numerous groups and Authorities, which may require further revision in the future.

It is acknowledged that the requirements of local businesses and the community must be balanced against improving local air quality. The actions and measures will provide other benefits for Dacorum and its surrounds, which are beyond the original scope of the AQAP. The benefits include:

- Reduction of other pollutants such as particulate matter, benzene etc.
- Reduction in emission of greenhouse gasses
- Reduced noise from traffic
- Reduced congestion
- Environmental improvements when schemes are undertaken
- Assist with climate change polices
- Improvements to human health

In compiling this AQAP, Government Guidance LAQM.PG (09) and the Review and Assessment reports produced by the Council have been referred to. The AQAP will be subject to statutory and public consultation and amended accordingly prior to formal adoption by the Council.

# Table of Contents

**1 Introduction ..... 1**
1.1 Aims and Objectives ..... 2
1.2 Report Contents and Structure ..... 2
**2 Air Pollution and Local Air Quality Management ..... 4**
2.1 Air pollution and human health ..... 4
2.2 The legislative framework for air quality ..... 5
2.3 Partnership working towards air quality targets ..... 7
2.3.1 Partnership working with the Local Transport Authority ..... 7
2.3.2 Partnership working with Development Control ..... 15
2.3.3 Partnership working with Public Health ..... 18
2.3.4 Partnership working with other groups/organisations ..... 20
**3 Air Quality in Dacorum ..... 21**
3.1 Air Quality Monitoring ..... 21
3.2 Summary of relevant LAQM Review and Assessment ..... 22
3.3 Source Apportionment ..... 23
3.4 Scale and extent of the problem ..... 28
3.5 Conclusions ..... 28
**4 Development of the Action Plan ..... 30**
4.1 Formation of Action Planning Steering Group ..... 30
4.2 Initial Action Plan Options Assessment ..... 30
**5 Measured to improve air quality ..... 32**
5.1 Package of Measures 1: Reducing emissions via strategic means ..... 33
5.2 Package of Measures 2: Optimising traffic flow through the AQMAs ..... 36
5.3 Package of Measures 3: Reducing transport emissions ..... 40
5.4 Package of Measures 4: Promoting sustainable transport options ..... 47
**6 Methodology utilised to assess short-listed measures ..... 58**
6.1 Potential air quality impact ..... 58
6.2 Implementation costs ..... 59
6.3 Cost-effectiveness ..... 59
6.4 Co-environmental benefits, and other social and economic impacts ..... 60
6.5 Risk factors ..... 61
6.6 Feasibility and acceptability ..... 61
6.7 Assessment conclusions ..... 62
**7 Prioritisation of Measures ..... 63**

**8 Action Plan Funding ..... 66**
**9 Consultation ..... 67**
**10 Conclusions ..... 68**
**11 References ..... 69**
**12 Glossary ..... 73**

**List of Tables**

Table 3.1 Number of residential properties included within the three AQMAs
Table 3.2 Significant sources of $NO_2$ emissions in each AQMA
Table 3.3 Degree of reduction necessary to meet the air quality objectives for AQMAs
Table 5.1 Summary of Action Plan measures to be adopted

**List of Figures**

Figure 3.1 Location of Automatic Monitoring Station
Figure 3.2 AQMA 1 - Percentage contributions of different sources to total predicted annual mean NO2 concentrations in 2011
Figure 3.3 AQMA 2 - Percentage contributions of different sources to total predicted annual mean NO2 concentrations in 2011
Figure 3.4 AQMA 3 - Percentage contributions of different sources to total predicted annual mean NO2 concentrations in 2011

**Appendices**

Appendix A Air Quality Objectives
Appendix B $NO_2$ monitoring locations 2014
Appendix C Air Quality Management Areas
Appendix D Development of options and measures

# 1 Introduction

This local Air Quality Action Plan (AQAP) sets out a work programme for the improvement of air quality within the borough of Dacorum. The work programme is led by the Council but implemented in partnership with the Local Transport Authority (Hertfordshire County Council). The Council is consulting the public and other statutory consultees on the content of this plan in advance of a final plan which is to be approved by the Council, Central Government and then implemented.

The Borough of Dacorum comprises a mix of urban and rural land uses situated on the western edge of Hertfordshire. Located approximately 30 miles northwest of central London, the Borough has a usual residential population of approximately 148,200[1] (Office for National Statistics, 2014), which is predominantly centred on the towns of Hemel Hempstead, Berkhamsted and Tring.

Major roads within the area include the M1, which crosses the eastern side of the borough, the M25, which is located near the southern boundary of the borough, and the A41, which closely bypasses Hemel Hempstead, Berkhamsted and Tring, linking Aylesbury to the west with Watford to the east. The area is well connected to London and the midlands via a major rail link that traverses the borough and terminates at London Euston.

The Council undertakes monitoring of the main local air pollutants associated with urban areas: nitrogen oxides ($NO_x$; consisting of nitrogen oxide (NO) and nitrogen dioxide ($NO_2$). The results of the monitoring clearly indicate that health-based national air quality objectives are being exceeded in some areas within the borough. Predictive modelling studies have also been used to better understand the spatial extent of the problem, and to help determine likely pollutant concentrations in the future.

Based on the monitoring and modelling work undertaken by the Council, several areas have been identified as unlikely to be meeting national objectives, and hence the Council have declared three Air Quality Management Areas (AQMAs). The air quality problem in Dacorum is predominantly a result of emissions from road vehicles, as is the case elsewhere in the UK.

[1] Mid Year Estimate as at 30th June 2013.

## 1.1 Aims and Objectives

This AQAP summarises the air quality review and assessments that have been undertaken to date, focussing on exceedances of the air quality objectives. It goes on to describe the actions that the Council will take (in conjunction with Hertfordshire County Council and others) to improve air quality within the borough as a whole, and particularly in the three declared AQMAs.

## 1.2 Report Contents and Structure

Local Air Quality Policy Guidance was published by Defra in 2009, referred to as LAQM.PG(09); this provides statutory guidance on the development of AQAPs.

Defra (2009a) states that an AQAP must include the following:

- *'Quantification of the source contributions to the predicted exceedances of the relevant objectives; this will allow the Action Plan measures to be effectively targeted;*
- *Evidence that all available options have been considered;*
- *How the local authority will use its powers and also work in conjunction with other organisations in pursuit of the hair quality objectives;*
- *Clear timescales in which the authority and other organisations and agencies propose to implement the measures within its plan;*
- *Where possible, quantification of the expected impacts of the proposed measures and an indication as to whether the measures will be sufficient to meet air quality objectives. Where feasible, data on emissions could be included as well as data on concentrations where possible; and*
- *How the local authority intends to monitor and evaluate the effectiveness of the plan'.*

The Environment Act 1995 does not prescribe any timescale for preparing an AQAP. However, it is expected that this will be completed between 12-18 months following designation of any AQMAs. The three AQMAs within Dacorum were formally designated on 1 June 2012.

It is recommended that a Further Assessment of air quality should be undertaken in parallel with the development of the AQAP to provide the technical justification for the measures an authority later includes in its AQAP. The Further Assessment of air quality was undertaken by Air Quality Consultants Ltd on behalf of the Council in March 2013; the findings of which have been summarised within this AQAP.

The remainder of the report is structured as follows:

- ***Section 2*** provides an overview of the significance of local air quality management on human health, the statutory duties placed on Local Authorities, and a summary of existing plans and strategies which may influence air quality within Dacorum.
- ***Section 3*** presents a summary of air quality monitoring currently undertaken by the Council. It also provides an overview of the local air quality management review and assessment work carried out to date, the results of the source apportionment exercise undertaken, including the degree of improvement required to meet the air quality objectives.
- ***Section 4*** describes how the AQAP has been developed.
- ***Section 5*** summarises the AQAP, outlining the measures proposed for implementation at this time.

  ***Section 6*** describes the methodology and criteria utilised in order to assess the suitability and prioritisation of the short-listed measures for inclusion within the AQAP.
- ***Section 7*** describes the reasoning behind the prioritisation of measures.
- ***Section 8*** discusses potential funding opportunities for the AQAP.
- ***Section 9*** details the consultation process.
- ***Section 10*** summarises and concludes the findings of the AQAP.

# 2 Air Pollution and Local Air Quality Management

This section provides an overview of air pollution and the associated health impacts and the local air quality management (LAQM) process in England. It outlines the significance of LAQM in the context of human health, the legislation in place to protect human health, and the statutory duties placed on Local Authorities in relation to LAQM.

## 2.1 Air pollution and human health

Air pollution has a well understood negative impact on human health and the surrounding environment. Tackling air pollution is about preventing ill health, improving health and life expectancies, and benefiting our environment and quality of life.

It is widely accepted that exposure to air pollutants, even to the historically low levels found in countries such as the UK, can damage health. Recent work has suggested that inflammatory processes triggered by inhalation of pollutants may play important roles: either directly, leading to effects on the respiratory system, or indirectly, leading to effects on the cardiovascular system. Such effects are manifested as increased hospital admissions and daily deaths. Long-term exposure to pollutants, in the main, particulates, has been shown to contribute to the progression of cardiovascular disease and a reduction in life expectancy.

The House of Commons Environmental Audit Committee's fifth report on Air Quality published in March 2010 compares the gains in life expectancy that could be realised by improving poor air quality (in particular reducing exposure to $PM_{2.5}$) within those arising from action on passive smoking and road accidents. Based on Department of Health data the Committee reported that gains in average life expectancy of 7-8 months could be achieved from reductions in air pollution, whereas eliminating passive smoking and road accidents only provides average gains of 1-3 months.

Road vehicle emissions are the primary source of poor air quality within the borough. The three main transport-related emissions are:

- **Nitrogen oxides (NOx)** Nitrogen dioxide ($NO_2$) and nitric oxide (NO) are collectively known as Nitrogen Oxides (NOx). Nitrogen Oxides (which are the main source of poor air quality) are produced during all combustion processes in air, usually in the form of NO which subsequently reacts with ozone ($O_3$) to form $NO_2$. Road transport is responsible for approximately fifty per cent of the emissions of $NO_2$ in Britain.

Commercial, industrial and domestic sources also make a small contribution to background. $NO_2$ has been identified as having various adverse health effects particularly on the respiratory system and in both asthmatics and non-asthmatics. Short-term exposure to this pollutant can increase the likelihood of reaction to allergens such as pollen and has been known to increase asthma in some people. Children exposed to this pollutant may have increased risk of respiratory infections.

- **Particulates ($PM_{10}$ and $PM_{2.5}$)** Particulates can be produced directly from combustion and other processes, as well as from natural activities. They can also be caused by chemical reaction in the air. Particulates of less than 3µm can pass deep into the lungs thus causing respiratory problems.
- **Carbon monoxide (CO)** Carbon monoxide is a colourless, tasteless gas, which is known to be poisonous when incomplete combustion occurs. Inhaling small doses of this gas can result in a person becoming confused and having reduced co-ordination. It can also increase the likelihood of angina.

Although the focus of this AQAP is $NO_2$, the measures contained within this AQAP will also bring about reductions in concentrations of the other transport-related pollutants.

It is clear that tackling traffic-related air pollution has synergies with tackling climate change, noise pollution and many other issues to make Dacorum a more pleasant and healthier borough in which to live.

## 2.2 The legislative framework for air quality

The Environment Act 1995 placed a responsibility on UK Government to prepare an Air Quality Strategy (AQS) for England, Scotland, Wales and Northern Ireland. The current version of the strategy published in 2007 sets out the current UK framework for air quality management and includes statutory objectives (standards) for the following key pollutants:

- Nitrogen dioxide
- $PM_{10}$ particulates
- Benzene
- 1,3 – butadiene
- Lead
- Sulphur dioxide
- Carbon monoxide
- Ozone

The objectives are expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances within a specified timescale. The objectives have been set throughout the UK and European Union at levels that aim to protect the vulnerable in society from the harmful effects of breathing pollution. The objectives only apply at locations where members of the public are likely to be exposed over the averaging period of the objective, termed 'relevant exposure'. The National Air Quality Objectives for England are shown in **Table A.1** in **Appendix A**.

The UK government recognises that action taken at the local level can be an effective way of tackling localised air quality problems leading to an overall improvement of air quality. Part IV of the Act requires each Local Authority within the UK to periodically review and assess air quality its area. The 1997 National Air Quality Strategy introduced the Local Air Quality Management (LAQM) model and associated Review and Assessment process. The Review and Assessment process requires Local Authorities to undertake annual assessments of air quality and determine areas where any of the air quality objectives are likely to be exceeded. In such instances, the Local Authority is required to undertake a Detailed Assessment of air quality and declare an AQMA. The Local Authority must then carry out a Further Assessment of air quality and in parallel develop an AQAP, which must include measures to improve air quality so that the objectives may be achieved in the future. Once the AQAP is adopted, the Council will report progress on its implementation annually and revise it from time to time as required. The Review and Assessment timetables and methodologies are prescribed in the statutory Technical Guidance document LAQM TG(09).

Review and Assessment reports completed by the Council are published on our Air Quality webpage: http://www.dacorum.gov.uk/home/environment-street-care/environmental-health/air-quality.

In addition to the Local Air Quality Management regime, the Government has a responsibility to achieve limit values (as specified within the EU Air Quality Directive (2008/50/EC4)), everywhere in the UK where the public have access. EU limit values are legally binding EU parameters that must not be exceeded. In respect of the annual mean limit value for $NO_2$ (40µg/$m^3$), the date for this to be achieved (and maintained) was 1 January 2010 (an application has been made by the Government for a time extension). Member States must report any exceedances of the EU limit values to the European Commission. For the purposes of national air pollution monitoring; the UK has been divided into zones and agglomerations (43 in total). To assess compliance with the EU limit values the UK uses monitoring data from the Automatic Urban and Rural network (AURN) supplemented by

modelling data. Exceedances of the EU limit values (in terms of zones and agglomerations) are reported to the European Commission annually. Annual reporting (for the 2010 reporting year) indicated that 40 of the 43 zones/agglomerations exceeded the $NO_2$ annual mean limit value in the UK. The national air quality monitoring has been used to characterise limit value exceedances along roads in each local authority area. This national exceedance area data will be made available to local authorities imminently.

EU limit values are legally binding on Member States and, in the UK are enforced through two main mechanisms:

- European enforcement action
- UK planning law

The European Commission can take enforcement ('infraction' or 'infringement') action against Member States who fail to meet the limit values. The Commission can impose an unlimited lump sum and daily fines on Member States, which the Localism Act 2011 allows the Government to pass to the Mayor of London and/or Local Authorities subject to certain protections. However, the current situation is unclear, it is possible that if a Local Authority fails to take suitable actions to reduce air pollution in their areas that they may be apportioned a share if any European fine issued.

## 2.3 Partnership working towards air quality targets

The Government encourages a coordinated and integrated approach to dealing with air quality issues. Local Authorities should engage and work with relevant parties (such as the County Council) and consider existing policies and strategies in pursuit of air quality improvements.

### 2.3.1 Partnership working with the Local Transport Authority

Under the Local Transport Act 2008 each English Local Transport Authority must prepare a document to be known as the Local Transport Plan, containing:

- Policies (a strategy); and
- Implementation plans, i.e. proposals for the implementation of those policies.

The County Council is responsible for the overall transport strategy in Hertfordshire. The third Local Transport Plan (LTP3) for Hertfordshire was published in April 2011, and covers the period 2011-2031. LTP3 sets out the transport strategy for Hertfordshire (over the next 20

years), the goals and challenges to be met, and outlines a programme of transport schemes and initiatives (interventions). The various interventions are to be delivered over the short, medium and longer term. Targets have also been set so that progress towards meeting the strategy objectives can be measured.

The goals set out in LTP3 include:

- Support economic development and the planned dwelling growth;
- Improve transport opportunities for all and achieve behavioural change in mode choice;
- Enhance quality of life, health and the natural environment for all Hertfordshire residents;
- Improve the safety and security of residents using the network; and
- Reduce transport's contribution to greenhouse gas emissions and improve its resilience.

To achieve these goals Hertfordshire County Council has identified thirteen challenges and has put forward proposals to address these. All of these challenges will have an impact on uptake of sustainable transport or transport in general and therefore will impact on air pollutant emissions.

**Challenge 1** Keep the county moving through efficient management of the road network to improve journey time, reliability and resilience and manage congestion to minimise its impact on the economy.

**Challenge 2** Support economic growth and new housing development through delivery of transport improvements and where necessary enhancement of the network capacity.

**Challenge 3** Improve accessibility for all and particularly for non-car users and the disadvantaged (disabled, elderly, low income etc.)

**Challenge 4** Achieve behavioural change as regards choice of transport mode increasing awareness of the advantages of walking, cycling and public transport, and of information on facilities and services available.

**Challenge 5** Achieve further improvements in the provision of public transport (bus and rail services) to improve accessibility, punctuality, reliability and transport information in order to provide a viable alternative for car users

**Challenge 6** Improve journey experience for transport users in terms of comfort, regularity and reliability of service, safety concerns, ability to park and other aspects to improve access.

**Challenge 7** Improve the health of individuals by encouraging and enabling more physically active travel and access to recreational areas and through improving areas of poor air quality which can affect health.

**Challenge 8** Maintain and enhance the natural, built and historic environment managing the streetscape and improving integration and connections of streets and neighbourhoods and minimising the adverse impacts of transport on the natural environment, heritage and landscape.

**Challenge 9** Reduce the impact of transport noise especially in those areas where monitoring shows there to be specific problems for residents.

**Challenge 10** Improve road safety in the county reducing the risk of death and injury due to traffic accidents.

**Challenge 11** Reduce crime and the fear of crime on the network to enable users of the network to travel safely and with minimum concern over safety so that accessibility is not compromised.

**Challenge 12** Reduce greenhouse gas emissions from transport in the county to meet government targets through the reduction in consumption of fossil fuels.

**Challenge 13** Design new infrastructure and the maintenance of the existing network in the light of likely future constraints and threats from changing climate, including the increasing likelihood of periods of severe weather conditions.

LTP3 specifically sets out that the county council will seek to:

- Reduce the levels of emissions from road traffic which affect human health and local flora and fauna.
- Reduce the volume of traffic in areas and in time periods where emission levels are causing locally poor air quality.
- Encourage the through traffic to use the Primary Route Network which where possible to avoid major urban areas.

- Work with district/borough councils to monitor and assess air pollution levels. Where a district/borough council declares an AQMA as a result of its review and assessment process, the county council will work in partnership with the district/borough councils to create and deliver action plans.

Annual progress reports are published by Hertfordshire County Council, which contain a series of indicators providing important data to enable progress with each of the thirteen challenges to be assessed. These reports are available to view online at http://www.hertsdirect.org/services/transtreets/ltplive/.

A number of other transport strategies have been produced, as daughter documents within the LTP framework, the implementation of which will contribute to air quality improvements across Hertfordshire and the borough of Dacorum. These include (but are not limited to):

- Bus Strategy (http://www.hertsdirect.org/docs/pdf/b/busstratcons.pdf)
- Intalink Strategy (http://www.intalink.org.uk/downloads/PDFS/intalinkstrategy.pdf)
- Sustainable Modes of Travel Strategy for Schools and Colleges (http://www.hertsdirect.org/docs/pdf/s/SMOTS1314)
- Active Travel Strategy (http://www.hertsdirect.org/docs/pdf/a/ATS2013.pdf)

In January 2013 Hertfordshire County Council published the following document *'Protocol for supporting districts with Air Quality Related Issues'*. This protocol sets out how the County Council will work with district/boroughs in terms of providing air quality monitoring data and other support around AQMAs.

The 'BigHertsBigIdeas' project, managed by Hertfordshire County Council, is a package of complementary transport schemes which aims to improve the local economy and reduce carbon emissions in Watford, St Albans and Hemel Hempstead. The package is comprised of innovative and congestion-busting travel options for local people, businesses and residents, including:

- New and improved routes and facilities for pedestrians and cyclists
- Better public transport services for bus and train passengers
- Innovative new transport schemes for young people
- Travel planning, education, incentives and behavioural change schemes for local residents, schools and businesses
- New technology for road and bus users

The project was awarded a grant of £9.7 million from the Government's *'Local Sustainable Transport Fund'*. This grant has been supported further by match funding from the County Council, Borough / District Authorities and developer contributions, providing another £3.3 million. Hertfordshire's bid was divided into two stages. In stage 1, Hertfordshire was awarded £1.99 million to deliver schemes by March 2012. In the second, more detailed stage, £9.679 million was awarded to be spent before March 2015 to improve sustainable travel in St Albans, Watford and Hemel Hempstead. After 2015, many of the individual schemes will either be completed or become self-funding.

Some schemes within the 'BigHertsBigIdeas' package were intended to be implemented across the whole LSTF bid area, whilst others are specific to Watford, St Albans and Hemel Hempstead.

LSTF area-wide schemes include:

- ***Cycle parking improvements in Watford, St Albans and Hemel Hempstead***
  Implementation of new cycle parking facilities in targeted locations across the bid area between April 2012 and March 2015.
- ***Quality Network Partnership (QNP) Bus infrastructure upgrades***
  Expansion of the existing QNP partnership operations from St Albans to the wider package area. Establishment of QNP in Watford and Hemel Hempstead.
- ***QNP Publicity and Marketing***
  Provision of stop specific information and marketing for services. Funding for two project officers to deliver QNP element of the package.
- ***Electric Charging Points***
  Implementation of electric vehicle charging points in Watford, St Albans and Hemel Hempstead.
- ***SCooTS (including electric scooters)***
  Expansion of existing scooter loan scheme, which loans mopeds to individuals who cannot access work and education easily. Provision of a phased payment plan for scooter ownership.
- ***Home to School Transport: Central Hub and Travel Planning***
  Establishment of a Central Hub to procure and administrate school transport to help schools reduce peak hour congestions.
- ***Skyride partnership***
  Promotion of the SkyRide Local programme.
- ***Challenge for change (Business Cycle Challenge)***

Organisation of a cycle challenge for businesses within the LSTF area and provision of ongoing market research to assess the longer term impact of the challenge.

- ***Intelligent Transport Systems (including QNP Smart Ticketing)***
  LSTF funding to assist in the delivery of a number of projects in the bid area, and expand others. These are:
  - Smart ticketing, including hardware for the smart ticketing schemes and purchase of smart cards to provide cashless payments for bus travel.
  - Real Time passenger information
  - Variable message signing (and advance vehicle location technology for accurate travel times)
  - A web journey planner to provide better travel information.
- ***Business and School Travel Planning***
  LSTF funding to provide three dedicated 'BigHertsBigIdeas' support officers and resources to deliver the follow measures:
  - Promotional events to promote and support the physical elements of the bid
  - Working with businesses in the bid area to promote the package measures
  - A Walk to School campaigns dissemination of best practice across the bid area
  - Delivery of a new website for the bid area to incorporate a travel planning toolkit for both schools and businesses
  - Funding of a 'Bike It' officer to work with both schools and businesses.

Those schemes specific to Hemel Hempstead include:

- ***Improved and new walking and cycle routes to Maylands Business Park***
  Provision of new and enhanced walking and cycle routes to Maylands Business Park from other parts of Hemel Hempstead.
- ***Improvements to local sections of the National Cycle Network***
  Provision of physical improvements on the Nicky Line cycle route between Hemel Hempstead town centre, Maylands Business Park, and St Albans.
- ***Urban Realm improvements at Maylands Business Park***
  Provision of urban realm improvements at Maylands Business Park to provide a prioritised environment for:
  - Pedestrians and cyclists (linking in with Nicky Line and Maylands walking and cycling elements)
  - Bus passengers (linking in with the Maylands to Station bus link and route enhancements).

- ***Maylands Business Park – Railway Station Bus Link and Bus Infrastructure Improvements***

  Implementation of improvements to the bus infrastructure between Maylands Business Park and Hemel Hempstead Railway Station. Initiation of an eventually self-funding 'Express Bus Service' linking Maylands Business Park to Hemel Hempstead Railway Station (via the Town Centre).
- ***Travelsmart Hemel Hempstead***

  Provision of a personalised travel planning programme for residents of Hemel Hempstead.
- ***Maylands Area Travel Plan and Car Club***

  LSTF funding for 2012/13 – 2014/15 to provide a dedicated travel plan officer for the Maylands Business Park area to work with employers, to promote sustainable transport options including the promotion of the Car Club and electric charging points.

The various sustainable transport initiatives for the Maylands Business Park area have under grouped together under the branding of *'Maylands on the Move'*. These initiatives are aimed at businesses and employees and seek to promote more efficient and sustainable ways of travelling to and from Maylands Business Park. *'Maylands on the Move'* supports the future development of Maylands as a sustainable, well connected Green Business Park, providing an accessible location for businesses to settle and thrive. The initiatives focuses upon:

- Promoting public transport
- Encouraging responsible car use
- Supporting active travel
- Developing smarter business working practices and business travel

Benefits on offer to Maylands businesses include:

- Reduction in operating costs , promotion of efficient working and help in retaining and recruiting staff
- Improvement in staff health, increased staff productivity and reduction in sickness leave
- Car parking management solutions
- Demonstration of corporate social responsibility, commitment to environmental issues and support with reducing your carbon footprint
- Enhancement of your reputation as a good employer and a good neighbour

Benefits on offer to Maylands employees include:

- Cost savings and decreased fuel consumption

- Opportunities to build exercise into daily lives
- Improved accessibility to work
- Less stressful commuting options
- Chance to cut personal footprint

Businesses within the LSTF area are encouraged to sign up to the BigHertsBigIdeas Business Network, which gives businesses:

- Up to a day's free access to practical advice from travel planning experts
- Special discounts for employees from major local transport operators (e.g. Arriva, CentreBus, First Capital Connect)
- Free access to the hertsliftshare.org car sharing database
- Access to partner organisations offering cycle training & repair and retail offers for staff
- Regular network newsletters, events and a members-only group on LinkedIn
- Specialist analysis tools including GIS mapping of employee locations (analysis taking more than a day may be chargeable)
- An accreditation scheme for engaged businesses

The following discounts and offers have been made available to employees of businesses signed up to the *'Maylands on the Move'* project:

- Free access to the Maylands Car Share Scheme
- 20 per cent off 4-weekly Arriva saver tickets
- Active travel maps and guides illustrating cycling and walking routes to Maylands
- 10 per cent off 3-monthly Centrebus tickets
- Access to the Maylands E-Car Club
- 10 per cent off 4-weekly Greenline saver tickets
- Expert advice on any transport travel issue / query / strategy
- Specific Arriva Maylands website
- Links to the Intalink public transport website
- Maylands cycle discount card (10% discount at participating retails)
- Scoots Wheels to Work project – phased payment plans for scooter ownership
- 'Maylands on the Move' website resource for transport and travel information at Maylands Business Park
- Maylands Bus Link
- Public transport area route map, time tables and information.

The success and progress made with each of the schemes within the 'BigHertsBigIdeas' package is being monitored and assessed on an annual basis throughout the duration of the project. Outcome Monitoring Reports have, and will be, published for the financial years 2012/13 – 2014/15 to provide evidence of travel patterns during the first, second and final years of LSTF programme interventions and interim delivery outcomes for the variety of projects. These reports take evidence from a number of data sources to present a quantifiable story of travel patterns across the three LSTF areas. Data from the non-LSTF districts of Welwyn Hatfield and Stevenage provide 'control' evidence of travel patterns and behaviour outside of the LSTF area. A conclusion report to be published in 2016, which will attempt to measure the impact of the LSTF programme based on data provided in the annual Outcome Monitoring Reports. Full details of the bid, including the annual Outcome Monitoring Reports, can be found at http://www.hertsdirect.org/services/transtreets/ltplive/lstf/.

Although air quality is not a primary objective of the LSTF programme, it is recognised that changes to travel behaviour, especially those relating to car travel, will have a positive impact on air quality within Hemel Hempstead.

### 2.3.2 Partnership working with Development Control

The land use planning system is recognised as playing an integral part in improving air quality. The Council has developed its planning policies and procedures to help ensure that planning applications that may have impacts on air quality are assessed appropriately against these policies.

The National Planning Policy Framework (NPPF), adopted in March 2012, sets out the Government's planning policies for England and how these are expected to be applied. The NPPF replaces over a thousand pages of national policy (including *'PPG 23: Planning and Pollution Control'*). The NPPF must be taken into account in the preparation of Local and Neighbourhood Plans, and is a material consideration in planning decisions. Planning policies and decisions must reflect and where appropriate promote relevant EU obligations and statutory requirements.

The framework on air quality contained within the NPPF is stated in paragraph 124 as follows:

> *'Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual*

*sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.'*

Dacorum Borough Council's Core Strategy was formally adopted by the Council on 25th September 2013[2]. Many of the policies in the Adopted Dacorum Local Plan have now been replaced by the Core Strategy, including Policy 11. This made specific reference to the potential impact of development proposals on air quality (criterion (j)). However, as an overarching spatial document, the Core Strategy does not currently contain detailed development control policies; these remain (where not superseded) as 'saved' policies in the existing Local Plan.

Some general advice is provided under Policy CS32 within the Core Strategy. This relates to the control/reduction of air pollution through planning/development control mechanisms.

***Policy CS32: Air, Soil and Water Quality***

***Development will be required to help:***

- ***a) Support improvements in identified Air Quality Management Areas and maintain air quality standards throughout the area;***
- ***b) Maintain soil quality standards and remediate contaminated land in line with Environment Agency, Defra and Natural England guidance; and***
- ***c) Improve water quality standards in line with the Water Framework Directive, Environment Agency and Natural England guidance.***

***Any development proposals which would cause harm from a significant increase in pollution (into the air, soil or any water body) by virtue of the emissions of fumes, particles, effluent, radiation, smell, heat, light, noise or noxious substances, will not be permitted.***

***Advice on the storage and handling of hazardous substances will be taken from the Health and Safety Executive.***

The background to Policy CS32 is set out in the paragraphs below:

Extract from the Adopted Core Strategy (September 2013):

*18.33 The planning system plays a key role in the location and standard of development. Together with other consent regimes and processes, it can limit the impact of (and*

[2] In adopting the plan, the Core Strategy has been subject to a High Court Challenge. No date has yet been confirmed for the High Court hearing and the outcome of this will not be known until later in 2014.

*prevent) polluting emissions – i.e. noise, light, fumes, chemicals, noxious and hazardous substances and waste in general. Standards set nationally should continue to be achieved. When standards become more stringent, efforts must be made to enhance the quality of the air, water and/or soils.*

*18.34 In Dacorum special consideration needs to be given to:*

- *the quality of the groundwater supplying the chalk aquifer;*
- *protecting the habitat and biodiversity of chalk streams;*
- *the maintenance of higher quality agricultural areas and the sand and gravel belt;*
- *limiting the effects of noise and air pollution along major routes (i.e. road, rail and aircraft from Luton Airport);*
- *retaining tranquil parts of the Chilterns Area of Outstanding Natural Beauty and Boarscroft Vale; and*
- *the risks associated with Buncefield Oil Terminal.*

*18.37 Air quality within Dacorum is generally good, with the main source of air pollution being from traffic emissions, specifically nitrogen dioxide. In 2012 three areas were designated as Air Quality Management Areas (AQMAs) because levels of nitrogen dioxide exceeded air quality standards: i.e.*

- *Lawn Lane, Hemel Hempstead;*
- *London Road, Apsley, Hemel Hempstead; and*
- *High Street, Northchurch.*

*The number and extent of AQMAs will change as a result of mitigation measures and continued monitoring of air quality.*

*18.38 Action plans will highlight mitigation measures for each AQMA. The planning system will be used to support these action plans. It does not necessarily follow that development would be harmful in an area of poor air quality or that it should be banned in an AQMA. Here, the type, scale and location of development and its traffic generation will be managed sensitively. Greater weight will be given to the consideration and removal of air pollutants.*

The NPPF considers both air quality objectives and EU limit values, as such; the EU limit values are a material consideration in the planning system. Developments should not proceed if they are likely to cause or contribute to a breach, or the worsening of a breach, of

a limit value unless the impacts are fully mitigated. This is the first time EU limit values have been integrated into the UK planning system. Any proposed development within a national exceedance area (should any be identified within the borough), will require an assessment in terms of its air quality impact (EIA) as is currently the case for developments within (and in the vicinity of) the three declared AQMAs. It must be noted that the national exceedance area model does not take into account local conditions (e.g. congestion etc.) so may conflict with local air quality monitoring data and reporting.

In 2010, EPUK carried out a major review of its guidance document related to development control and air quality. The document has been widely used and frequently cited at planning inquiries. Since then, the planning regime has changed significantly, with the introduction of the NPPF and revocation of PPS 23. Furthermore, a number of Local Authorities have developed their own guidance relating to air quality and development control. An update to the 2010 EPUK guidance is due to be published shortly. Once this is published the Council will consider it guidance when developing additional guidance for developers.

### 2.3.3 Partnership working with Public Health

The Health & Social Care Act 2012 sets out the statutory requirement for Local Authority leadership of public health from April 2013. The introduction of this Act gave the County Council a duty to improve the health of its residents. The transfer of responsibility for significant areas of public health represents a unique opportunity to change the focus from treating sickness to actively promoting health and wellbeing. The Health and Wellbeing Strategy for Hertfordshire (2013-16) sets out the key priorities for the Health and Wellbeing Board (HWBB).

Hertfordshire's Public Health Strategy (2013-17) outlines the vision for public health as part of the vision for Hertfordshire and provides a clear road map for how the work of public health functions in Hertfordshire will ensure all residents will have *an 'opportunity to live as healthy lives as possible and to live safely in their communities'*, which the vision for Hertfordshire commits us all to achieving.

The Joint Strategic Needs Assessment (JSNA) for Hertfordshire (http://jsna.hertslis.org/) provides an overview of the health of the County, as well as some in-depth analysis on health topics. The JSNA makes it clear that Hertfordshire faces a number of inter-connected public health challenges where improvements are required. Air quality features within Hertfordshire's JSNA.

Hertfordshire's public health system is made up of the following key working groups:

- The Health and Wellbeing Board
- The Public Health Board
- The Hertfordshire County Council Cabinet Panel on Public Health
- District and Borough mechanisms

The public health priorities for Hertfordshire (of which there are six) are about what needs to do within the County to achieve:

- The Marmot principles
- Better health outcomes for our residents
- National public health strategy
- Public Health England priorities

Hertfordshire's priorities will be tracked by its progress against the Public Health Outcomes Framework. The Public Health Outcomes Framework (PHOF) concentrates on two high-level outcomes to be achieved across the public health system, and groups further indicators into four 'domains' that cover the full spectrum of public health.

***Outcome 1: Increased healthy life expectancy***
***Outcome 2: Reduced differences in life expectancy and healthy life expectancy between communities***

Indicator 3.01 within the 'Health protection' domain relates to air quality, specifically fine particulate matter ($PM_{2.5}$).

***Indicator 3.01:***
***Fraction of all-cause adult mortality attributable to long-term exposure to current levels of anthropogenic particulate air pollution***

The rationale and policy behind this indicator are outlined as follows:

*'Poor air quality is a significant public health issue. The burden of particulate air pollution in the UK in 2008 was estimated to be equivalent to nearly 29,000 deaths at typical ages and an associated loss of population life of 340,000 life years lost.*

*Inclusion of this indictor in the Public Health Outcomes Framework will enable Directors of Public Health to prioritise action on air quality in their local area to help reduce the health burden from air pollution.'* (Public Health England, 2014)

Full details of the air quality indictor (including how it is calculated) can be found at http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000043/pat/6/ati/102/page/6/par/E12000004/are/E06000015.

The PHOF indicators will be reported on to the Cabinet Panel for Public Health and Localism, the Public Health Board and the Health and Wellbeing Board.

### 2.3.4 Partnership working with other groups/organisations

Several discussion fora are available to officers for the management of local air quality, these include:

- The Hertfordshire and Bedfordshire Air Quality Network
- Dacorum Borough Council Environment Corporate Working Group
- Hertfordshire Sustainability Forum – *'Green our Herts'*

The Hertfordshire and Bedfordshire Air Quality Network is made up of air quality officers from each of the thirteen local authorities within Hertfordshire and Bedfordshire, together with officers from Hertfordshire County Council. Meetings are held quarterly, at which officers discuss air quality issues and participate in data and information exchange. Action planning is an essential part of the air quality management process, and relies on the collaboration of District/Borough and County Councils.

Dacorum Borough Council also has an Environment Corporate Working Group (ECWG) within which air quality issues are discussed; meeting are held on a monthly basis.

*'Green our Herts'* is the promotional group of the Hertfordshire Sustainability Forum. Made up of Local Authorities and non-profit environmental groups in Hertfordshire, it aims to promote & provide information on a range of environmental issues relevant to Hertfordshire, including air quality.

# 3 Air Quality in Dacorum

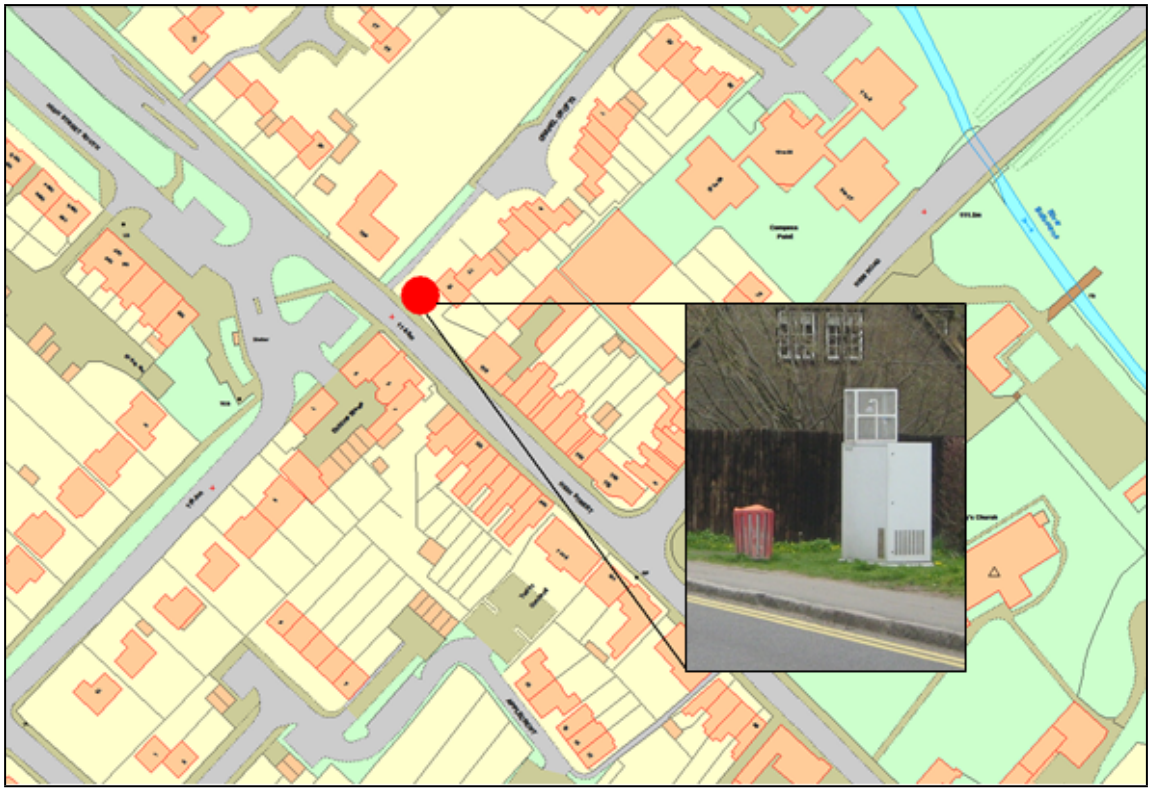
This section provides a summary of the air quality monitoring currently undertaken by the Council. It also provides an overview of the Review and Assessment work undertaken to date relevant to the production of this Action Plan.

## 3.1 Air Quality Monitoring

Dacorum Borough Council currently has one automatic monitoring station in the Borough, in addition to 48 $NO_2$ diffusion tube monitoring sites. See **Table B.1** in **Appendix B** for $NO_2$ diffusion tube monitoring locations.

The automatic monitoring station, which has been operational since November 2012, is situated adjacent to a busy road (Northchurch High Street - A4251). Real time data, as well as weekly, monthly graphs etc. are available from the Hertfordshire and Bedfordshire Air Quality Network website (www.hertsbedsair.net). The data is also included within the Hertfordshire and Bedfordshire Air Quality Network annual report produced by AQDM which is also available via the Hertfordshire and Bedfordshire Air Quality Network website. The location of the automatic monitoring station is shown in **Figures 3.1** below.

**Figure 3.1 Location of Automatic Monitoring Station**



## 3.2 Summary of relevant LAQM Review and Assessment

The Council designated three AQMAs in June 2012 as a result of exceedance of the air quality objective for annual mean $NO_2$ at the following locations within the Borough:

- AQMA 1: Lawn Lane, Hemel Hempstead
- AQMA 2: London Road, Apsley
- AQMA 3: High Street, Northchurch

**Figures C.1, C.2 and C.3 in Appendix C** show the extent of the AQMA boundaries as declared in June 2012.

Air Quality Consultants Ltd were commissioned by the Council to undertake the Further Assessment for the AQMAs in Hemel Hempstead, Apsley and Northchurch. The report, which was published in March 2013, indicated that the annual mean $NO_2$ objective continued to be exceeded within all three AQMAs. Within both the Lawn Lane, Hemel Hempstead and London Road, Apsley AQMAs there were no exceedances of the objective outside of the current AQMA boundaries, therefore it was considered that the current boundaries should remain in place. For the High Street, Northchurch AQMA, there was a modelled exceedance outside of the AQMA boundary. It was advised that the boundary of this AQMA be revised to potentially incorporate any other residential locations within the area predicted >36µg/$m^3$. The boundary of this AQMA has since been amended to incorporate 84 – 96 High Street, Northchurch; this is shown in **Figure C.4 in Appendix C**.

**Table 3.1** below indicates the total number of residential properties included within each of the three AQMAs. In reference to the High Street, Northchurch AQMA, this includes before and after the AQMA boundary change. **Tables C.1**, **C.2**, **C.3** and **C.4** in **Appendix C** provide a full list of residential property addresses located within the AQMA boundaries.

**Table 3.1 Number of residential properties included within the three AQMAs**

| AQMA | No. of residential properties in AQMA |
|---|---|
| AQMA 1 Lawn Lane, Hemel Hempstead | 47 |
| AQMA 2 London Road, Apsley | 66 |
| AQMA 3 High Street, Northchurch (before change) | 35 |
| AQMA 3a High Street, Northchurch (after change) | 42 |

## 3.3 Source Apportionment

Road traffic was identified as the dominant source of $NO_X$ ($NO+NO_2$) in all three of the Council's AQMAs in the 2013 Further Assessment. Source apportionment studies identified that ambient background concentrations contribute the largest individual proportion to existing $NO_2$ concentrations within all three AQMAs, followed by emissions from cars and LGVs on local roads.

The source apportionment study drew the following conclusions:

- Ambient background concentrations contributed the largest individual proportion to existing $NO_2$ concentrations within all three AQMAs (31.6 to 85.7%);
- Cars contribute significantly to local $NO_2$ emissions within all three AQMAs (7.8 to 42%);
- LGVs have a less significant contribute to emissions in all three AQMAs (3.1 to 21.4%);
- HGVs have a minor contribution to emissions in all three AQMAs (1 to 10.8%);
- Buses (PSVs) are estimated to make a relatively insignificant contribution (<0.1%) in AQMA 2, but make greater contributions in AQMAs 1 (<9.4%) and 3 (<6.2%);
- Motorcycles are estimated to make a relatively insignificant contribution in any of the three AQMAs (<0.2%).

**Figures 3.2**, **3.3** and **3.4** show the dominant sources of $NO_2$ emissions in the three AQMAs (taken from the 2013 Further Assessment). Diffusion tube locations are detailed, with their corresponding location identification codes (e.g. DC57 etc.), in **Table B.1** in **Appendix B**. **Table 3.2** identifies the proposed focus of measures for the sources.

**Table 3.2 Significant sources of $NO_2$ emissions in each AQMA**

| $NO_2$ emission source | AQMA | | | Proposed focus of measures |
|---|---|---|---|---|
| | 1 | 2 | 3 | |
| Background | √ | √ | √ | Coordinated action on a regional / national scale |
| Cars | √ | √ | √ | Reduce car numbers in area (e.g. Green Travel Plans, behavioural measures, vehicle management) |
| LGVs | √ | √ | √ | Improve freight quality and activity |
| HGVs | | | | Not applicable |
| PSVs (Buses) | | | | Not applicable |
| Motor Cycles | | | | Not applicable |

**Fig 3.2 AQMA 1 - Percentage contributions of different sources to total predicted annual mean $NO_2$ concentrations in 2011**

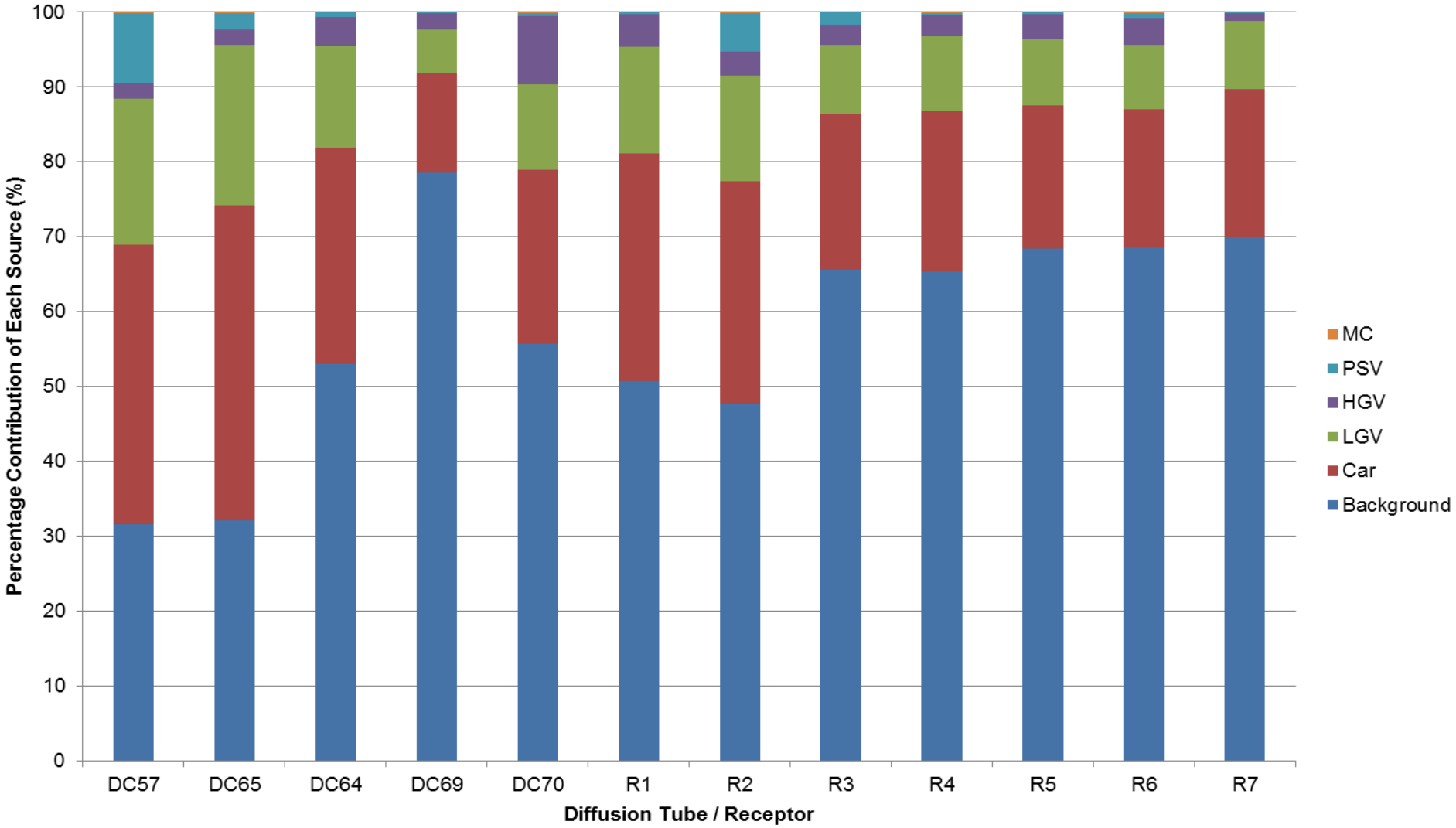


**Fig 3.3 AQMA 2 - Percentage contributions of different sources to total predicted annual mean $NO_2$ concentrations in 2011**

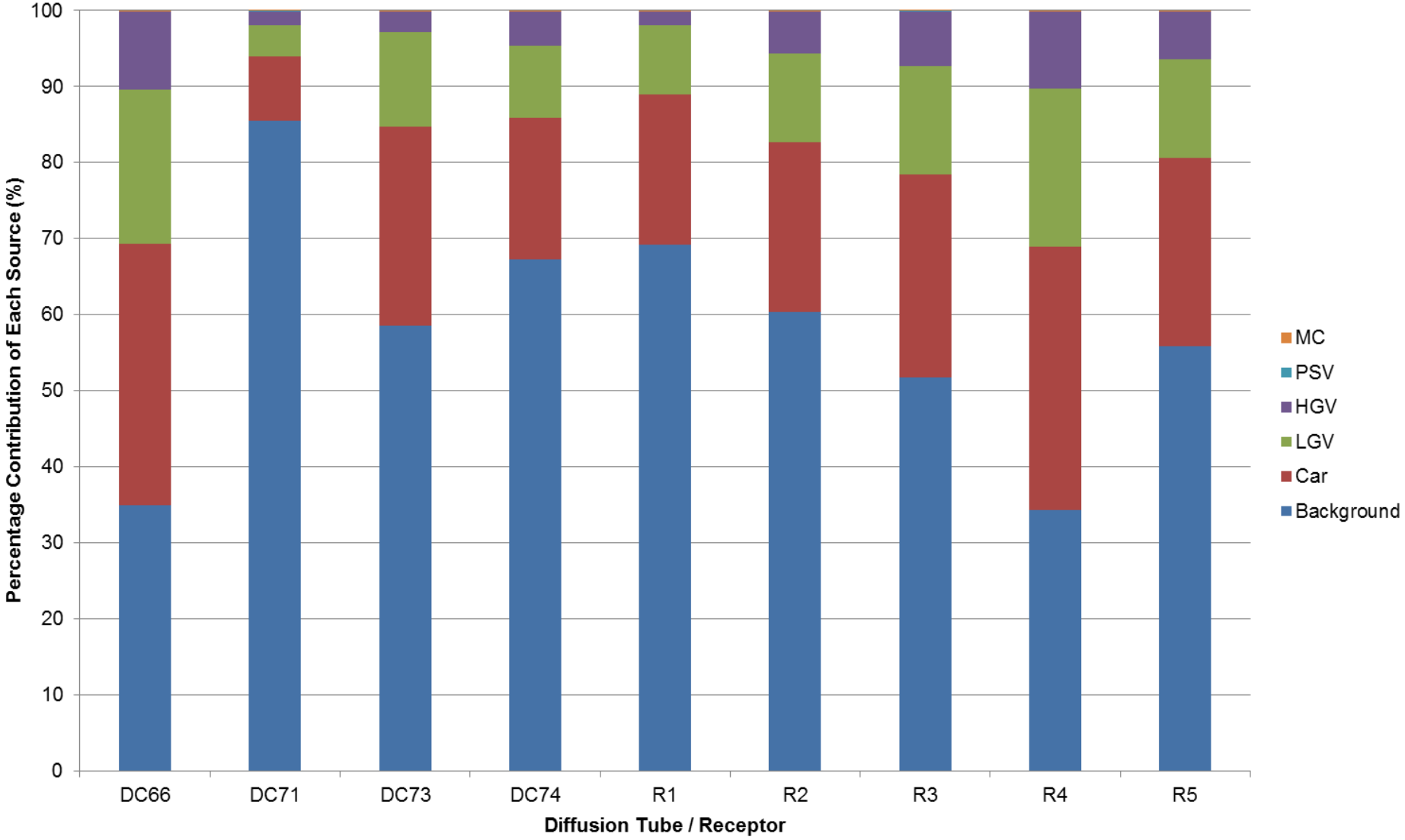
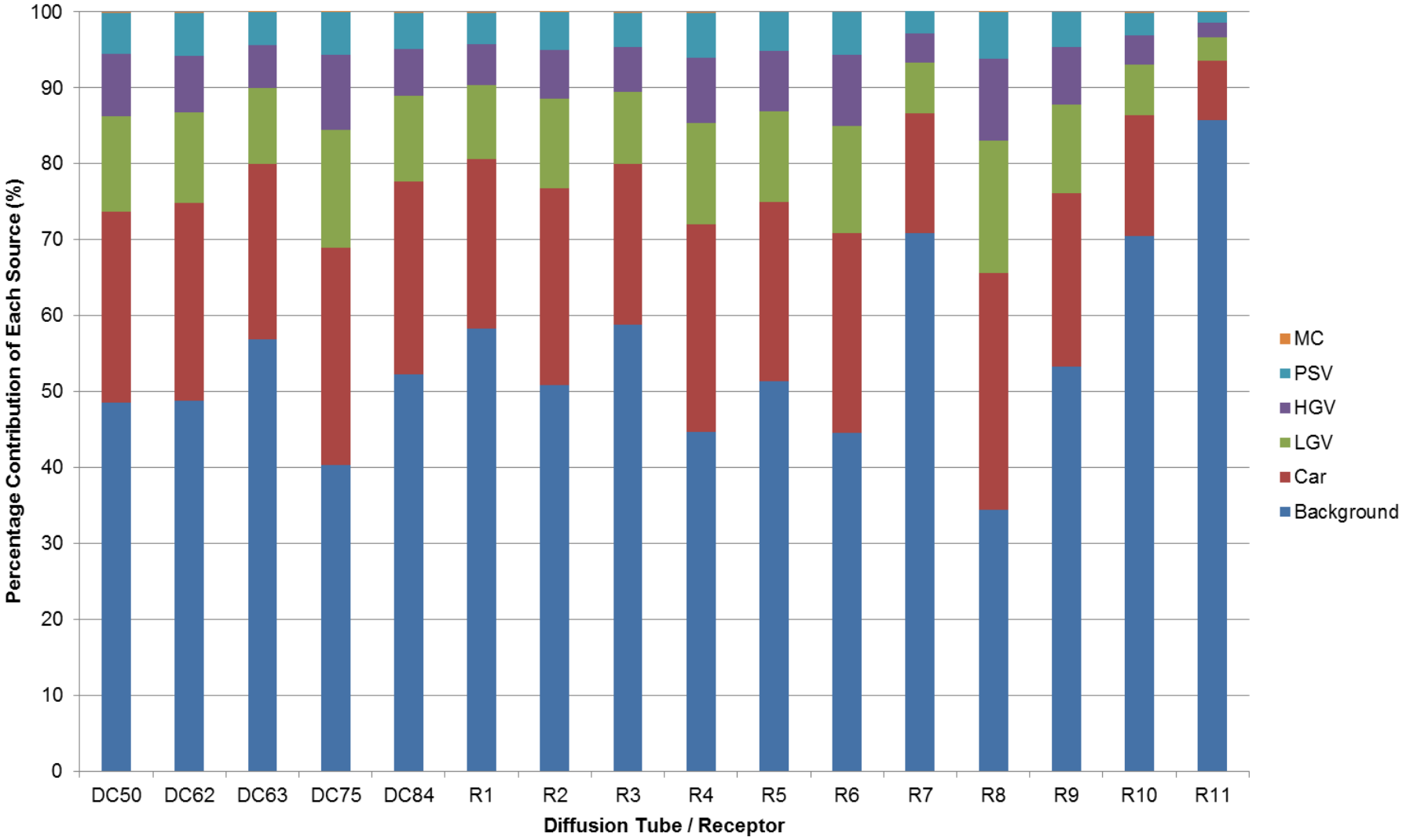


**Fig 3.4 AQMA 3 - Percentage contributions of different sources to total predicted annual mean $NO_2$ concentrations in 2011**



## 3.4 Scale and extent of the problem

Based on the source apportionment analysis, ambient background concentrations contribute the largest individual proportion to existing $NO_2$ concentrations in all three AQMAs, in terms of action; a coordinated approach on a regional/national scale would be required in attempt to bring about a reduction. Private cars are very important in all AQMAs so a reduction in these could also provide a benefit across the Borough. LGVs contribute significantly to NOx emissions in all AQMAs, albeit to a lesser degree than cars. **Table 3.3** indicates the degree of reduction necessary to meet the objectives.

**Table 3.3: Degree of reduction necessary to meet the air quality objectives for AQMAs**

| AQMA | Location of highest measured or predicted annual mean $NO_2$ concentration 2011 | Highest measured or predicted annual mean $NO_2$ concentration (µg/m$^3$) 2011 | Reduction necessary (µg/m$^3$) |
|---|---|---|---|
| AQMA 1 | DC57 | 62 | 22.2 |
| AQMA 2 | R4 (193 London Rd) | 57.3 | 17.3 |
| AQMA 3 | R8 (84 – 96 London Rd) | 47.3 | 7.3 |

## 3.5 Conclusions

The three AQMAs have a problem with local NOx emissions causing levels of $NO_2$ to be above the health-based annual mean standard of 40µg/m$^3$. Road transport in all of the AQMAs is the dominant local source of NOx emissions. Therefore it is intended that this Action Plan will be integrated into the Hertfordshire Local Transport Plan (LTP).

Based on the source apportionment analysis, ambient background concentrations contribute the largest individual proportion to existing nitrogen dioxide concentrations, followed by emissions from cars and LGVs on local roads.

Based on 2011 results, these measures would need to reduce annual mean concentrations by 22.2, 17.3 and 7.3 µg/m$^3$ in AQMAs 1, 2 and 3 respectively to achieve the air quality standard.

Although this Action Plan will focus on making progress towards achieving the annual mean objective for $NO_2$, it is recognised that the actions and measures will provide other benefits for the Borough and its surrounds, which are beyond the original scope of the Action Plan. Such benefits include:

- Reduction of other transport-related pollutants (e.g. particulate matter, benzene etc.)

- Reduction in emission of greenhouse gases
- Reduced noise from traffic
- Reduced congestion
- Assist with climate change polices
- Health improvements

# 4 Development of the Action Plan

This section reports on how the Action Plan has been developed to date.

## 4.1 Formation of Action Planning Steering Group

The development of the Action Plan began with an initial meeting, which was attended by Borough and Council County Officers. The Action Plan has been influenced by their local knowledge and area of responsibility.

The Steering group comprised:

- Danielle Newnham, Scientific Officer, Dacorum Borough Council
- Tina Gigg, Assistant Engineer, Transport Policy Team, Hertfordshire County Council
- Andrew Freeman, Strategy and Programme Manager, Hertfordshire County Council

The steering group was formed to provide an appropriate forum for developing the draft Air Quality Action Plan. The steering group was initially restricted to the above members as it was recognised that the air quality issues within Dacorum were predominantly transport-related. Other relevant stakeholders were consulted during the drafting of the Action Plan as and when necessary.

As a statutory duty, the Council will consult widely on the draft Action Plan. Therefore other stakeholders will have the opportunity to influence the plan before it is finalised and formerly adopted.

## 4.2 Initial Action Plan Options Assessment

A full range of relevant options to reduce emissions from traffic within each of the three AQMAs and the Borough in general have been considered by the steering group in the development of this AQAP.

These potential options (forty in total) were subdivided into the following seven categories:

i. Strategic actions
ii. Move receptors away from AQMA(s)
iii. Move sources away from AQMA(s)
iv. Optimising traffic flows through the AQMA(s)
v. Reducing transport emissions
vi. Promoting sustainable transport options
vii. Other

For each of these options, an initial assessment was undertaken and a decision made as to whether to eliminate the option from further consideration (i.e. the option was not viable), or to shortlist the option for further consideration. This decision was made with reference to:

- Comments received from the steering group
- Conclusions from the source apportionment exercise

The outcome of this initial assessment resulted in eighteen measures being eliminated from further consideration at this time as they were either not considered viable, or were not believed to have an appropriately targeted impact on the predominant sources of emissions identified in the Further Assessment. Two measures were put on-hold subject to further investigation. The Council intends to develop the remaining twenty measures for inclusion within the AQAP. The findings of the initial assessment are presented in **Table D.1** in **Appendix D**.

# 5 Measured to improve air quality

The twenty measures within this AQAP are those that the steering group have selected for adoption and implementation in pursuit of the air quality standards within the three AQMAs and in order to improve air quality across the Borough as a whole. These measures have been grouped into 'Packages' where they have similar characteristics or are alternatives options to achieve the same end. The Council does not necessarily have the power to implement them all directly but potentially it does have a role in attempting to influence those bodies or individuals who could implement them.

Measures are either:

- ***Strategic*** (i.e. aimed at integrating air quality into all relevant areas of decision making within the Borough and County Councils); or
- ***Specific*** (i.e. aimed at promoting more sustainable travel choices and reducing traffic related emissions within the three AQMAs and the Borough as a whole).

Four 'Package of Measures' have been recommended for implementation at this time:

- ***Package of Measures 1: Reducing emissions via strategic measures***
- ***Package of Measures 2: Optimising traffic flow through the AQMAs***
- ***Package of Measures 3: Reducing transport emissions***
- ***Package of Measures 4: Promoting sustainable transport options***

The measures in the Action Plan are detailed below and summarised in **Table 5.1**.

This Action Plan is:

- ***Focused*** – road transport is the dominant source of emissions in the AQMAs and ambient background levels are particularly significant sources.
- ***Proportionate*** – the plan puts most emphasis on reducing ambient background concentrations and emissions from cars and LGVs on local roads and contains specific measures to attempt to address these emissions.
- ***Realistic*** – the measures in the plan have been assessed as being the more feasible, acceptable and cost-effective among many options.
- ***Strategic*** – key measures to be implemented include improving the Council's capacity to manage air quality in order to avoid worsening air quality and to make progress towards the air quality standards.

## 5.1 Package of Measures 1: Reducing emissions via strategic means

**Measure 1: Improve links with the Local Transport Plan**

The air quality problem in Dacorum is predominantly a result of emissions from road vehicles, as is the case elsewhere in the UK. Consequently, the Local Transport Plan (LTP) constitutes a key mechanism for delivering initiative aimed at improving local air quality.

The Council will work closely with Hertfordshire County Council to ensure that this Action Plan and the associated measures to improve air quality within the three AQMAs and across the borough in general, are integrated into future versions of Hertfordshire's LTP.

| Measure | Title | |
|---|---|---|
| 1 | **Improve links with the Local Transport Plan** | |
| **Key Intervention** | | |
| Measures to ensure the current poor air quality in the three AQMAs is improved where possible and to avoid future problems are implemented via the Local Transport Plan | | |
| **Definition** | | **Measure / Indicator** |
| Future versions of the LTP to include:<br>• Reference to the three AQMAs and measures included in the Air Quality Action Plan. Integration of plan with the LTP.<br>• Develop action plan options that will be implemented via the Local Transport Plan | | Integration of AQAP into LTP |
| **Responsibility** | | |
| Hertfordshire County Council and Dacorum Borough Council | | |

**Measure 2: Improve links with the Local Planning and Development Framework**

$PM_{10}$ and $NO_2$ emissions can arise during the construction and operational phases of new development, with the impacts influenced by the size and location of the development. The land-use planning system plays a central role in managing the environmental impacts of new development and contributes to the protection and long-term improvement of air quality. This is achieved by ensuring that new developments do not have a negative impact on local air quality, and that public exposure to air pollutants is reduced in areas which breach the air quality standards.

The Council requires an air quality impact assessment to be included with planning applications which have the potential to cause a negative impact on air quality, particularly in cases where an increase in transport emissions may arise, or where new residents could be

exposed to poor air quality. Historically, air quality impact assessments have been carried out to determine the influence of additional traffic generation on air quality. With the increasing requirement for major development sites to adopt low carbon and decentralised energy sources, air quality assessment will be required for combined heat and power plants (CHP) and biomass boilers. Applicants will additionally be required to take into account the cumulative impacts of emissions on local air quality. Where an air quality assessment shows that a new development is likely to have a negative impact on air quality, or expose new residents to poor air quality, the applicant will be required to submit an air quality mitigation plan.

The Council also requires developers to control and monitor dust emissions at large construction sites in accordance with best practise measures.

The Council will continue to use planning conditions and legal obligations to help mitigate impacts on air quality associated with transport, energy use and construction practices at new developments. Planning conditions can require developers to adopt measures which will reduce transport emissions, such as requesting travel and business plans, installing electric vehicle recharging infrastructure.

Air quality is a material planning consideration and contained within Dacorum's Core Strategy, which was published on 25 September 2013. It is proposed to produce Supplementary Planning Guidance on air quality (possibly in conjunction with members of the Hertfordshire and Bedfordshire Air Quality Network). This guidance will help planners and developers to understand the air quality impact of any proposed development. The document will seek to ensure that developments are well served by public transport, pedestrian and cycle facilities in order to promote sustainable travel. It will enable the Council to secure appropriate developer contributions and ensure resources are targeted towards schemes that promote long term sustainable travel.

| Measure | Title |
|---|---|
| 2 | Improve links with the Local Planning and Development Framework |
| **Key Intervention** | |
| Local planning considerations aim to mitigate the cumulative negative air quality impacts of new development | |
| **Definition** | **Measure / Indicator** |
| Require developers to undertake an air quality assessment in circumstances where a new development could have a negative impact on air quality, and provide an air pollution mitigation plan where necessary. | No. of planning applications assessed and regulated through air quality assessments. |
| Require developers to submit Construction Management Plans to control dust and emissions from construction and demolition. Through onsite pollutant monitoring, ensure that large developments are adhering to the CMP requirements. | No. of Construction Management Plans and monitoring requirements included for relevant developments. |
| Continue to use planning conditions and legal obligations to require developers to adopt measures which will reduce transport emissions, such as requesting travel and business plans, capping parking spaces, providing cycle parking facilities and installing electric vehicle recharging infrastructure. | No. of sites with:<br>• Travel Plans<br>• Reduced parking<br>• Cycle parking facilities<br>• EV charging points |
| Produce Supplementary Planning Guidance. | Guidance published and followed. |
| **Responsibility** | |
| Dacorum Borough Council: Regulatory Services and Development Control. | |

**Measure 3: Improve links with Public Health**

Poor air quality has been recognised as a significant public health issue. The Public Health Outcomes Framework contains an indicator specific to $PM_{2.5}$. The Council will seek opportunities to strengthen the link between Public Health and air quality through joint working and policy development with Public Health in Hertfordshire. The Council will also seek Public Health funding opportunities for potential air quality / health related projects in Hertfordshire, such as the reintroduction of 'AirAlert' and County-wide $PM_{2.5}$ monitoring.

| Measure | Title |
|---|---|
| 3 | Improve links with Public Health |
| **Key Intervention** | |
| Strengthen the link between Public Health and air quality | |
| **Definition** | **Measure / Indicator** |
| Seek opportunities to strengthen the link between Public | Policies, relationships and processes in |

| | |
|---|---|
| Health and air quality through joint working and policy development with Public Health in Hertfordshire. | place to ensure air quality is considered wherever relevant. |
| Seek Public Health funding opportunities for potential air quality / health related projects in Hertfordshire, such as the reintroduction of 'AirAlert' and County-wide $PM_{2.5}$ monitoring. | No. of successful funding bids. |
| **Responsibility** | |
| Hertfordshire County Council and Dacorum Borough Council | |

## 5.2 Package of Measures 2: Optimising traffic flow through the AQMAs

It is recognised that traffic flow through the AQMAs could be improved. Initial investigations must be undertaken to ensure that any implemented alterations successfully optimise traffic flow through the AQMAs and bring about a reduction in $NO_2$ concentrations.

**Measure 4: Junction Investigations**

Traffic signals operate at the cross roads where Durrants Hill Road and Deaconsfield Road intersect with Lawn Lane. This junction is situated within the north-western corner of the Lawn Lane, Hemel Hempstead AQMA. At peak times, these traffic signals can result in long tailbacks through the Lawn Lane AQMA. Residential dwellings near this junction (within the Lawn Lane AQMA) are situated particularly close to the road, creating a 'street canyon' effect. Pollution deposition is evident on these building frontages.

Durrants Hill Road links Lawn Lane (in the northeast) to London Road (in the southwest). The Durrants Hill Road/London Road junction is situated within the London Road, Apsley AQMA. It has been observed that vehicles waiting for an opportunity to turn from London Road into Durrants Hill Road can cause long tailbacks along London Road during peak times. The situation is exacerbated as a narrow, single track, signal-controlled bridge is situated on Durrants Hill Road, approximately 80 metres northeast of the junction with London Road; the resultant traffic queues often back up along Durrants Hill Road to the junction with London Road preventing other vehicles from turning in, which in turn creates further stationary traffic tailbacks along London Road.

Traffic enters and exits London Road, Apsley to the west at the junction with Two Waters Way. This is a large signal controlled junction.

It is proposed to investigate the efficiency of the current junction layouts and traffic signal controls, at key junctions within the Lawn Lane, Hemel Hempstead and London Road, Apsley AQMAs, with the view to altering layouts and/or traffic signal phasing to optimise traffic flow through the two AQMAs.

| Measure | Title | |
|---|---|---|
| 4 | Junction investigations | |
| Key Intervention | | |
| To obtain information to enable junction layouts and traffic signal phasing to be altered to improve traffic flow within AQMAs. | | |
| Definition | | Measure / Indicator |
| Investigate efficiency of the current junction layouts (including the operation of traffic signals if relevant) at the following junctions:<br>• Durrants Hill Road/Lawn Lane<br>• Durrants Hill Road/London Road<br>• Two Waters Way/London Road | | Undertake junction investigations |
| Responsibility | | |
| Hertfordshire County Council - Highways | | |

**Measure 5: ANPR traffic study**

It is necessary to obtain detailed information relating to local traffic movements through the AQMAs in order to design effective specific measures to improve air quality.

An investigation is proposed to determine the routes of local traffic travelling through the London Road, Apsley AQMA by using junction turning counts and the use of Automatic Number Plate Recognition (ANPR) technology at key junctions. The resulting information will allow future actions to be appropriately targeted.

| Measure | Title | |
|---|---|---|
| 5 | ANPR traffic study | |
| Key Intervention | | |
| Obtain detailed traffic movement data in order to improve air within the London Road, Apsley AQMA | | |
| Definition | | Measure / Indicator |
| Determine the routes of local traffic travelling through the London Road, Apsley AQMA by using junction turning counts and the use of Automatic Number Plate Recognition (ANPR) technology at key junctions. | | Undertake ANPR traffic study |

| | |
|---|---|
| **Responsibility** | |
| Hertfordshire County Council – Highways and Dacorum Borough Council | |

**Measure 6: Congestion study**

Congestion is a significant problem particularly within the London Road, Apsley AQMA. The Council will investigate whether a congestion study has already been done for the London Road, Apsley area. The Hertfordshire County Council Congestion Action Plan will be checked for any schemes in the area of the AQMAs.

| Measure | Title | |
|---|---|---|
| 6 | Congestion study | |
| **Key Intervention** | | |
| Obtain available congestion study data in order to target future measures to improve air quality within the AQMAs. | | |
| **Definition** | | **Measure / Indicator** |
| Investigate whether a congestion study has already been done for the London Road, Apsley area. | | Undertaken investigation specific to London Road, Apsley area. |
| Check the Hertfordshire County Council Congestion Action Plan for any schemes in the area of the AQMAs. | | Undertake review of Hertfordshire's Congestion Action Plan |
| **Responsibility** | | |
| Hertfordshire County Council – Policy Team | | |

**Measure 7: Road signage improvements**

It appears that the current road signage at the Two Waters Way junction is directing traffic bound for Abbots Langley and Kings Langley through the London Road, Apsley AQMA. Should this traffic be directed via the A41 bypass this would reduce the unnecessary through-traffic bound for Abbots Langley and Kings Langley.

Similarly, in relation to traffic travelling north and south on the A41 bypass bound for Berkhamsted; the current road signage appears to be directing traffic through the High Street, Northchurch AQMA. This is again causing unnecessary through-traffic.

It is proposed to investigate the current road signage within the vicinity of the three AQMAs, to identify opportunities for improvement, with the aim of preventing unnecessary through-traffic passing through the three AQMAs.

| Measure | Title |
|---|---|
| 7 | Road signage improvements |

| Key Intervention | |
|---|---|
| Determine the significance of the current road signage on AQMA through-traffic | |
| **Definition** | **Measure / Indicator** |
| Investigate the current road signage within the vicinity of the three AQMAs, to identify opportunities for improvement, with the aim of preventing unnecessary through-traffic passing through the three AQMAs. | Undertake road signage investigation |
| **Responsibility** | |
| Hertfordshire County Council - Highways | |

**Measure 8: Potential relocation of bus stop**

A bus stop is present within the High Street, Northchurch AQMA. It has been observed that stationary buses waiting at this stop cause traffic tailbacks within the AQMA. It is proposed to investigate the significance of this issue and the possibility of moving this bus stop, or the creation of a layby should the investigation deem this to be necessary.

| Measure | Title | |
|---|---|---|
| 8 | Potential relocation of bus stop | |
| Key Intervention | | |
| Determine significance of stationary buses on congestion within the High Street, Northchurch AQMA | | |
| **Definition** | | **Measure / Indicator** |
| Establish the bus routes utilising this bus stop and the frequencies of buses along those routes and explore the possibly of relocating the bus stop or the creation of a layby | | Undertake bus stop investigation |
| **Responsibility** | | |
| Hertfordshire County Council – Passenger Transport | | |

**Measure 9: Determine significance of school traffic**

St Mary's C of E (VA) Primary School is situated on New Road, Northchurch, just outside of the High Street, Northchurch AQMA boundary. In order to determine the significance of school traffic on this AQMA, it is proposed to look at air quality monitoring data from the automatic monitoring station on the High Street, to see if there are any significant changes to $NO_2$ concentrations between term time and school holidays. This will provide valuable information to enable future measures to be appropriately targeted.

| Measure | Title |
|---|---|
| 9 | Determine significance of school traffic |
| Key Intervention | |

| | |
|---|---|
| Determine the significance of school traffic within the High Street, Northchurch AQMA to target future measures | |
| **Definition** | **Measure / Indicator** |
| Look at air quality monitoring data from the automatic monitoring station to see if there are any significant changes to $NO_2$ concentrations between term time and school holidays. | Undertake review of automatic monitoring station data |
| **Responsibility** | |
| Dacorum Borough Council – Regulatory Services | |

**Measure 10: Potential removal of on-street parking**

On-street visitor parking is provided for residents on High Street, Northchurch. It has been observed that this is obstructing through-traffic and therefore creating tailbacks within the High Street, Northchurch AQMA. It is proposed to investigate this issue and possibly remove on-street parking, providing alternative parking outside of the AQMA should the findings of the investigation deem this to be necessary.

| **Measure** | **Title** |
|---|---|
| **10** | **Potential removal of on-street parking** |
| **Key Intervention** | |
| Determine significance of on-street parking on congestion within the High Street, Northchurch AQMA | |
| **Definition** | **Measure / Indicator** |
| Investigate the provision of on-street parking to determine its contribution to congestion within the AQMA and explore possibilities for removal and relocation outside if the AQMA. | Undertake on-street parking investigation. |
| **Responsibility** | |
| Hertfordshire County Council – Highways and Dacorum Borough Council | |

## 5.3 Package of Measures 3: Reducing transport emissions

This can be achieved in a variety of ways, e.g. by technical means, promotion of alternative fuels and low/zero emission vehicles, reducing the volume of traffic, incentives, car sharing schemes etc.

**Measure 11: Promote the use of electric vehicles (EV)**

It is recognised that EV could offer solutions to air quality issues; as such, the Council, in partnership with Hertfordshire County Council, intends to promote and encourage the uptake and use of electric vehicles. The personal and business benefits of EVs will be

communicated. The provision of incentives, such as the waiving of car park charges for electric (and hybrid) vehicles or priority parking will be explored.

Hertfordshire County Council has received funding from the government's 'Plugged in Places' grant to install electric car charging points in the county, in partnership with Source East.

There are currently five EV charge points in the Borough, (each dual charge points) that are part of Source East, these are located at:

- Maylands Business Centre, Hemel Hempstead
- Durrants Hill, Apsley
- The Forge, Tring
- Wood Lane End, Maylands, Hemel Hempstead
- Canal Fields, Berkhamsted

It is recognised that the presence and availability of these charge points is currently under promoted and more needs to be done to increase usage.

Further monies have been made available for the installation of additional EV charge points within St Albans, Watford and Hemel Hempstead through Hertfordshire's successful LSTF bid. The Council will continue to explore further opportunities for funding to install additional EV charge points within the borough and investigate the possibility of providing incentives, such as the waiving of car park charges or priority parking for electric (and hybrid) vehicles.

Experience of other areas has identified a number of key issues in the creation of an effective and joined-up Public Charging Infrastructure (PCI), such as: availability and network coverage; interoperability between networks; attention to siting and design at 'street-level'. Real-world constraints include: installation costs, availability of hosts, regulatory procedures, adjacent land-uses, implications for grid-load. The Council and Hertfordshire County Council will work to address such issues as and when they arise.

The Council will also encourage more electric vehicle charging points in new developments in order to increase the mass-market appeal of electric vehicles.

The Maylands EV Car Club has recently been launched with funding from the successful LSTF bid under the 'Maylands on the Move' umbrella. Two EV cars (zero emission point of use) are available for hourly hire by individuals and companies on the Maylands Business

Park. Usage and membership is presently low, however the scheme is currently being heavily promoted.

| Measure | Title | |
|---|---|---|
| 11 | **Promote the use of electric vehicles (EV)** | |
| **Key Intervention** | | |
| Encourage the uptake and use of electric vehicles | | |
| **Definition** | | **Measure / Indicator** |
| Communicate the benefits of EVs to residents and businesses. | | No. of EV enquiries. |
| Explore the possibility of providing incentives, such as the waiving of car park charges or priority parking for electric (and hybrid) vehicles. | | Undertake sufficient research to conclude whether incentives are viable. |
| Encourage the installation of EV charging points in new developments. | | No. of EV charge points installed within new developments. |
| Promote the presence and availability of existing EV charge points within the borough. | | Percentage increase in usage of existing Source East charge points. |
| Explore funding opportunities for additional EV charge points within the borough. | | No. of successful funding applications and new EV charge points. |
| Work to address any key EV installation and network issues as and when they arise. | | No. of EV enquiries. |
| Promotion of the Maylands EV car club. | | No. of new EV car club members and percentage increase in usage. |
| **Responsibility** | | |
| Hertfordshire County Council and Dacorum Borough Council | | |

**Measure 12: Promote car share schemes**

The encouragement of travellers to plan their journey and share transport, when possible is likely to lead to fewer vehicle trips and, therefore, lower emissions. *'If half of UK motorists received a lift one day a week, pollution would be reduced by ten per cent and traffic jams by twenty per cent.'* (Liftshare.com, 2014). Car sharing and travel planning are therefore important measures to improve air quality.

Lift share schemes are currently in operation within the borough and also countywide; specifically Herts Liftshare (www.hertsliftshare.org), a county wide service, and the Maylands Car Share Scheme, which has been set up using LSTF funding, providing a car share service to employees on the Maylands Industrial Estate. To date the Maylands Car Share Scheme has approximately seventy registered members. These services are free to use.

Currently a variety of incentives are offered to participants, such as designated parking bays for high occupancy vehicles and reduced parking charges.

The Council (in partnership with Hertfordshire County Council) will aim to promote these schemes with the intension to increase uptake further. The possibility of providing dedicated parking bays/priority parking for car share members will also be explored as will the possible reintroduction of the Dacorum Borough Council car share scheme, which disbanded several years ago.

| Measure | Title | |
|---|---|---|
| 12 | Promote car share schemes | |
| Key Intervention | | |
| Increase awareness and uptake of existing car share schemes | | |
| Definition | | Measure / Indicator |
| Promote existing car share schemes 'Herts Liftshare' and 'Maylands Car Share Scheme'. | | Increase in no. of registered members . |
| Explore the possibility of providing dedicated parking bays / priority parking for car share members. | | Undertake sufficient research to conclude whether dedicated parking bays / priority parking for car share members is viable. |
| Explore the possibility of reintroducing the Dacorum Borough Council car share scheme. | | Undertake sufficient research to determine whether reintroduction would be welcomed by staff. |
| Responsibility | | |
| Hertfordshire County Council and Dacorum Borough Council. | | |

**Measure 13: Green incentives for taxi drivers**

Taxis do considerable local mileage and consequently add to air pollution within the Borough. There is therefore good reason to encourage taxi companies / drivers to use less polluting (smaller engine and more efficient) vehicles.

The Council will investigate the possibility of providing increased licensing fees for those higher polluting vehicles and reduced fees for those less polluting vehicles. The introduction of a maximum age for licensable vehicles will also be considered. The viability of this measure will need to be discussed with Dacorum Borough Council's Licensing Department and formally adopted if supported.

| Measure | Title |
|---|---|
| 13 | Green incentives for taxi drivers |
| Key Intervention | |
| Encourage Taxi companies / drivers to use less polluting vehicles | |

| Definition | Measure / Indicator |
|---|---|
| Explore the viability of a licensing fee review with the view to introduce increased fees for higher polluting vehicles and reductions for less polluting vehicles | Discuss with DBC Licensing to determine viability and possible implementation. |
| Explore the viability of the introduction of a maximum age for licensable vehicles | Discuss with DBC Licensing to determine viability and possible implementation. |
| **Responsibility** | |
| Dacorum Borough Council – Regulatory Services and Legal Governance | |

**Measure 14: Reducing emissions from LGVs within the AQMAs**

The source apportionment analysis has indicated that LGVs contribute significantly to NOx emissions in all three AQMAs, albeit to a lesser degree than cars. The Council will explore the options available to minimise the emissions from LGVs (e.g. formation of a local freight quality agreement to promote cleaner vehicles and smarter driving to local freight companies, limiting delivery times to outside of peak traffic times etc.) A number of businesses are located within the London Road, Apsley AQMA, there is also a café within the High Street, Northchurch AQMA, therefore delivery time restrictions will be best targeted to these two AQMAs.

| Measure | Title | |
|---|---|---|
| 14 | Reducing emissions from LGVs within the AQMAs | |
| **Key Intervention** | | |
| Target reduced emissions from LGVs operating with the three AQMAs | | |
| **Definition** | | **Measure / Indicator** |
| Liaise with local freight companies to establish the potential for developing a local freight quality agreement. | | Initiate meeting with local freight companies and report outcomes. |
| Liaise with businesses within the London Road, Apsley and High Street, Northchurch AQMAs to establish the potential for limiting delivery times to outside of peak traffic times. | | Initiate meeting with local businesses and report outcomes. |
| **Responsibility** | | |
| Dacorum Borough Council – Regulatory Services | | |

**Measure 15: Reducing emissions from Council fleet**

The Council recognises that it should lead by example and target reductions in emissions from its transport fleet activities as much as practicable. The Council has implemented policies (such as its Green Fleet Policy) and programmes aimed at improving energy efficiency of the Council fleet and reducing pollution contributions as follows.

The Council undertakes an evaluation process, taking into consideration fuel consumption figures and $CO_2$ emissions when procuring new vehicles for the Council fleet. Wherever practicable, the Council aims to procure vehicles meeting the new emissions limits established in the EU Directives. The Council is currently in the process of replacing its fleet of refuse collection vehicles, with 22 new vehicles. All vehicles are to be Euro VI standard and, together with AdBlue technology, will give rise to significantly lower emissions.

Road sweepers and refuse vehicles tend to go out early in the morning to avoid rush hour; this avoids contribution towards congestion or exacerbation of the air quality problems in the borough. The refuse vehicles also have route optimisation software installed to plan their route and a Bartec system that enables operatives to identify where vehicles are via GPS; so should it be necessary to send a vehicle back for a missed collection the additional mileage can be minimised by using the vehicle in closest proximity.

The Council's lease car scheme currently has a cap on $CO_2$ emissions of 125g/km, (possibly being reduced to 120g/km in 2014/15). The Council's car loan also has a $CO_2$ emissions limit of 125g/km.

The Council's Environmental Management System contains a performance indicator requiring the Council to reduce the fuel consumption of its fleet by 5 per cent (per annum).

The Council monitors the number of business miles undertaken by staff (through Council travel expenses claims) and uses this information to determine mileage trends. This information could be used to enable the Council to identify opportunities for additional fuel usage reduction across the Council's services.

Business mileage rates claimed by Council employees are currently determined to some extent by engine size (e.g. those employees with a large engine vehicle are entitled to claim a higher rate per mile than those with smaller engine vehicles). It is recognised that this does not promote the use of smaller engines, as such; the Council will look into amending this policy.

It is noted that the Council does not currently have a Corporate Travel Plan; the creation of such a document will be strongly encouraged.

| Measure | Title |
|---|---|
| 15 | Reducing emissions from Council fleet |
| Key Intervention | |

| Target reduced emissions from Council fleet vehicles | |
|---|---|
| **Definition** | **Measure / Indicator** |
| Continue to target reductions in emissions from the Council's transport fleet. | Environmental management system performance indicator for annual fuel usage reduction. |
| Continue to consider fuel consumption figures and $CO_2$ emissions during the procurement process. | No. of vehicles purchased / leased in line with Green Fleet Policy. |
| Utilise business mileage data and trends to identify opportunities for fuel usage reduction across Council services. | Establish opportunities for fuel usage reductions and report outcomes. |
| Explore the possibility of amending current business mileage rates to remove financial benefits in relation to engine size. | Discuss with relevant Council departments to assess viability. |
| Support the adoption and implementation of a corporate travel plan for the Council. | Creation and adoption of a corporate travel plan. |
| **Responsibility** | |
| Dacorum Borough Council – Regulatory Services, Finance, Procurement and Fleet Manager. | |

**Measure 16: Encouraging smarter driving**

Encouraging people to drive and operate their vehicles more efficiently benefits reductions in exhaust emissions. This is achieved by improving their driving skills (smoother driving, less harsh breaking and smoother acceleration) and undertaking regular vehicle servicing (checking tyres, fuel filters and engine tuning) and carrying out journey planning. These measures are referred to as 'Smarter Driving'. Other measures include: allowing engines to warm up before setting off, minimising the use of air conditioning and reducing the weight of the vehicle (e.g. removing roof racks and unnecessary items in the car boot). Smarter driving has the potential to reduce fuel consumption, reduce air pollution and save money on fuel costs.

The Council intends to promote smarter driving through the organisation of awareness raising initiatives to encourage residents and businesses (including the Council itself) to adopt smarter driving methods. The Council will investigate the possibility of providing / obtaining smarter driver training for its employees. This will instruct drivers on low fuel consumption and low emission driving techniques.

| Measure | Title |
|---|---|
| 16 | Encouraging smarter driving |
| **Key Intervention** | |
| Raise awareness of the benefits of smarter driving techniques | |

| Definition | Measure / Indicator |
|---|---|
| Undertake awareness raising to encourage residents and businesses to adopt smarter driving methods. | Incorporating messages into relevant communication channels and campaigns. |
| Explore the possibility of providing / obtaining smarter driving training for Council employees | Undertake sufficient research to determine whether the possibility of providing / obtaining training is viable. |
| **Responsibility** | |
| Dacorum Borough Council – Regulatory Services | |

## 5.4 Package of Measures 4: Promoting sustainable transport options

*'Of all trips made in 2013, 18 per cent were less than one mile in length…'* (Department for Transport, 2014). It is therefore important to consider the promotion of sustainable transport options (walking and cycling), public transport uptake and travel planning within the borough and Hertfordshire in general. Measures to discourage car use, encourage active travel (cycling and walking) and increase the uptake of public transport, especially for local journeys are important to reduce emissions and hence improve air quality.

**Measure 17: Promote travel planning**

A Travel Plan (sometimes referred to as a green travel plan) is a package of measures designed to influence the travel behaviour of individuals, businesses, schools or other organisations through promoting sustainable travel. The general aim is to reduce the negative effects of traffic by encouraging alternatives to single-occupancy car-use.

The Council and Hertfordshire County Council are working with businesses, schools, developers and individuals by promoting sustainable travel through travel planning. The Council has recently been engaging with businesses on the Maylands Industrial Estate and assisting in the creation of travel plans for these companies. The appointment of a dedicated support officer for the Maylands area was made possible through the LSTF funding as part of the 'BigHertsBigIdeas' package.

Consideration should be given, within the production of the Development Plan Documents, to the requirement of proposed new developments that would have significant transport implications, to have a Green Travel Plan. It is not necessarily the size of the development that would trigger the need but more the nature of the use. It should include:

- New employment sites employing over ten people

- A use which is aimed at the public ( e.g. retail, leisure activities)
- Major residential development

The Travel Plans should seek to:

- Reduce the use of cars by encouraging car sharing;
- Provide links to enable the use of public transport;
- Improve road safety for pedestrians and cyclists; and
- Identify any mitigation works to be funded by the developer in conjunction with the proposal.

Hertfordshire County Council aims to increase opportunities for children and young people to travel to, from and between schools and colleges by sustainable modes, as set out within Hertfordshire's Sustainable Modes of Travel Strategy for School and Colleges 2013/14. The Council, in conjunction with Hertfordshire County Council's Schools Team, will investigate whether all schools in the immediate vicinity of the three AQMAs have School Travel Plans, and get any old Travel plans updated; this is applicable to the following schools:

- Two Waters Primary
- Tudor JMI
- Lime Walk Primary
- Belswains Primary
- St Mary's C of E First School
- Westfield First School
- Egerton-Rothesay School

The Council itself does not currently have a Corporate Travel Plan; the creation of such a document will be strongly encouraged.

| **Measure** | **Title** |
|---|---|
| **17** | **Promote travel planning** |
| **Key Intervention** | |
| Encourage a shift to more sustainable forms of travel, or reducing the need for travel. | |
| **Definition** | **Measure / Indicator** |
| Continue to work with local businesses, schools, developers and individuals by promoting sustainable travel through travel planning. | No. of travel plans produced / year. |
| Investigate whether all schools within the vicinity of the three AQMAs have travel plans, and get any old travel plans refreshed. | No. of new or refreshed travel plans produced / year. |

| | |
|---|---|
| Support the creation of a corporate travel plan for the Council. | Creation of a corporate travel plan for the Council. |
| **Responsibility** | |
| Hertfordshire County Council – Schools Team and Dacorum Borough Council. | |

**Measure 18: Promote walking and cycling**

There are numerous health, financial and environmental benefits to be gained from walking and cycling such as:

- Walking and cycling improves overall physical fitness and wellbeing
- Travelling by bicycle is just as fast as a car door to door across town
- Travelling by bicycle cuts congestion
- Bicycles are free to park
- Travelling my bicycle incurs no road tax and no fuel bills
- Bicycles produce no air or noise pollution

The promotion of walking principally involves providing well-maintained footways, highlighting the many associated environmental, social and economic benefits, providing literature such as local walking maps and supporting and promoting the existence of local walking groups.

In October 2009 the Council published its cycling strategy, which commits the Council to:

- Improving cycling infrastructure
- Cycle training (Bikeability)
- Marketing and promotion
- Stakeholder engagement
- Wider engagement (partnerships with other agencies)
- Planning (the integration of cycling into land use development)
- Targets and monitoring

The Council has also provided cycle parking facilities at educational establishments, retail centres, public transport interchanges and leisure centres.

The Council also encourages cycling amongst its employees. The Council provides secure cycle storage for use during the day, in addition to showers and lockers. The *'Cycle to Work'* scheme was launched across the Council on 20 January 2014, using the organisation CycleScheme.co.uk, as the partner. The scheme enables employees to obtain credit up to the value of £1000 to choose a bicycle and equipment. The employee will then pay back the cost, (minus tax and national insurance contributions), over a twelve month period, through

monthly salary sacrifices. To date, eleven members of staff have taken up the scheme. Dacorum Borough Council also offers a Cycle Loan Scheme – a twelve month payback of total cost borrowed from the Council (up to £1000).

The Council also supports and promotes various national and local events such as 'Cycle to Work Day' and Hertfordshire's 'Year of Cycling', a year of cycle-related events across the County, which was launched in May 2014.

The current Tring, Northchurch and Berkhamsted Urban Transport Plan (UTP) proposes cycling and pedestrian improvements on the Grand Union Canal towpath in Northchurch. It is hoped that such improvements will promote walking and cycling along the towpath.

Improvements are also being made to footpaths and cycling routes within and around Hemel Hempstead as part of the successful LSTF bid. Funding has allowed the provision of new and enhanced walking and cycling routes to Maylands Business Park from other parts of Hemel Hempstead. Physical improvements have also been made to local sections of the National Cycle Network (specifically on the Nicky Line cycle route between Hemel Hempstead town centre, Maylands Business Park and St Albans). Urban realm improvements have also been undertaken at Maylands Business Park to provide a prioritised environment for pedestrians, cyclists and bus passengers. Bid monies are also being used to provide new cycle parking facilities in targeted locations across the bid area and for the SkyRide partnership (to promote the SkyRide Local programme).

LSTF funding has also enabled the organisation of a cycle challenge for businesses within the LSTF area. *'The Big Herts Cycle Challenge'* was launched in 2012 and has been running successfully for the last three years. It is a month long competition between workplaces in Watford, St Albans and Hemel Hempstead. The competition is divided into six size categories (dictated by employee numbers). The winning business within each of the six categories is the one with the greatest percentage of staff taking part (recording their cycling activity). It aims to introduce as many new people to cycling as possible, enabling them to discover the benefits of cycling whilst doing their bit to ease congestion and reduce pollution in the county. Ongoing market research assesses the longer term impact of the challenge.

Amongst the many sustainable transport-related benefits, registered members of the 'BigHertsBigIdeas Business Network' and 'Maylands on the Move' are entitled to a 10 per cent discount at the following participating local cycle retailers:

- Leisure Wheels, Old Town, Hemel Hempstead

- Bridgman Cycles, Leighton Buzzard Road, Hemel Hempstead

| Measure | Title | |
|---|---|---|
| 18 | **Promote walking and cycling** | |
| **Key Intervention** | | |
| Encourage a shift to more sustainable, healthier forms of travel. | | |
| **Definition** | | **Measure / Indicator** |
| Support and promote local walking groups. | | No. of new members. |
| Support the Council's Cycling Strategy. | | Meet targets contained with the strategy. |
| Support and promote the Council's 'Cycle to Work' and 'Cycle Loan' schemes. | | No. of applicants. |
| Support and promote various national and local events such as 'Cycle to Work Day', Hertfordshire's 'Year of Cycling' and 'The Big Herts Cycle Challenge' | | No. of participants. |
| **Responsibility** | | |
| Dacorum Borough Council – Regulatory Services | | |

**Measure 19: Encourage the use of public transport**

The Council recognises that improvements to, and the promotion of public transport will bring about reduced congestion and improve air quality.

Public transport can provide a good alternative to the car for the journey to and from work. For business, developing a public transport strategy reduces the need for expensive parking spaces and improves site assess to customers and staff. For employees, journeys via public transport are cheaper that the real cost of traveling by car, are less stressful than driving and help build exercise into daily routines (e.g. walking to and from the bus stop or train station).

*'Most people in Hertfordshire live within 6 minutes walk of their nearest bus stop.'* (Hertfordshire County Council, 2014)

Hertfordshire County Council's Bus Strategy 2011 – 2031 (published June 2011) sets out the following objectives:

- Support, promote and improve a network of efficient and attractive bus services which are responsive to existing and potential passenger needs, including the special accessibility requirements of the elderly and disabled.
- Procure a range of bus provision which provides maximum benefit to the travelling public in the most cost effective way.
- Develop a passenger transport network as a viable alternative to the use of the private car to contribute to the reduction of greenhouse gas emissions.
- Encourage parents and school aged children to make maximum use of the available public transport network.

- Recognise that customers need attractive and affordable fares to use the system to its full potential and that car users need to be encouraged to choose sustainable modes.
- Continue to support and develop the bus transport provision that allows maximum accessibility – particularly for non-car users and the disadvantaged (disabled, elderly etc.)
- Promote and publicise the passenger transport network through the Intalink partnership using a variety of media.
- Provide and maintain all bus stops, and other bus related highway infrastructure, to consistent quality and standards across the county.
- Seek to give greater priority to buses on the road network to improve punctuality and minimise bus service disruption from road congestion and the effects of road works.
- Continue to develop partnerships with other parties to achieve improvements in service provision and other facilities for specific aspects, corridors or geographical areas.

Particular air quality and greenhouse gas emissions benefits are addressed by the following policies:

- The County Council will take account of the contribution that bus services make to reducing car use and emissions by supporting contract bus services and its policies to assist commercial provision.
- The County Council will encourage operators to invest in vehicles with lower emissions, systems that assist bus drivers to be more fuel efficient and adopt developing technologies, if this is suitable for Hertfordshire conditions.

The Transport Act 2000 placed a duty on Local Transport Authorities to stipulate required standards for passenger transport information. In Hertfordshire this is largely delivered through the Intalink Partnership. This is a unique quality partnership for information and marketing of the passenger transport network in Hertfordshire. Launched by Hertfordshire County Council in 1999, the partnership consists of the majority of local bus and train operators, district/borough councils and neighbouring local transport authorities.

Intalink have recently introduced the weekly Explorer ticket, which can be purchased on buses for £30 (£20 for a student with a Hertfordshire SaverCard) and gives a person unlimited travel on the Hertfordshire Bus Network for seven days. Passengers buy their weekly Explorer ticket on the first bus they board at any time of day. Most buses have a sticker in the window to show that Explorer is issued and accepted. The introduction of the

weekly Explorer ticket follows on from the already popular daily Explorer ticket which costs £12.50 and allows any group of up to four people to travel all day on the Intalink network. A £8.50 ticket is also available for one person along with the £4.25 ticket for a student with a Hertfordshire SaverCard. Further information is available at www.intalink.org.uk/explorer.

As part of Hertfordshire's successful LSTF funding bid, improvements are being made to public transport infrastructure across St Albans, Watford and Hemel Hempstead. *'Network Hemel Hempstead'* has been developed as an extension of the work of the Quality Network Partnership in Hertfordshire. This body comprises Hertfordshire County Council, Dacorum Borough Council, the University of Hertfordshire, Campaign for Better Transport, local bus and train operators and groups representing passengers. One of the principle aims of Network Hemel Hempstead is to improve local passenger transport services, thereby providing viable, cost-effective alternatives to car use and promoting sustainable travel.

Among the objectives of Network Hemel Hempstead are to provide:

- Truly integrated passenger transport
- Better accessibility for the disabled
- Improved reliability and punctuality
- Enhanced frequency of service
- Better quality travel information
- Encouragement to use other non-car modes of travel e.g. walking and cycling

The Network Hemel Hempstead website provides comprehensive passenger transport information and advice on other sustainable travel modes. In addition Network Hemel Hempstead has produced a pocket travel guide for the area; copies are available from the Civic Centre, local libraries and a number of other locations.

Network Hemel Hempstead has worked with the local bus operators to create the Hemel Hempstead BUSnet ticket. This is a multi-operator bus ticket, which can be used to provide unlimited travel throughout the Network Hemel Hempstead area. Passengers buy a daily or weekly BUSnet ticket on the first bus they board. They can then use the same ticket on any other bus service running within Hemel Hempstead, making travelling by bus easier. Further information is available at www.networkhemelhempstead.co.uk.

Three of the largest public transport operators in Hertfordshire (Arriva, First Capital Connect and Centrebus) offer registered members of the 'BigHertsBigIdeas Business Network' and 'Maylands on the Move' discounts for their employees. These tend to be discounts on

season tickets of one month or longer within a specified geographic range or route/zone structure. For example, Arriva offers a 20 per cent discount on a 4-weekly season ticket and Centrebus offers a 10 per cent discount on specific routes serving Hemel Hempstead (46 and X31 from Luton).These discounts only apply with the LSTF area (i.e. St Albans, Watford and Hemel Hempstead and certain other smaller locations like Kings Langley, Apsley and London Colney). It is currently unknown what will happen to these discounts at the end of the LSTF funding period.

LSTF funding has also allowed the implementation of improvements to the bus infrastructure between Maylands Business Park and Hemel Hempstead, through the introduction of two new bus routes. The Maylands Link bus services, ML1 (morning and evening peak time service) and ML2 (lunchtime service), operated by Arriva, provide a fast and direct link between Hemel Hempstead Railway Station, the town centre and various bus stops around Maylands Business Park. This service commenced in February 2013. It is hoped that the new bus routes will become self-funding by the end of the LSTF funding period. The Council will continue to promote this new service to increase bus patronage.

| Measure | Title | |
|---|---|---|
| 19 | Promote the use of public transport | |
| Key Intervention | | |
| Encourage a shift to more sustainable forms of transport. | | |
| Definition | | Measure / Indicator |
| Support Hertfordshire's Bus Strategy. | | Meet targets contained with the strategy. |
| Promote available public transport discounts. | | Increased bus patronage. |
| Support and promote the new bus routes M1 and M2. | | Increased bus patronage. |
| Responsibility | | |
| Hertfordshire County Council and Dacorum Borough Council | | |

**Measure 20: Promote TravelSmart projects**

With funding from the Department for Transport's Local Sustainable Transport Fund, a TravelSmart programme has recently been undertaken in Hemel Hempstead, with the support of Hertfordshire County Council, Dacorum Borough Council and other local partners.

The TravelSmart programme aims to reduce car use for short local journeys and encourage healthier lifestyles by increasing active travel in our daily routines. It works by offering people information on their walking, cycling and public transport options and helping them overcome any barriers they have to choosing more active travel.

As part of this programme, almost 14,000 households were contacted (40 per cent by telephone and 60 per cent on the door) between March and July 2013. Households were questioned in respect of their existing transport behaviour and offered a wide range of free information on local travel options tailored to their individual needs and interests (including local walking maps, cycling maps and bus timetables, as well as a discount card). The information packs were hand-delivered to households by bicycle. Over 10,000 households (74 per cent of those contacted), requested information from the TravelSmart team. Public transport information proved to be most popular, followed by walking and then cycling. A new Local Travel Map developed especially for the project was the most popular single item offered.

The success of the TravelSmart programme is measured by travel behaviour surveys conducted before (baseline) and after. The final project results will be released next year. Sustrans (2014) indicates that their personalised travel planning projects have achieved an average reduction in car trips of 11 per cent across previous projects  This reduction is accompanied by increases in walking, cycling and public transport trips of between 15 and 33 per cent. The Final Evaluation Report compiled by Sustrans and Socialdata in 2010 for the TravelSmart project undertaken in Watford during the period 2008-10, identified substantial increases in walking, cycling and use of public transport, leading to a relative reduction in car-as-driver trips of 13 per cent. This level of behaviour change is in line with, or exceeds, other UK TravelSmart projects.

The Council will publicise the results of the recent Hemel Hempstead TravelSmart project and explore opportunities for further projects within the borough.

| **Measure** | **Title** |
|---|---|
| **20** | **Promote TravelSmart projects** |
| **Key Intervention** | |
| To increase awareness of travel choices and encourage changes in behaviour that will contribute to improving local air quality. | |
| **Definition** | **Measure / Indicator** |
| Publicise the results of the Hemel Hempstead TravelSmart project. | Ensure the findings of the Hemel Hempstead TravelSmart project are widely publicised through the relevant communication channels (including the Council's Air Quality webpage). |
| Explore opportunities for further TravelSmart projects within the borough. | Identify further areas and potential sources of funding. |

| Responsibility |
| --- |
| Dacorum Borough Council – Regulatory Services. |

**Table 5.1: Summary of Action Plan measures to be adopted**

| Measure | Title |
| --- | --- |
| ***Package of Measures 1: Reducing emissions via strategic measures*** | |
| 1 | Improve links with the Local Transport Plan |
| 2 | Improve links with the Local Planning and Development Framework |
| 3 | Improve links with Public Health |
| ***Package of Measures 2: Optimising traffic flow through the AQMAs*** | |
| 4 | Junction Investigations |
| 5 | ANPR traffic study |
| 6 | Congestion study |
| 7 | Road signage improvements |
| 8 | Potential relocation of bus stop |
| 9 | Determine significance of school traffic |
| 10 | Potential removal of on-street parking |
| ***Package of Measures 3: Reducing transport emissions*** | |
| 11 | Promote the use of electric vehicles (EV) |
| 12 | Promote car share schemes |
| 13 | Green incentives for taxi drivers |
| 14 | Reducing emissions from LGVs within the AQMAs |
| 15 | Reducing emission from Council fleet |
| 16 | Encouraging smarter driving |
| ***Package of Measures 4: Promoting sustainable transport options*** | |
| 17 | Promote travel planning |
| 18 | Promote walking and cycling |
| 19 | Promote the use of public transport |
| 20 | Promote TravelSmart projects |

# 6 Methodology utilised to assess short-listed measures

In accordance with the government guidance, the twenty measures short-listed for inclusion within the AQAP have been assessed against a range of criteria in order to assess their suitability for inclusion and enable suitable measures to be prioritised.

The criteria against which options were assessed were:

- Potential air quality impact
- Implementation costs
- Cost-effectiveness
- Co-environmental benefits, social and economic impacts
- Risk factors
- Feasibility and acceptability

The following subsections outline how the assessment has been undertaken.

## 6.1 Potential air quality impact

This is a key assessment in that the AQAP must focus on options that improve air quality most effectively.

A semi-quantitative assessment, which relies on a degree of judgement, has been adopted. The methodology used is outlined below:

i. The description of the option and the proposed change to be brought about by the measure is used alongside the source apportionment analysis to define what proportion of road transport emissions would potentially be affected by the measure.
ii. A view is then expressed on how much of the traffic would actually be changed by the measure.
iii. The proportion of emissions potentially affected by the measure and the view on how far they could be changed by the measure are combined to express a view on how much transport emissions may be reduced due to the measure.
iv. A view is then expressed on how significant this change would be in terms of making progress towards the air quality objective.

For the purpose of this assessment, the result of the realistic intervention has been assessed as having a potentially:

- ***Zero local air quality benefit*** if the realistic intervention is 0 per cent or worse
- ***Small local air quality benefit*** if the realistic intervention is 1 per cent
- ***Medium local air quality benefit*** if the realistic intervention is 2 – 5 per cent
- ***Large local air quality benefit*** if the realistic intervention is >5 per cent

## 6.2 Implementation costs

The potential implementation costs of each option has been assessed as follows:

- **Cost neutral** (measure already implemented through existing plans/programmes)
- **Low costs** (up to £20,000 annually e.g. for small surveys or campaigns or other measures using current resources)
- ***Medium* costs** (up to £60,000 annually e.g. for a full time officer and resources)
- ***High costs*** (up to £200,000 annually e.g. for small traffic management schemes)
- ***Very* high costs** (above £200,000 annually e.g. for new infrastructure)

These cost bandings are estimates and may be subject to revision depending on comments received from those consulted.

## 6.3 Cost-effectiveness

The effectiveness of each measure in improving air quality is compared to the implementation costs in the following matrix:

| AQ benefit / Cost | Score | Zero | Small | Medium | Large |
|---|---|---|---|---|---|
| **Score** | | 0 | 1 | 2 | 3 |
| **Neutral** | 5 | 0 | 5 | 10 | 15 |
| **Low** | 4 | 0 | 4 | 8 | 12 |
| **Medium** | 3 | 0 | 3 | 6 | 9 |
| **High** | 2 | 0 | 2 | 4 | 6 |
| **Very High** | 1 | 0 | 1 | 2 | 3 |

In this table the assessed implementation costs and potential air quality impacts have been given a weighted score. The product of the weighted scores for each measure is calculated.

The results can be interpreted as follows:

- If the product is ***high*** (10 or more) then the measure is considered to be very cost-effective (significant impacts for the cost involved)
- If the product is ***medium*** (between 5 and 9) then the measure is considered to be within the medium range of cost-effectiveness
- If the product is ***low*** (4 or less) then the measure is less cost-effective (minimal impact for the cost involved).

This method only estimates the *relative* cost-effectiveness of the measures rather than their *absolute* values. This method is useful in determining the relative priority of different measures.

## 6.4 Co-environmental benefits, and other social and economic impacts

In this assessment other co-environmental benefits and the social and economic impacts are highlighted.

Potential co-environmental benefits include:

- Greenhouse gases: The likely effect on greenhouse gas emissions is assessed as being an overall reduction or a local reduction perhaps with emissions being relocated elsewhere.
- Noise.

Potential social impacts are highlighted, e.g. whether or not it is likely that the option would potentially:

- Provide health benefits in terms of lower exposure to pollutants or increased mobility;
- Increase road safety;
- Improve accessibility.

Potential economic impacts are highlighted, e.g. whether or not it is likely that the option would potentially:

- Influence sustainable development or accessibility within the borough;
- Reduce or increase overall travel time;
- Place additional requirements on operators.

Without detailed information on the true impacts of the options these assessments rely on judgement.

## 6.5 Risk factors

In this assessment risk factors are highlighted, e.g. whether or not it is likely that the measure would:

- Relocate emissions and hence lead to worsening air quality elsewhere;
- Require a change in land use;
- Place limits on pace of development, or increase costs of development significantly.

Again, without detailed information on the true impacts of the measures, these assessments rely on judgement.

## 6.6 Feasibility and acceptability

Each option has been assessed for its feasibility against three criteria. These are whether the Council has:

i. The executive powers under existing legislation to implement and enforce a measure. Alternatively, whether the authority has an existing mechanism to influence other agencies to implement a measure
ii. Secured funding for the measure or a straightforward route to secure funding
iii. Characterised the potential positive and negative impacts of the measure with sufficient evidence or confidence to make a decision to implement the measure.

The table below sets out the criteria adopted for defining the measure as being feasible over the short, medium or long term, or as being unfeasible. Each option is assessed against each criterion. The feasibility timeframe is defined according to which of the three assessments results in the longest of the four possible terms (short, medium, long or unfeasible).

| Feasibility timeframe | Authorisation | Funding secured | Potential +/- impacts fully characterised |
|---|---|---|---|
| Short term (1 – 3 years) | Yes routinely exercised | Yes potentially straightforward | Yes |
| Medium term (4 - 7 years) | Yes but not routinely exercised | Yes less straightforward | Not without further study |
| Long term (>7 years) | Highly uncertain | No or extremely difficult | Not without further study |
| Unfeasible | No | Will never attract funding | Difficult to characterise |

The ‘acceptability’ of each measure has been judged against the following criteria:

- ***Acceptable*** (likely to bring about some level of behaviour change, unlikely to incur significant personal costs)
- ***Unacceptable*** (considerable behaviour change required, likely to incur significant personal costs)

## 6.7 Assessment conclusions

The results of the assessment are presented in **Table D.2** in **Appendix D**.

# 7 Prioritisation of Measures

Determining a prioritised list of measures from such a wide range of criteria is potentially complex. Due to their overarching nature, it is anticipated that the strategic measures will provide some of the frameworks by which the other measures will be successfully implemented; therefore they are not assessed in the same way and are regarded as overall priorities for implementation.

In reference to the specific measures; those that satisfy the following criteria have been given highest priority for implementation:

- Provide good potential air quality benefits (with appropriate consideration of cost-effectiveness, feasibility and acceptability etc.)
- Are most likely to contribute (either directly or indirectly) towards $NO_2$ reductions within the AQMAs.
- Are realistically achievable within the short – medium term.

The specific measures have been subdivided onto the following three categories:

- ***Highest priority***
- ***Medium priority***
- ***Lowest priority***

Those specific measures given ***highest priority*** are:

- Junction investigations
- ANPR traffic study
- Congestion study
- Road signage improvements
- Potential relocation of bus stop
- Determine significance of school traffic
- Potential removal of on-street parking

***Justification:*** *The above measures are those considered the most likely to contribute most significantly (either directly or indirectly) towards $NO_2$ reductions within the existing AQMAs. Road signage improvements within, and in the vicinity of, the London Road, Apsley and High Street, Northchurch AQMAs have been assessed as having a potentially medium local air quality benefit within these two AQMAs for low costs, whilst both the potential relocation of the bus stop and the removal of on-street parking have been assessed as having a*

*potentially large air quality benefit within the High Street, Northchurch AQMA for medium and low costs respective. With the exception of removal of on-street parking, which is considered to be very cost effective, all other options are considered to be within the medium range of cost-effectiveness and are anticipated to have a direct positive impact on air quality within the AQMAs. Associated co-environmental benefits have been identified, including a reduction in other air pollutants, greenhouse gases and noise. Risks associated with altering road signage and bus stop relocation could be the worsening of air quality in other areas. Furthermore, bus stop relocation is unlikely to be welcomed by local residents; the installation of a layby at its current location would therefore be the preferred option and this will be investigated further.*

*In reference to the junction investigations, ANPR traffic study, congestion study and school traffic assessment, whilst there would be no direct air quality improvement associated with these measures, such investigations are required to enable targeting of further direct measures to improve air quality within the AQMAs. The implementation costs associated with the junction investigations and congestion study are low. In the case of the ANPR traffic study implementation costs would be medium. The school traffic assessment, which simply requires the analysis of the automatic monitoring data, would be cost neutral.*

*All the above measures are considered to provide good potential air quality benefits (either directly or indirectly) within the AQMAs, and to be cost-effective, acceptable and feasible in the short term to medium term.*

Those specific measures given ***medium priority*** are:

- Reducing emissions from LGVs within the AQMAs
- Promote travel planning
- Promote walking and cycling
- Promote the use of public transport
- Promote car share schemes
- Promote TravelSmart projects
- Encouraging smarter driving
- Reduce emissions from Council fleet

***Justification:*** *All the above measures (with the exception of reducing emissions from the Council's fleet) have been assessed as providing a potentially medium local air quality benefit for low costs, thus they are considered to be within the medium range of cost-effectiveness. Although reducing emissions from the Council fleet has been assessed as*

*having a small local air quality benefit for medium costs, thus making the option less cost-effective, the Council recognises that it must lead by example so the measure has been given a higher priority. Furthermore, additional economic benefits such as fuel savings are to be gained.*

*With the exception of reducing emissions from LGVs within the AQMAs, all these measures are borough-wide in nature and will contribute towards reducing ambient background $NO_2$ concentrations in addition to other air pollutants, greenhouse gases, noise and traffic congestion. Potential health and financial benefits have been identified in relation to walking and cycling. Potential risks have also been identified in respect of some of the measures, for example, personal safety concerns in respect of the car share scheme, and road safety concerns in respect of the promotions of walking and cycling (including TravelSmart).*

*In reference to reducing emissions from LGVs; the source apportionment study indicated these vehicles contribute to overall $NO_2$ concentrations within the AQMAs to a lesser degree than ambient background concentrations and cars; as such they have been assigned a lesser priority for implementation than the other AQMA specific measures. The implementation of schemes such as a local freight quality agreement may put additional financial pressure on companies.*

Those specific measures given ***lowest priority*** are:

- Promote the use of electric vehicles (EV)
- Green incentives for taxi drivers

***Justification:*** *The above measures have been assigned as a low priority for implementation. In reference to the promotion of electric vehicles, in the short term this is likely to provide a small local air quality benefit, as a result of limited uptake. The implementation cost is anticipated to be low, thus the measure is considered less cost-effective. In time, with improved infrastructure etc. it is likely that electric vehicles will become more and more popular. This is recognised as a long-term rather than a short-term measure.*

*In reference to the green incentives for taxi drivers, this measure is likely to provide a potentially small local air quality benefit to the AQMAs and borough in general, as taxis constitute a relatively small proportion of total vehicles numbers. The cost implications to the Council would be neutral, thus the measure is considered to be within the medium range of cost-effectiveness. This measure will not be welcomed by taxi companies and drivers in possession of older, higher polluting vehicles.*

# 8 Action Plan Funding

The capacity to successfully implement an AQAP is heavily dependent upon obtaining adequate funding and resources to deliver the proposed measures. Many of the measures included within the plan are already supported through existing strategies (e.g. Local Transport Plan) but may require some additional funding to facilitate modification in line with the requirements of the AQAP. For other measures, other sources of funding will be required before the measure can be progressed. Other potential sources of funding include:

- Defra Air Quality Grant Funding
- Public Health funding
- Developer contributions

Funding for the implementation of this Action Plan is through the Local Transport Plan where existing projects complement the Action Plan. Further funding will be sought through the Defra air quality grant annual award scheme for the implementation of specific tasks within measures. The opportunity for Public Health funding is currently being explored.

The availability of such funding is likely to determine the progress of the Action Plan.

# 9 Consultation

This draft AQAP will be issued to the following consultees and as appropriate, the plan will be amended to reflect their views and comments.

- All properties within the Air Quality Management Areas
- All relevant Town and Parish Council Members
- All relevant Dacorum Borough Council Departments
- Dacorum Borough Council consultation email group
- All neighbouring Borough and District Councils
- Hertfordshire County Council
- Defra
- Local Chambers of Commerce
- Bus Operators in Dacorum
- Highways Agency
- Environment Agency
- Natural England
- Dacorum Borough Council website for general public access

As part of the consultation process the report will be presented to the Council's Overview and Scrutiny Committee. The finalised report will be approved by Cabinet and then formally adopted.

The eight week consultation period will commence on Monday 1 September 2014 and end on Sunday 26 October (23:59).

Please send any comments in respect of this consultation to:

Regulatory Services
Dacorum Borough Council
Marlowes
Hemel Hempstead
Hertfordshire
HP1 1HH

# 10 Conclusions

This Action Plan describes the air quality assessment process that has taken place in Dacorum to date. It identifies the role of traffic in the current problem and sets out a range of transport-focussed measures that could help improve air quality. In total, twenty measures have been put forward for implementation.

The objective of this Action Plan is to improve air quality within the three AQMAs and borough as a whole to work towards meeting the national air quality objective for the protection of human health. To this end, where possible targets for the measures have been estimated and indictors to demonstrate progress have been identified. Prior to the implementation of this Action Plan a consultation process as described will be undertaken. Following the receipt of comments, the draft Action Plan will be finalised and formerly adopted.

The Action Plan will be monitored annually and the results collated for the yearly progress report on the implementation of the plan.

# 11 References


AECOM Ltd (2013) Tring, Northchurch and Berkhamsted Urban Transport Plan
http://www.hertsdirect.org/services/transtreets/tranpan/tcatp/tnbutp/
Accessed: 1 September 2014

Air Quality Consultants Ltd (2013) *Further Assessment of Air Quality in Dacorum*

Dacorum Borough Council (2004) *Dacorum Borough Local Plan (1991 - 2011)*

Dacorum Borough Council (2009) Dacorum Cycling Strategy
http://www.dacorum.gov.uk/docs/default-source/planning-development/spatial-planning---10-01-11---cycling-strategy.pdf?Status=Master&sfvrsn=0
Accessed: 1 September 2014

Dacorum Borough Council (2013) *Dacorum's Local Development Framework Core Strategy (October 2011) incorporating the 'List of Proposed Amendments', September 2013*

Department for Environment, Food and Rural Affairs (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, HMSO, Norwich.

Department for Communities and Local Government (2012) *'The National Planning Policy Framework'*

Department for Environment, Food and Rural Affairs (2009a) *Local Air Quality Management Policy Guidance LAQM.PG(09)*

Department for Environment, Food and Rural Affairs (2009b) *Local Air Quality Management Technical Guidance LAQM.TG(09)*

Department for Transport (2014) National Travel Survey 2013: Statistical Release
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/342160/nts2013-01.pdf
Accessed: 1 September 2014

Department of Health (2013) Public Health Outcomes Framework 2013 to 2016

https://www.gov.uk/government/publications/healthy-lives-healthy-people-improving-outcomes-and-supporting-transparency
Accessed: 1 September 2014

Environmental Protection UK (2010) *Development Control: Planning for Air Quality,* Environmental Protection UK, Brighton, UK.

EU Air Quality Directive (2008/50/EC)

Hertfordshire County Council (2011a) *Local Transport Plan 2011 – 2031 Volume I Strategy Document*

Hertfordshire County Council (2011b) Hertfordshire County Council Bus Strategy 2011 – 2031
http://www.hertsdirect.org/docs/pdf/b/busstrategy.pdf
Accessed: 1 September 2014

Hertfordshire County Council (2011c) Hertfordshire County Council Intalink Strategy 2011 – 2016
http://www.hertsdirect.org/docs/pdf/i/intalinkstrategy.pdf
Accessed: 1 September 2014

Hertfordshire County Council (2013a) *Protocol for supporting districts with Air Quality Related Issues*

Hertfordshire County Council (2013b) Health and Wellbeing Board Hertfordshire Strategy 2013-2016
http://www.hertsdirect.org/docs/pdf/h/hwbstrategy.pdf
Accessed: 1 September 2014

Hertfordshire County Council (2013c) Healthier Herts: A Public Health Strategy for Hertfordshire 2013-2017
http://www.hertspublichealth.co.uk/files/Healthier%20Herts%20Public%20Health%20Strategy%202013-2017.pdf
Accessed: 1 September 2014

Hertfordshire County Council (2013d) Hertfordshire's Sustainable Modes of Travel Strategy for School and Colleges 2013/14

http://www.hertsdirect.org/docs/pdf/s/SMOTS1314
Accessed: 1 September 2014

Hertfordshire County Council (2013e) Hertfordshire County Council Active Travel Strategy
http://www.hertsdirect.org/docs/pdf/a/ATS2013.pdf
Accessed: 1 September 2014

Hertfordshire County Council (2014) BigHertsBigIdeas for Business – Encouraging Public Transport
http://www.hertsdirect.org/services/transtreets/ltplive/lstf/bhbibus1/encpubtrans/
Accessed: 1 September 2014

Hertfordshire and Bedfordshire Air Quality Network: www.hertsandbedsair.net

House of Commons Environmental Audit Committee (2010) *Fifth Report of Session 2009-10, Air Quality, HC 229*. The Stationary Office, London.

Liftshare.com (2014) Frequently Asked Questions
https://liftshare.com/content/info_fao.asp?skin=639
Accessed: 1 September 2014

Office for National Statistics (2014) Population Estimates for UK, England and Wales, Scotland and Northern Ireland, Mid-2013
http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-322718
Accessed: 1 September 2014

Public Health England (2014) Public Health Outcomes Framework – Indicator Definitions and Supporting Information.
http://www.phoutcomes.info/public-health-outcomes-framework#gid/1000043/pat/6/ati/102/page/6/par/E12000004/are/E06000015
Accessed: 1 September 2014
Sustrans (2014) Personalised Travel Planning
http://www.sustrans.org.uk/our-services/what-we-do/personalised-travel-planning#channel=fb210cc1700e95&origin=http%3A%2F%2Fwww.sustrans.org.uk
Accessed: 1 September 2014

Sustrans and Socialdata (2010) TravelSmart Watford ITM Project – Final Evaluation
http://www.hertsdirect.org/docs/pdf/w/watresresul.pdf
Accessed: 1 September 2014
The Environment Act (1995) Part IV

# 12 Glossary

| | |
|---|---|
| ANPR | Automatic Number Plate Recognition |
| AQAP | Air Quality Action Plan |
| AQMA | Air Quality Management Area |
| AQO | Air Quality Objectives |
| AURN | Automatic Urban and Rural Network |
| CHP | Combined Heat and Power Plant |
| DBC | Dacorum Borough Council |
| DEFRA | Department for Environment, Food and Rural Affairs |
| EIA | Environmental Impact Assessment |
| EPUK | Environmental Protection UK |
| EV | Electric Vehicles |
| HCC | Hertfordshire County Council |
| HGV | Heavy Goods Vehicles |
| HWBB | Health and Wellbeing Board |
| JSNA | Joint Strategic Needs Assessment |
| LAQM | Local Air Quality Management |
| LDF | Local Development Framework |
| LGV | Light Good Vehicles |
| LTP | Local Transport Plan |
| LSTF | Local Sustainable Transport Fund |
| $NO_x$ | Nitrogen oxides (Nitrogen oxide and Nitrogen dioxide) |
| $NO_2$ | Nitrogen dioxide |
| NPPF | National Planning Framework |
| PAN | Planning Advice Note |
| PCI | Public Charging Infrastructure (Electric Vehicles) |
| PHOF | Public Health Outcomes Framework |
| PM | Particulate Matter |
| $PM_{2.5}$ | Particulate Matter (of 2.5µm or less) |
| $PM_{10}$ | Particulate Matter (of 10µm or less) |
| PPS 23 | Planning Policy Statement 23 - Planning and Pollution Control |
| PSV | Public Service Vehicles (Buses) |
| SPD | Supplementary Planning Document |
| UTP | Urban Transport Plan |
| $\mu g/m^3$ | Micrograms per cubic metre |

# Appendices

Appendix A: Air Quality Objectives

Appendix B: $NO_2$ Monitoring Locations 2014

Appendix C: Air Quality Management Areas

Appendix D: Development of options and measures

# Appendix A

# Air Quality Objectives

**Table A.1 - Air Quality Objectives included in Regulations for the purpose of LAQM in England**

| Pollutant | Air Quality Objective | | Date to be achieved by |
|---|---|---|---|
| | Concentration | Measured as | |
| Benzene | 16.25 µg/m$^3$ | Running annual mean | 31.12.2003 |
| | 5.00 µg/m$^3$ | Annual mean | 31.12.2010 |
| 1,3-Butadiene | 2.25 µg/m$^3$ | Running annual mean | 31.12.2003 |
| Carbon monoxide | 10 mg/m$^3$ | Running 8-hour mean | 31.12.2003 |
| Lead | 0.50 µg/m$^3$ | Annual mean | 31.12.2004 |
| | 0.25 µg/m$^3$ | Annual mean | 31.12.2008 |
| Nitrogen dioxide | 200 µg/m$^3$ not to be exceeded more than 18 times a year | 1-hour mean | 31.12.2005 |
| | 40 µg/m$^3$ | Annual mean | 31.12.2005 |
| Particulate Matter ($PM_{10}$) (gravimetric) | 50 µg/m$^3$, not to be exceeded more than 35 times a year | 24-hour mean | 31.12.2004 |
| | 40 µg/m$^3$ | Annual mean | 31.12.2004 |
| Sulphur dioxide | 350 µg/m$^3$, not to be exceeded more than 24 times a year | 1-hour mean | 31.12.2004 |
| | 125 µg/m$^3$, not to be exceeded more than 3 times a year | 24-hour mean | 31.12.2004 |
| | 266 µg/m$^3$, not to be exceeded more than 35 times a year | 15-minute mean | 31.12.2005 |

# Appendix B

# $NO_2$ Monitoring Locations 2014

**Table B.1 - $NO_2$ Diffusion Tube Monitoring Locations 2014**

| Site ID | Site Name | Site Type | Grid Reference (X) | Grid Reference (Y) | In AQMA | Triplicate or Co-located |
|---|---|---|---|---|---|---|
| DC40 | Sawyers Way, Hemel Hempstead | Background | 506780 | 207180 | No | No |
| DC42 | Wood Lane End, Hemel Hempstead | Background | 508177 | 207934 | No | No |
| DC46 | High Street, Bovingdon | Kerbside | 501541 | 203659 | No | No |
| DC47 | High Street, Berkhamsted | Roadside | 499365 | 207724 | No | No |
| DC48 | Prince Edward Street, Berkhamsted | Background | 499207 | 207754 | No | No |
| DC50 | High Street, Northchurch | Roadside | 497346 | 208835 | Yes | Triplicate |
| DC51 | Brook Street, Tring | Kerbside | 492552 | 211824 | No | No |
| DC52 | High Street, Tring | Roadside | 492335 | 211386 | No | No |
| DC54 | Watford Road, Kings Langley | Roadside | 507606 | 201624 | No | No |
| DC55 | High Street, Kings Langley | Roadside | 507184 | 202690 | No | No |
| DC57 | Lawn Lane 1 Hemel Hempstead | Roadside | 505923 | 205761 | Yes | Triplicate |
| DC58 | Gammons Close, Hemel Hempstead | Background | 507058 | 206727 | No | No |
| DC59 | Wadley Close, Hemel Hempstead | Background | 506981 | 206829 | No | No |
| DC60 | Field Road, Hemel Hempstead | Background | 507483 | 206898 | No | No |
| DC61 | St Agnells Lane, Hemel Hempstead | Roadside | 507121 | 209252 | No | No |
| DC62 | New Road, Northchurch | Roadside | 497335 | 208860 | Yes | Triplicate |
| DC63 | Darrs Lane, Northchurch | Roadside | 497264 | 208927 | Yes | No |
| DC64 | Lawn Lane 2, Hemel Hempstead | Roadside | 505969 | 205726 | Yes | Triplicate |
| DC65 | Lawn Lane 3, Hemel Hempstead | Roadside | 505930 | 205740 | Yes | Triplicate |
| DC66 | London Road, Apsley | Roadside | 505674 | 205514 | Yes | Triplicate |

| Site ID | Site Name | Site Type | Grid Reference (X) | Grid Reference (Y) | In AQMA | Triplicate or Co-located |
|---|---|---|---|---|---|---|
| DC67 | Allandale | Roadside | 505948 | 207814 | No | No |
| DC68 | Belswains Sappi | Roadside | 507005 | 204677 | No | No |
| DC69 | Lawn Lane, Belswains | Background | 506053 | 205664 | No | No |
| DC70 | Lawn Lane 4, Hemel Hempstead | Roadside | 505888 | 205801 | No | No |
| DC71 | Orchard Street | Kerbside | 505636 | 205504 | No | No |
| DC73 | Durrants Hill Road | Roadside | 505734 | 205519 | Yes | Triplicate |
| DC74 | Avia Close | Roadside | 505841 | 205395 | Yes | No |
| DC75 | The Meads | Roadside | 497472 | 208730 | No | No |
| DC76 | The Cotterells | Kerbside | 505355 | 206504 | No | No |
| DC81 | Sappi 2 | Roadside | 507122 | 204470 | No | No |
| DC85 | Health Centre, London Road | Kerbside | 505663 | 205528 | Yes | Triplicate |
| DC86 | Northchurch 1 | Roadside | 497295 | 208901 | Yes | Triplicate & Co-located |
| DC87 | Northchurch 2 | Roadside | 497295 | 208901 | Yes | Triplicate & Co-located |
| DC88 | Northchurch 3 | Roadside | 497295 | 208901 | Yes | Triplicate & Co-located |
| DC89 | High Street, Markyate | Roadside | 506227 | 216317 | No | No |
| DC90 | High Street, Northchurch A | Roadside | 497346 | 208835 | Yes | Triplicate |
| DC91 | High Street, Northchurch B | Roadside | 497346 | 208835 | Yes | Triplicate |
| DC92 | New Road, Northchurch A | Roadside | 497335 | 208860 | Yes | Triplicate |
| DC93 | New Road, Northchurch B | Roadside | 497335 | 208860 | Yes | Triplicate |
| DC94 | Health Centre, London Road A | Kerbside | 505663 | 205528 | Yes | Triplicate |
| DC95 | Health Centre, London Road B | Kerbside | 505663 | 205528 | Yes | Triplicate |

| Site ID | Site Name | Site Type | Grid Reference (X) | Grid Reference (Y) | In AQMA | Triplicate or Co-located |
|---|---|---|---|---|---|---|
| DC96 | Durrants Hill Road A | Roadside | 505734 | 205519 | Yes | Triplicate |
| DC97 | Durrants Hill Road B | Roadside | 505734 | 205519 | Yes | Triplicate |
| DC98 | London Road Apsley A | Roadside | 505674 | 205514 | Yes | Triplicate |
| DC99 | London Road Apsley B | Roadside | 505674 | 205514 | Yes | Triplicate |
| DC100 | Lawn Lane 1A | Roadside | 505923 | 205761 | Yes | Triplicate |
| DC101 | Lawn Lane 1B | Roadside | 505923 | 205761 | Yes | Triplicate |
| DC102 | Lawn Lane 2A | Roadside | 505969 | 205726 | Yes | Triplicate |
| DC103 | Lawn Lane 2B | Roadside | 505969 | 205726 | Yes | Triplicate |
| DC104 | Lawn Lane 3A | Roadside | 505930 | 205740 | Yes | Triplicate |
| DC105 | Lawn Lane 3B | Roadside | 505930 | 205740 | Yes | Triplicate |
| DC106 | Outside 24 Cotterells | Background | 505333 | 207006 | No | No |
| DC107 | Marlowes Roundabout | Roadside | 505521 | 207612 | No | No |
| DC108 | Old Town Hemel Hempstead | Background | 505476 | 207985 | No | No |
| DC109 | St Marys 1 | Background | 499373 | 208847 | No | No |
| DC110 | St Marys 2 | Roadside | 497368 | 208830 | No | No |
| DC111 | St Marys 3 | Roadside | 497360 | 208842 | No | No |
| DC112 | High Street, Markyate 2 | Roadside | 506091 | 216503 | No | No |
| DC113 | Chapel Street, Berkhamsted | Background | 499475 | 207854 | No | No |
| DC114 | Lower Kings Road, Berkhamsted | Roadside | 499127 | 207935 | No | No |
| DC115 | Kings Road, Berkhamsted | Roadside | 498886 | 207519 | No | No |
| DC116 | Castle Street, Berkhamsted | Background | 499441 | 207836 | No | No |

| Site ID | Site Name | Site Type | Grid Reference (X) | Grid Reference (Y) | In AQMA | Triplicate or Co-located |
|---|---|---|---|---|---|---|
| DC117 | High Street, Berkhamsted 2 | Roadside | 498991 | 207925 | No | No |
| DC118 | Outside 158 Marlowes | Background | 505535 | 207036 | No | No |
| DC119 | The Point 1 | Roadside | 505521 | 206328 | No | Triplicate |
| DC120 | The Point 2 | Roadside | 505521 | 206328 | No | Triplicate |
| DC121 | The Point 3 | Roadside | 505521 | 206328 | No | Triplicate |
| DC122 | Bridge Street, Hemel Hempstead | Roadside | 505503 | 206926 | No | No |

# Appendix C

# Air Quality Management Areas

**Figure C.1 AQMA 1 – Lawn Lane, Hemel Hempstead**

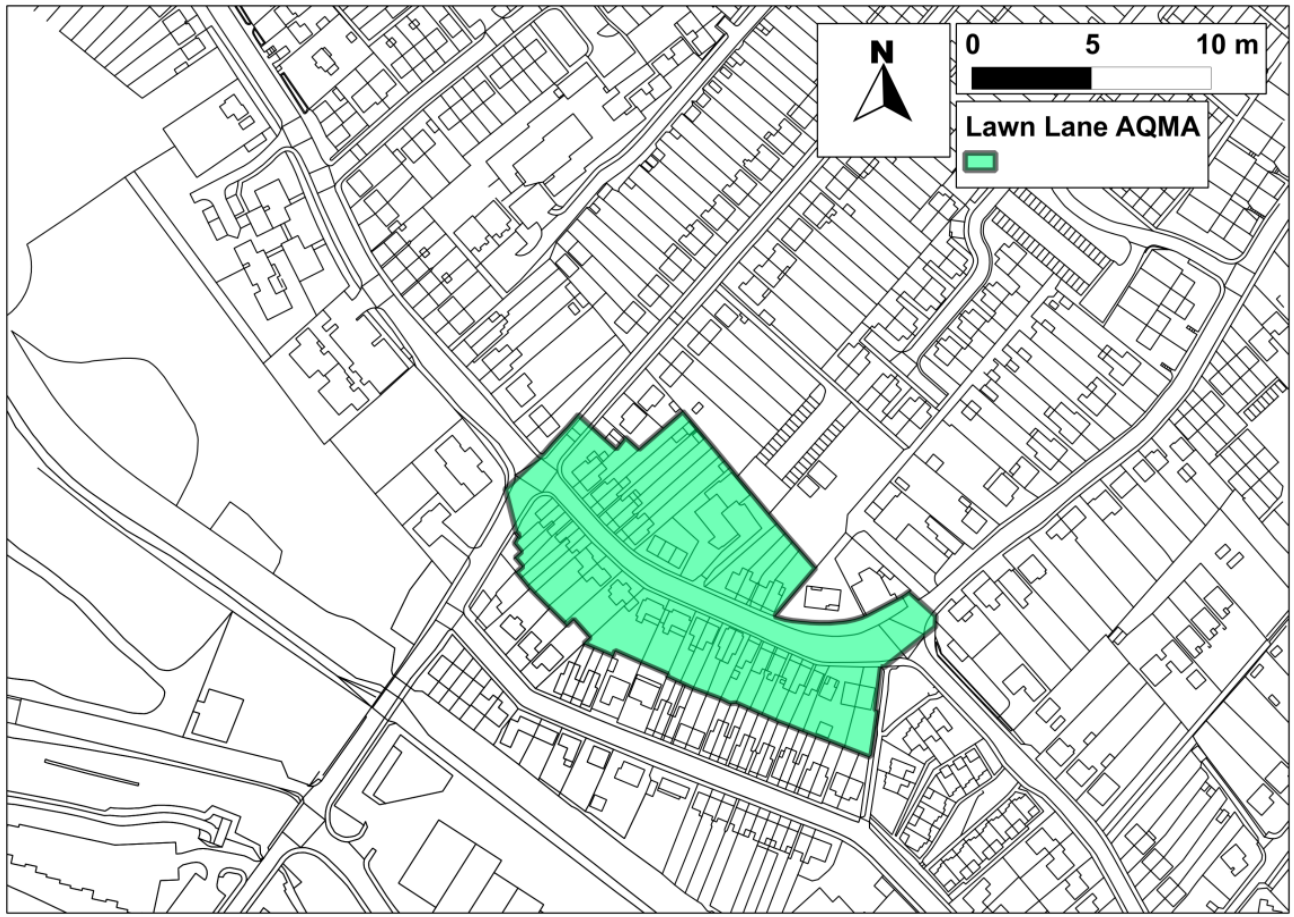


**Table C.1 – Residential properties within the boundary of AQMA 1 Lawn Lane, Hemel Hempstead**

| House Name / No. | Street | Town | Postcode |
|---|---|---|---|
| 198 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 222 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 212 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 224a | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 206 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 208b | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 210b | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 210c | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 208c | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 206c | Lawn Lane | Hemel Hempstead | HP3 9JF |
| Flat 3 224 | Lawn Lane | Hemel Hempstead | HP3 9BU |
| Flat 1 224 | Lawn Lane | Hemel Hempstead | HP3 9BU |
| 210a | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 208a | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 206b | Lawn Lane | Hemel Hempstead | HP3 9JF |
| Flat 2 224 | Lawn Lane | Hemel Hempstead | HP3 9BU |
| 216 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 163 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 218 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 204 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 200 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 165 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 214 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 220 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 226 | Lawn Lane | Hemel Hempstead | HP3 9JF |

| House Name / No. | Street | Town | Postcode |
|---|---|---|---|
| 202 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 191 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 194 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 183 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 182 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 188 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 175 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 184 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 189 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 169 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 192 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 196 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 186 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 171 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 179 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 177 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 181 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 167 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 173 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 190 | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 195 Treborina Cottage | Lawn Lane | Hemel Hempstead | HP3 9JF |
| 193 | Lawn Lane | Hemel Hempstead | HP3 9JF |

**Figure C.2 AQMA 2 – London Road, Apsley**

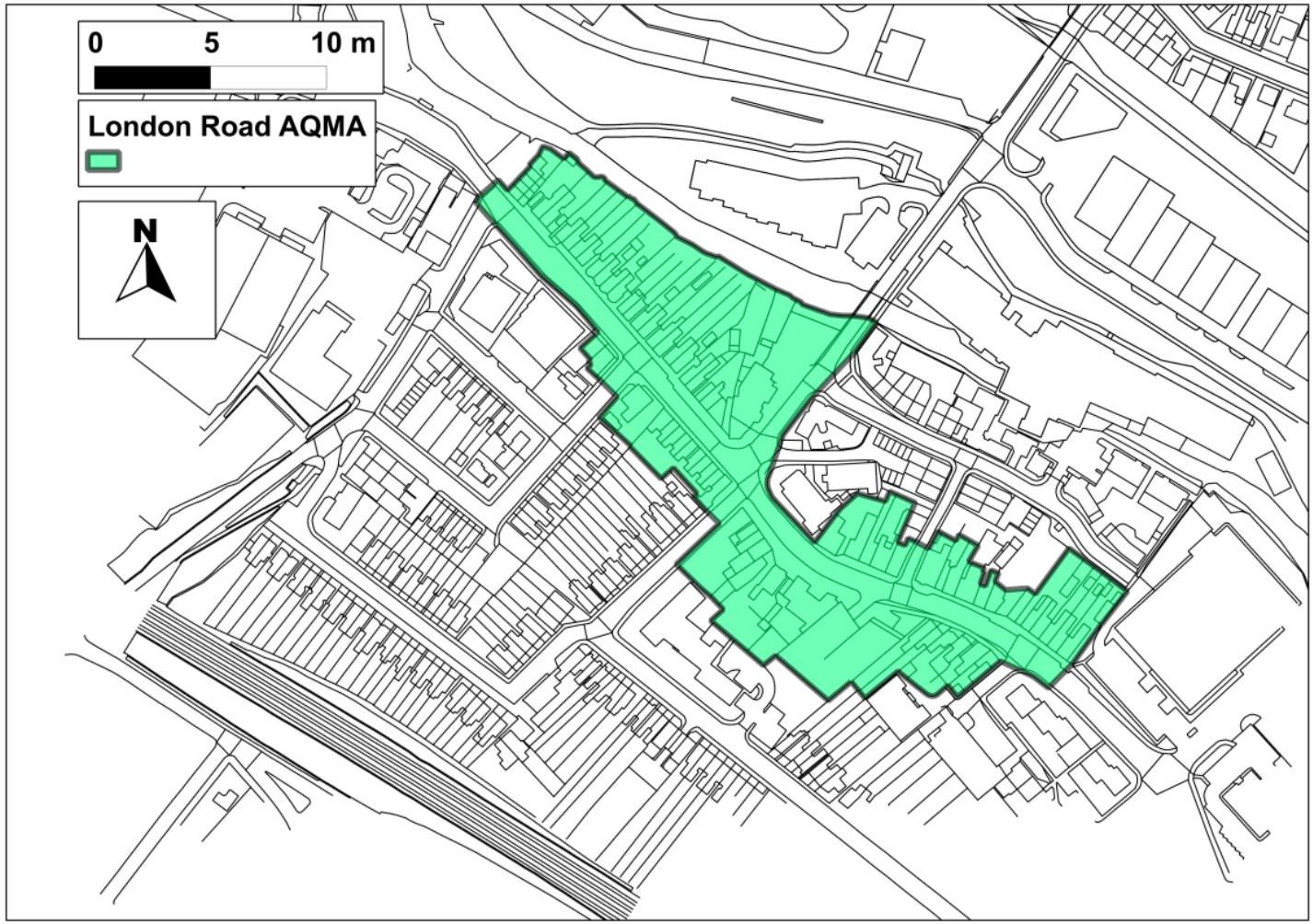


**Table C.2 Residential properties within the boundary of AQMA 2 London Road, Apsley**

| House Name / No. | Street | Town | Postcode |
|---|---|---|---|
| Flat above 42 Highclere Financial Services | London Road | Hemel Hempstead | HP3 9SB |
| 38a Air Salons | London Road | Hemel Hempstead | HP3 9SB |
| 66b | London Road | Hemel Hempstead | HP3 9SD |
| 70 | London Road | Hemel Hempstead | HP3 9SD |
| Flat 62 The Bull | London Road | Hemel Hempstead | HP3 9SD |
| 215 | London Road | Hemel Hempstead | HP3 9SE |
| 201a | London Road | Hemel Hempstead | HP3 9SE |
| 219a | London Road | Hemel Hempstead | HP3 9SE |
| 203 | London Road | Hemel Hempstead | HP3 9SE |
| 80a | London Road | Hemel Hempstead | HP3 9SD |
| 207a | London Road | Hemel Hempstead | HP3 9SE |
| Flat 28 Apsley Chinese Takeaway | London Road | Hemel Hempstead | HP3 9SB |
| 209 | London Road | Hemel Hempstead | HP3 9SE |
| 197 | London Road | Hemel Hempstead | HP3 9SE |
| 72a | London Road | Hemel Hempstead | HP3 9SD |
| 205a | London Road | Hemel Hempstead | HP3 9SE |
| Flat 44 The White Lion | London Road | Hemel Hempstead | HP3 9SB |
| 20a | London Road | Hemel Hempstead | HP3 9SB |
| 207 | London Road | Hemel Hempstead | HP3 9SE |
| Flat above 40 Apsley Fish And Chips | London Road | Hemel Hempstead | HP3 9SB |
| Flat 3 Manila House | Sealy Way | Hemel Hempstead | HP3 9HP |
| 94a | London Road | Hemel Hempstead | HP3 9SD |
| 199a | London Road | Hemel Hempstead | HP3 9SE |
| 92a | London Road | Hemel Hempstead | HP3 9SD |
| Flat Above 98 Efeler | London Road | Hemel Hempstead | HP3 9SD |

| House Name / No. | Street | Town | Postcode |
|---|---|---|---|
| 201 | London Road | Hemel Hempstead | HP3 9SE |
| 108A | London Road | Hemel Hempstead | HP3 9SD |
| 96A | London Road | Hemel Hempstead | HP3 9SD |
| 48A | London Road | Hemel Hempstead | HP3 9SB |
| 26A | London Road | Hemel Hempstead | HP3 9SB |
| 46A | London Road | Hemel Hempstead | HP3 9SB |
| 80B | London Road | Hemel Hempstead | HP3 9SD |
| Flat | London Road | Hemel Hempstead | HP3 9SB |
| Flat Above 54 Corals | London Road | Hemel Hempstead | HP3 9SB |
| Flat 4 Manila House | Sealy Way | Hemel Hempstead | HP3 9HP |
| 199 | London Road | Hemel Hempstead | HP3 9SE |
| 197a | London Road | Hemel Hempstead | HP3 9SE |
| 22a | London Road | Hemel Hempstead | HP3 9SB |
| 211a | London Road | Hemel Hempstead | HP3 9SE |
| 219 | London Road | Hemel Hempstead | HP3 9SE |
| 76a | London Road | Hemel Hempstead | HP3 9SD |
| 149a | London Road | Hemel Hempstead | HP3 9SQ |
| Flat 1 | Sealy Way | Hemel Hempstead | HP3 9HP |
| 209A | London Road | Hemel Hempstead | HP3 9SE |
| 78A | London Road | Hemel Hempstead | HP3 9SD |
| 211 | London Road | Hemel Hempstead | HP3 9SE |
| Flat Above 104 | London Road | Hemel Hempstead | HP3 9SD |
| 74A | London Road | Hemel Hempstead | HP3 9SD |
| 203A | London Road | Hemel Hempstead | HP3 9SE |
| Flat 1 36 | London Road | Hemel Hempstead | |

| House Name / No. | Street | Town | Postcode |
|---|---|---|---|
| Flat 2 Manila House | Sealy Way | Hemel Hempstead | HP3 9HP |
| 24A | London Road | Hemel Hempstead | HP3 9SB |
| 82 | London Road | Hemel Hempstead | HP3 9SD |
| 205 | London Road | Hemel Hempstead | HP3 9SE |
| 52 | London Road | Hemel Hempstead | HP3 9SB |
| 195A | London Road | Hemel Hempstead | HP3 9SE |
| 18B | London Road | Hemel Hempstead | HP3 9SB |
| 66A | London Road | Hemel Hempstead | HP3 9SD |
| 106 | London Road | Hemel Hempstead | HP3 9SD |
| 122 | London Road | Hemel Hempstead | HP3 9SD |
| 116 | London Road | Hemel Hempstead | HP3 9SD |
| 114 | London Road | Hemel Hempstead | HP3 9SD |
| 120 | London Road | Hemel Hempstead | HP3 9SD |
| 147 | London Road | Hemel Hempstead | HP3 9SQ |
| 145 | London Road | Hemel Hempstead | HP3 9SQ |
| 118 | London Road | Hemel Hempstead | HP3 9SD |

**Figure C.3 AQMA 3 High Street, Northchurch (prior to boundary change)**

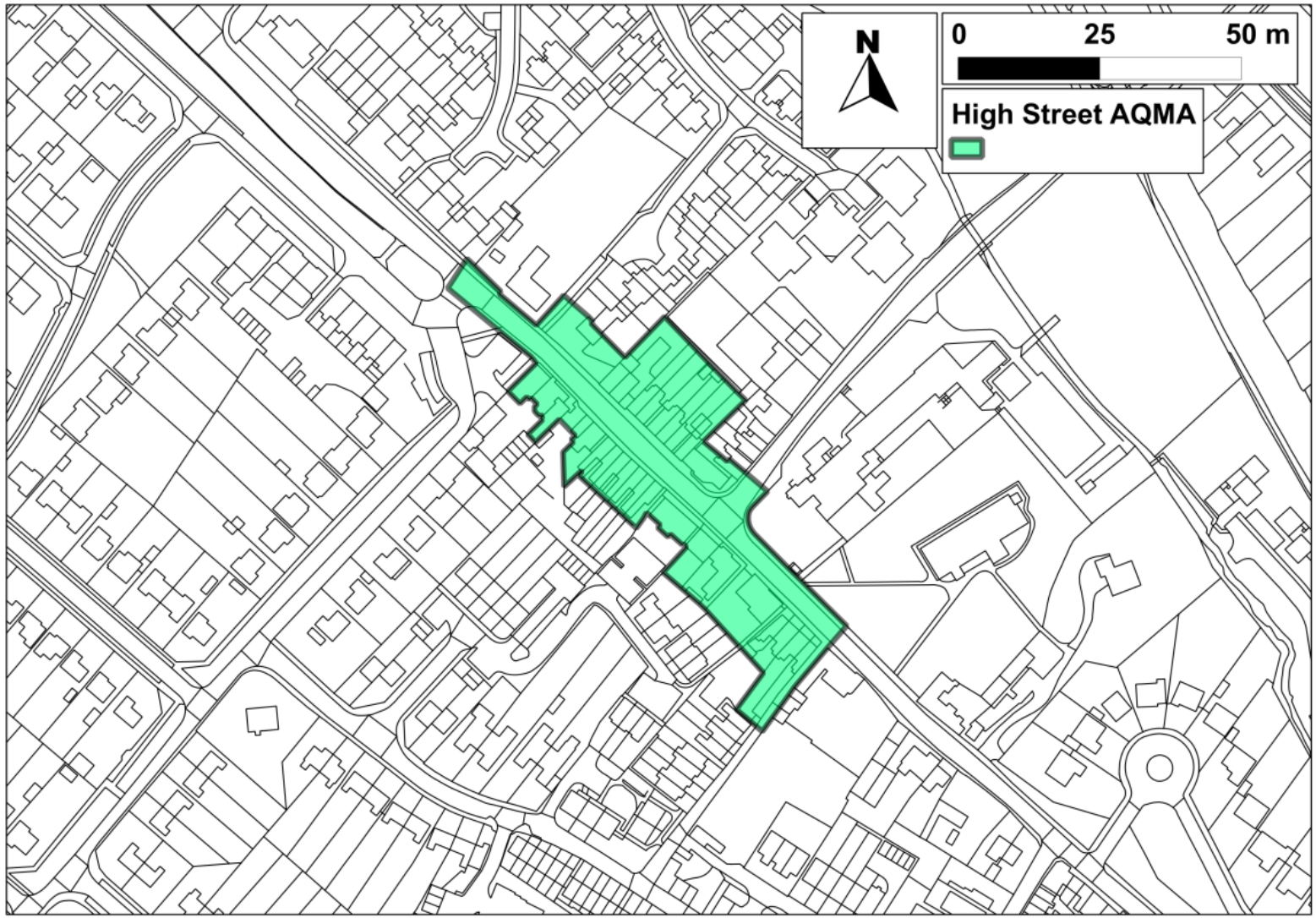


**Table C.3 Residential properties within the boundary of AQMA 3 High Street, Northchurch (prior to boundary change)**

| House Name / No. | Street | Town | Postcode |
|---|---|---|---|
| 91 | High Street | Northchurch | HP4 3QL |
| 116A | High Street | Northchurch | HP4 3QN |
| 116B | High Street | Northchurch | HP4 3QN |
| Flat 2 97 | High Street | Northchurch | HP4 3QL |
| 2 Tudor Orchard | High Street | Northchurch | HP4 3QP |
| Flat 3 97 | High Street | Northchurch | HP4 3QL |
| Flat 1 97 | High Street | Northchurch | HP4 3QL |
| 3 Tudor Orchard | High Street | Northchurch | HP4 3QP |
| 1 Tudor Orchard | High Street | Northchurch | HP4 3QP |
| 4 Tudor Orchard | High Street | Northchurch | HP4 3QP |
| 99 | High Street | Northchurch | HP4 3QL |
| 101 | High Street | Northchurch | HP4 3QL |
| 123 125 | High Street | Northchurch | HP4 3QL |
| 113 Vale House | High Street | Northchurch | HP4 3QL |
| 3 Wellington House Exhims Mews | Darrs Lane | Northchurch | HP4 3RA |
| 110 | High Street | Northchurch | HP4 3QN |
| 106 | High Street | Northchurch | HP4 3QN |
| 1 Exhims Mews | Darrs Lane | Northchurch | HP4 3RA |
| 119 | High Street | Northchurch | HP4 3QL |
| 108 | High Street | Northchurch | HP4 3QN |
| 89 | High Street | Northchurch | HP4 3QL |
| 19 | Chapel Crofts | Northchurch | HP4 3XG |

| House Name / No. | Street | Town | Postcode |
|---|---|---|---|
| 114 | High Street | Northchurch | HP4 3QN |
| Flat 4 97 | High Street | Northchurch | HP4 3QL |
| 2 Exhims Mews | Darrs Lane | Northchurch | HP4 3RA |
| 111 | High Street | Northchurch | HP4 3QL |
| 95 | High Street | Northchurch | HP4 3QL |
| 121 | High Street | Northchurch | HP4 3QL |
| 93 | High Street | Northchurch | HP4 3QL |
| 109 | High Street | Northchurch | HP4 3QL |
| 2 | New Road | Northchurch | HP4 3QY |
| 117 | High Street | Northchurch | HP4 3QL |
| 104 | High Street | Northchurch | HP4 3QN |
| 115 | High Street | Northchurch | HP4 3QL |
| 112 | High Street | Northchurch | HP4 3QN |

**Figure C.4 AQMA 3a High Street, Northchurch (after boundary change)**

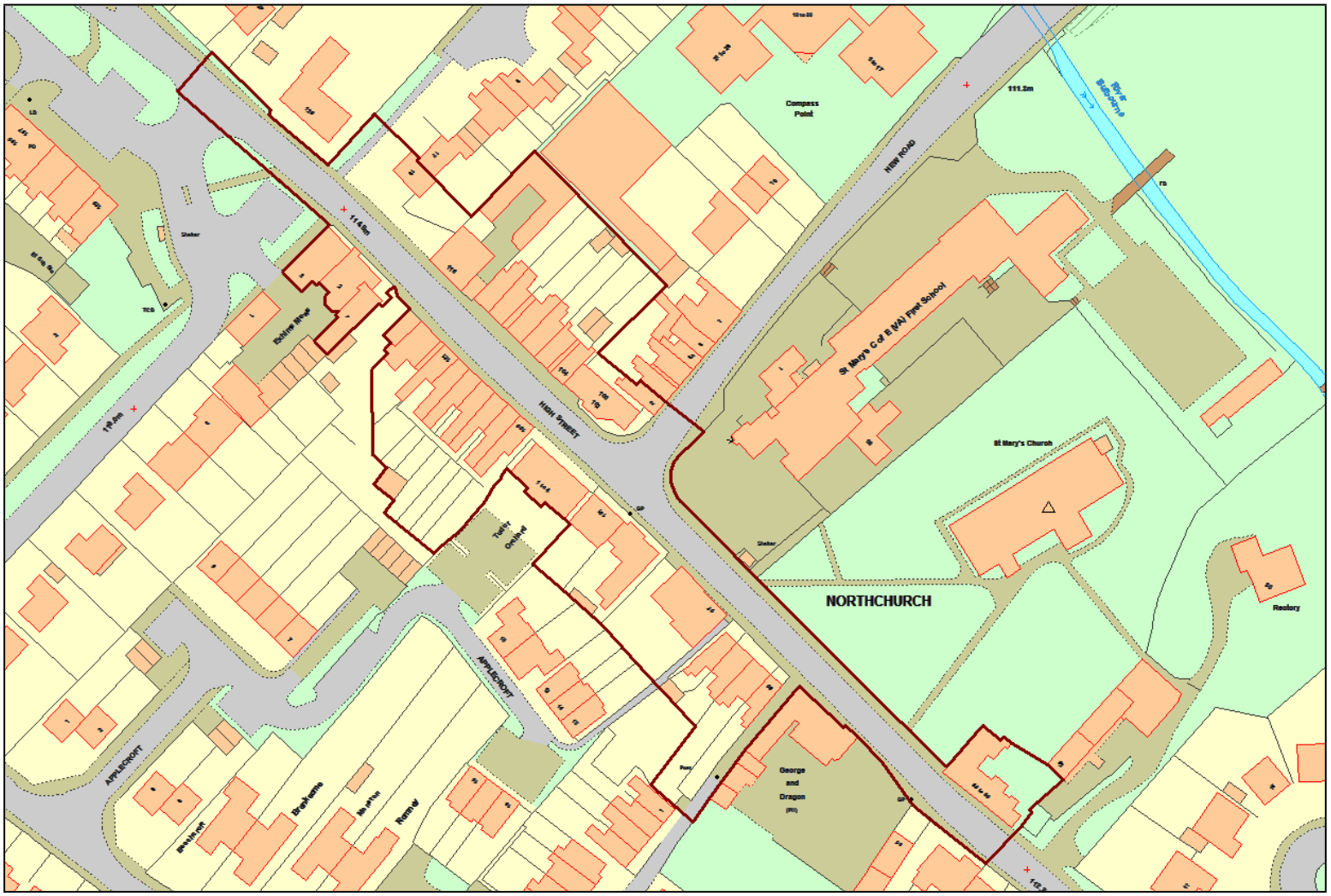


**Table C.4 Residential properties within the boundary of AQMA 3a High Street, Northchurch (after boundary change)**

| House Name / No. | Street | Town | Postcode |
|---|---|---|---|
| 91 | High Street | Northchurch | HP4 3QL |
| 116A | High Street | Northchurch | HP4 3QN |
| 116B | High Street | Northchurch | HP4 3QN |
| Flat 2 97 | High Street | Northchurch | HP4 3QL |
| 2 Tudor Orchard | High Street | Northchurch | HP4 3QP |
| Flat 3 97 | High Street | Northchurch | HP4 3QL |
| Flat 1 97 | High Street | Northchurch | HP4 3QL |
| 3 Tudor Orchard | High Street | Northchurch | HP4 3QP |
| 1 Tudor Orchard | High Street | Northchurch | HP4 3QP |
| 4 Tudor Orchard | High Street | Northchurch | HP4 3QP |
| 99 | High Street | Northchurch | HP4 3QL |
| 101 | High Street | Northchurch | HP4 3QL |
| 84 | High Street | Northchurch | HP4 3QN |
| 123 125 | High Street | Northchurch | HP4 3QL |
| 113 Vale House | High Street | Northchurch | HP4 3QL |
| 3 Wellington House Exhims Mews | Darrs Lane | Northchurch | HP4 3RA |
| 88 | High Street | Northchurch | HP4 3QN |
| 110 | High Street | Northchurch | HP4 3QN |
| 96 | High Street | Northchurch | HP4 3QN |
| 106 | High Street | Northchurch | HP4 3QN |
| 1 Exhims Mews | Darrs Lane | Northchurch | HP4 3RA |
| 119 | High Street | Northchurch | HP4 3QL |
| 94 | High Street | Northchurch | HP4 3QN |
| 108 | High Street | Northchurch | HP4 3QN |
| 89 | High Street | Northchurch | HP4 3QL |

| House Name / No. | Street | Town | Postcode |
|---|---|---|---|
| 19 | Chapel Crofts | Northchurch | HP4 3XG |
| 114 | High Street | Northchurch | HP4 3QN |
| 92 | High Street | Northchurch | HP4 3QN |
| Flat 4 97 | High Street | Northchurch | HP4 3QL |
| 2 Exhims Mews | Darrs Lane | Northchurch | HP4 3RA |
| 111 | High Street | Northchurch | HP4 3QL |
| 95 | High Street | Northchurch | HP4 3QL |
| 121 | High Street | Northchurch | HP4 3QL |
| 93 | High Street | Northchurch | HP4 3QL |
| 109 | High Street | Northchurch | HP4 3QL |
| 2 | New Road | Northchurch | HP4 3QY |
| 117 | High Street | Northchurch | HP4 3QL |
| 104 | High Street | Northchurch | HP4 3QN |
| 115 | High Street | Northchurch | HP4 3QL |
| 86 | High Street | Northchurch | HP4 3QN |
| 90 | High Street | Northchurch | HP4 3QN |
| 112 | High Street | Northchurch | HP4 3QN |

# Appendix D

# Development of options and measures

**Table D.1 - Initial assessment of proposed measures**

| Options | Steering group comments | Outcome |
|---|---|---|
| **Strategic Actions** | | |
| Improve links with the Local Transport Plan | Strategic measures that would benefit plan. Source of air quality problem is road traffic related, so this option is particularly relevant. | Shortlisted |
| Improve links with the Local Planning and Development Framework | Strategic measures that would benefit plan. Potential introduction of regional SPD. | Shortlisted |
| Improve links with Public Health | Strategic measures that would benefit plan. | Shortlisted |
| Road user charging | Not viable. | Rejected |
| Road signage to indicate presence of AQMAs | Minimal benefit. Potential blight to residents. | Rejected |
| **Move receptors away from AQMAs** | | |
| Remove homes and businesses | Not practicable. No emission reduction. | Rejected |
| **Move sources away from AQMAs** | | |
| Pedestrianisation of AQMAs | Unsuitable as AQMAs are important through roads. More generally suited to town centre areas. Alternative route would need to be made available. Likely to increase traffic in near vicinity. | Rejected |
| Relief Road / Bypass | New roads often induce new traffic. Potential to generate new exposure. Very expensive to implement new infrastructure projects. Link Road between Billet Lane and New Road, Northchurch not supported by Hertfordshire County Council. This scheme is not contained within the current version of the Tring, Northchurch and Berkhamsted Urban Transport Plan. | Rejected |

| Options | Steering group comments | Outcome |
|---|---|---|
| **Strategic Actions** | | |
| **Optimisation of traffic movement through AQMAs** | | |
| Traffic signal phasing | Likely to benefit Lawn Lane, Hemel Hempstead and London Road, Apsley AQMAs. Further investigation required in order to assess benefit. | On hold |

| Options | Steering group comments | Outcome |
|---|---|---|
| **Optimisation of traffic movement through AQMAs (continued)** | | |
| Speed controls | Likely to benefit High Street Northchurch AQMA. Further information required in order to assess benefit. Unlikely to improve traffic flow within Lawn Lane, Hemel Hempstead and London Road, Apsley AQMAs as these areas are heavily congested. | On hold |
| Junction Investigations | Will provide information to target future measures. | Shortlisted |
| ANPR Traffic Survey | Will provide information to target future measures. | Shortlisted |
| Congestion Study | Will provide information to target future measures. | Shortlisted |
| Road Signage improvements | Likely to reduce through traffic. | Shortlisted |
| Potential relocation of bus stop | Likely to reduce queuing in High Street, Northchurch AQMA. | Shortlisted |
| Determine significance of school traffic | Will provide information to target future measures. | Shortlisted |
| Potential removal of on-street parking | Feasible. Likely to reduce queuing in AQMA. | Shortlisted |
| **Reducing transport emissions** | | |
| Vehicle emissions testing | Expensive to implement with very small impact. Lack of resource for enforcement. | Rejected |
| Idling vehicle enforcement | Expensive to implement with very small impact. Lack of resource for enforcement. | Rejected |
| Green incentives for taxi drivers | No cost to Dacorum Borough Council | Shortlisted |
| Reducing emissions from LGVs | Relevant to source apportionment | Shortlisted |
| Development of a Local Bus Quality Partnership | Source apportionment did not indicate buses as significant sources with the three AQMAs, although potentially beneficial borough-wide. Hertfordshire County Council Bus Strategy has similar aims re: emission reduction etc. | Rejected |

| Options | Steering group comments | Outcome |
|---|---|---|
| **Reducing transport emissions (continued)** | | |
| Reducing emissions from Council fleet | Already in operation in Dacorum. Refuse fleet currently being replaced with Euro VI standard vehicles. Software in use to minimise mileage. Emission limits on lease cars and car loan schemes, regularly reviewed. Corporate Travel Plan. | Shortlisted |
| Fleet/fuel monitoring of Council vehicles | Incorporate with reducing emission from Council fleet. | Rejected |
| Promote car share schemes | Viable. To increase uptake of existing schemes. | Shortlisted |
| Encourage smarter driving | Awareness campaign and training. | Shortlisted |
| Promotion of electric vehicles (EV) | Encourage uptake and promote current infrastructure. | Shortlisted |
| **Promoting Sustainable Transport Options** | | |
| Promotion of travel plans | Increase awareness and encourage modal shift. | Shortlisted |
| Promotion of walking and cycling | Increase awareness and encourage modal shift. | Shortlisted |
| Encouraging the use of public transport | Increase awareness and encourage modal shift. | Shortlisted |
| Promotion of TravelSmart | Current project in Hemel Hempstead. Scope for other areas of borough. Previous projects have been successful in creating modal shift. | Shortlisted |
| Towpath improvements in Northchurch | Within UTP. Combine with promotion of walking and cycling. | Rejected |

| Other | | |
|---|---|---|
| Home Energy Efficiency | Not significant in terms of existing problem | Rejected |

| Options | Steering group comments | Outcome |
|---|---|---|
| **Other (continued)** | | |
| Enforcement within Smoke Control Areas | Not significant in terms of existing problem. Regulated by separate legislation (Clean Air Act 1993). | Rejected |
| Environmental Nuisance (including bonfires) | Not relevant to existing problem. Regulated by separate legislation (Environmental Protection Act 1990) | Rejected |
| Controlling industrial air pollution emissions | Not significant in terms of existing problem. Regulated by separate legislation (Environmental Permitting Regulations 2010 (as amended)) | Rejected |
| Reporting of smoky vehicles | Not likely to have a significant impact. | Rejected |
| Promote air quality issues | Council already has dedicated webpage for air quality. All LAQM reports available online. Hertfordshire and Bedfordshire Air Quality Network webpage also provides a significant amount of data. | Rejected |
| Continue to monitor air pollution | Statutory duty. Monitoring locations regularly reviewed as part of this also. | Rejected |
| Reintroduction of 'AirAlert' | Regional project, with other Hertfordshire authorities. Aiming to attract Public Health | Rejected |

| | | |
|---|---|---|
| | funding. No need to be separate measure within this plan. | |

**Table D.2 Further assessment of short-listed measures**

| Measure | Potential AQ impact | Cost to implement | Cost effectiveness | Co-environmental benefits, social and economic impacts | Risk factors | Feasibility / Acceptability |
|---|---|---|---|---|---|---|
| **Strategic actions** | | | | | | |
| Improve links with the Local Transport Plan | | | | Reduction in other AQ pollutants and GHGs. | Care to avoid relocating pollution | Short term / Acceptable |
| Improve links with the Local Planning and Development Framework | | | | Reduction in other AQ pollutants and GHGs. | Care to avoid relocating pollution | Short term / Acceptable |
| Improve links with Public Health | | | | Improvements to public health through reductions in air pollution related illness. Improvements in levels of awareness and understanding. | None identified | Short term / Acceptable |
| **Optimisation of traffic flow through AQMAs** | | | | | | |
| Junction Investigations | N/A | Low | N/A | None identified | None identified | Short term / Acceptable |
| ANPR traffic survey | N/A | Medium | N/A | None identified | None identified | Short term / Acceptable |
| Congestion study | N/A | Low | N/A | None identified | None identified | Short term / Acceptable |
| Road signage improvements | Medium | Low | Medium | Reduction in other AQ pollutants, GHGs and noise. | Avoid relocation of pollution | Medium term / |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | Acceptable |
| Potential relocation of bus stop | Large | Medium | Medium | Reduction in other AQ pollutants and GHGs. | Avoid relocating pollution. Not likely to be welcomed by residents. | Short - medium term/ Acceptable |
| Determine significance of school traffic | N/A | Neutral | N/A | Reduction in other AQ pollutants, GHGs and noise. | None identified | Short term / Acceptable |
| Potential removal of on-street parking | Large | Low | High | Reduction in other AQ pollutants and GHGs | Not likely to be welcomed by residents. | Medium term / Acceptable |
| **Reducing transport emissions** | | | | | | |
| Promote the use of electric vehicles (EV) | Small | Low | Low | Reduction in other AQ pollutants and GHGs. | None identified | Long term / Acceptable |
| Promote care share schemes | Medium | Low | Medium | Reduction in other AQ pollutants and GHGs. Cut congestion. | Personal safety issues | Short term / Acceptable |
| **Measure** | **Potential AQ impact** | **Cost to implement** | **Cost effectiveness** | **Co-environmental benefits, social and economic impacts** | **Risk factors** | **Feasibility / Acceptability** |
| **Reducing transport emissions (continued)** | | | | | | |
| Green incentives for taxi drivers | Small | Neutral | Medium | Reduction in other AQ pollutants and GHGs. Financial impact for taxi companies. | None identified | Unknown at present |
| Reducing emissions from LGVs within the AQMAs | Medium | Low | Medium | Reduction in other AQ pollutants and GHGs. Potential financial impact on companies. | None identified | Medium term / Acceptable |
| Reducing emissions from Council Fleet | Small | Medium | Low | Reduction in other AQ pollutants and GHGs. Fuel saving for Council. | None identified | Short – medium term Acceptable |
| Encouraging smarter driving | Medium | Low | Medium | Reduction in other AQ pollutants, GHGs and noise. | None identified | Short term / Acceptable |
| **Promoting sustainable transport options** | | | | | | |
| Promote travel planning | Medium | Low | Medium | Reduction in other AQ pollutants, | None identified | Short term / |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | GHGs and noise. Health and financial benefits. Cut congestion. | | Acceptable |
| Promotion of walking and cycling | Medium | Low | Medium | Encourages sustainable and healthy modes of transport. Reduce traffic congestion. Reduces other AQ pollutants and GHGs. Cut congestion. | Potential road safety issues | Short-medium term / Acceptable |
| Promote the use of public transport | Medium | Low | Medium | Reduction in other AQ pollutants, GHGs and noise. Cut congestion. | None identified | Short – medium term / acceptable |
| Promotion of TravelSmart | Medium | Low | Medium | Reduction in other AQ pollutants, GHGs and noise. Health and financial benefits. Cut congestion. | Potential road safety issues | Short – medium term / Acceptable |