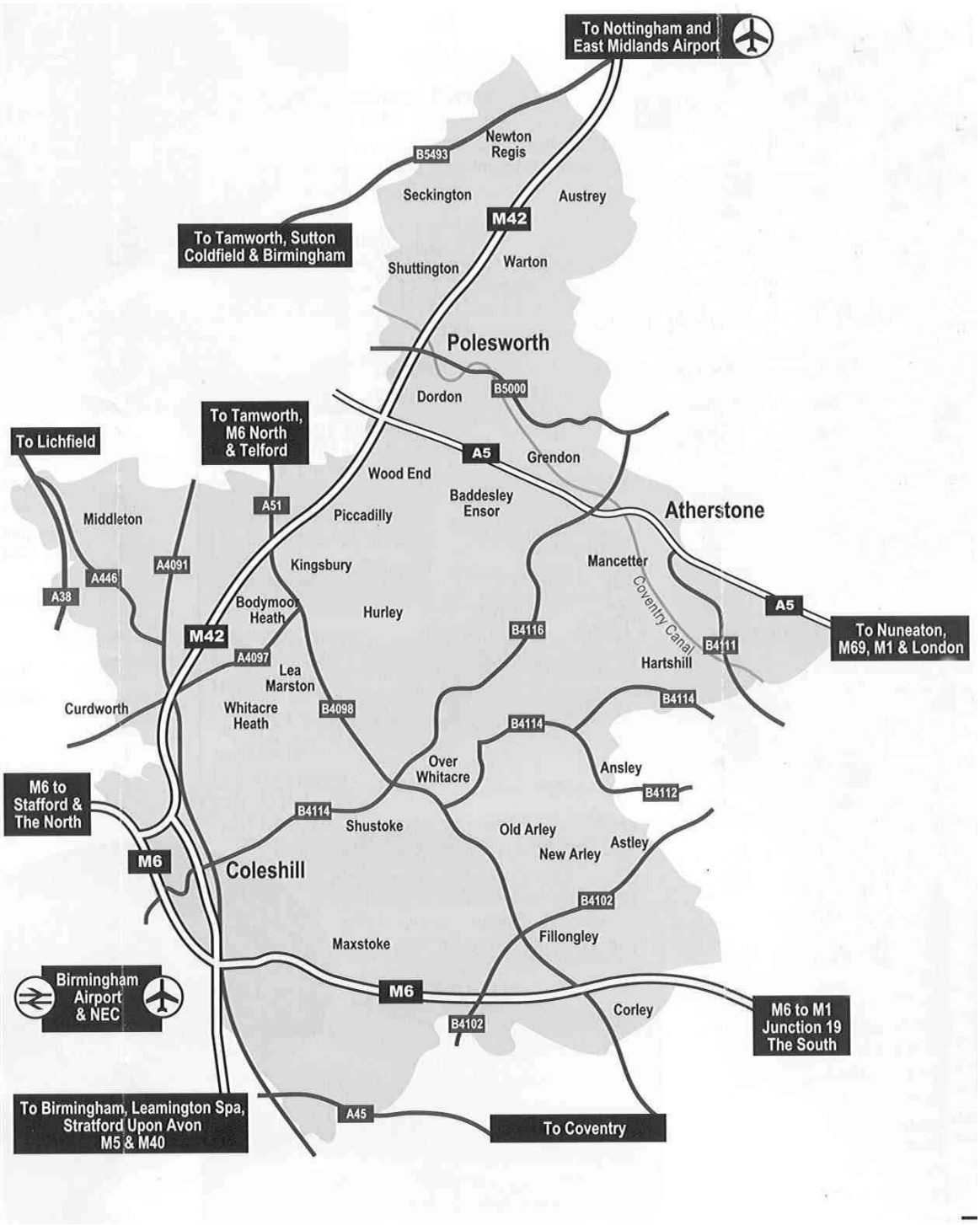
Appendix C – Air Quality Action Plans

Once an Air Quality Management Area (AQMA)has been declared, there is a requirement for an Air Quality Action Plan (AQAP) to be produced to set out the measures which will be put in place to address the particular air quality issue. This Appendix provides copies of all existing Air Quality Action Plans at the time of the submission of LTP3. These relate to following AQMA's:

- Coleshill;
- Nuneaton;
- Rugby;
- Warwick;
- Leamington Spa;
- Barford (now revoked); and
- Studley.

A number of these plans are still in draft form and have yet to be finalised. Others, such as the Warwick/Leamington Spa/Barford and Nuneaton AQAP's will shortly be revised to take account of additional air quality declarations within their area. New plans for Kenilworth, Henley-in-Arden and Stratford-upon-Avon are also under consideration. Further details can be found within the LTP Air Quality Strategy.

NORTH WARWICKSHIRE BOROUGH COUNCIL



AIR QUALITY ACTION PLAN

[post-consultation 'final' draft]

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*This report is intended for a wide variety of readers with varying levels of knowledge and understanding of the subject matter. Accordingly, complex technical, scientific and legal issues are described in Plain English and with appropriate background information and/or references wherever possible. Readers NOT understanding any term or concept are invited to contact <**David Baxendale**> on <**tel. 01827 719322** or Email davidbaxendale@northwarks.gov.uk> for further clarification. Translation services will be sought on reasonable request. This report and several background papers are being made available also through the Councils website, at http://www.northwarks.gov.uk*

List of abbreviations and acronyms

AQAP	Air Quality Action Plan
AQDD	Air Quality Daughter Directive(s)
AQFD	Air Quality Framework Directive
AQMA	Air Quality Management Area
AQO	Air Quality Objective
AQS	Air Quality Strategy
BNRR	Birmingham Northern Relief Road (M6Toll)
CBA	Cost Benefit Analysis
CNG	Compressed Natural Gas
CPO	Compulsory Purchase Order
DEFRA	Department of the Environment, Food and Rural Affairs
DETR	Department of the Environment, Transport and the Regions
DTLR/ODPM	Department of Transport, Local Government and the Regions (split 2002 with non transport functions going to the Office of the Deputy Prime Minister)
EA	Environment Agency
EPAQS	Expert Panel on Air Quality Standards
GTP/STP	Green (or School) Transport/Travel Plan
HA	Highways Agency
HOVL	High Occupancy Vehicle Lane
LAQM	Local Air Quality Management
LEV/ZEV	Low (Zero) Emission Vehicle
LPG	Liquefied Petroleum Gas
LTP	Local Transport Plan
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NSCA	National Society for Clean Air (and environmental protection)
NWBC	North Warwickshire Borough Council
P&R	Park and Ride
ppb	Parts per billion
PPG	Planning Policy Guidance (note)
RTRA	Road Traffic Reduction Act 1997
SCA	Supplementary Credit Approval
UK	United Kingdom
VED	Vehicle Excise Duty
WCC	Warwickshire County Council
WHO	World Health Organisation

Executive Summary

Predictions suggest that in the year 2005, air quality in one small part of North Warwickshire affecting one house may be above national objectives for exposure to nitrogen dioxide. This draft plan puts that prediction into context. It then explores several possible initiatives and proposals to validate the conclusion and to mitigate the effects of air pollution arising primarily from road traffic on the trunk road network. Proposals are grouped according to the theme under which they were developed, being related to improving **data**, dealing with the **receptor** of air pollution, its **pathway** and its **sources**.

The Plan is as follows;

A1: Introduce new or clarified policies into [draft] Local Plan or as Supplementary Planning Guidance (Local Policy) for the purposes as stated at Theme A.
A2: Explore re-use of the affected dwelling in ways which do not conflict with the air quality objective, voluntarily at first and then compulsorily as required.
A3: Explore alternatives and initiatives with the landlords agent to prevent re-occupation of the dwelling if it falls naturally vacant before other measures take effect.
B1: Form a project group to develop further and in detail a planting regime as indicated as Theme B which meets or contributes to achieving the air quality objective.
B2: Maintain awareness of developments in denitrification systems as described above, for a future decision on the value of a detailed project specification in due course.
B3: Prepare to form a project group to develop further and in detail a scheme of works to the affected dwelling as described at Theme B which introduce de-polluted air under positive pressure and improve *internal* ambient air quality. ** *only if/when other measures appear insufficient*
C1: Request the Highways Agency and Warwickshire County Council to maintain awareness of the air quality issue and report back from time to time on measures and matters which may impact upon it.
C2: Develop the NWBC Green Travel Plan [GTP], commencing with an audit of the Council's fleet and wider operational traffic impacts. On completion and implementation of the GTP, promote GTP's and School Travel Plans to a wider audience, focusing on the Coleshill area.
C3: Lobby on the issues described under Theme C and others as they arise, with the approval of the appropriate NWBC forum.

Four further 'proposals' relating to improved data were put forward, but are not part of the 'plan' as they do not directly improve air quality themselves, just the understanding of it. Accordingly, whilst they support the above proposals, DEFRA have advised that they are acknowledged as separate and different from the main Plan proposals.

- **Continue to gather air quality monitoring data from around and within the AQMA by diffusion tubes and real-time chemiluminescent monitoring as appropriate.**
- **Review quality control and quality assurance processes to ensure that gathered data fully meets the criteria for its intended uses.**
- **Obtain finalised road system layout for use within air pollution dispersion model.**
- **Re-run computer simulation model with updated air quality and road system data as required to better inform control scenarios.**

1.0 Introduction

1.1 Background: The Environment Act 1995 introduced initiatives for the protection of local air quality in the UK. One major initiative was the development of a National Air Quality Strategy[i]. This was issued in 1997, then revised and re-issued in 2000 by the Secretary of State for the Environment. Further information is available from the Department of the Environment, Food and Rural Affairs [DEFRA][ii] or the Council. Another major initiative within the Act was a requirement on local Councils to review and assess air quality in their areas in respect of seven key air pollutants, those being;

- Nitrogen dioxide [NO_2]
- Sulphur dioxide [SO_2]
- Carbon monoxide [CO]
- Lead [Pb]
- Benzene [C_6H_6]
- 1,3-Butadiene
- particulates (PM_{10} - with an average diameter of less than 10 microns)

This process is known as Local Air Quality Management [LAQM]. Councils undertook studies ranging from simple listing and screening exercises to complex monitoring and computer modelling of future air quality. Their aim was to determine the likelihood of any Air Quality Objective [Figure 1] being exceeded in a relevant location by specific dates. Councils were and continue to be supported in their work by ongoing research and guidance from central government and other agencies. The Air Quality Objectives were set by Regulations[iii], with Councils required to work in pursuit of them but not obliged to achieve them. This system is set in the context of wider European attention to ambient air quality as described in the Air Quality Framework Directive [AQFD] and subsequent Daughter Directives [AQDD's][iv]

1.2 North Warwickshire Borough Council – Progress

1.2.1 North Warwickshire Borough Council undertook the required review and assessment process initially with the assistance of appointed consultants, the results of which have been reported to its Environment and Health Committee, in addition to statutory and non statutory consultees.

1.2.2 The early screening stages 1 and 2 of the process suggested further consideration was required for potential high levels of nitrogen dioxide and particulates. A more extensive stage 3 monitoring and modelling exercise concluded that the annual average nitrogen dioxide objective of 40 micrograms per cubic metre [or 21 parts per

billion – ppb] was likely to be exceeded at one relevant property near to Coleshill, in a position close to several major trunk roads. The maps at figures 2, 3 and 4 show the position of the property in relation to its surroundings and the wider road network.

Figure 1 - **Summary of objectives of the UK Air Quality Strategy**

Objectives for air pollution are concentrations over a given time period that are considered to be acceptable in the light of what is known about the effects of each pollutant on health and on the environment. They can also be used as a benchmark to see if air pollution is getting better or worse.

The objectives adopted in the UK are part of the Air Quality Strategy published by the Government in January 2000.

Pollutant	Objectives	measured as	To be achieved by
Benzene	16.25µg/m^3 (5ppb)	running annual mean	31 December 2003
1,3-Butadiene	2.25µg/m^3 (1ppb)	running annual mean	31 December 2003
Carbon monoxide	10 mg/m^3	maximum daily 8 hour mean	31 December 2003
Lead	0.5 µg/m^3	annual mean	31 December 2004
	0.25 µg/m^3	annual mean	31 December 2008
Nitrogen dioxide*	**200µg/m^3 (105ppb), not to be exceeded more than 18 times a year**	**1 hour mean**	**31 December 2005**
	40µg/m^3 (21ppb)	**annual mean**	**31 December 2005**
Particles (PM10)	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31 December 2004
	40µg/m^3	annual mean	31 December 2004
Sulphur dioxide	266µg/m^3 (100ppb), not to be exceeded more than 35 times a year	15 minute mean	31 December 2005
	350µg/m^3 (132ppb), not to be exceeded more than 24 times a year	1 hour mean	31 December 2004
	125µg/m^3 (47ppb), not to be exceeded more than 3 times a year	24 hour mean	31 December 2004

ppm = parts per million; ppb = parts per billion; µg/m3 = microgrammes per cubic metre; mg/m3 = milligrammes per cubic metre

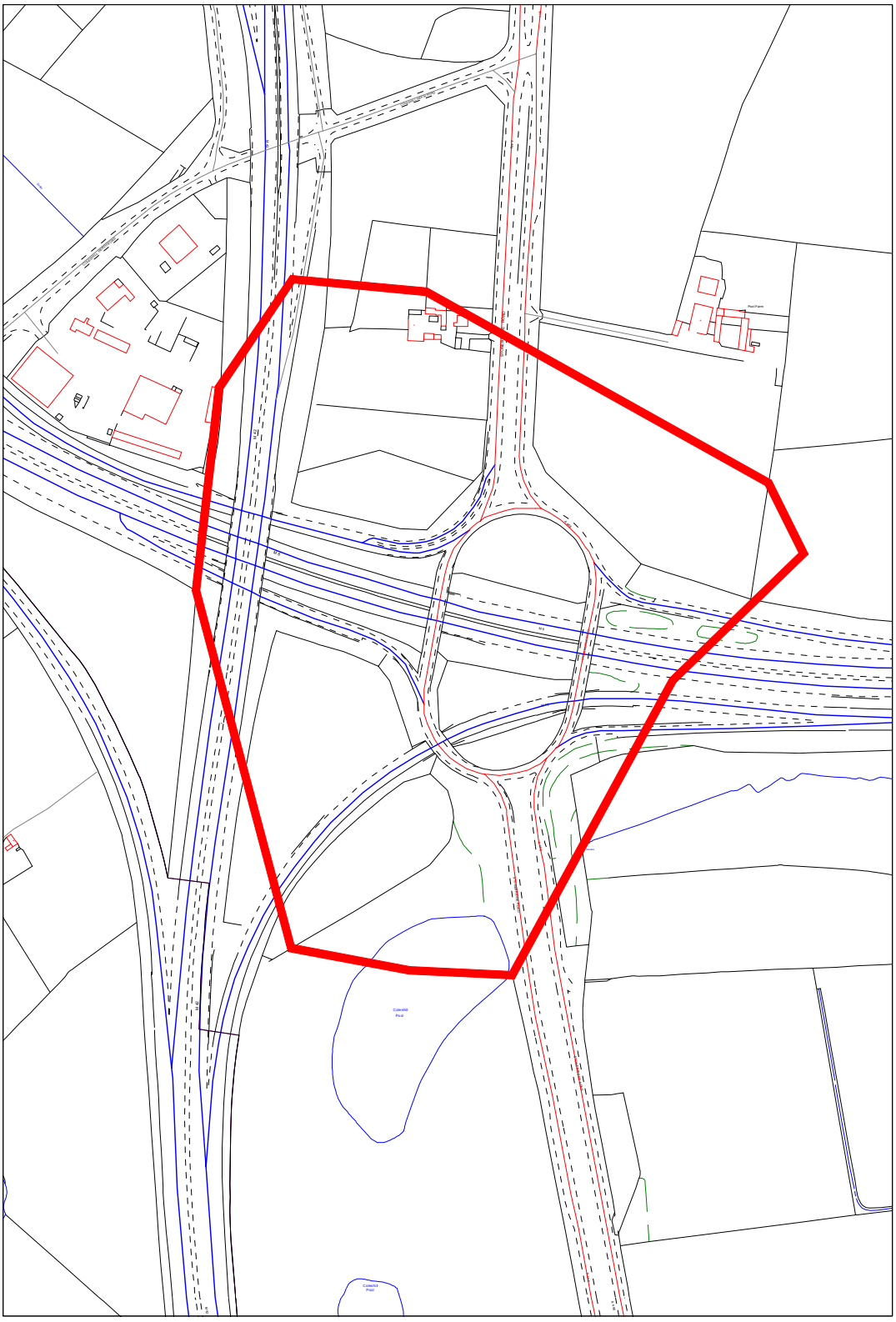
*The objectives for nitrogen dioxide are provisional

1.2.3 The Council was therefore obliged to designate the site as an Air Quality Management Area, and did so by an official Order which became effective on 1st March 2001.

1.2.4 A further 'stage 4' evaluation had then to be undertaken within 12 months to check and refine the knowledge on the issue, which resulted in confirmation of the earlier

Figure 2 – Map: Stonebridge AQMA

Stonebridge Air Quality Management Area



North Warwickshire Borough Council

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Scale 1:5000

findings. However, it acknowledges the considerable uncertainties in the accuracy of computer modelling and of some input data, especially traffic details, in the context of a very marginal predicted excedence. The conclusions and recommendations of that stage 4 work were;

- to continue with the ongoing extensive real-time air quality monitoring, relocating key equipment from adjacent to the affected area to within it if possible, up to and including 2005,
- to seek better traffic data, specifically following the opening of the M6(Toll), with which to re-model the scenarios,
- to keep the designated air quality management area in its current form, and
- to continue ongoing work with partners and stakeholders to develop the statutory Air Quality Action Plan, of which this is the first draft.

What that work did not acknowledge was that a whole second phase of review and assessment is to be carried out nation-wide during 2003/4, which will further inform what is happening in North Warwickshire. This is a continually evolving process and in the future air quality will be assessed via an updating and screening phase every three years, further detailed assessment when necessary, and annual progress reporting. Existing Air Quality Management Areas can be revoked or new ones declared based on these further assessments. If a new Air Quality Management Area is declared an Action Plan will have to be formulated accordingly. Depending upon the findings of the initial updating and screening assessment more work may be required e.g. if improved traffic data shows that there has been a significant change to flows on particular roads then further modelling will be needed to assess the impact upon air quality. Further monitoring would also be needed in the vicinity of these roads in order to validate the findings of the modelling. Technical guidance is adhered to and advice is sought from various government publications and helpdesks so that the program of monitoring and modelling is appropriate for each particular source.

1.2.5 The following plan represents the outcome of extensive consideration of potential measures which may enable compliance with the air quality objective in 2005 or thereafter. However, alterations to factors which predict vehicle emissions, together with other emerging policies and knowledge may result in the designated AQMA being increased in size, or revoked, or that other pollutants such as fine particulate matter may become a concern, or that additional AQMA's may require designation in due course. This plan therefore aims to be ambitious but pragmatic, flexible and proportionate in relation to the confidence in the mechanisms and data which triggered its preparation.

1.3 Area overview – North Warwickshire

1.3.1 North Warwickshire is the rural area lying between Birmingham, Solihull, Coventry, Nuneaton and Tamworth. It has a population of approximately 60,000, spread across a number of towns and villages. Atherstone and Coleshill are the main towns, and there are several large villages, including Polesworth, Kingsbury and Water Orton. At the other extreme, there are small hamlets of only a few houses. Many of the settlements in the northern part of the Borough developed from small villages to provide homes for workers in the mining industry, but only one coal pit remains at Daw Mill near Arley. In contrast, the towns and villages on the western side of the Borough grew to meet the demand for homes for commuters into Birmingham and other large centres. Over the past 20 to 30 years there have been radical changes in the employment base of the Borough with new industrial estates, including the Hams Hall freight terminal and hotel and leisure developments. North Warwickshire is now the home of major companies including TNT, BMW, Aldi and British Home Stores. The Public sector is also a significant employer in local government, health, education and social services.

1.3.2 Despite some large developments, North Warwickshire remains overwhelmingly rural in character. There is no main centre, many residents having to look to the surrounding cities and towns for jobs, health provision, shopping and other services. The Borough's transport infrastructure includes the M6 and M42 motorways (with the M6(Toll) under construction), several trunk roads and A roads (A5, A38, A45, A47, A51, A444, A446, A453 and A4091) in addition to the minor road network. It also has two railway lines (West Coast Mainline and Birmingham to Tamworth/Nuneaton), with stations at Atherstone, Polesworth and Water Orton, plus two canals (Birmingham & Fazeley and Coventry). It is adjacent also to the Birmingham International Airport and close to East Midlands airport. The population characteristics, employment, leisure and shopping facilities combined with limited public transport provision as viable alternatives to the private car combine to make car ownership and use highly important to many.

1.4 Strategic context: The Air Quality Action Plan has been framed in the context of both national guidance and practise elsewhere, but from a local perspective has acknowledged the following;

- North Warwickshire's Community Plan [specifically pages 14-16] and Best Value

- Draft Regional Planning Guidance [RPG], the West Midlands Multi-modal Area Study [WMMMAS] and relevant Government planning guidance [PPG's 13 on Transport and 23 on Pollution]
- the Warwickshire County Structure Plan [WASP] – specifically environment policy ER1
- the North Warwickshire Local Plan [adopted 1995, first deposit draft of new plan *due* November 2002] – specifically relevant chapters on environment and transport policy, and in particular *draft* policy ENV13 on air quality and stewardship
- the Local Transport Plan [LTP] for Warwickshire – and annual updates

1.5 Nitrogen Dioxide – an overview

1.5.1 **Chemistry:** Combustion processes in air produce oxides of nitrogen. Most is in the form of nitric oxide [NO], which collectively with nitrogen dioxide [NO_2] are commonly referred to as NO_x. In the presence of oxidising agents such as ozone, nitric oxide can be converted into nitrogen dioxide and subsequently also into nitric acid [H_2NO_3]. The level of nitrogen dioxide in ambient air is therefore a complex function of the emission rate of nitric oxide, its oxidation to NO_2 and the further conversion of NO_2 to other species. The presence and amount of ultraviolet light (daylight) may also enhance or inhibit certain reactions. The level of NO_2 at any particular point is further affected by meteorology (weather) affecting dispersion and deposition. The levels of NO_x and NO_2 are observed to decline rapidly with increasing distance from the kerbside of road sources, falling near to ambient levels within as little as 30 metres under some conditions. However, where levels of NO_x are sufficiently high, the conversion of NO_x to NO_2 is not limited by NO_x but by other factors such as the availability of oxidants e.g. ozone. Therefore, large reductions in NO_x emissions may result in only a small impact on ambient NO_2 levels. This is exacerbated where air moving in from other congested or densely populated areas may already be saturated with NO_x or have high background levels of NO_2.

1.5.2 **Measurement:** There are several methods for measuring the concentration of NO_2 in air. The two most common are;

- diffusion tubes [passive plastic or glass tubes deployed for weekly or monthly averages, inexpensive but not highly accurate], and
- chemiluminescence, where the emission of light of particular wavelengths provides the concentration of NO_x and NO, from which NO_2 is deduced. This latter

method is more accurate and produces continuous point measurements which can demonstrate short time averages and peaks, but is significantly more expensive. The acknowledged EU reference method for the analysis of nitrogen dioxide and oxides of nitrogen in ambient air is ISO 7996:1985 for chemiluminescence, or any demonstrable equivalent. North Warwickshire Borough Council currently uses both methods.

1.5.3 **Limitations:** Whilst measurements can demonstrate current air quality, to a degree, they cannot alone demonstrate future air quality which is necessary for strategic planning and ambient air quality management. Other tools, including emissions inventories and computer models of a variety of sophistication, are required to predict future air quality and inform the processes for its control. Just as measurement devices have their limitations and degree of accuracy, so too do those computer models which rely on input data such as the volume, speed and composition of traffic, the proportion of differently fuelled vehicles of various ages, the impact of planned and unplanned developments, economic indicators and patterns of employment.

1.5.4 **Health:** Breathing NO_2 can affect lung function and airway responsiveness temporarily, and may increase a body's reactions to natural allergens [asthma]. Repeated exposure can have more permanent effects on lung structure and metabolism and resistance to bacterial infection. Guidelines and standards in respect of ambient NO_2 exposure from the World Health Organisation [WHO], European Union [EU] and Expert Panel on Air Quality Standards [EPAQS] therefore recognise the potential acute and chronic nature of exposure to different concentrations for different periods. In addition to effects on human and animal health, ongoing work seeks to quantify the potential threat to vegetation, ecosystems and built structures in addition to the recognised harm from acid rain deposition and eutrophication (soil acidification). NO_2 is also implicated and involved in the formation of secondary particulates and the reformation of ozone.

As the effects on human health can be temporarily or permanently debilitating, resulting in behaviour and activity change, work loss, medical treatment and in extreme cases death there is a considerable financial element to its effect. This financial element contributes to a broader cost~benefit analysis (CBA) relating to the control of nitrogen dioxide, as for other pollutants and risks. Ongoing work to quantify those costs and benefits in monetary terms by the Interdepartmental Group on Costs and Benefits [IGCB] has yet to conclusively report. However, addressing

exposure to ambient NO_2 is a legitimate and significant objective for the protection of human health and the wider environment.

1.5.5 **Sources:** The most significant emission sources of NO_x in the United Kingdom are from road transport and the electricity supply industry. Road transport is believed to account for approximately 50% or more of NO_x in the UK, with electricity generation contributing 20% and commercial/industrial sectors 17% [these figures differ geographically depending on the predominant local source, i.e. road transport in London is credited with producing over 75% of its NO_x]. As such, in positions where road traffic heavily dominates NO_x production, clear patterns can be seen which follow the geography of the roads and junctions, and through the day or week to coincide with travelling behaviour. Patterns show a higher density of pollutants closer to roads and daily/weekly logs show the typical morning/evening rush-hour peaks, with lower levels overnight and at weekends.

UK annual emissions of NO_x have fallen sharply with a reduction of over 31% in the past decade, due mainly to the two major sectors. Transport policy is projected to progressively reduce NO_x emissions further from the traffic sector over the next 10-15 years, thereafter being offset by a growth in traffic mileage and the effects of vehicular congestion to reverse the downward trend. Improvements in fuel quality, fuel efficiency, fuel choice [Liquefied Petroleum Gas [LPG], Compressed Natural Gas [CNG], electric/hybrid, hydrogen fuel cell] and emissions abatement are all expected to contribute.

2.0 The Action Planning Process

2.1 Guidance from central Government and non statutory guidance from the National Society for Clean Air recommends that the action planning process is inclusive and based on consensus (agreement), as many control measures will require the co-operation of others and will impact on residents, businesses and wider communities. An action plan which is imposed upon an uninformed and resistant audience will be harder to implement or get political approval for.

2.2 North Warwickshire Borough Council has not only kept statutory consultees informed throughout the processes, as it is required to do, but has sought to inform the public and many potential stakeholders in addition to engaging their views and answering questions and concerns.

2.3 Internal consultation and collaboration within the Borough Council has been undertaken by the provision of information and inclusion of staff from a wide range of specialism's, including; land use and forward planning, economic development, sustainability, leisure, finance, legal and transport. Numerous meetings and briefings were undertaken in addition to providing extensive information via reports to Committee/Board and directly to key staff electronically. Reports to Committee/Board also informed and invited input from elected members and through them and the media their constituents.

2.4 Statutory external consultation included the following;

- the Secretary of State for the Environment [via DEFRA]
- the Environment Agency [EA]
- the Highways Agency [HA]
- Warwickshire County Council [WCC]
- adjacent local authorities contiguous with the AQMA [Solihull MBC]

Officers of both the County Council and Highways Agency have been closely involved with meetings of the core working group in the development and evaluation of action plan measures. The Environment Agency has been sent information as required, but as the air quality problem is not related to any industrial processes authorised or regulated by them their role has not been developed further. DEFRA have provided feedback on each stage of the review and assessment submitted to them, and the latest observations on the stage 4 report are acknowledged and incorporated into this draft plan. Solihull MBC have replied to the stage 4

consultation by acknowledgement, but have not provided additional information significant or relevant to the plan.

2.5 Non statutory external consultation and stakeholder involvement has been sought by both general press releases and specific targeted mailing to the following;

- Warwickshire Police
- Coleshill Town Council
- Coleshill Civic Society
- Residents of the affected farmhouse
- Agents for the owner of the affected farmhouse
- The Environmental Transport Association
- The Chartered Institute of Environmental Health

Coleshill Civic Society have been involved in several meetings of the core working group. The residents of the affected property have been met and corresponded with, as have the agents for the property owner. Key reports are in the process of being posted on the Council's website at www.northwarks.gov.uk/.

2.6 The action planning process was mainly undertaken by a series of meetings with a core group, between which members provided each other with the results of their work. Some meetings took place at the offices of North Warwickshire Borough Council, with others occurring at the Coleshill Heath Road depot of Warwickshire County Council, immediately adjacent to the AQMA and from which visits took place to the affected property and the Council's monitoring equipment.

2.7 The series of meetings commenced with introductions and bringing all present up to date with the process and its background, together with the responsibilities and powers of the partners involved. It was agreed to identify a comprehensive initial list of potential measures which may contribute to resolving the predicted air quality objective excedence, from which a basic screening would remove those clearly not deserving of further evaluation. The remaining measures (though the list was never 'closed' and new measures could be introduced at any time) were subjected to a more thorough and detailed evaluation based on criteria as indicated at appendix A, the intention being to build upon a basic Cost Benefit Analysis approach with socio-environmental factors. Not all measures were evaluated by each partner, the list effectively being divided between the Highways Agency, Warwickshire County Council (as Highways Authority) and North Warwickshire Borough Council. Clearly, measures directly affecting or relating to the trunk road network were considered by

the HA, measures relating to transport planning and the Local Transport Plan [LTP] process by WCC, and other measures by the Borough Council. Some measures had multi-agency implications and were debated further during group meetings. AQAP guidance says that measures should be justifiable, cost effective and proportionate.

2.8 The stage 4 review and assessment work confirmed that the projected excedence was marginal [perhaps within 1 ppb or 2 microgramme/m^3 of the 21ppb / 40ug/m^3 standards] with considerable uncertainty over traffic data inputs and inherent modelling accuracy. It confirmed also that the vast majority of emissions of oxides of nitrogen [NO_x] which form nitrogen dioxide [NO_2] were from motor vehicles on trunk roads, and that they represented the only feasible source from which to seek reductions. It is acknowledged, also, that reductions in NO_x will probably not result in equal reductions in ambient NO_2, as the chemical formation reaction is complex and there may be such an oversupply of oxides of nitrogen such that it is not the limiting factor in the creation of nitrogen dioxide. This would mean that either large NO_x reductions would be required for modest NO_2 gains, or another factor in the chemistry could (if feasible) be targeted. Whilst emissions from motor vehicles continue to decline slowly as older and less efficient vehicles are replaced, this is offset by the growth in road traffic generally. The prevailing weather patterns also mean that much of the air within the AQMA comes from the urbanised West Midlands, with all of its inherent pollution.

2.9 Further work acknowledges the role of the trunk road network in providing an efficient national transport system, particularly for long distance and through traffic moreso than local commuter journeys. As many as 250,000 vehicles per day transit this small area at the hub of the network which contributes to the local, regional and national economies. Accordingly, measures to significantly reduce traffic on trunk roads are expected to be both difficult and costly to implement in addition to being uncertain in their outcome. This is in the context of the (currently under construction) M6(Toll) or Birmingham Northern Relief Road which is a £500-750 million project to relieve congestion on this part of the midlands trunk road network. Greater prospects of success may therefore arise from addressing the emissions from traffic by vehicle type and how they are driven, rather than just by targeting a reduction in numbers of vehicles being driven. Also, measures which address the pathways between roads and the property in addition to the property as a receptor may ultimately become the only viable and certain options for success.

2.10 As the knowledge and understanding of the group developed during the process, **four themes** for an action plan became apparent;

- to obtain better data on air quality and traffic in order to better inform further computer modelling which would assist in focusing and evaluating control measure scenarios,
- measures to address the RECEPTOR of the pollution i.e. the affected dwelling,
- measures to address the potential PATHWAYS between the emissions sources and the receptor,
- measures to address the SOURCES of emissions, those being vehicles, the roads and relevant junctions.

At the suggestion of DEFRA, the first 'theme', DATA, is treated as a distinct section and more fully describes ongoing and future work on reviews and assessments of air quality.

2.11 The likelihood of exposure to pollution is commonly described in the form of a relationship between the SOURCES of pollution, and the PATHWAYS between those sources and RECEPTORS (those who would be affected).
Whilst it is preferable to deal first with the sources of pollution and last with the receptors, the particular circumstances of this air quality issue turn that formula around.

3.0 Developing Better Data

3.1 The four phases of review and assessment conducted to date have utilised air quality data from local, regional and national resources in the form of measured values, background / modelled values and emissions inventory information. Clearly, the best data to use is current real time air quality monitoring from within the AQMA. The best data to use for the year 2005 will be data measured in the area during 2005. Quality assurance and quality control (QA/QC) measures are critical in ensuring the value of the data gathered, and the products of its eventual use.

3.2 At the commencement of the process, local data was obtained from diffusion tubes for oxides of nitrogen and surrogate data from surrounding sites in the national network [AURN]. Subsequently the Borough Council's NO_x tubes have been increased in number and focused on the area of concern. For stage 3 the tubes were supplemented by temporarily hired in real-time monitors through the consultants assisting at that stage of the process. For stage 4 the Council was able to purchase, through a funding route called a Supplementary Credit Approval [SCA], its own real time monitoring station which was situated at the Coleshill Heath Road depot of the Highways Department of Warwickshire County Council since May 2001.

3.3 The results obtained from this monitoring station from May 2001 to the end of April 2002 show an annual mean for nitrogen dioxide of 24.5 parts per billion (ppb). If this data is converted to an estimate for 2005 (following the guidance document TG4(00)) the result is a figure of 22.2 ppb. Based on this the annual mean objective for nitrogen dioxide may be exceeded at this site in 2005. The levels of particulate matter (PM_{10}) and sulphur dioxide are well below their respective objectives for 2005. The monitoring data and daily calibration results are checked and validated every working day, where possible. A QA/QC review is also undertaken by an engineer every 6 months as part of regular service and maintenance.
The network of nitrogen dioxide diffusion tube monitoring sites was also expanded in 2001 in and around the air quality management area. This wider expansion of monitoring showed that if the recorded NO_2 annual mean from each site is converted to estimates for 2005 (guidance provides conversion factors), they all fall below the objective, with the exception of one site directly adjacent to the M6.

3.4 The air quality modelling package (computer software), called AAQuIRE 2000, combines models for vehicular and fixed [point source] pollutants. Currently AAQuIRE uses the CALINE4 model for the dispersion of road-traffic emissions and

AERMOD for all other sources. Both of these models are fully validated and have been extensively used world-wide. These are relatively complex models designed for detailed studies of local areas, which are used within AAQuIRE for both local and larger scale studies. This is considered necessary because of the frequent importance of local factors, such as traffic junctions, in properly assessing "regional" effects. Both models are classified as 'advanced' in DETR [now DEFRA] guidance note LAQM.TG3(00). The model utilised 1993 meteorological data from the nearby Birmingham International Airport as a typical weather year.

3.5 The model also required data files on the road system layout and associated traffic for the vicinity. The road system layout is undergoing massive change, with the construction of the M6(Toll), but whilst the route of that new highway is known and fixed, the layout of the A446 dual carriageway and a key junction immediately adjacent to the affected dwelling are not. In order to incorporate the construction of a new bridge for the A446 to travel over the M6(Toll), the line of the A446 has been temporarily shifted and a roundabout placed at its junction with Coleshill Heath Road. Discussions have taken place between the HA, WCC and landowner to determine if the A446 will return to its original path, or remain in a different position and with a roundabout instead of its original T-junction. Those discussions have only just concluded, and the temporary roundabout is to be retained. This may significantly affect highway efficiency and will have to be closely observed following completion of the A446/BNRR bridge link to the north of it. With this issue still 'developing', no model can accurately calculate likely future emissions on an assumed road layout. Information on the construction of the new motorway can be viewed at http://www.bnrr.co.uk. It is also now likely that following the opening of the BNRR, the A446 at this location will be de-trunked and management of it would pass from the Highways Agency to the County Council as Highways Authority.

3.6 From the best available data on traffic numbers, speeds and fleet composition it may be possible to indicate the relative contribution to the AQMA from each road, permitting control measures to focus on the major sources of emissions for the best gains.

3.7 Traffic data provided for the original model calculations was provided by the Highways Agency and estimated traffic flows for the M6(Toll) were taken from public enquiry data. This traffic data was however rather limited. In order to provide greater accuracy and certainty about the future emissions from vehicles, the following data is

considered essential for all roads; traffic flow, speed, HGV%, vehicle types, and profiles of diurnal and seasonal patterns.

3.8 The conclusions to this section on data generated four proposed actions;

- **Continue to gather air quality monitoring data from around and within the AQMA by diffusion tubes and real-time chemiluminescent monitoring as appropriate.**
- **Review quality control and quality assurance processes to ensure that gathered data fully meets the criteria for its intended uses.**
- **Obtain finalised road system layout for use within air pollution dispersion model.**
- **Re-run computer simulation model with updated air quality and road system data as required to better inform control scenarios.**

4.0 Theme |A: The Receptor

4.1 Guidance requires consideration of the likely exposure of receptors to certain levels of air pollution for relevant periods. For the annual average exposure to nitrogen dioxide, it defines the relevant receptors as being;
"Building facades of residential properties, schools, hospitals, libraries etc.".
It specifically EXCLUDES "building facades of offices or other places of work where members of the public do not have regular access, gardens of residential properties, kerbside sites or any other location where public exposure is expected to be short term".

4.2 It is debatable whether the residents of the affected dwelling are likely to be exposed to levels of nitrogen dioxide above the objective at 31.12.2005 as it would relate to their personal circumstances, work and leisure habits. However, strictly following the letter of the guidance the Council was required to designate the AQMA and has proceeded on that basis since. The objective as stated in regulations remains provisional, but for the purposes of Local Air Quality Management has to be treated as firm.

4.3 Taking exposure of the building façade as indicative of the residents exposure to pollution, whilst the dwelling is what guidance describes as a receptor (where the objective should apply at), it is a surrogate for the residents themselves who are the real receptors, and it is their health that the process seeks to protect.

4.4 The removal of the residents from the dwelling provides a certain solution to their current and likely future exposure risk, if relocation to a non-AQMA area is achieved and if the dwelling is not residentially reoccupied. This may come about voluntarily or otherwise by compulsory purchase. The site is in a prime location, albeit in the green belt with presumptions against certain forms of development, except where very special circumstances are demonstrated. A change of use from residential to occupational (excluding school, hospital, library etc.) would effectively remove the status of a location where the objective should apply, and the AQMA could then be revoked.

4.5 The site is owned by a landlord and managed by agents. The residents are tenants and could at the owners discretion be requested to terminate their occupation. This would be more acceptable if done so voluntarily and with assistance in facilitating relocation to a better environment, moreso if the owner could utilise the site for an

equal or greater income in ways which did not conflict with the air quality objective, or otherwise realise better value for it at sale. The Councils planning staff can proactively assist the property owner to identify suitable alternative uses. The current lease for the site is renewable on an annual basis, running from 29th September each year, with 12 months notice required by both the tenant and the landowner to terminate the lease.

4.6 If the property became naturally or voluntarily vacant between now and December 2005, there may be scope for either re-letting on a short term (e.g. six months) only, or that the property remains empty, possibly with some contribution to lost rental income (est. £11,000 p.a.) by one or more agencies. Negotiations could take place to amend the current lease period from 12 months to 6, permitting an alternating use of half the year occupied and half the year vacant (or some other period of less than one year).

4.7 Ultimately, if the property remains in continual residential occupation at 31.12.2005 and measured air quality is proven and demonstrated to be above objective levels (and not improving swiftly enough for the excedence to be temporary and brief), the relevant agencies could determine to compulsorily purchase the dwelling. The powers to secure compulsory purchase are described in section 246 of the Highways Act 1980 and would result the dwellings vacation and the revocation of the AQMA. Warwickshire County Council favour this 'dwelling based' approach to any which relate to highways modification.

4.8 Whilst the one property is currently occupied by a single household, clearly any proposal to extend or divide the property to accommodate larger numbers of persons or households should be treated with extreme caution. Planning policies ought to prevent the creation of additional household units at this location. The creation of additional separate dwellings or other targeted property types (relevant receptors) is unlikely in the green belt but should be reinforced as necessary by explicit policy. The issue of air quality has recently been incorporated into planning policy via the Draft North Warwickshire Local Plan, 1st Deposit, February 2003 (ENV11). This gives special consideration to new development in and around Air Quality Management Areas to minimise potential risks to health. See Appendix D.

4.9 The conclusions to this second theme which concentrates on the receptor generated three proposed actions;

A1: Introduce new or clarified policies into [draft] Local Plan or as Supplementary Planning Guidance (Local Policy) for the purposes as stated above.

A2: Explore re-use of the affected dwelling in ways which do not conflict with the air quality objective, voluntarily at first and then compulsorily as required.

A3: Explore alternatives and initiatives with the landlords agent to prevent re-occupation of the dwelling if it falls naturally vacant before other measures take effect.

5.0 Theme B: The Pathway(s)

5.1 As emissions of oxides of nitrogen leave vehicle exhaust systems, they travel through air to surrounding areas whilst undergoing chemical changes which form nitrogen dioxide. The efficiency with which they arrive at a receptor depends on the volume and circumstances of emission, and on the atmospheric conditions between source and receptor as they interfere with or assist the process. The quality of air drifting across from the West Midlands conurbation is relevant, as is the presence or lack of other chemical factors involved in the formation or loss of nitrogen dioxide.

5.2 Creating a barrier is one way to interfere with that pathway, but isolating the road traffic from its surroundings (for example putting it in a tunnel) is clearly an expensive and disproportionate reaction to a local and site specific problem. However, the concept of barriers may still have merit as regards the construction of the affected dwelling, and as chemical/process interference rather than crude physical screening features.

5.3 It is technically feasible to treat the affected dwelling for air pollution in a similar way to how such properties are treated for noise pollution during the construction of new roads, for example. By attention to the envelope and fabric of the dwelling, particularly its windows and doorway openings, provision of cleaner air under positive pressure will effectively keep more polluted air outside. This may significantly reduce the exposure of occupants to nitrogen dioxide whilst within the dwelling (in addition to other pollutants), meeting the objective but possibly not enabling the revocation of the AQMA, which remains a technicality. Such systems would require technical exploration and would need to have the agreement of the building owners and residents, in addition to considerations of capital (installation) and running costs.

5.4 It is also feasible to consider the benefits of planting belts or areas of trees and/or shrubbery between one or more of the key roads and the dwelling. This achieves two purposes. Firstly to aid the mixing of polluted air and reduce its downwind effect by dispersal and dilution. Secondly by the reduction in oxides of nitrogen via the natural leaf breathing processes, in addition to benefits in reducing particulate levels, replacing carbon dioxide with oxygen, and gains in many other areas.

5.5 Experimental trials have been undertaken with materials [oxides of titanium] which chemically absorb oxides of nitrogen specifically to reduce pollution levels. The materials and much of the information on them originates from Japan and is still

being evaluated. Information on effectiveness, costs and limitations would determine if this measure could be utilised. Early indications are that it may be better suited to enclosed road systems [tunnels] and car-parks, rather than the open situation faced at this location. A London Borough is understood to be at a more advanced stage in evaluating this measure which may better suit their circumstances.

5.6 The conclusions to this third theme which concentrates on the pathway(s) generated three proposed actions;

B1: Form a project group to develop further and in detail a planting regime as indicated above which meets or contributes to achieving the air quality objective.

B2: Maintain awareness of developments in denitrification systems as described above, for a future decision on the value of a detailed project specification in due course.

B3: Prepare to form a project group to develop further and in detail a scheme of works to the affected dwelling as indicated above which introduce de-polluted air under positive pressure and improve *internal* ambient air quality. **if other measures prove unsuccessful or are not implementable**

6.0 Theme C: The Sources ['Wider Strategies']

6.1 Measures which relate to road traffic, the highways and junctions are featuring strongly in several published and draft air quality action plans. National and regional actions to reduce congestion which itself may provide air quality benefits are ongoing, and further measures are planned and will be implemented in future years. Information on the current policies and state of transport on a national, regional and local scale are available through the DTLR/ODPM and the internet, Regional Planning Guidance, the WCC Structure Plan and LTP and North Warwickshire's own Local Plan. The recent West Midlands multi-modal area study is also highly topical and relevant [see http://www.go-wm.gov.uk/multiModal/].

6.2 In the broadest sense, reducing traffic emissions may be divided into measures which reduce the numbers of vehicles, and measures which reduce the effects of those vehicles by their type, fuel and how they are driven. There are measures and trends which are occurring and will continue anyway, and other measures which ought to be implemented and certainly should happen, in addition to further options which may only occur if they are acceptable, affordable and attractive. Most of the significant measures which relate to transport and trunk roads are in the remit of the HA and WCC, though the Borough Council can and should make a contribution to resolving the air quality problem through its own actions, policies and resources.

6.3 The effectiveness and capacity of the trunk road network is a matter for the Highways Agency. There are broad and numerous measures available, primarily but not wholly to the Highways Agency, to ensure that the network functions efficiently and that congestion is minimised. The reduction of congestion by traffic management is desirable for purposes beyond air quality, so long as that reduction is not cancelled out by released road space being taken up through other road users.

6.4 It was not considered necessary nor feasible to examine in great detail all possible measures to the highways and junctions which may not necessarily come into play. In the context of the preceding information in this plan, to do so would be premature and disproportionate. As there are ongoing and emerging matters which might directly impact upon the road network and traffic, anything prepared in detail now may not fit the situation for 2005/2006 onwards. It is, however, acknowledged that proposals have been made to widen the M42 immediately to the south of the AQMA and to install traffic management systems to control the vehicles on it. The potential impact and timing of these proposals will be kept under review.

6.5 Potential measures have been summarised, for illustration purposes only, at appendix B, but this is not an exhaustive or exclusive list and remains open for additions and deletions. The actual selection and implementation of measures is generally a matter for the Highways Agency in respect of trunk roads. If the A446 is de-trunked following the opening of the M6(Toll), then matters relating to that road will fall to Warwickshire County Council.

6.6 Those matters which fall to North Warwickshire Borough Council to consider and pursue further are;

- Planning – policies within the Councils own Local Plan, and contributions to the Local Transport Plan [LTP] and Structure Plan of Warwickshire County Council, in addition to broader regional plans. Within this subject, ongoing support for the development of park & ride sites, including Hams Hall near Coleshill, would be included. Further polices may be developed to influence restraint on traffic growth in the affected part of the Borough. Modification of land use planning via various policy documents, including the Local Plan, Structure Plan, Regional Planning Guidance, Unitary Development Plan etc. could be appropriate. This might impact on development in the longer term to limit the growth of car dependency and necessity by the considerate positioning of homes, jobs, leisure and commercial uses in relation to transport infrastructure. Growth may be limited in sensitive areas and encouraged towards areas with more capacity, or capacity enhancements may have to form part of developments via planning agreements. These enhancements should favour public transport, walking and cycling over private car use. Deliberate parking space reduction may deter some private car use, but may inadvertently cause off-site parking problems. Modification of the Local Transport Plan [LTP] can have significant influence on the investment in transport infrastructure and its eventual patterns of use. RTRA targets, support for park & ride provision, lane priorities, junction and carriageway improvements, bypass schemes, signalling and messaging systems, rail and bus provision, freight etc. may all contribute to the alleviation of congestion and pollution. An intelligent and robust LTP is a platform from which further specific policies can be developed and implemented, and through which funding bids are made.
- NWBC vehicle fleet – as an operator of a vehicle fleet, efforts the Council can make to ‘green’ its own transport impacts would have the added benefit of

demonstrating the advantages and practicalities to other local fleet operators. This subject overlaps with the next issue, that of travel plans.

- Green/School Travel Plans – Plans for the effective management of travel by (typically) an employment site, venue or school have variously been known as Green or School Travel Plans. The Council has made a commitment to develop its own Travel Plan, and when that is complete and implemented it can be demonstrated to others as above. Some resource has already been allocated to preparing this plan, and the formation of a project group is under development. Promoting such plans to schools and other businesses and fleet operators, particularly those local to Coleshill and the AQMA site, may have clear benefits on local traffic congestion. DEFRA also suggest promotion of travel plans to the 'wider community'. As the operator of a vehicle fleet, NWBC can make positive efforts to lead by example by first conducting an audit of its own traffic impact and then determining how best to mitigate it. This may be accomplished by;
  - Replacement of vehicles with new(er) models and/or LEV alternatives,
  - Retrofitting of exhaust treatment or LPG fuelling options
  - Driver training (encouraging smoother, slower and safer driving habits)
  - Vehicle maintenance and emissions testing regime
  - Route planning, speed and capacity/load management
  - Standard specifications to contracted service providers in documentation
  - Parking policy bias towards LEV and car-sharers
  - Provision of secure cycle storage, lockers and showers
  - Revision of essential and casual car user lump sum and mileage rates, and cycling mileage rates
  - Revision of lease car scheme terms
  - Financial support including preferential loans for rail/bus season tickets
  - Car share network support
  - Flexi-time and home/tele-working support and development
  - Promotion of smaller, more efficient cars.

  Once having an effective travel plan in situ, the Council is well placed to demonstrate the benefits and to promote such plans to other major employers and transport fleets in its area. It can also work with schools and the education authorities to minimise the impact of school run vehicular traffic on the network by selective application of the above plus additional options such as the school bus and walking bus.

- Public information & education – providing appropriate information on air quality and transport choices is an essential part of a broader set of measures to influence behaviour.
- LEV fuel infrastructure – increasing the market penetration of cleaner fuelled vehicles by encouraging the development of the refuelling infrastructure has to play its part in the larger scheme. Opportunities to do so, through the planning process and by requirement with legislative backing should be explored.
- Road freight to rail – on two levels, by influencing the movement of freight to and from North Warwickshire sites by rail instead of road would be positive, and nationally to support that trend, may reduce HGV traffic in particular in the AQMA vicinity. However, it is recognised that significant increases in rail freight may only result in a much smaller reduction in road traffic.
- Lobbying - The Council may lobby government on issues which require national implementation, or where additional local powers need to be sanctioned or permitted by new laws. They could involve taxation encouragement, or taxation discouragement, fees and charges or fines, education and promotional work. Examples include;

  1. Fuel tax - as a traffic regulator this has its advantages and drawbacks. The backlash of the recent fuel protests however makes the prospect of significant road fuel tax rises less likely. Greater support could be given to LPG or other cleaner fuels by maintaining or increasing the tax differential between them and other regular fuels.
  2. Vehicle Excise Duty [VED] - is already being used to influence vehicle choice but could be used further.
  3. LEV and exhaust treatment retro-fitting grants and financial support – the Powershift, CleanUp and Motorvate programmes should be supported and extended where possible, or combined into a simple one-stop-shop. [See http://www.roads.dft.gov.uk/cv/index.htm].
  4. Legislation could require a proportion of public service, Council, Police, Fire, Ambulance and similar vehicles to attain certain emissions standards and/or that a proportion ought to be LEV fuelled, and that contracted services contain similar conditions etc.
  5. Fuel retailers could be required to offer LPG or other agreed LEV fuel types at public petrol station forecourts if their capacity exceeds a certain amount, or on all trunk roads, or within or near to AQMA's.
  6. Public information and education on alternative travel methods and fuels should and can be increased, building upon initiatives such as Don't Choke Britain Month, Bike-to-work day and 'leave the car at home' day etc..

7. Subjects could be introduced into the education syllabus which reinforce the messages about travel choice and the consequences of driving behaviour.

6.7 The conclusions to this final theme which concentrates on sources generated three proposals;

C1: Request the Highways Agency and Warwickshire County Council to maintain awareness of the air quality issue and report back from time to time on measures and matters which may impact upon it.

C2: Develop the NWBC Green Travel Plan [GTP], commencing with an audit of the Council's fleet and wider operational traffic impacts. On completion and implementation of the GTP, promote GTP's and School Travel Plans to a wider audience, focusing on the Coleshill area, to include local employers and the Community.

C3: Lobby on the issues described above and others as they arise, with the approval of the appropriate NWBC forum.

Figure 3 – Map: AQMA environs & road network

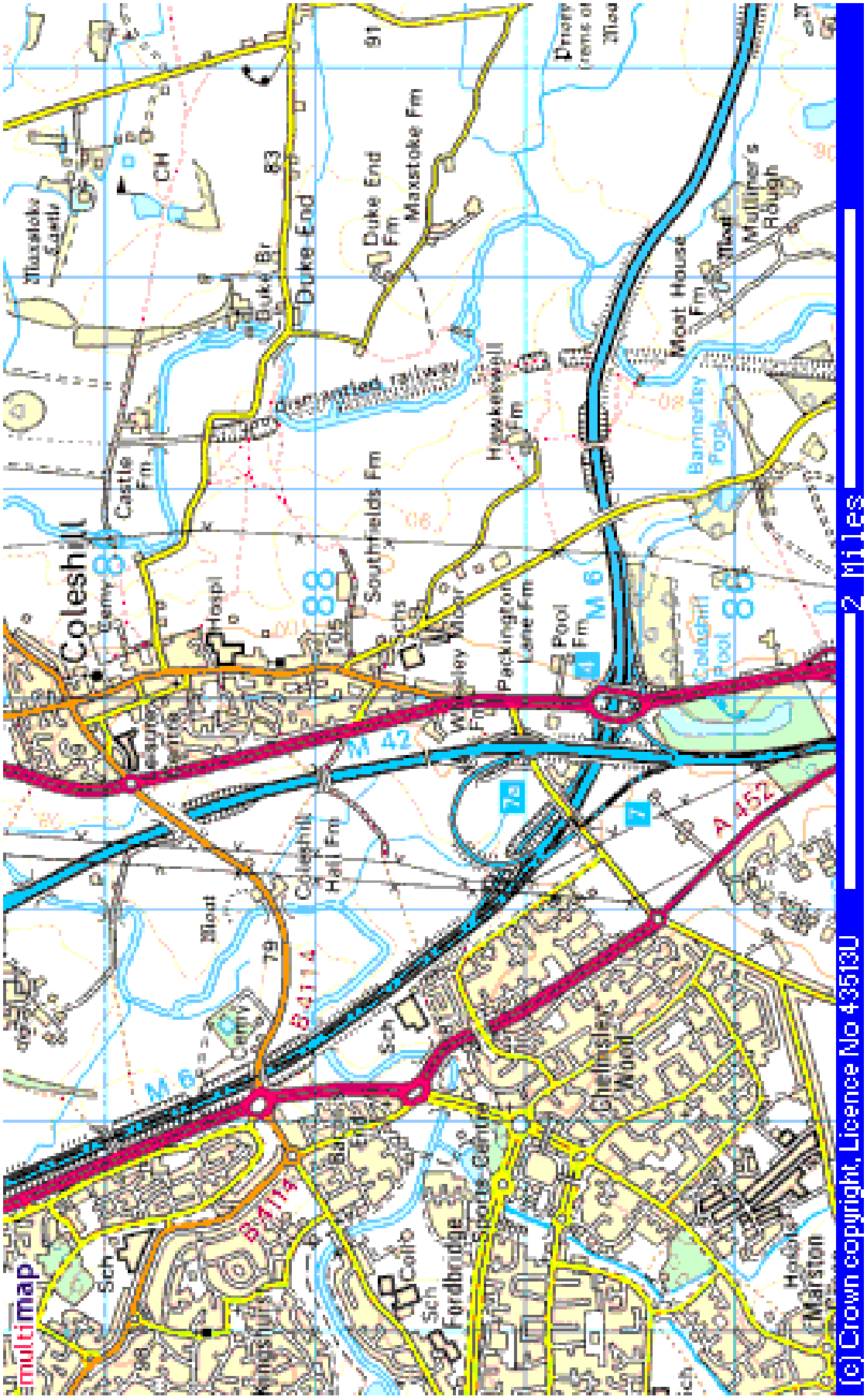
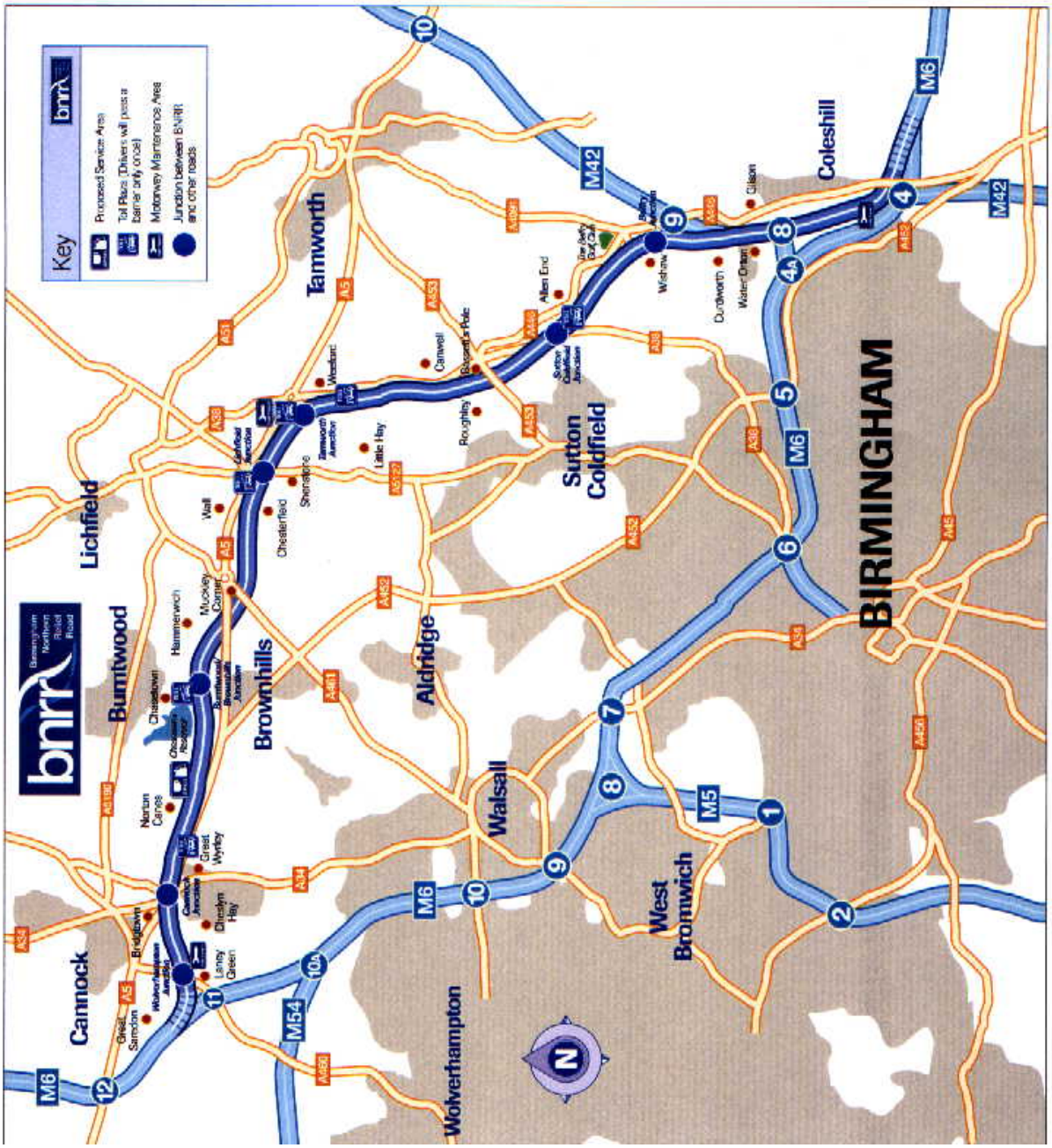


Figure 4 – Map: M6(Toll)



7.0 Finance

7.1 The Borough Council has already expended considerable resources in meeting its obligations to date, through its staff and the purchase and support costs of monitoring equipment in addition to the CES consultants reports covering stages 1-3 of the process. Further costs have been met to enable the development and consultation process in producing this [draft] action plan. That expenditure will continue beyond the final adoption of the plan, through its implementation and review, and will include the 2003 second round of review and assessment. Even if no AQMA had been declared, or if the current AQMA is revoked, the issue would still require resourcing to monitor and review.

7.2 The contribution of resources, principally staff time and some data, from other agencies and partners is acknowledged and appreciated.

7.3 To forward-plan a budget for implementing the AQAP is not straightforward. The variables described in the report may cause the air quality objective to be met 'naturally' at minimal or no apparent cost, or one or more of the proposed remedies may be appropriate. In the latter case, it is not feasible to produce spending plans for each proposed remedy in isolation and combination, identifying the time it should occur, its likely actual cost and its effect or outcome. Decisions on which, if any, proposals to implement would have to be taken as data emerged from monitoring and modelling in the context of the continuing use of the property and road network.

7.4 Of the future expenditure which can be reasonably estimated;

- Air quality monitoring station running costs are approximately £5000 per annum, to at least 2005 and possibly beyond (though the equipment may have re-sale value if redundant)
- NO_x diffusion tube support and analysis costs are approximately £2500 per annum, to at least 2005 and possibly beyond but with no residual value
- General staff costs to support the review and assessment process (including stage 2) are approximately £4000 per annum [costs of external agencies NOT included], to at least 2005 and probably beyond.

All of the above are currently met by North Warwickshire Borough Council. For the remaining proposals;

- Estimated costs are as per the schedule at 8.0

8.0 Implementation and Monitoring Schedule

Proposal	Responsibility [organisation(s) / dept(s)]	Est. start date <actual start date>	Est. duration or completion date <completion date>	Est. costs* <actual costs>	Est. impact** <actual impact, if known>
•	NWBC Env. Health	Currently ongoing	Beyond 2005 <>	£5-6000 p.a. <>	0
•	NWBC Env. Health	Done / ongoing	Annual review <>	Included in A1 <>	0
•	NWBC Env. Health	2003 <>	As start <>	Negligible <>	0
•	NWBC Env. Health	2003/4 <>	1-2 weeks <>	Included in A1 <>	0
A1	NWBC Env. Health / Planning	2002 <>	2003 <>	Negligible <>	Marginal/negligible <>
A2	NWBC Env. Health / Planning	2004/5/6 <>	2005/6 <>	Negligible to **very high** for CPO	Immediate compliance and AQMA revocation
A3	NWBC Env. Health / Planning	2002/3 <>	2005 <>	Negligible to £11,000 p.a.	Possible immediate compliance as above
B1	NWBC Community Development	2003/4 <>	2003-5 (to implement planting, could extend) <>	Inestimable – depends on grants, land purchase etc.	Maximum 10% improvement <>
B2	NWBC Env. Health	2003/4 <>	2003-5 <>	£5-10,000 capital + annual operating fees	Possible immediate health protection without AQMA compliance
B3	NWBC Env. Health	Currently ongoing	Continuing	nil	n/a
C1	HA / WCC	Currently ongoing	Continuing	Negligible to NWBC, more to others	Inestimable – depends on measures applied
C2	NWBC Various	2003 <>	2005 <>	Inestimable – depends on content	Negligible to AQMA <>
C3	NWBC Various	2002 onwards <>	Ongoing <>	Negligible <>	Depends on success/scope

* costs are difficult to attribute or estimate with accuracy. At best they represent the possible expenditure on staff time, equipment/data etc. on the basis of £20 per person/hour, and those costs may fall outside of the Borough Council to the County, Highways Agency or others.
** impact is even harder to forecast quantitatively, but where possible figures or a 'range' is included, and qualitative issues identified.

9.0 Monitoring, Review and Reporting

9.1 Where possible, each proposal should have an estimated start date, duration and/or completion date. North Warwickshire Borough Council's Environmental Health Division, together with other partners/agencies as appropriate will **monitor** achievement of the proposals by those key dates. Progress towards meeting those key dates will be monitored also at an appropriate frequency beforehand. The implementation plan [8.0 above] will be updated accordingly.

9.2 The ongoing relevance of each proposal will be **reviewed** as information on them is obtained or developed. If it emerges that a proposal is no longer appropriate or accurate, or that a key date is wrong, it will be reviewed and amended accordingly.

9.3 The whole plan will be reviewed no less frequently than once per annum. This would be led by the Borough Council's Environmental Health Division and include other plan partners and agencies, both internal and external, as required. Conclusions and suggestions arising from that review would be **reported** to the Council's Community and Environment Board and plan partners. Following that, a report will be made generally available to the public and on the website, as well as notification to the media.

Appendix A

Analysis framework.

PHASE 1 – Cost and benefit

- What will the measure cost? In terms of;
  - Capital – singular costs, usually of equipment purchase
  - Revenue – running and staffing costs, including insurance, power, consumables and depreciation
  - Income – grants, fees, fines etc.

    [consider how accurate do the figures need to be and how accurately are they provided or within what margins]. Are there other financial costs and/or benefits falling elsewhere? Are any costs recoverable or will any be repetitive?
- What emissions reductions and air quality impact will the measure achieve? [at what cost, allowing comparison on cost per unit impact or impact per unit cost]. Including; *how long it would take to implement the measure, how long from implementation effects would occur, whether the impact is total / immediate or phased in, whether the effect has a limited life and then declines or requires reinvestment, whether there are synergies or conflicts between measures, whether there is a natural trend, how much confidence is attached to the estimate, if the measure has been implemented elsewhere, how many people or what area would be affected and so on.*

PHASE 2 - Other considerations;

- Noise – would a measure alter the intensity, character, duration, timing or location of noise, and if so by significant increase or decrease?
- Safety – would the measure make journeys safer or more dangerous? Would traffic be displaced towards less suitable roads?
- Visual amenity – would the measure improve or spoil the view? <subjective>
- Local / regional / national economy – could the measure add costs to business and drive away trade or stimulate growth (e.g. commerce) by the attraction of shoppers, tourism and leisure users, increased residents through less void dwellings?
- Crime – including fear of crime e.g. on night buses
- Sustainability – can a measure make a lasting difference and is it capable of long term support?
- Freedom of choice – are affordable alternatives available at convenient locations, sufficiently frequent and at relevant times with capacity?
- Congestion [journey times] – would reductions in congestion be offset by increases in emissions through increased vehicle speeds and/or higher numbers of vehicles travelling?
- Community severance / displacement – would the measure place a barrier between communities or displace occupants?
- Enforcement – who will enforce the measure and how effectively?
- Likelihood of success – is success guaranteed, likely, probable, possible or less certain?
- Reversibility – can the measure be reversed if it is shown not to work or have undesirable effects?
- Failure cost – arising from reversibility, how much would failure cost and can the risk be afforded or mitigated? What of liability?
- Effects on other air quality issues [carbon dioxide and/or other LAQM pollutants] – would the measure assist in combating global warming and/or reducing [or worsening] other key air pollutants?
- Impacts to areas beyond the AQMA – what wider effects on traffic patterns, jobs and other issues might occur?
- Habitat loss, bio-diversity, heritage – would the measure involve land-take, the loss of significant structures, reduction in habitats etc.?
- Health and fitness [walking/cycling] – would the measure improve personal fitness and health through physical exercise?

- Perception / acceptability (community, political and organisational) – what will key stakeholders think of the measure? Who might resist or support it and how? Is there an information campaign to be fought and won first?
- Competing priorities – what else do the partner organisations want to focus their resources on? Are any key policies mutually supportive with air quality, or in conflict?
- Equity (disabled / rural) – does a measure disadvantage disabled people or those living in rural areas, or the poor or car-less or otherwise?
- Proportionality / consistency (fairness) – how well does the 'polluter pays principle' fit?

Appendix B

Potential measures to reduce vehicle emissions at source.

These highway / traffic measures may be sub-divided into;

- Changes to the major roads and the way in which they are used
- Changes to the junctions and the way in which they are used
- Changes to the vehicles or numbers/classes of them
- Changes to driver behaviour, vehicle maintenance etc.

Changes could be brought about by education and support, incentive (carrot) or disincentive (stick). Some may be applied in sequence, others together in parallel. Some could be introduced immediately, whilst others are deferred, phased in over time or for the future. Some may be permanent in their effects whilst others are temporary. Some may have to be applied for the whole time, others only part time or for a limited time. Some may be widely spread and others narrowly geographic.

Potential changes to the **road network** which have been considered [none of the following lists is exhaustive or exclusive] include;

- Speed reduction enforcement [various permutations e.g. certain times or certain days only, variable or permanent] – reducing traffic speeds can reduce emission levels in some circumstances.
- Advice signage – fixed, active/variable message signing and radio/internet etc. to provide sufficient driver information to avoid hazards and delays, getting lost or taking less efficient routes to destinations,
- Traffic smoothing including 'no lane change' zones and spacing chevrons – to facilitate smoother integration of traffic joining or leaving the main carriageways,
- 'move over' arrows for filter-in lanes – again to make safe space available to facilitate smoother integration of traffic streams
- high occupancy vehicle lanes [HOVL's] – to use existing (or additional) road space for vehicles carrying passengers as an incentive to increase usage densities,
- Exclusion / clear zone(s) – considered but not appropriate for trunk roads,
- Low emissions zones – restricting access to a zone for vehicles which fail to meet certain emissions criteria (again considered but rejected as unsuitable for trunk road systems),
- Congestion charging [road tolling] – possible in the future as part of a national programme, but only if sufficient alternatives put in place to facilitate choice of other modes and avoiding displacement of traffic to less suitable roads,
- Hard shoulder running –where safe, either at junctions for increased access/egress capacity, as crawler lanes up inclines or otherwise,
- Road and/or carriageway closure/narrowing [capacity reduction] – considered and rejected as not appropriate to the trunk network as likely to increase congestion and displacement,
- Traffic 'calming' / traffic management [includes elements of speed control, gateways etc.] – elements of both included within other measures excepting gateways as the problem area is not a typical city centre where such measures would be appropriate,
- Flyover, bypass or underpass(es) – considered and rejected as the M6(Toll) is already being built to provide that bypass capacity. Also considered premature and hugely expensive given the uncertain diagnosis of the extent of pollution excedence and the contributions of each carriageway prior to M6(Toll) opening. Disproportionate also, in the context of protecting one residential dwelling.
- Additional lanes or partial / selective carriageway widening – There is potential for future M42 widening south of this junction, and M6 widening elsewhere, which may affect the junction throughput if either or both proceed. If the primary routes feeding towards this junction have their capacities increased, this may cancel out the positive effects other measures which should be viewed accordingly.

- Repair & maintenance scheduling, finished standards and accident reduction – the standards to which highways, barriers, lighting and associated amenities are built and maintained and the timing of those works are significant in the manner in which roadworks can cause congestion and pollution.
- Motorway service area access/egress to surroundings and/or additional junctions – permitting traffic access and egress to the motorway from the minor road network supplying the motorway service areas, specifically Corley north and southbound. This may reduce traffic converging on the M6 junction 4 roundabout with the A446 where it could otherwise have a shorter and more efficient journey. Additional junctions would have a similar effect, though very expensively. Consideration must, however, be given to the capacity and safety of the minor road networks supporting the service stations and the implications for persons living along those routes.
- Cycle lane[s] / footpath improvement and crossings on A446 – any measures to increase safe cycling and walking in relation to the A446 and Coleshill Heath Road, as the only close non-trunk roads, may have a small beneficial effect on providing an alternative journey choice.
- Additional bus stops [A446 environs] – a lack of sufficient bus stops may deter potential bus travellers who then use their car. More stops or attention to routing and timings may stimulate greater bus travel patronage and commensurately reduce car journeys.

Potential changes to **junctions** may include>
- Filter lanes – to permit vehicles to negotiate junctions without undue delay
- Traffic light controls – to smooth flows through roundabouts or other junctions and avoid excessive queues forming
- Ramp access metering – regulating access to (e.g.) the motorway via traffic lights, to improve the flow of traffic both on the motorway and avoid excessive queuing on slip-roads and back onto roundabouts
- Priority alterations – to maximise the efficient flow of vehicles by ensuring that rights of way, road space and give-ways are optimised
- Improved signing / lane marking designation and arrows – to assist vehicles with choosing the correct and best lane early enough to avoid stalled traffic whilst vehicles seek room to switch
- Widening or narrowing including entry/exit closure – to resolve choke-points and deter wide or long vehicles from unsuitable road space
- Yellow no-stopping boxes – to avoid gridlock particularly at junctions where other traffic could more efficiently move onwards.

Potential changes to **vehicles and organisational/driver behaviour** may include>
- Promotion of the cleaner fuels market and fleet penetration through infrastructure development – to encourage a higher rate of uptake for LEV fuelled vehicles by increasing the public and fleet refuelling outlets available,
- Promotion of cleaner fuels market/fleet penetration etc. through fleet management [Council fleet, lease, business and private travel by way of financial and contractual leverage] by first having its own Council Green Travel Plan,
- Promotion of green transport plans [to other businesses and organisations] and school travel plans,
- Promotion of smaller, more efficient cars,
- Promotion of alternative working patterns and schedules, to spread the rush hour traffic peaks and reduce the need to travel so frequently or so far
- Advanced ‘green’ driver education for smoother more efficient motoring,
- car share database and the promotion of offering and seeking lifts,
- support of home-work journey shortening through smart employment and recruitment support, linking local jobs and local workers
- Promotion of mode shift for freight from road to rail etc.,

- Promotion of passenger/driver shift to bus or rail, via e.g. integrated scheduling, ticketing, service frequency, cleanliness, access points, timing, capacity, destinations/routes, safety, ticket discounting etc.
- Park and ride, either car to bus or rail or both
- Appropriate development zoning [reduce the vehicular load on the AQMA and deny further housing in or near to it],
- Vehicles emission testing – voluntary and mandatory including vehicle maintenance encouragement/support,
- A ‘scrappage’ bounty to target and remove older and dirtier vehicles,
- Alteration of parking standards in the local plan to deter car dependency,
- ‘switch off engine’ enforcement,
- car park charging [on and/or off street and workplace parking charges],
- public information booklets, leaflets, web-pages etc.,

Consultation – How to comment ***<how comments were invited>*** **Appendix C**

North Warwickshire Borough Council is seeking the views of as many statutory and non-statutory consultees as possible. This draft plan is being widely circulated and made available to the public both via the internet, on request by post, at Council offices, libraries and other facilities as opportunity provides. Awareness of the draft plan and invitations to comment on it are to be circulated via the local media, parish and town Councils.

Comments may be made in writing including by fax and Email. Contact details are given at the foot of this page. You may use the following questions to prompt your response, or reply on any matters as they occur to you. If you need any matter explaining or have questions before making a response, please contact the David Baxendale or Dean Walters (details below).

- **Does the plan explain all of the issues you need information on?**
- **Are all of the issues explained in sufficient detail?**
- **Are there any additional matters you think the plan should have explained?**
- **Which of the proposals do you agree most strongly with?**
- **Which of the proposals do you object most strongly to?**
- **What additional proposals would you have included?**

Comments, suggestions and observations can only be treated confidentially on request. All responses received will be considered in taking this draft plan to a final version, which will be reported to the Council's Community & Environment Board for approval and formal adoption.

The closing date for receipt and consideration of comments is 31/12/2002

Contact details:

David Baxendale - tel. 01827 719322 or Email davidbaxendale@northwarks.gov.uk
Dean Walters - tel. 01827 719330 or Email deanwalters@northwarks.gov.uk
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ENV11

AIR QUALITY

The Council will safeguard and enhance air quality in the Borough by:

1. **Giving special consideration to new development in and around the Borough's Air Quality Management Areas (AQMA) to minimise potential risks to health. The existing AQMA is shown on the Proposals Map.**

2. **Not permitting development that would include hazardous substances likely to have an unacceptable risk to nearby areas and people.**

3. **Not permitting development in the vicinity of notifiable hazardous installations or premises if there is an unacceptable risk to occupiers.**

4. **Not permitting places of residence, employment or other noise-sensitive uses if the occupants would experience significant noise disturbance.**

5. **Not permitting development that would create significant noise disturbance to nearby housing, schools and other noise-sensitive uses.**

Reasoned Justification

3.79 Major requirements to improve air quality have been introduced by Government since the previous Local Plan was adopted.

3.80 Certain substances, when processed or stored in significant quantities can be a potential hazard to people in the vicinity in the event of explosion or escape.

3.81 Up-to-date lists of Sites Subject to Hazardous Substances Consent and pipelines subject to the Notification of Installations Handling Hazardous Substances Regulations may be inspected at the Borough Council offices and advice can be obtained from the Health and Safety Executive.

Monitoring

27 Percent of the Borough land area within an AQMA.

28 The number of air pollution / noise disturbance incidents.

Footnotes from text

[i] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – working together for clean air. Cm 4548, SE2000/3, NIA7. January 2000, ISBN 0 10 145482-1, £20
Available from The Stationary Office (www.tsonline.co.uk) or at
http://www.defra.gov.uk/environment/airquality/strategy/index.htm

[ii] DEFRA Helpline, 3-8 Whitehall Place, London SW1A 2HH, tel. 08459 35577, fax. 0207 238 6591, Email air.quality@gsi.gov.uk or visit website at www.defra.gov.uk/environment/airquality/laqm.htm

[iii] The Air Quality (England) Regulations 2000 at;
http://www.defra.gov.uk/environment/airquality/airqual/index.htm or from Department of the Environment, Transport and the Regions Publications Sale Centre, Unit 21, Goldthorpe Industrial Estate, Goldthorpe, Rotherham S63 9BL. Tel: 01709 891318 Fax: 01709 881673

[iv] EC directives 1999/30/EC and 96/62/EC refer. See also
http://www.defra.gov.uk/environment/airquality/article5/pdf/appendix2.pdf

Nuneaton & Bedworth
United to Achieve

Nuneaton & Bedworth Borough Council

Local Air Quality Management – Draft Air Quality Action Plan

September 2010

CONTENTS

LIST OF FIGURES

Executive Summary

This Air Quality Action Plan is the culmination of the Local Air Quality Management (LAQM) review and assessment for Nuneaton & Bedworth Borough Council (N&BBC). The process of LAQM review and assessment has been set down in Part IV of the Environment Act 1995, which forms part of the Government's response to European Directives on Air Quality to which the UK Air Quality Strategy responds.

Nuneaton & Bedworth Borough Council undertook their first round of review and assessment between 1998 and 2001, concluding that all air quality objectives were expected to be met by the target dates based on available information at that time.

The second round of review and assessment culminated to the declaration of an Air Quality Management Area (AQMA) at the A47 Leicester Road Gyratory in Nuneaton in March 2007 for nitrogen dioxide (NO_2), following the conclusions a Detailed Assessment based on air quality monitoring and pollutant dispersion modelling.

Subsequent annual air quality progress reports identified another potential exceedence of the NO_2 annual mean objective in Corporation Street / Midland Road. A Detailed Assessment confirmed the monitoring results, and a second AQMA was declared in October 2009.

The A47 Leicester Road Gyratory is currently an important strategic route into and out of Nuneaton, and will remain so for the foreseeable future due to the constraint of having only one railway bridge crossing in the town centre. It already operates at capacity at certain times of the day and this pressure is likely to intensify with anticipated increases in traffic flows in the area due to forthcoming development within the Nuneaton area.

The B4114 Midland Road/Corporation Street approach to the town also carries a significant volume of vehicles to/from a number of residential areas in North West Nuneaton. The use of this corridor is also likely to intensify in the future with the planned redevelopment of the former Judkins Quarry and further regeneration in and around Camp Hill.

This Air Quality Action Plan combines the two AQMAs declared in Nuneaton. In compiling this Action Plan, Government's Technical Guidance LAQM.TG(09), Policy Guidance LAQM.PG(09) and guidance from the Environmental Protection UK (EPUK formerly the National Society for Clean Air) has been referred to, alongside guidance provided by the Department for Environment, Food and Rural Affairs (Defra) through its Air Quality Action Plan Help Desk.

The aim of this Action Plan is to identify how N&BBC will use its existing powers and work together with other organisations in pursuit of the annual mean Air Quality Strategy objective for NO_2 in the AQMAs. The proposed measures are will also positively contribute towards reducing background levels of pollution within the Borough as a whole.

Warwickshire County Council (WCC) is the local Highway Authority, and as such has an important role in the consideration of actions proposed for the AQMAs in order to reduce road traffic emissions and achieve the necessary improvements in air quality required. N&BBC will work together with the County Council and other relevant stakeholders to improve air quality within the AQMAs and throughout the Borough.

The measures proposed in the Action Plan are the following:

- N&BBC will work in partnership with WCC to identify and bring forward traffic management improvements in Nuneaton town centre, particularly where they will benefit the two AQMAs.
- N&BBC will work in partnership with WCC to identify measures to reduce the impact of HGV movements within the area.
- N&BBC will work in partnership with WCC and Sustrans to deliver further improvements for pedestrians and cyclists within the area.
- N&BBC will work in partnership with WCC, public transport operators, DfT Rail and Network Rail to implement better integration of public transport in Nuneaton.
- N&BBC will work in partnership with WCC to increase uptake and implementation of School and Workplace Travel Plans.
- N&BBC will continue to develop, implement and monitor its Travel Plan policy
- N&BBC will include planning policies in its Borough Plan that seek to improve air quality and sustainable transport links and to secure travel plan agreements.
- N&BBC will identify as a part of the Infrastructure Delivery Plan specific pieces of infrastructure required within the AQMA or that could relieve the AQMA.
- N&BBC will encourage developers to take part in pre-application discussions to ensure air quality is considered when formulating a planning application.
- N&BBC will continue to work with WCC and other partners to deliver improvements in emissions standards, where practicable.
- N&BBC will make details of the Action Plan measures and annual progress reports available on its Website to ensure accessibility to the consultation and implementation process.
- N&BBC will continue to work in partnership with WCC and the Warwickshire district authorities on air quality and travel awareness campaigns to raise the profile of air quality in the Borough and County-wide.
- N&BBC will continue the commitment to undertake local air quality monitoring within the Borough to ensure a high standard of data is achieved to assess against air quality objectives.
- N&BBC will continue to proactively enforce industrial control and nuisance legislation to minimise pollutant emissions from these sources in the Borough.
- N&BBC will continue to work together with Act on Energy (formerly Warwickshire Energy Efficiency Advice Centre) and other partners to promote and implement energy efficiency measures in the Borough.

The proposed actions will help work towards achieving compliance with the NO_2 annual mean Air Quality Strategy objective/ EU Limit Value.

1 Introduction and Aims of the Action Plan

1.1 Description of the Local Authority Area

Nuneaton and Bedworth is the smallest in geographical area (7,898 hectares) of the five districts in Warwickshire, but has the second highest population (120,700 – 2005 mid-year estimate). The Borough is urban in character containing 3 main settlements Nuneaton (78,403 – 2001 census), Bedworth (34,426) and Bulkington (6,303) which are separated by narrow areas of countryside. It has a high density of 1,528 persons per hectare compared with 270 persons per hectare for Warwickshire. This has both advantages and disadvantages – access to services and public transport is very good but there are social and environmental problems associated with the high density of living. The population of the Borough is predicted to grow by 5% between 2005 and 2020.

The main source of air pollution in the Borough is road traffic emissions from major roads, notably the A444, A47, A5 and M6. An Air Quality Management Area (AQMA) was declared in March 2007 along the A47 Leicester Road in Nuneaton town centre where exceedences of the annual mean Objective for nitrogen dioxide (NO_2) were predicted. A second AQMA was declared for NO_2 in October 2009 encompassing an area of Nuneaton from Midland Road to Corporation Street. Other pollution sources, including commercial, industrial and domestic sources, also make a contribution to background pollution concentrations.

1.2 Project Background

The Council has drawn up, with the assistance of Bureau Veritas, a Local Air Quality Management Action Plan for both Air Quality Management Areas within Nuneaton, identified through the second and third rounds of review and assessment of air quality. The Action Plan is required to be undertaken as part of the local authority's statutory duties as defined within Part IV of the Environment Act, 1995.

The two AQMAs cover geographical areas relatively close to each other (within 500m distance), separated by Nuneaton town centre, which justifies the choice to prepare a joint action plan. However, although both AQMA have been declared due to traffic-related emissions that lead to exceedences of the NO_2 annual mean objective, they are not entirely similar. NO_2 concentrations monitored within the Midland Road and Corporation Street AQMA are relatively higher than those measured in the Leicester Road AQMA. The façade of properties is typically 8m from the road centre along Corporation Street, while within 11m – 15m along the A444 Old Hinckley Road.

Bureau Veritas has undertaken previous review and assessment reports for the Council, which includes the Updating and Screening Assessment 2009, the air quality Progress Report 2010 and the Further Assessments of both AQMAs (Leicester Road Gyratory in 2007 and Midland Road / Corporation Street in 2010).

1.3 Legislative Background

The significance of existing and future pollutant levels is assessed in relation to the national air quality standards and objectives, established by Government. The revised

Air Quality Strategy (AQS)[1] for the UK (released in July 2007) provides the over-arching strategic framework for air quality in the UK and contains national air quality standards and objectives established by the UK Government and devolved administrations to protect human health. The air quality objectives incorporated in the AQS and the UK Legislation are derived from the Limit Values prescribed in the EU Directives transposed into national legislation by member states.

The CAFE (Clean Air for Europe) programme was initiated in the late 1990s to draw together previous directives into a single EU Directive on air quality. The Directive 2008/50/EC[2] introduces new obligatory standards for $PM_{2.5}$ for Government but places no statutory duty on local Government to work towards achievement. The Air Quality Standards (England) Regulations 2007[3] came into force on 15th February 2007 in order to align and bring together in one statutory instrument the Government's obligations to fulfil the requirements of the CAFE Directive.

The objectives for ten pollutants (benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide, sulphur dioxide, particulates (PM_{10} and $PM_{2.5}$) ozone and PAHs (Polycyclic Aromatic Hydrocarbons) have been prescribed within the Air Quality Strategy[1] based on The Air Quality Standards (England) Regulations 2007.

Part IV of the Environment Act 1995 places a statutory duty on local authorities to periodically review and assess the current and the future air quality within their area – a process known a Local Air Quality Management (LAQM). The air quality objectives that apply to LAQM are defined in Air Quality Regulations 2000[4] and Air Quality (England) (Amendment) Regulations 2002[5] for seven pollutants benzene, 1,3-butadiene, carbon monoxide, lead, nitrogen dioxide, sulphur dioxide, particulates – PM_{10}.

This Action Plan focuses on those pollutants included in Air Quality Regulations for the purpose of Local Air Quality Management, in respect of the key identified pollutant sources affecting air quality within the Council's administrative area – namely nitrogen dioxide and fine particles (PM_{10}). The objectives set out in the AQS for all the pollutants are presented in Table 1 below. The UK Government and the Devolved Administrations have also set new national air quality objectives for $PM_{2.5}$. These objectives have not been incorporated into LAQM Regulations, and authorities have no statutory obligation to review and assess air quality against them.

The locations where the AQS objectives apply are defined in the AQS as locations outside buildings or other natural or man-made structures above or below ground where members of the public are regularly present and might reasonably be expected to be exposed [to pollutant concentrations] over the relevant averaging period of the AQS objective. Typically these include residential properties and schools/care homes for longer period (i.e. annual mean) pollutant objectives and high streets for short-term (i.e. 1-hour) pollutant objectives.

[1] The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (2007), Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland
[2] Directive 2008/50/EC of the European Parliament and of the Council of 21st May 2008 on ambient air quality and cleaner air for Europe
[3] The Air Quality Standards Regulations 2007, Statutory Instrument No 64, The Stationary Office Limited
[4] The Air Quality (England) Regulations 2000 (Statutory Instrument 928)
[5] The Air Quality (England) (Amendments) Regulations 2000 (Statutory Instrument 3043)

Table 1: Air Quality Objectives included in the Air Quality Regulations for the purpose of Local Air Quality Management in England

Pollutant	Objective	Concentration Measured As	Date to be Achieved by and Maintained Thereafter
Benzene All authorities	16.25 µg/m^3	running annual mean	31.12.2003
Authorities in England and Wales only	5.00 µg/m^3	annual mean	31.12.2010
1,3 Butadiene All authorities	2.25 µg/m^3	running annual mean	31.12.2003
Carbon monoxide Authorities in England, Wales and Northern Ireland only	10.0 µg/m^3	maximum daily running 8-hour mean	31.12.2003
Lead All authorities	0.5 µg/m^3	annual mean	31.12.2004
	0.25 µg/m^3	annual mean	31.12.2008
Nitrogen dioxide [a] All authorities	200 µg/m^3, not to be exceeded more than 18 times a year	hourly mean	31.12.2005
	40 µg/m^3	annual mean	31.12.2005
Particles (PM_{10}) (gravimetric) [b] All authorities	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
	18 µg/m^3	annual mean	31.12.2010
Sulphur dioxide All authorities	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

a EU Limit values in respect of nitrogen dioxide to be achieved by 1st January 2010. There are, in addition, separate EU limit values for carbon monoxide, sulphur dioxide, lead and PM_{10}, to be achieved by 2005, and benzene by 2010.

b Measured using the European gravimetric transfer sampler or equivalent.

Where the results of the review and assessment process highlight that problems in the attainment of health-based objectives for air quality will arise, the authority is required to declare an Air Quality Management Area (AQMA) – a geographic area defined by high levels of pollution and exceedences of AQS objectives. Section 84 of the Environment Act 1995 imposes duties on a local authority with respect to AQMAs. The local authority must carry out a further assessment and draw up an action plan specifying the measures to be implemented within the AQMA, and the time-scale for doing so, to move towards attainment of the air quality standards and objectives.

Policy Guidance LAQM.PG(09) and Technical Guidance LAQM.TG(09) were published by the Government in 2009, which included guidance on the development of action plans. These guidance documents have been taken into account in development of this Action Plan, alongside guidance provided by the Department for Environment, Food and Rural Affairs (Defra) through its Air Quality Action Plan Help Desk, which provides examples of best practice and an Action Plan appraisal checklist.

1.4 Scope of the Action Plan

Where local authorities have designated AQMAs, they have a duty to produce an Air Quality Action Plan (AQAP). This plan must set out what measures the authority intends to introduce in pursuit of the AQS objectives. The principal aim of the AQAP is to minimise the effects of air pollution on human health within the local authority area using all reasonable measures, within reasonable timeframes and by working towards achieving the AQS objectives and standards. In order to comply with the AQS objectives it may be necessary to include measures beyond the boundaries of the air quality management areas. Some of the measures may also benefit areas not included within AQMAs thereby improving the health of the population in those areas.

The Further Assessment of an AQMA provides the technical backup for the measures to be included within the AQAP. The Plan should refer to the findings of the Further Assessment in terms of source apportionment (i.e. where emissions are coming from) so that action plan measures may be targeted appropriately.

An AQAP must include the following[6]:

- Quantification of the source contributions to the predicted exceedences 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 air quality objectives;
- Clear timescales in which the authority and other organisations and agencies propose to implement the measures within its plan, including estimates of the costs and benefits;
- Where possible, quantification of the expected impacts of the proposed measures and an indication as to whether the measures will be sufficient to meet the 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 purpose of the Plan is to provide the means through which local authority joint working with relevant stakeholders, such as the County Council and other relevant organisations, can deliver viable measures that will work towards achieving the Air Quality Objectives within the AQMAs. The aim is also to encourage active

[6] Policy Guidance LAQM.PG(09) (2009), Part IV of the Environment Act 1995, Local Air Quality Management, Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland, The Stationery Office

participation in the achievement of action plan measures by consulting the local community and raising awareness of air pollution issues.

Nuneaton & Bedworth Borough Council (N&BBC) has responsibility under Section 84 of the Environment Act 1995 to prepare and submit an Action Plan to the Department for Environment, Food and Rural Affairs (Defra). The Environment Act 1995 does not prescribe any timescale for preparing an Action Plan. However, LAQM.PG09 sets out the expectation from Government for AQAPs to be completed between 12-18 months following the designation of any AQMAs. The prime responsibility for preparing and submitting the AQAP rests with District and Borough Councils. However, there is a requirement on other relevant authorities to identify proposals in pursuit of the AQS objectives within their respective responsibilities and functions.

This draft Action Plan has been developed, in partnership with other relevant bodies, particularly Warwickshire County Council (WCC), to incorporate the localised measures in the AQMAs. The completed Action Plan will be circulated to all relevant authorities and strategic partners and to the members of the public.

1.5 Reporting of Action Plan

The two AQMAs within the Borough have been declared due to road traffic emissions of nitrogen oxides.

WCC is the relevant highway authority for the AQMAs and is committed to working jointly with N&BBC to improve transport within the Borough. County Councils have a duty under section 86(3) of the Environment Act 1995 to put forward proposed actions which they themselves can implement to work towards meeting the air quality objectives in AQMAs. WCC should include these measures within the air quality section of the Local Transport Plan (LTP). Once the Air Quality Action Plan has been adopted by N&BBC, it is envisaged that the Plan will be formally incorporated into the LTP by WCC.

The Action Plan reflects the relevant organisational responsibilities for actions within the AQMA and proposed measures (Section 6) that are aimed to reduce NO_2 concentrations within the two declared AQMAs and within the Borough as a whole.

2 Overview of Air Quality in Nuneaton & Bedworth

2.1 Local Air Quality Management – Review and Assessment

The conclusions of the first round of local air quality review and assessment, commencing in 1998, were that all air quality objectives were expected to be met and no AQMA were declared.

Following the outcome of the second round Updating and Screening Assessment (USA) in 2003, the Council undertook a detailed assessment in 2004, which concluded that there was a potential risk of exceedence of the annual mean NO_2 objective at receptors adjacent to the Leicester Road Gyratory, based on the limited monitoring data available at that time. Further monitoring and modelling was undertaken to confirm the findings of the detailed assessment and the results indicated that there remained a risk of exceedences of the annual mean NO_2 objective at sensitive receptors adjacent to the Leicester Road Gyratory. The area was declared as an AQMA on 1st March 2007 and a continuous monitoring station was installed. The Further Assessment was completed in January 2008 and results are presented in Sections 2.3 and 2.4.

Nuneaton & Bedworth Borough Council completed the third round USA in June 2006 with the conclusion that a Detailed Assessment was not required for any pollutant. However, subsequent annual progress reports indicated, through local monitoring data, exceedences of the annual mean NO_2 objective along Central Avenue in Nuneaton and a Detailed Assessment was undertaken in 2008. This concluded that there was a potential risk of exceedences of the annual mean objective for nitrogen dioxide and recommended declaration of a second Air Quality Management Area. An AQMA covering the Corporation Street to Midland Road was declared in October 2009. The Further Assessment has been completed in 2010 results are presented in Sections 2.3 and 2.4.

The 2008 Annual Progress Report (APR) indicated a number of roadside/kerbside sites may be at risk of exceedence of the annual mean objective outside the areas previously assessed. It was therefore recommended that façade based monitoring be installed at these locations to demonstrate compliance with the objective.

The fourth round 2009 USA findings indicated the objectives were likely to be achieved for all pollutants outside of the existing AQMA. A Detailed Assessment of PM_{10} was recommended to assess the impact of fugitive emissions from waste transfer facilities ABS Skips, Midland Road, Nuneaton; Crown Waste, Pool Road, Nuneaton; and Budget Skips (and Hammonds Skips - adjoining premises), Colliery Lane, Exhall. It was also suggested to commence additional diffusion tube monitoring at Black Bank at the junction of Colliery Lane and Coventry Road, and the West Coast Main Line. At present no progress has been made with a PM_{10} survey due to funding difficulties.

Figure 1 - Leicester Road Gyratory AQMA (2007)

Figure 2 - Midland Road to Corporation Street AQMA (2009)

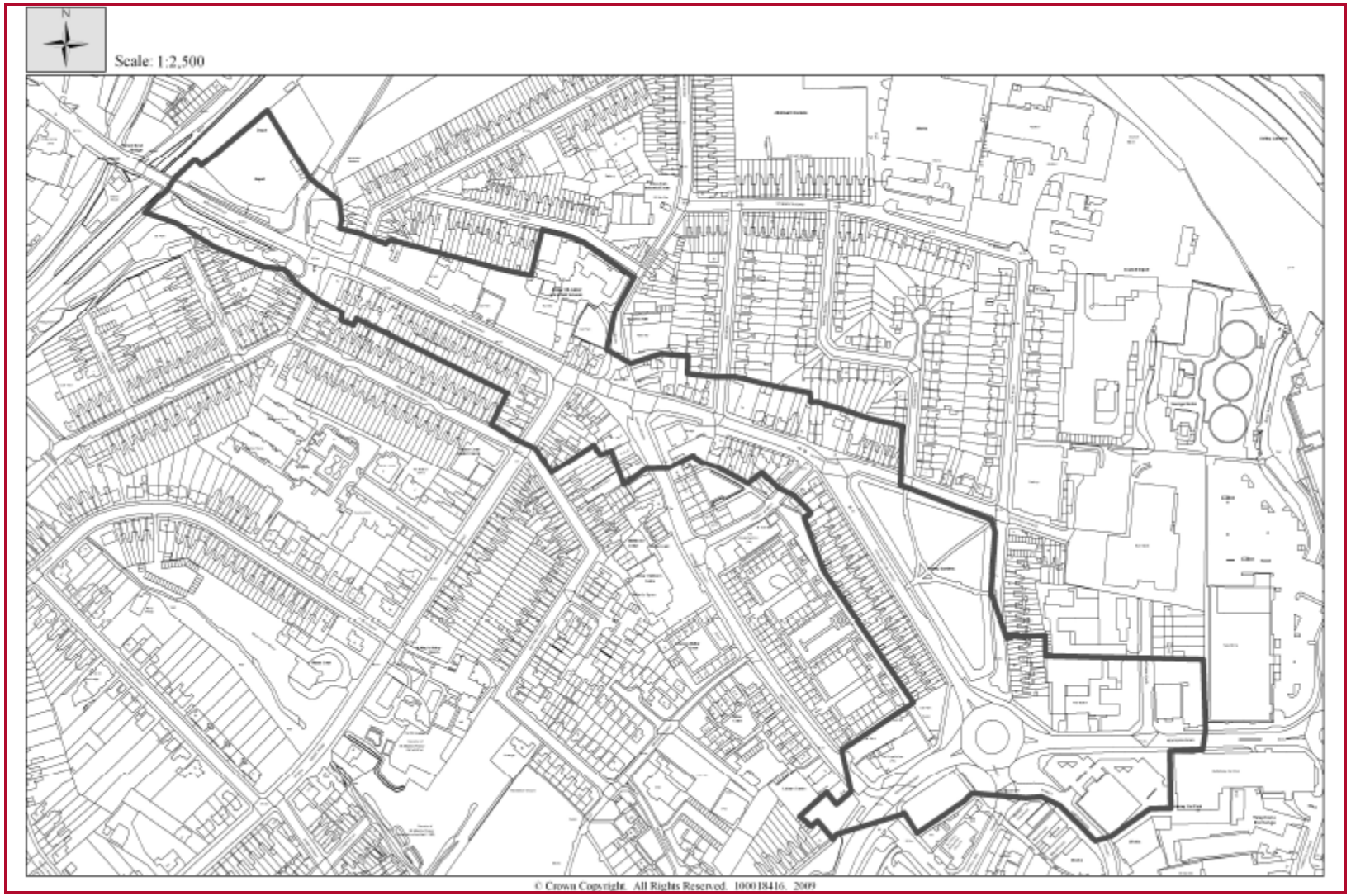
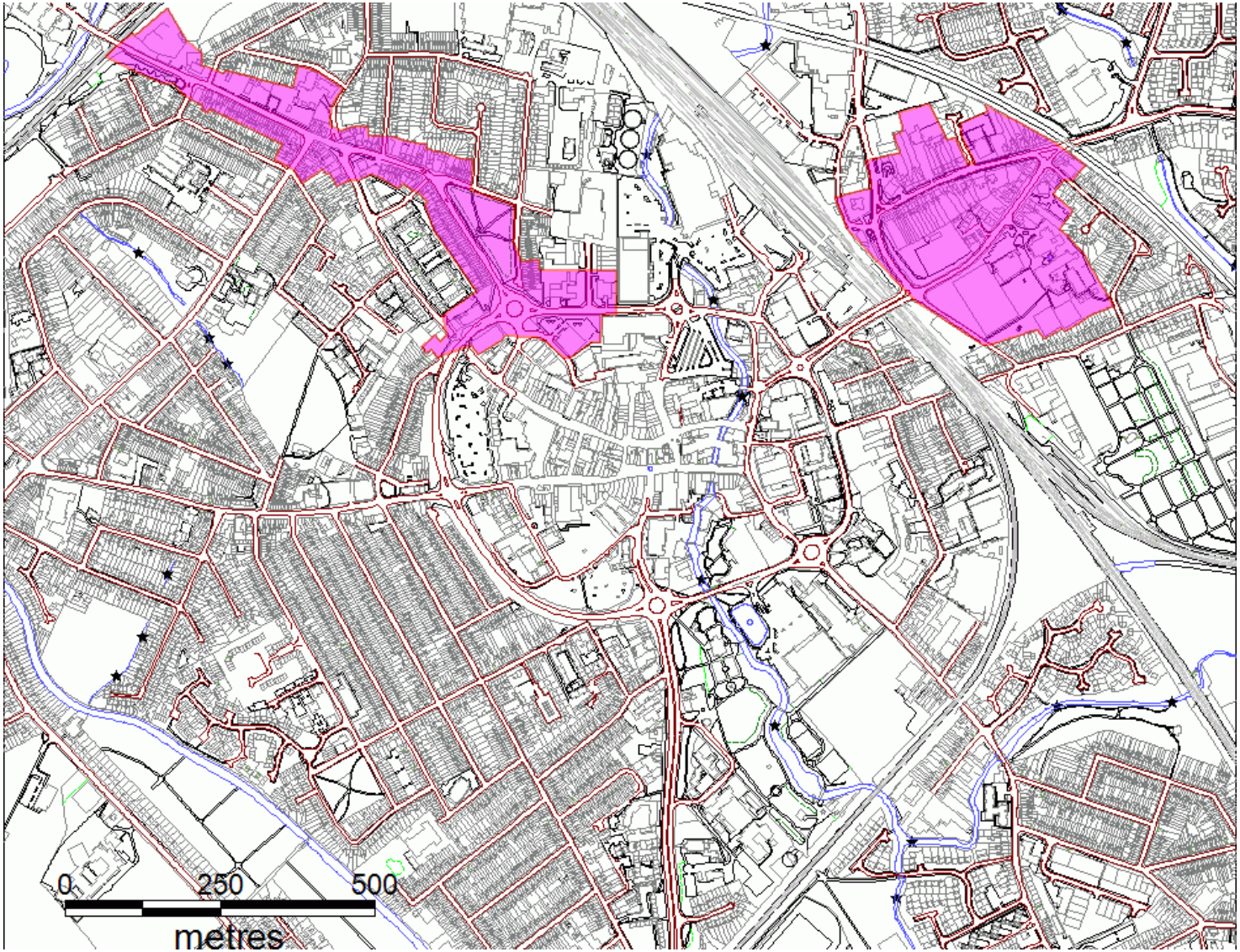


Figure 3 - Nuneaton AQMAs



2.2 Monitoring Data

There is currently automatic monitoring of nitrogen dioxide (NO_2) undertaken by the Council at one location in the Leicester Road Gyratory AQMA in Nuneaton. The station was installed in 2007, to more accurately assess NO_2 concentrations in the AQMA. NO_2 concentrations are measured using a chemiluminescent analyser.

This site continues to measure exceedences of the NO_2 annual mean objective. All other objectives are currently being met.

Table 2 - Nuneaton Roadside Continuous Monitoring Results 2007 - 2009

Location	OS Grid Ref (X,Y)	Within AQMA?	Description	2007	2008	2009	AQS Objective
Nuneaton Leicester Road A47 Roadside	436850, 292260	Yes - Leicester Road Gyratory	Annual Mean NO_2 ($\mu g/m^3$)	36	**40**	39.1	40
			NO_2 Hourly Mean > 200μgm^3	0	0	11	18 exceedences allowed
			% Data Capture	(39) 93% for the period	97%	90%	-

Exceedences of the air quality objectives are shown in bold. Data capture less than the recommended 90% is shown in brackets.

Additionally, the Council operated a network of 40 NO_2 diffusion tubes sites in 2009, of which 12 are within the Leicester Road Gyratory AQMA and 7 within the Midland Road / Corporation Street AQMA. 6 of these sites exceeded the NO_2 annual mean AQS objective in 2009. Results for the past three years at the sites located in the Nuneaton AQMA are provided in Table 3.

Table 3 - Diffusion Tube Results in Nuneaton AQMAs

Site ID	Location	Site Type	X	Y	In AQMA *	NO_2 Annual Mean Concentrations $\mu g/m^3$) Adjusted for Bias			Data Capture 2009 (%)
						2007 (Bias 0.89)	2008 (Bias 0.90)	2009 (Bias 0.90)	
NB9	Manor Court Road	Kerbside	435634	292259	AQMA2	37	34	36.1	92
NB10	17 Old Hinckley Road	Kerbside	436600	292206	AQMA1	38	34	35.9	100
NB11	34 Old Hinckley Road	Roadside	436675	292259	AQMA1	**47**	**47**	**43.4**	100
NB12	64 Old Hinckley Road	Roadside	436830	292308	AQMA1	**42**	**44**	39.4	100
NB14	46 Leicester Road	Roadside	436783	292174	AQMA1	**41**	**45**	**42.9**	100
NB15	Bridge Grove-Leicester Road	Kerbside	436878	292300	AQMA1	35	30	33.9	100
NB16	Graziers Arms	kerbside	436579	292205	AQMA1	37	33	30.0	100
NB AQMA1	AQMA Leicester Road	Co-location triplicate	436844	292251	AQMA1	**-**	**-**	36.4	83
NB20	17 Old Hinckley Road (façade)	Façade	436604	292201	AQMA1	33	33	32.7	100
NB21	36 Old Hinckley Road (façade)	Façade	436690	292271	AQMA1	37	37	34.5	100
NB22	64 Old Hinckley Road (façade)	Façade	436829	292311	AQMA1	30	31	30.6	100
NB23	46 Leicester Road (façade)	Façade	436783	292174	AQMA1	39	39	36.2	100
NB24	31 Leicester Road	Façade	436813	292199	AQMA1	33	29	28.1	100
NB25	25 Central Avenue	Façade	435817	292273	AQMA2	**43**	37	36.6	100
NB26	26 Central Avenue	Façade	435758	292312	AQMA2	34	33	35.0	100
NB27	90 Corporation Street	Façade	435949	292113	AQMA2	**41**	**45**	**44.3**	100
NB28	138 Corporation Street	Façade	435894	292202	AQMA2	38	**46**	**40.0**	100
NB29	16 Midland Road	Façade	435626	292343	AQMA2	**41**	**50**	**46.3**	100
NB30	50 Midland Road	Façade	435559	292375	AQMA2	**40**	**42**	**45.6**	100

* AQMA1 = Leicester Road Gyratory
AQMA2 = Midland Road / Corporation Street

2.3 Source Apportionment

The source apportionment of NO_x and NO_2 is estimated through the monitored and modelled concentrations. The source apportionment of NO_2 is complicated as the relationship between NO_2 and NO_x emissions is non-linear. The source apportionment is based on two main components, which are apportioned further: background (local and regional) and local (such as from various vehicle categories e.g. cars, LGVs, HGVs and buses).

Contributions for all sources were calculated at the receptor representative of public exposure in the exceedence area where the maximum concentration was predicted, thus representing the worst case scenario.

Source apportionment calculations were carried out in the Further Assessments (in 2007 for the Leicester Road AQMA and in 2010 for the Midland Road / Corporation Street AQMA). Results are presented below for each AQMA. Source apportionment is more detailed for the Midland Road / Corporation Street AQMA as it reflects changes in the methodology recommended in Technical Guidance LAQM.TG(09)[7].

2.3.1.1 Leicester Road Gyratory AQMA

The source apportionment for the Leicester Road Gyratory AQMA was carried out based on the methodology available at the time, which was Technical Guidance LAQM.TG(03)[8]. With regard to vehicle classes, only Heavy-Duty Vehicles (HDVs – comprising of HGVs and buses/coaches) and Light-Duty Vehicles (LDVs comprising of cars and LGVs) were available at the time.

The results of the source apportionment work indicated that road traffic emissions are the main source of NO_x in the AQMA (67%). The HDV class vehicles are contributing disproportionately to NO_x concentrations in the AQMA; contributing to half of the NO_x concentrations from traffic, but being only a small proportion (5%) of the vehicle fleet.

Table 4 - Source Apportionment of NO_x - Leicester Road Gyratory AQMA

Source	NO_x Concentration ($\mu g/m^3$)	NO_x Contribution
Background	36.2	33%
Local Road Source Contributions (LDVs + HDVs)	73.6	67%
▪ **HDVs**	38.7	35%
▪ **LDVs**	34.9	32%

2.3.1.2 Midland Road / Corporation Street AQMA

The source apportionment was carried out for the following vehicle classes: cars, light goods vehicles (LGVs), buses and heavy goods vehicles (HGVs) - while the UK modelled background pollutant maps allowed source apportionment of the background contribution, as shown in Table 5. This is consistent with the

[7] Technical Guidance LAQM.TG(09) Box 7.1
[8] The updated Technical Guidance LAQM.TG(09) was released after the Further Assessment of the AQMA, carried out in 2007.

methodology recommended in LAQM.TG(09). The source apportionment indicated that:

- Road traffic emissions are the main contributor to NO_x, as they account for 79% of the total NO_x concentration at the worst-case receptor;
- Of the road traffic sources, cars are the most significant contributor, with around 26% of the total NO_x concentrations, with heavy-goods vehicles (HGVs) and buses following with a contribution of respectively 23% and 20%, and finally light-goods vehicles (LGVs) with a 10% contribution. The contribution of HGVs and buses is quite significant especially if compared to the proportion of the vehicle fleet they represent;
- Background concentrations account for 21% of the total NO_x concentration at the worst-case receptor, with about 7% due to regional background concentrations outside the Local Authority's influence;
- Similar to NO_x, the source apportionment of NO_2 indicates road traffic emissions to be the most significant contributor, contributing 68% to overall NO_2 concentrations.

Table 5 - Source Apportionment of NO_x - Midland Road / Corporation Street AQMA

Source	NO_x Concentration ($\mu g/m^3$)	NO_x Contribution	NO_2 Concentration ($\mu g/m^3$)	NO_2 Contribution
Total NO_X 2009 (Total Background + Local Road Source)	124.1	100%	53.0	100%
NO_X Total Background (Local + Regional)	26.1	21.0%	16.9	31.9%
▪ **NO_X Local Background**	17.8	14.3%	11.5	21.7%
▪ **NO_X Regional Background**	8.3	6.7%	5.4	10.2%
Local Road Source Contributions (LDV + HDV)	98.0	79.0%	36.1	68.1%
▪ **NO_X CARs**	31.9	25.7%	11.7	22.1%
▪ **NO_X LGVs**	12.7	10.3%	4.7	8.8%
▪ **NO_X HGVs**	28.3	22.8%	10.4	19.7%
▪ **NO_X BUSes**	25.1	20.2%	9.2	17.4%

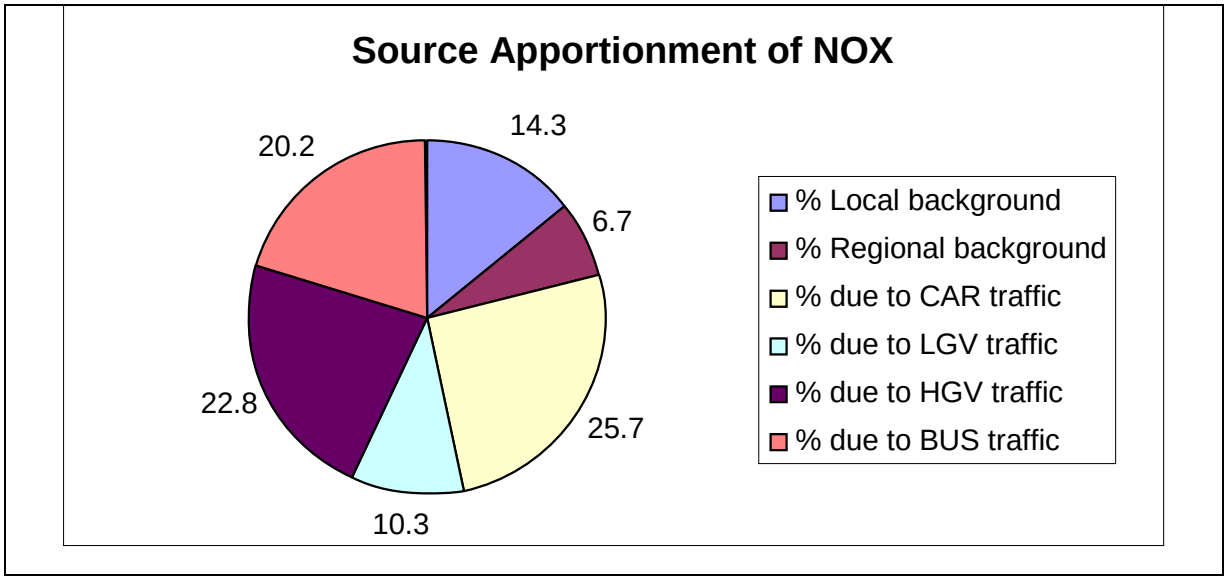


Table 6 - Source Apportionment of NO_x Background Concentrations

Background Source	NO_x Concentration ($\mu g/m^3$)	NO_x Contribution to Total Background Concentration
Local Background	17.8	68.2%
▪ Road Sources (minor roads only as all main roads have been included in the dispersion modelling)	1.5	5.7%
▪ Industry (combustion in industry, energy production, extraction of fossil fuel, and waste)	5.9	22.6%
▪ Domestic	1.4	5.4%
▪ Aircraft	5.0	19.2%
▪ Rail	0.0	0.0%
▪ Other (ships, offroad and other emissions)	1.5	5.7%
▪ Point Sources	2.4	9.2%
Regional Background	8.3	31.8%
Total Background	26.1	100.0%

2.4 Required Reductions in NO_2

A requirement of the Further Assessment is to determine the amount of NO_x/NO_2 reduction required at the worst-case receptors within the exceedence area. This approach highlights the maximum reduction in NO_2 required (as NO_x, in $\mu g/m^3$) to comply with the AQS objective, and assumes that other receptors will require less of a reduction.

2.4.1.1 Leicester Road Gyratory AQMA

The required NO_x/NO_2 reduction in Leicester Road Gyratory AQMA to comply with the AQS objective was carried out for the Further Assessment 2007. A maximum NO_x reduction of 9.5µg/m^3 (equivalent to a 9% improvement in NO_x) was calculated, equivalent to a 2.3µg/m^3 reduction in NO_2 (i.e. a 6% improvement in NO_2 concentrations). Consequently, the formulation of an Action Plan should aim to reduce the levels of NO_x/NO_2 within the Leicester Road Gyratory AQMA by this amount.

2.4.1.2 Midland Road / Corporation Street AQMA

The required NO_x/NO_2 reduction in the Midland Road / Corporation Street AQMA to comply with the AQS objective was determined for the Further Assessment 2010.

A maximum NO_x reduction of 50.5µg/m^3 (equivalent to a 41% improvement in NO_x) was calculated. This equates to a 13.0µg/m^3 reduction in NO_2 (equivalent to 25% improvement in NO_2 concentrations). Consequently, the formulation of the Action Plan should aim to reduce the levels of NO_x/NO_2 within the Midland Road / Corporation Street AQMA by this amount.

3 Local Policies and Strategies

There are a number of related policies and strategies at the local level that can be tied in directly with the aims of the Air Quality Action Plan, and will help contribute to overall improvements in air quality across the Borough.

3.1 Sustainable Community Plan for Nuneaton & Bedworth (2007 – 2021)

At the beginning of 2007, the Government challenged Local Strategic Partnerships to turn their existing community strategies into "sustainable" community strategies by developing a stronger focus on integrating social, economic and environmental issues and by tackling the longer-term and global impacts on communities.

Nuneaton & Bedworth Borough Council launched its Sustainable Community Strategy 2007 – 2021 in April 2007[9].

The Sustainable Community Strategy sets out the long-term vision for Nuneaton and Bedworth. One of the key themes in the Sustainable Community Strategy is to achieve a Sustainable Borough, with the following aims for the environment and transport:

- **Environment:** Have a high quality environment with increased biodiversity and a sustainable approach to waste and energy.
- **Travel and Accessibility:** To improve the Borough's transport infrastructure in order to provide easier access to key services and facilities.

Actions set out in the Strategy with respect to the environment and transport include the following:

[9] www.nuneatonandbedworth.gov.uk/community-living/community-advice/community-strategy/community-plan

- Raise awareness of renewable energy and work in partnership to make the Borough more energy efficient.
- Encourage the use of public transport.
- Encourage more people to walk and cycle where possible.
- Develop car share programmes.

3.2 Nuneaton & Bedworth Borough Council Local Development Framework

As required by the Planning and Compulsory Purchase Act 2004 Local Plans are in the process of being replaced by Local Development Frameworks (LDFs). The Local Development Scheme (LDS) 2010 sets out how N&BBC intends to produce its LDF as well as its timetable for production. The Nuneaton and Bedworth LDF will comprise of a series of Local Development Documents (LDDs), the most important of which is the Core Strategy, which will detail the strategic planning policies for the local area until 2026. During plan preparation Strategic Environmental Appraisal/Sustainability Appraisal needs to be undertaken to ensure the social, environmental and economic implications of future growth have been fully considered, and where appropriate, mitigated. In addition there is a need to prepare a Statement of Community Involvement (SCI) as a part of the LDF. The SCI identifies how the Council will consult on the various parts of the LDF; including with those groups that are traditionally hard to reach.

3.3 Nuneaton & Bedworth Borough Local Plan (2006)

The planning policies contained within the Nuneaton and Bedworth Local Plan, were adopted in June 2006. Following the introduction of Local Development Frameworks in 2004, certain policies within the Local Plan have been 'saved' to act as a part of the Development Plan for the Borough until the new LDF policies are gradually adopted.

Saved policies within the Nuneaton and Bedworth Borough Local Plan, which are particularly relevant to air pollution and transport issues, are shown below.

Policy T6:

"Where other material considerations do not indicate otherwise, planning permission will be granted for proposals which provide new or improved public transport interchanges, and development will not be permitted which prejudices the future use of the rail network."

Policy T10:

"Parking provision for new developments, including changes of use, shall not exceed the maximum standards set out in Annex D of PPG13 "Transport" and in the Council's Supplementary Planning Guidance (SPG). Proposals for residential development shall have regard to the SPG standards and the advice on car parking in paragraphs 59-62 of PPG3."

By 2012 these policies will have been replaced by new policies contained within the Nuneaton and Bedworth LDF Core Strategy, subject to its successful adoption.

3.4 Warwickshire Local Transport Plan

The Local Transport Plan sets out the Strategy and Implementation Plan detailing how the County Council and its partners intend to improve transport. Warwickshire's second Local Transport Plan (LTP2) was published in April 2006, covering the period 2006-2011. This Plan is currently being reviewed and the third Local Transport Plan (LTP3) will be published in April 2011, covering the period 2011-2026.

The LTP outlines policies, strategies and schemes designed to improve transportation, environment and quality of life across the whole of Warwickshire. It includes an Air Quality Strategy, which outlines five policies intended to have a direct positive impact on air quality within Warwickshire. These are:

- **Policy AQA1 –** Improve air quality through partnership working.
- **Policy AQA2 –** Maintain areas of good air quality.
- **Policy AQA3 –** Increase public awareness of air quality issues.
- **Policy AQA4 –** Annually review the Air Quality Strategy.
- **Policy AQA5 –** Integrate air quality and traffic planning goals.

The new LTP sets out proposals for the Nuneaton and Bedworth area, which will have a positive impact on air quality within the two AQMAs. It is intended to incorporate this Air Quality Action Plan in the final version of LTP3.

3.5 Warwickshire Climate Change Strategy

"Thinking global, acting local" Warwickshire Climate Change Strategy was adopted in June 2006. It builds on environmental and sustainable development policies produced and tested by WCC. An Action Plan has been put in place and annual progress reports are compiled yearly to measure progress. The action plan covers a range of projects in five key areas: energy, transport, resource efficiency, adaptation, communications and education.

The key objective tied in with the aims of the Nuneaton Air Quality Action Plan is the following:

Transport: "*To reduce greenhouse gas emissions resulting from transport (particularly road transport) both through our transport planning function and our own activities. This will be achieved by effective consideration and promotion of public transport, car sharing, home working and other interventions, as well as encouraging walking and cycling.*"

4 Financing

The Warwickshire Local Transport Plan has historically allocated funding to a number of schemes in the Borough of Nuneaton & Bedworth that have helped to deliver a number of Action Plan measures to improve air quality in the AQMAs. This includes development of Quality Bus Corridors, traffic management measures and encouraging the uptake of travel plans.

Annual funding towards Safer Routes to School, pedestrian and cycle schemes has also been made available through the LTP. N&BBC will work together with WCC to review current schemes for the area in the light of the findings of the review and assessment of air quality. Additional schemes will be implemented where funding allows, to secure further improvements in air quality.

Other measures to improve air quality in the two Nuneaton AQMAs and across the Borough, such as air quality monitoring and promotional activities, will be funded by N&BBC, or via the mechanisms established to implement and finance the priorities set out in the Core Strategy Infrastructure Delivery Plan. These priorities will relate to the Leicester Road Gyratory and Midland Road / Corporation Street areas and across the wider urban area of the town, if the generated traffic from future development is shown to negatively impact on the AQMAs.

5 Consultation

Under Schedule 11 of the Act, Local Authorities are required to consult on their draft LAQM Action Plan. It is important for the success of the Action Plan to have involvement by all local stakeholders including local residents, community groups and local businesses in the drawing up the Action Plan in addition to their active participation in achieving the action plan measures. The Action Plan has been drawn up for consultation with relevant representatives from N&BBC and WCC, through the Nuneaton AQMAs Air Quality Steering Group.

The following is a list of statutory and non-statutory consultees to which this draft Plan will be sent:

- The Secretary of State
- The Highways Agency
- The Environment Agency
- Warwickshire County Council
- Primary Care Trusts
- N&BBC Councillors and Officers
- Neighbouring local authorities
- Local residents within and bordering the AQMA
- Relevant local businesses, community groups and forums
- Other relevant local stakeholders

All comments from both Statutory and non-statutory consultees received on the draft Action Plan will be considered and incorporated where appropriate into the final Action Plan. The timescale for consultation shall be a minimum of 8 weeks.

6 Action Plan Proposals for Nuneaton & Bedworth Borough Council

The following section outlines a number of proposed measures, which will reduce NO_2 concentrations within the two declared AQMAs. It is hoped that a number of these measures will also positively contribute towards reducing background levels of pollution within the Borough as a whole.

In order to inform the action planning process a simple assessment of the cost and benefit of each proposal has been undertaken. Table 7 gives an indication of the scoring used. A simple multiplication of the cost and impact, (score X score), gives some indication as to the cost effective score of the proposals. This methodology is commonly applied across the UK.

The ranking of options has been based on professional judgement through the assessment of a number of considerations; including the costs and benefits of all the options, feasibility and acceptability, and whether they will achieve the AQS objective. It is likely that the NO_2 annual mean objective will only be achieved through a combination of measures.

At this stage the impact assessment is qualitative. Quantitative air quality impact assessment of the principal LTP measures will be undertaken when relevant information on the detailed schemes becomes available.

Table 7 - Scoring Used to Assess and Prioritise Proposals

Costs		Air Quality Impacts		Timescale*	
Score	**Approximate Cost**	**Score**	**Indicative Impact**		**Years**
7	<£10k	7	>5 µg/m^3	Short (S)	1- 2
6	£10-50k	6	2-5 µg/m^3	▼	▼
5	£50k-100k	5	1-2 µg/m^3		
4	£100k-500k	4	0.5 - 1 µg/m^3		
3	£500k-1 million	3	0.2 – 0.5 µg/m^3	Medium (M)	3-5
2	£1-5 million	2	0 - 0.2 µg/m^3	▼	▼
1	>£5million	1	0 µg/m^3	Long (L)	6+

6.1 Proposed Measures for the AQMA

The following provides a number of action plan measures proposed to reduce NO_X emissions in both AQMAs in pursuit of the annual mean Air Quality Strategy objective and EU Limit Value for NO_2.

The A47 Leicester Road Gyratory is a key strategic route in/out of Nuneaton, due to the constraint issue of one railway bridge crossing in the town centre, and therefore achieving reductions in traffic on this road to improve air quality is considered challenging.

The B4114 Midland Road/Corporation Street approach to the town also carries a significant volume of vehicles to/from a number of residential areas in North West Nuneaton. The use of this corridor is also likely to intensify in the future with the planned redevelopment of the former Judkins Quarry and further regeneration in and around Camp Hill.

Over the last 10 years traffic levels in the Nuneaton urban area, as recorded by outer cordon traffic surveys, have slightly increased overall. The solution to the air quality problem in both AQMAs is more likely to be achieved through the implementation of a package of measures to achieve modal shift towards sustainable transport modes and restrain traffic growth.

6.1.1 Traffic Management Measures

Any future opportunities to change the traffic management arrangements within Nuneaton town centre are likely to come about as a result of the growth proposals within the Borough Council's Local Development Framework (LDF) Core Strategy. This could include provision of additional capacity on the Ring Road and its approaches, and wider Urban Traffic Management Control (UTMC) measures such as traffic signal co-ordination and Variable Message Signing (VMS) to public car parks. The specific nature and scale of these improvements will be identified using the County Council's Nuneaton and Bedworth S-Paramics model. This work will be undertaken to inform the County Council's response to the LDF Core Strategy Preferred Option. Some preliminary feasibility work on VMS has already been undertaken by the County Council.

AQAP 1: N&BBC will work in partnership with WCC to identify and bring forward traffic management improvements in Nuneaton town centre, particularly where they will benefit the two AQMAs.

6.1.2 Sustainable Freight Improvements

The LTP includes a Sustainable Freight Distribution Strategy, which sets out a range of measures which will be delivered in the short/medium term. These include keeping the Warwickshire Advisory Lorry Map under review. This is particularly important to the Action Plan given the impact that HDVs (HGVs and buses) have on air quality within the AQMAs. The second edition of the Lorry Map review was published in 2009. The presence of important roads such as the A444 and B4114 within the AQMAs mean that it is difficult to direct HDVs traffic away from them.

AQAP 2: N&BBC will work in partnership with WCC to identify measures to reduce the impact of HGV movements within the area.

6.1.3 Improvements for Pedestrians and Cyclists

The LTP includes strategies to promote walking and cycling. These suggest that a combination of measures related to promotion, information and infrastructure provision are needed to encourage and facilitate these modes. Their provision is also vital as part of the development process to ensure that new housing and employment sites come forward in a sustainable way.

Recent examples of schemes to improve walking and cycling include the following:

- A444 Weddington Road cycleway;
- Attleborough – Bermuda cycle route;
- Upgrade of pedestrian crossing facilities, Arbury Road, Nuneaton; and
- Provision of a new toucan crossing, Leicester Road/Trent Road.

Further new and enhanced pedestrian and cycle facilities are proposed to come forward through the LTP and as part of new development promoted through the LDF Core Strategy.

AQAP 3: N&BBC will work in partnership with WCC and Sustrans to deliver further improvements for pedestrians and cyclists within the area.

6.1.4 Public Transport Improvement Measures

Opportunities exist for better physical integration of transport within and between modes at Nuneaton Bus Station and the railway station. Improvements to Nuneaton Bus Station are planned to come forward as part of the redevelopment proposals for the town centre which are being promoted through the LDF Core Strategy. The existing bus station is well located between the town centre and the railway station. A reconfiguration of the layout of the bus bays would reduce the area taken by the bus station, whilst allowing for potential growth of services. The layout and orientation of any new development would be designed to strengthen the physical and visual link between the bus station and rail station.

There are proposals in the LTP to improve bus reliability and reduce journey times on key corridors through bus priority measures and further Quality Bus Corridors (QBCs) and Initiatives (QBI).

In line with the LTP Bus Strategy, WCC will work with bus operator Stagecoach in Warwickshire to develop further QBCs. Nationally, the introduction of initiatives such as QBCs has resulted in an increase in bus patronage of 30-36%. The QBC concept

proved successful during the first and second Warwickshire LTP's in increasing patronage on key commercial bus routes. The concept combines the provision of enhanced bus stop infrastructure and information by WCC as the highway authority, with improved vehicle and service frequency enhancements provided by the operator.

As part of the North Warwickshire Quality Bus Initiative, the BIA - Coleshill - Coleshill Parkway - Hams Hall - Nuneaton QBI Scheme was delivered in partnership with Stagecoach in Warwickshire. The bus service links key local centres and rural communities with access to the new Coleshill Parkway transport interchange, Birmingham International Airport (BIA) and railway station, employment sites and educational facilities. It also forms the first part of a M42 public transport corridor from Tamworth to Stratford-upon-Avon which the West Midlands Multi-Modal Study believed essential for continued economic growth and social development.

The scheme involved the procurement of 3 full size single decker buses to operate on Service 717 (BIA - Coleshill - Coleshill Parkway - Hams Hall - Nuneaton). The bus route was also extended to serve both the Coleshill parkway Transport Interchange and Birmingham International Airport and the frequency of the bus service was increased to hourly. Patronage on Service 717 has increased by 15% since the QBI scheme was delivered[10], which is in line with the LTP target.

In terms of rail transport, WCC is promoting a major upgrade of passenger rail services in the North-South Corridor between Leamington Spa and Nuneaton, as part of the NUCKLE scheme (**Nu**neaton, **C**oventry, **K**enilworth and **Le**amington/Warwick). Phase 1 of NUCKLE includes new stations at Bermuda and Ricoh Arena, with delivery proposed in the short term (2011-2016).

AQAP 4: N&BBC will work in partnership with WCC, public transport operators, DfT Rail and Network Rail to implement better integration of public transport in Nuneaton, including improvements for bus, rail and community transport infrastructure and services.

6.1.5 Travel Plans

A Travel Plan is a general term for a package of tailored measures to encourage the use of sustainable methods of transport and reduce the reliance on the private car, particularly in terms of single occupancy travel. They can be for one or a group of organisations and involve the development of a set of mechanisms, initiatives and targets that together can reduce the environmental and health impacts of travel. Using alternative fuels and home working can also be included. Travel Plans are also being developed for schools, residential, employment and mixed-use developments.

School Travel Plans

A School Travel Plan is a set of measures to help cut the number of car journeys people make to school, by encouraging more journeys by public transport, walking and cycling. National experience suggests that a reduction in the number of cars driven to school can be achieved by between 4 and 23 for every 100 pupils, equivalent to between 8% and 52%.

[10] Warwickshire County Council data – Comparison between 2006/07 baseline and opening 2008/09

There are a number of schools within or near to the AQMAs within Nuneaton, where implementation of School Travel Plans will be of significance. Of particular note is Etone School, which is within the Leicester Road Gyratory AQMA. The School produced a Travel Plan in 2005, which set out key objectives to increase travel awareness and uptake of non-car modes, notably the encouragement of cycling. The school has spent their School Travel Plan grant on cycle storage and improving access.

The School Travel Survey census results are provided in Table 8.

Table 8 – Etone School Travel Survey

Date	Walk	Cycle	Car	Car Share	Bus	Other	Number of Pupils
2008/09	41.5%	5%	38%	4%	10.5%	1%	760
Jan 2008 census	328 43%	30 4%	308 40%	1 0%	88 12%	6 (taxi) 1%	761
Jan 2007 census	358 47%	39 5%	265 35%	0 0%	98 13%	6 (taxi) 1%	766
Oct 2005 hands up	51%	10%	7%	20%	11%	1%	710
Oct 2004 hands up	51%	12%	27%		9%	1%	

The Warwickshire LTP target for journeys to school is to maintain the proportion of car (sole passenger) journeys to school at 2005/06 levels (15%). This is considered stretching given that, with no investment, sole passenger car use for journeys to school could be expected to rise to between 20-25% of trips.

Workplace Travel Plans

A Workplace Travel Plan should be tailored to the needs of individual businesses. It considers journeys from home to work, but can also include business journeys, travel by visitors, deliveries, contractors and company cars. Large organisations may benefit from a whole range of new ideas and changes, while small businesses may only need to make one or two very simple changes to make a big difference. National experience suggests that a reduction in the number of cars driven to work can be achieved by 14 for every 100 members of staff.

Within Nuneaton & Bedworth there is already a planning requirement for all new business developments likely to generate significant travel demand and/or travel movement to submit travel plans as part of their planning permission.

N&BBC will work in partnership with WCC to target those organisations in the borough which are generating high volumes of traffic, notably those impacting on the two AQMAs.

Personalised Travel Planning

Personalised travel planning is the provision of individually tailored transport information, usually in terms of details of public transport services or cycle routes. According to research undertaken in Germany, Australia, the US and UK, personalised travel planning can lead to a reduction in car driver trips of between 7-15% amongst targeted populations in urban areas. In Warwickshire, some personalised travel planning is provided by WCC through implementation of the LTP Changing Travel Behaviour Strategy and the WCC Travel Plan commitment.

AQAP 5: N&BBC will work in partnership with WCC to increase uptake and implementation of School and Workplace Travel Plans, particularly where they are likely to impact on the AQMAs.

Council Travel Plan

The Government is keen for local authorities to demonstrate their commitment to delivering cleaner air by leading by example and therefore the implementation of a Council Travel Plan is a key measure to take forward in the Air Quality Action Plan.

Targets have been included in the Borough Council Environmental Sustainability Strategy 2010-2013 "To re-launch Car Share database for NBBC employees" and "To develop a Local Green Travel Plan policy". Both of these targets have been achieved and the Travel Plan policy is available at www.nuneatonandbedworth.gov.uk. The aims of the policy are fourfold:

a) To help to relieve traffic congestion.
b) To assist with a reduction in CO_2, nitrogen oxides and air particulates.
c) To improve health and fitness for employees taking up walking or cycling.
d) To assist with financial savings for both the Council and employees in some areas.

There will be a need for ongoing implementation of this policy and monitoring of success. The key measure of success will be a year on year improvement in the reduction of car journeys.

There are also clear policies in place for ensuring Council owned vehicles have high standards for emission levels through the Council's vehicle replacement policy and Reducing Pollution Certificate (RPC) for commercial vehicles. N&BBC will build upon the current schemes for employees to encourage reduced car use through its Travel Plan policy.

Carshare Warwickshire www.carsharewarwickshire.com is a regional car sharing scheme for businesses and the public which is part of the UK's liftshare network. There are over 374,000 car sharers registered with the liftshare network[11].

[11] www.carsharewarwickshire.com – Accessed June 2010

Carplus www.carplus.org.uk is the national charity promoting responsible car use through schemes such as car clubs. On 1st February 2010 there were 113,000 car club members across the UK using 2,260 cars[12].

A Car Club provides its members with quick and easy access to a car for short term hire. Members can make use of Car Club vehicles as and when they need them. Car Clubs offer cost savings as members of a car club pay lower fixed costs than car owners. The annual membership typically costs less than a tax disc. There are often low user membership fees for those doing only one or two trips a month. After that you pay as you drive.

Car Clubs result in a reduction in car miles driven, with members walking or cycling more, using public transport more often or simply re-arranging how they make journeys and travelling less. Reducing car miles driven in turn reduces exhaust emissions and improves air quality.

Belonging to a car club makes it easier for people to meet their transport needs without running their own car, or in some cases without owning a second car. Research in the UK and overseas has found significant changes in travel behaviour once the link between car use and car ownership is broken. Car club members typically drive less and make more use of public transport, cycling and walking. In the UK, former car owners increase their use of non-car transport modes by 40% after joining a car club. Two-thirds of those who owned a car before joining saw their mileage fall, by an average of around 25%. Car club users typically give up owning a first or second car on joining; others defer purchasing one due to using the car club instead. The result being that each car club car typically replaces 6 private cars.

Within Warwickshire, there are currently no Car Clubs in operation. However, it is being considered as part of the Action Planning process in Rugby where, similar to Nuneaton, road traffic emissions are the main source of air quality issues.

AQAP 6: N&BBC will continue to develop, implement and monitor its Travel Plan policy

6.1.6 Spatial Planning

Section 3.4 summarises the saved policies within the Nuneaton & Bedworth Borough Local Plan (2006), which currently contribute to securing air quality improvements. New policies relating to air quality and sustainable transport will be brought forward within the emerging N&BBC Local Development Framework (LDF) and adopted by 2012.

Strategic policies within the LDF Core Strategy have a key role in delivering sustainable transport systems within the area by considering and influencing the accessibility, location, scale, density, design and mix of development and encouraging alternative modes of travel. In addition, the Core Strategy Infrastructure Delivery Plan will establish the priorities for future investment in the Borough to 2026. Any improvements required to the AQMAs will therefore need to be incorporated into

[12] Carplus Annual Survey of Car Clubs Report (2009/10) – Available online at www.carplus.org.uk

the IDP in order that funding sources can be allocated to their delivery. The IDP will provide the focus for all external funding sources, including future developer contributions. The IDP will be the key means of determining the timescale, costs and responsibility for delivery of the infrastructure required to support new growth in the Borough.

All new developments have the potential to affect air quality and therefore developers are encouraged to take part in pre-application discussions before submitting a planning application. Future developments will require an air quality assessment where a significant change in air quality is expected or anticipated. For developments that are likely to have a significant impact on the AQMAs, planning applications will have a requirement to be accompanied by an air quality assessment to determine the significance of the impact and the mitigation measures required to minimise those impacts.

AQAP 7:

i) N&BBC will include planning policies in its Borough Plan that seek to improve air quality, to improve sustainable transport links and to secure travel plan agreements.

ii) N&BBC will identify as a part of the Infrastructure Delivery Plan specific pieces of infrastructure required within the AMQA or that could relieve the AQMA. These can then be prioritised alongside the Borough's other infrastructure demands for external funding and developer contributions/CIL.

iii) N&BBC will encourage developers to take part in pre-application discussions to ensure air quality is considered when formulating a planning application. Developers should ensure good design as a part of their proposals and actively endorse travel planning to minimise and mitigate the impacts of new development upon the AQMA. Where appropriate development proposals should be accompanied by Air Quality Assessments.

6.1.7 Improve Emissions Standards for Council Fleet and Public Service Vehicles

This measure would lead to reductions in emissions of NO_X by improving emissions standards of vehicles in the public service sectors.

Quality Bus Corridors and Initiatives

Further Quality Bus Corridors and Initiatives are proposed to be developed in Nuneaton & Bedworth through the LTP. The potential to explore improvements in emissions standards through Quality Bus Corridors (QBC) is potentially high, particularly in terms of the deployment of newer, cleaner vehicles.

Taxis

Emissions from taxis are checked on a 6 monthly basis as part of the requirements of licensing. Further consideration could be given to setting minimum emissions standards for taxis through the licensing system.

Council fleet and contractor vehicles

The scope for further improvements in the Council fleet and for contractor vehicles can be investigated through contract renewal/review. The Government is keen for local authorities to demonstrate their commitment to delivering cleaner air by leading by example and therefore improving the Council's fleet emissions are key measures to take forward in the Plan.

N&BBC have a 5 year replacement policy on the Council owned vehicles to ensure that emissions standards of vehicles are improved with time and are compliant with required Euro emissions standards. N&BBC also have a Reducing Pollution Certificate (RPC) for commercial vehicles and all vehicles are Euro IV compliant. Vehicles currently use 5% bio diesel, as use is limited by the vehicle warranty beyond this. N&BBC also undertake emission checks on their vehicles through their regular servicing programme, which ensures that emissions are checked at a greater frequency than the MOT checks.

AQAP 8: N&BBC will continue to work with WCC and other partners to deliver improvements in emissions standards, where practicable.

6.1.8 Promotion and Education

It is important that information on air quality is provided in a clear and accessible way. The Council web site[13] provides details on air quality within the Borough and LAQM Review and Assessment Reports are available for viewing. Links to relevant WCC website pages will also be provided where appropriate.

AQAP 9: N&BBC will make details of the Action Plan measures and annual progress reports available on its Website to ensure accessibility to the consultation and implementation process.

N&BBC is a member of the Warwickshire Environmental Protection Council. The Council involves a partnership of the Warwickshire district authorities, Warwickshire County Council and Coventry City Council who share information on environmental issues, including air quality, and work together on air quality issues that affect the area. N&BBC will continue to work closely with the County Council and neighbouring districts on air quality issues.

[13] www.nuneatonandbedworth.gov.uk/

Travel awareness campaigns are generally national campaigns which are implemented at a regional or local level, and include TravelWise, Car Free Day, and Bike to Work Week. They aim to reduce society's dependence on the car by raising awareness of environmental, health, economic and social impacts of car use, change attitudes towards car use, promote more sustainable modes of travel and lifestyles that require less travel, and reduce unnecessary car use. Evidence collected nationally suggests that around 20% of car trips are not car dependent, and are either very marginal or could be undertaken by another mode (typically on foot, by bike or on public transport). At a County level, these are implemented through the WCC LTP Changing Travel Behaviour Strategy and a TravelWise officer is employed by WCC to help deliver this.

AQAP 10: N&BBC will continue to work in partnership with WCC and the Warwickshire district authorities on air quality and travel awareness campaigns to raise the profile of air quality in the Borough and County-wide.

6.1.9 Local Air Quality Management and Pollution Control

Air Quality Monitoring

The air quality monitoring network in N&BBC provides more accurate information and understanding of air quality within the Borough. A continuous NO_2 monitor was installed in the Leicester Road Gyratory AQMA in 2007, which provides more accurate information on pollutant concentrations in the AQMA as Action Plan measures are implemented. The continuous monitoring is supplemented by NO_2 passive diffusion tubes, a number of which are within the AQMAs. WCC also measures traffic levels within and around the AQMAs to identify changes in traffic volumes.

AQAP 11: N&BBC will continue the commitment to undertake local air quality monitoring within the Borough to ensure a high standard of data is achieved to assess against air quality objectives.

Pollution Control

Prescribed Industrial Processes are regulated by N&BBC and the Environment Agency under the Environmental Protection Act 1990 Part I A & B and subsequent Pollution Prevention and Control Regulations 2000. There are 39 prescribed Part B/A2 Processes in Nuneaton & Bedworth regulated by N&BBC[14] and 5 A1 processes regulated by the Environment Agency.

With regard to nuisance emissions from unregulated processes, Statutory Nuisance is enforced by Environmental Health under the Environmental Protection Act 1990 Part III and this controls smoke, dust, fumes or gas emissions from commercial and domestic premises which are causing a nuisance or are prejudicial to health. N&BBC has an Enforcement Policy adopted in August 2000 to ensure that, where the Local

[14] From Nuneaton and Bedworth LAQM Updating and Screening Assessment 2009

Authority has jurisdiction, effective measures are enforced against persons responsible.

AQAP 12: N&BBC will continue to proactively enforce industrial control and nuisance legislation to minimise pollutant emissions from these sources in the Borough.

6.1.10 Energy Management

Domestic Energy Use

N&BBC are working in partnership with Act on Energy (previously WEEAC - the Warwickshire Energy Efficiency Advice Centre)[15] to promote increased energy efficiency in residential properties in the Borough and deliver specific objectives under the Home Energy Conservation Act 1995. The Centre provides advice and information to residents on the best options for saving energy and the help available e.g. grant schemes.

Energy Efficiency Accreditation Scheme

The Council has recently regained its accreditation by the Energy Institute under the Energy Efficiency Accreditation Scheme for its outstanding work in the energy field. This award is a major achievement for a district Council and only around 40 Council's have received the award. The Council was assessed in a number of key areas and had to clearly demonstrate improvements in all sections, these being Management Commitment; Investment in Energy Efficiency and Energy Efficiency Improvements.

The Council's Energy Group focus on future reductions of CO_2 emissions within the borough and have a varied programme of activities. Continual Improvements to energy systems have been made in the main buildings of the Council over the last few years, with sub-metering, a revised utilities procurement structure; advancement with the Corporate Asset Management Plan reflecting an increasing energy commitment strategy and the installation of a Combined Heat and Power Unit in the Town Hall.

To raise awareness to the public the Council have also held two annual events: Sustainability Day where stakeholders are invited to provide information to the general public on a range of sustainability issues, including energy, water and Fair Trade, and a Schools Biodiversity Day, where Key Stage 2 pupils are invited to learn about a variety of issues, including energy, waste and water.

The Council is leading by example to ensure that its systems and processes are in place to continually improve.

Building Control

Building Control can contribute to the development of policies for air quality improvement through the promotion of emission-reducing technologies in new developments and buildings.

[15] http://www.actonenergy.org.uk

The Building Control Service has a statutory responsibility to ensure that new building works within the Borough meet minimum technical standards in relation to health, safety, welfare and energy conservation, as prescribed under the Building Regulations 1991. The Legislation sets out substantive requirements and technical guidance to achieve minimum standards. This technical guidance is contained in Approved Documents giving general guidance as well as practical guidance about some of the ways of meeting the requirements of the Regulations.

Many of these energy efficiency measures have direct synergies with the improvement of local air quality

AQAP 13: N&BBC will continue to work together with Act On Energy (formerly Warwickshire Energy Efficiency Advice Centre) and other partners to promote and implement energy efficiency measures in the Borough.

A summary of the measures to address the two AQMAs is shown in Table 9.

6.1.11 Measures considered but dismissed on the grounds of cost-effectiveness and/or feasibility at this stage

N&BBC will continue to monitor progress and best practice on these and other measures and work in partnership with WCC and other partners to investigate their potential for implementation to improve air quality and the environment in general.

Low Emission Zone (LEZ)

A Low Emission Zone (LEZ) is a geographic zone defined for an area where only vehicles of an acceptable emissions standard (currently Euro III) can enter and move around. The concept is held widely as a way of achieving air quality objectives within large urban area where economies of scale can be achieved with respect to set-up and operating costs. Further consideration to the implementation of an LEZ for the AQMAs is dismissed on the grounds of cost and feasibility.

Road User Charging or Workplace Parking Levy

The Transport Act 2000 gave local authorities powers to introduce road user charging or workplace parking levy schemes. The revenue generated from such schemes is generally used to improve local transport in the area.

The costs of introducing a road charging scheme can be offset by the revenue that is generated. Area wide charging is likely to be more costly to introduce than a designated route. The introduction of road user charging schemes has been recently considered within the West Midlands Spatial Strategy, but will not proceed in the near future. Any consideration to potential schemes in the Borough of Nuneaton & Bedworth would need to be compatible with a regional scheme. Also, any scheme would need to be part of an overall package and promoted as such to highlight the range of benefits, countering any negative arguments.

Based on charging workers for parking at their place of work, the implementation of a workplace parking levy could reduce the number of private vehicles entering Nuneaton. An area-wide parking levy could be investigated for the future but there are already organisations in Nuneaton who are charging their staff and/or visitors to park in conjunction with promotion of alternatives as part of their Travel Plans. This is

likely to grow both in terms of the level of charging and the organisations implementing it as more organisations develop Travel Plans and more are required through the planning process.

Roadside Emissions Testing

Under powers of authority (Roadside Vehicle Emissions (Fixed Penalty) Regulations 2002) local authorities are able to undertake roadside emissions testing of vehicles. The aim is to identify those vehicles that make a disproportionate contribution to emissions through poor maintenance with on-the-spot fines for those that fail. The scheme of a formal roadside emissions testing programme is not considered viable for stand-alone authorities and has therefore been dismissed as a possibility for inclusion in the current action plan.

However, roadside emissions testing will be undertaken locally by the Vehicle Operator Services Agency (VOSA). There may also be scope to investigate voluntary roadside emissions testing as part of promotional schemes within the County.

Idling Engine Emissions

The Road Traffic (Vehicle Emissions)(Fixed Penalty) (England) Regulations 2002 permit all English local authorities to take action against drivers who leave their vehicle engines running unnecessarily when parked. The local authority can issue a fixed penalty (£20) to any driver blatantly running their engine unnecessarily and who refuses all reasonable requests to switch off.

Idling emissions from parked vehicles are not considered a significant issue in the AQMAs to warrant introducing specific measures with necessary resource implications. The proposal has therefore been dismissed on the ground of cost-effectiveness.

Table 9 - Summary of Action Plan Measures

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score	Targets/ Indicators
AQAP 1	N&BBC will work in partnership with WCC to identify and bring forward traffic management improvements in Nuneaton town centre, particularly where they will benefit the two AQMAs.	WCC / N&BBC	Short / Medium	Traffic modelling work to be undertaken to identify the nature and scale of improvements within the town centre. Option testing will be based on the spatial proposals in the Borough Council's LDF Core Strategy. Preliminary feasibility work has been completed on a Variable Message Signing (VMS) scheme for public car parking in Nuneaton.	5 (High)	3 – High - LTP3	15	Preparation / Implementation of co-ordination strategy. Number of meetings between N&BBC and WCC about traffic improvement measures in AQMAs Number of measures implemented or started
AQAP 2	N&BBC will work in partnership with WCC to identify measures to reduce the impact of HGV movements within the area.	WCC / N&BBC	Ongoing	A review of the Lorry Map has been undertaken, with a second edition being published in 2009. The presence of important 'A' and 'B' roads such as the A444 and B4114 within the AQMAs mean that it is difficult to direct HGV and HDV traffic away from them.	3 (Moderate)	7 - Low – LTP3	21	Draft document by N&BBC of identified measures to reduce HGV movements Number of measures approved by WCC Number of measures implemented/started
AQAP3	N&BBC will work in partnership with WCC and Sustrans to deliver further improvements for pedestrians and cyclists within the area.	WCC / N&BBC / Sustrans	Ongoing	Ongoing improvements through the LTP and as key development sites come forward..	3 (Moderate)	5 - Low/ Medium – LTP3/ Developer funding	15	Identification of areas, routes for pedestrians and cyclists paths Meters of paths improved / developed for pedestrians and cyclists in Nuneaton particularly in AQMAs.

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score	Targets/ Indicators
AQAP 4	N&BBC will work in partnership with WCC, public transport operators, DfT Rail and Network Rail to implement better integration of public transport in Nuneaton, including improvements for bus, rail and community transport infrastructure and services.	WCC / N&BBC / public transport operators / DfT Rail / Network Rail	QBCs – Short / Medium NUCKLE - Short	A number of Quality Bus Corridors (QBCs) are planned during the LTP3 period (i.e. post 2010/11), including an Inter-Urban QBC between Nuneaton-Hinckley-Leicester (service 48) and a QBC between Nuneaton and the Tamworth boundary (service 765). Phased rail improvements are planned in the North-south corridor as part of the NUCKLE scheme. Phase 1 of NUCKLE includes new stations at Bermuda and Ricoh Arena with delivery proposed in the short term..	3 (Moderate)	4 - High – LTP3/ RFA / Developer funding	12	Produce strategy for integrating public transport modes No. of improvement schemes implemented/started Improvement in passenger numbers using public transport.
AQAP 5	N&BBC will work in partnership with WCC to increase uptake and implementation of School and Workplace Travel Plans (STP and WTP), particularly where they are likely to impact on the AQMAs.	WCC / N&BBC	Ongoing	Ongoing as opportunities arise, and through the development process.	3	6 - Low – LTP3 / Developer funding	18	Number of new travel plans in place. WTP: Increase proportion of working population covered STP: Decrease proportion of car school journeys / increase car-sharing
AQAP 6	N&BBC will continue to develop, implement and monitor its Travel Plan policy. As part of the ongoing implementation of this plan, N&BBC will explore the potential for operation of a Car Club in Nuneaton.	N&BBC	Short	Travel Plan Policy in place. Implementation and ongoing monitoring arrangements to be agreed via the N&BBC Environmental Sustainability Strategy Group.	2 (Low but important with respect to leading by example)	7 - Low - Existing budgets	14	Reduction on the number of car journeys.

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score	Targets/ Indicators
AQAP 7	i) N&BBC will include planning policies in its Borough Plan that seek to improve air quality, to improve sustainable transport links and to secure travel plan agreements. ii) N&BBC will identify, as a part of the Infrastructure Delivery Plan, specific pieces of infrastructure required within the AMQA or that could relieve the AQMA. These can then be prioritised alongside the Borough's other infrastructure demands for external funding and developer contributions/CIL. iii) N&BBC will encourage developers to take part in pre-application discussions to ensure air quality is considered when formulating a planning application. Developers should ensure good design as a part of their proposals and actively endorse travel planning to minimise and mitigate	N&BBC	Ongoing	i) and ii) Draft Borough Plan and Infrastructure Delivery Plan underway. iii) Development control officers require training in air quality issues in order to advise developers.	2 (Low but potentially high for future impacts)	6 - Low - Existing budgets	12	i) and ii) Adoption of Core Strategy and Infrastructure Delivery Plan in 2012 iii) Increased number of pre-application discussions and planning applications taking account of air quality and sustainable transport issues.

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score	Targets/ Indicators
	the impacts of new development upon the AQMA. Where appropriate development proposals should be accompanied by Air Quality Assessments							
AQAP 8	N&BBC will continue to work with WCC and other partners to deliver improvements in emissions standards, where practicable.	N&BBC / WCC / Public transport operators	Ongoing	Deployment of newer, cleaner vehicles as part of the QBC and QBI initiatives.	5	4 - TBC	20	Number of new / improved vehicles within fleets
AQAP 9	N&BBC will make details of the air quality measures and annual progress reports available on its Website to ensure accessibility to the consultation and implementation process.	N&BBC	Ongoing	To be uploaded to website at the appropriate time	1	7 - Low - N&BBC existing budgets	7	Availability of recently published reports on the Website
AQAP 10	N&BBC will continue to work in partnership with WCC and the Warwickshire district authorities on air quality and travel awareness campaigns to raise the profile of air quality in the Borough and County-wide.	N&BBC / WCC / Warwick-shire local authorities	Ongoing	Ongoing	2	6 (Low)	12	Number of campaigns implemented

Measure	Actions	Lead Authority	Timescale	Status	Impact	Cost	Cost Effective Score	Targets/ Indicators
AQAP 11	N&BBC will continue the commitment to undertake local air quality monitoring within the Borough to ensure a high standard of data is achieved to assess against air quality objectives.	N&BBC	Ongoing	Ongoing	1	6 - Low - N&BBC Existing budgets& Air Quality Grants	6	Number monitoring sites - % data capture
AQAP 12	N&BBC will continue to proactively enforce industrial control and nuisance legislation to minimise pollutant emissions from these sources in the Borough.	N&BBC	Ongoing	Ongoing	2	7 - Low - N&BBC Existing budgets	14	BVPI for upgrade of permitted industrial processes
AQAP 13	N&BBC will continue to work together with Act On Energy (formerly Warwickshire Energy Efficiency Advice Centre) and other partners to promote and implement energy efficiency measures in the Borough.	N&BBC		Ongoing	2	6 (Low)	12	Council's energy efficiency figures Number of consultations provided for energy

7 Implementation and Monitoring

N&BBC will work jointly on the action plan measures with its partners including WCC, transport operators, schools and local businesses. To secure the necessary air quality improvements there must be involvement by all local stakeholders and N&BBC will actively work to encourage community participation in the process.

The implementation and effectiveness of the Action Plan will be carefully observed through monitoring of nitrogen dioxide at relevant receptor locations within the AQMA. In addition, traffic flow changes on the key roads will also be assessed through the review and assessment process, and the uptake of local measures such as Travel Plans will be monitored. Indicators have been provided for the measures to be undertaken by the Council to monitor progress annually.

Targets and indicators have also been established through the second Local Transport Plan. Table 10 below shows those relevant to air quality. These targets are currently under review as part of the preparation of LTP3.

Table 10 - Air Quality Strategy - Targets and Indicators

Local Target / Indicator	Performance Indicator	Source of Data	Frequency of Monitoring
Target (LTP8): Reduce the number of exceedances of the national air quality standards and objectives between 2005 and 2010.	Monitored and modelled pollutant levels across the County.	Countywide air quality monitoring stations.	Annual
	The revocation of AQMAs.		
Target: Retain traffic volumes at 2004 levels in the urban areas of Nuneaton, Rugby, Warwick and Leamington Spa.	Road traffic levels on local road networks.	Road traffic surveys.	Annual
		Traffic modelling.	
Local Indicator: Ensure that air pollutant levels do not exceed national standards in the County where they previously have not.	Air quality assessment of major transport proposals within Warwickshire.	Countywide air quality monitoring stations. Regular and continued dialogue with the District/Borough Councils.	Annual

There will be regular review and assessment of the action plan proposals to evaluate progress and this will be reported annually, including through LAQM and LTP progress reports submitted to the Department for Transport.

8 Defra Action Planning Requirements Compliance Checklist

WORK AREA	CONSIDERED/INCLUDED	LOCATION IN ACTION PLAN/ COMMENTS
Adherence to Guidelines and Consideration of Policies		
Statutory Consultees consulted?	√	p22
Consulted with other Local Authorities and internal departments?	√	p22
Statement of Pollutant causing AQMA?	√	p8
Principle sources of pollutants identified?	√	pp14-16
Have other local authorities' plans and policies been considered?	√	pp19-20
Options timetable included?	√	pp36-41
Have options been costed?	√	pp36-41
Have the impacts been assessed?	√	pp36-41
Checklist of Measures		
Have options been considered?	√	pp24-35
How many options considered?	√ - (17)	pp24-35
Transport impacts assessed?	√	pp24-35
Have air quality impacts been assessed modelled or measured?	Qualitative at draft stage	pp24-35
Have socio-economic impacts been assessed?	x	
Have other environmental impacts been assessed?		
Have costs been considered?	√	pp36-41
Appropriateness and Proportionality		
Do measures seem appropriate to the problem?	√	
Have the measures been assessed?	√ - Qualitative at draft stage	pp36-41
Are the measures likely to succeed?	Detailed work to be undertaken	
Have wider impacts been assessed?	x	
Was the costing method appropriate?	√	pp36-41
Is it likely that the AQMA objective will be met?	Detailed work to be undertaken	
Do the chosen options comply with Government Policies?	√	pp24-35
Implementation		
Are measures realistic?	√	
Have responsibilities been assigned to the relevant party?	√	pp36-41
Does the assigned party have the necessary powers?	√	pp36-41
Is the financing secure and identify who pays?	x - Not all funding secured at this stage	pp36-41

9 Glossary of Terms

Abbreviation	Full name
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
BAT	Best Available Technology
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
HDV	Heavy Duty Vehicles
HGV	Heavy Goods vehicles
IDP	Infrastructure Delivery Plan
LAQM	Local Air Quality Management
LDD	Local Development Documents
LDF	Local Development Framework
LDV	Light Duty Vehicles
LEZ	Low Emission Zone
LGV	Light Goods Vehicles
LSP	Local Strategic Partnership
LTP	Local Transport Plan
N&BBC	Nuneaton & Bedworth Borough Council
NAQS	National Air Quality Strategy
NO_2	Nitrogen dioxide
NOx	Oxides of nitrogen
NSCA	National Society for Clean Air
PM_{10}	Fine particle matter less than 10µm diameter
ppb	Parts per billion
QBC	Quality Bus Corridor
SCI	Statement of Community Involvement
$\mu g/m^3$	Micrograms per cubic metre
UTMC	Urban Traffic Management Control
VMS	Variable Message Signage
WCC	Warwickshire County Council

10 References

Defra (2002) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum, The Stationery Office

Defra (2009) Policy Guidance LAQM.PG(09)

Defra (2009) Technical Guidance LAQM.TG(09)

Defra in Partnership with the Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland (2007) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, The Stationery Office

Defra (2007) The Air Quality Standards Regulations 2007, Statutory Instrument No 64, The Stationary Office

DETR (2000) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Working together for Clean Air, The Stationery Office

DETR (2000) The Air Quality Regulations 2000, The Stationery Office

DOE (1997) The United Kingdom National Air Quality Strategy, The Stationery Office

Nuneaton & Bedworth Borough Council (2006) Nuneaton & Bedworth Borough Local Plan (2006)

Nuneaton and Bedworth Local Strategic Partnership (2007) Sustainable Community Plan 2007 – 2021 for Nuneaton and Bedworth

NSCA (2000) Air Quality Action Plans

NSCA (2001) Air Quality: Planning for Action

Warwickshire County Council (2001) Local Transport Plan 2001/2 – 2005/6

Warwickshire County Council (2006) Local Transport Plan 2006– 2011

West Midlands Regional Assembly (2004) West Midlands Regional Spatial Strategy)

Appendix I Consultation Outcome

Consultation with internal Departments within N&BBC and with partners WCC, have led to the formulation of this Action Plan.

The following provides a summary of the external consultation on the Plan, which has been taken into account in the development of the Plan where possible.

Consultee	Summary of Commentary Provided

Air Quality Action Plan

An addendum to the Warwickshire County Council Local Transport Plan 2006 - 2011

Rugby Borough Council
March 2008

Version 1.0

Environmental Services,
Rugby Borough Council
The Retreat,
Newbold Road,
Rugby,
CV21 2LG

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Executive Summary

"Clean air is an essential ingredient for a good quality of life. People have the right to expect the air they breath will not harm them."

The Air Quality Strategy for England, Scotland Wales and Northern Ireland

The quote above underlines the Government's stance on air pollution and health. Poor air quality, caused by air pollution, impacts on people's health. Rugby Borough Council is legally responsible for introducing actions that will improve air quality in areas of the Borough where air pollutant concentrations are above UK objectives and thereby improve the health of the people of Rugby Borough. Positive action to improve air quality via Rugby's Air Quality Action Plan (AQAP) will work towards improving quality of life in Rugby Borough and contribute towards a healthier and more sustainable community.

The urban area of Rugby town and Dunchurch, which had been found to be likely to have poor air quality, have been designated as an Air Quality Management Area (AQMA).

Pollution in the AQMA is due to a gas called nitrogen dioxide, which is produced when fossil fuels are burned. Exposure to nitrogen dioxide enhances the response to allergens in sensitive individuals such as those with asthma or bronchitis and there is evidence that hospital admissions of people with respiratory diseases are related to concentrations of nitrogen dioxide. UK work has also shown that nitrogen dioxide may increase the prevalence of respiratory infections in children. Because the presence of nitrogen dioxide is closely linked to the formation or presence of other air pollutants, it is not yet entirely clear whether long-term exposure to relatively low concentrations has other health impacts.

The main source of nitrogen dioxide in the UK is road traffic and pollution often occurs where there is traffic congestion. Investigations in Rugby show that this source is the main cause of nitrogen dioxide within the AQMA. Therefore the actions outlined in the Action Plan, which were

developed by a steering group involving key local stakeholders and staff from various Rugby Borough Council services and Warwickshire County Council, are mainly transport related. Actions are listed under the following headings:

1. Specific proposals for the AQMA
2. Non-specific proposals for general improvement of air quality in the Borough
3. Reducing vehicle emissions
4. Alternative transport modes/ policies
5. Non-transport measures

Warwickshire County Council is the local highway authority, and as such is responsible for delivering the Government's Shared Priorities for Transport, these being:

- Delivering accessibility;
- Tackling congestion;
- Improving air quality; and
- Making roads safer.

Officers from the Borough Council have liaised closely with transport planners from Warwickshire County Council's Environment and Economy Directorate to incorporate the Air Quality Action Plan for the Rugby Borough AQMA into the Warwickshire County Council Local Transport Plan 2006-2011 (LTP).

The principal action proposed by the LTP is the construction of the Rugby Western Relief Road. Funding and the necessary planning approvals have now been obtained and work to build the scheme began in mid-2007. The Further Assessment carried out by Rugby Borough Council's air quality consultants, Faber Maunsell, has indicated that these works will be sufficient to reduce nitrogen dioxide levels within the AQMA to below the national air quality objective. However, it was clear that additional works were required to comply fully with Government guidance on action plans. The aim of this addendum is to complement the LTP and address the required air quality action plan guidance requirements not met specifically in the LTP.

The Government considers air quality to be a corporate issue for local authorities and it is recognised that to improve air quality Action Plans must have the support of the whole of the Borough Council, County Council, local public and businesses and other stakeholders. This consultation document seeks the views of these stakeholders.

Comments on the Air Quality Action Plan should be sent to:

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1 INTRODUCTION

1.1 Legislation for Air Quality Management

Part IV of the Environment Act 1995 laid the foundations for air quality management in the UK through the implementation of the National Air Quality Strategy (NAQS). The Strategy aims to protect human health and the environment by setting objectives and standards for eight pollutants, which are known to be harmful to human health.

Part IV of the Environment Act 1995 also introduced the concept of Local Air Quality Management (LAQM), whereby all local authorities are required to review the air quality within their area and assess it against the objectives specified for the pollutant of concern. Seven of the pollutants are managed through LAQM. The national air quality objectives for LAQM which apply to Rugby Borough are shown in Table 1.

If, on the basis of its assessment, the local authority finds that an air quality objective is unlikely to be met in any part of its area, then under Section 83(1) of the Environment Act, 1995 an Air Quality Management Area (AQMA) must be declared. The local authority is then required to submit, within a period of twelve to eighteen months of declaring an AQMA, an Action Plan in the pursuit of the achievement of the air quality standards and objectives. In addition, under Section 84(1) of the Environment Act, 1995 the Council must produce a Further Assessment within 12 months of the declaration of its AQMA, which contains information on the level of exceedence and the sources of the pollutant in question.

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, published by Defra, in July 2007, has not introduced the new particle objectives included in Regulations described in Table 1. Instead, the indicative 2010 objectives for PM_{10} (from the 2000 Strategy and 2003 Addendum) have been replaced by an exposure reduction approach for $PM_{2.5}$ (except in Scotland).

Pollutant	Objective	Measured as	To achieved by
Benzene	16.25 µg/m^3	Running annual mean	31 December 2003
	5 µg/m^3	Annual mean	31 December 2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31 December 2003
Carbon Monoxide	10 mg/m^3	Running 8 hour mean	31 December 2003
Lead	0.5 µg/m^3	Annual mean	31 December 2003
	0.25 µg/m^3	Annual mean	31 December 2008
Nitrogen Dioxide[c]	200 µg/m^3 not to be exceeded more than 18 times per year	1 hour mean	31 December 2005
	40 µg/m^3	Annual mean	31 December 2005
Nitrogen Oxides**	30 µg/m^3 (V)	Annual mean	31 December 2000
Particles (PM_{10}) (gravimetric)[d]	50 µg/m^3 Not to be exceeded more than 35 times per year	24 hour mean	31 December 2004
	40 µg/m^3	Annual mean	31 December 2004
Sulphur Dioxide	266 µg/m^3 Not to be exceeded more than 35 times per year	15 Minute Mean	31 December 2005
	125 µg/m^3 Not to be exceeded more than 3 times per year	24 Hour Mean	31 December 2004
	20 µg/m^3 (V)	Annual Mean	31 December 2000
	20 µg/m^3 (V)	Winter Mean (01 October - 31 March)	31 December 2000
c. The objectives for nitrogen dioxide are provisional. d. Measured using the European gravimetric transfer sampler or equivalent. µg/m^3 - micrograms per cubic metre mg/m^3 - milligrams per cubic metre *Ozone is not included in the Regulations ** Assuming NO_x is taken as NO_2 (V) These standards are adopted for the protection of vegetation and ecosystems. All of the remainder are for the protection of human health.			
New particle objectives not included in Regulations			
Particles (PM_{10})	50 µg/m^3 not to be exceeded more than 7 times per year	24-hour Mean	31 December 2010
	20 µg/m^3	Annual Mean	31 December 2010

TABLE 1: UK AIR QUALITY OBJECTIVES APPROPRIATE TO RUGBY BOROUGH

1.2 Air Quality Review and Assessment in Rugby Borough

Rugby Borough Council has completed the required 3 rounds of Review and Assessment of air quality in its area between 1998 and 2006. This has consisted of the stages described below:

Round 1 comprised 2 stages between 1998 and 2001. ***Stage 1 (Review and Assessment)*** involved the identification of the main sources of air pollution within and around Rugby Borough, reviewing the levels of air pollutants for which prescribed standards and objectives have been set, and estimating the likely future levels.

Stage 2/3 required the local authority to provide further screening of pollutant concentrations within the area to assess whether the air quality objectives would be achieved by the target date and a more complex assessment of monitoring and modelling which in Rugby Borough identified no exceedances of national air quality objectives.

Round 2 was completed between 2003 and 2006 and the Government changed the format of reporting slightly. The first report of this round was an ***Updating and Screening Assessment*** (USA) that was completed in 2003.

Following on from the 2003 USA, the ***Detailed Assessment*** involved an accurate and detailed assessment of current and future air quality. The assessment identified that annual average levels of NO_2 were at risk of being exceeded on a number of major roads in the centre of Rugby town and in Dunchurch and that led to the declaration of Rugby's AQMA in 2004.

During the assessment, a risk of exceedance of the PM_{10} national air quality objectives was identified because of emissions (stack, low level point source and fugitive) from the Cemex cement plant in Rugby. A ***Detailed Assessment of Particulate Matter*** was completed in 2005 which predicted that the national air quality objectives for PM_{10} would be met.

The Further Assessment required the local authority to undertake further detailed monitoring of the air quality within the AQMA's in order to confirm that the decision to declare the areas as AQMA's was justified. The Further Assessment also involves calculation of how great an improvement is needed for each pollutant where there is an exceedence and consideration of

the extent to which different sources contribute to the problem. The Further Assessment was undertaken in respect of the AQMA and was completed in December 2005. It was subsequently amended following comments received by DEFRA, the amended version being published in February 2006. This identified that only one property in the Borough was likely to be exposed to levels above the national air quality objective and that decreasing NO_2 emissions and the then planned Rugby Western Relief Road would result in compliance within 2 years.

Round 3. Review and assessment is an ongoing process and the recent Updating and Screening Assessment (2006) concluded that there are a number of locations where there is a risk of exceeding the nitrogen dioxide annual mean objective, but as the Further Assessment had been completed in February 2006, a Detailed Assessment was not required.

The next round is due to start in 2009.

1.3 The Air Quality Action Planning Process

Action planning is an essential part of the local air quality management process, providing a practical opportunity for improving air quality in areas where review and assessment has shown that national measures will be insufficient to meet one or more of the air quality objectives. According to guidance published by DEFRA (LAQM PG (03)), an Air Quality Action Plan must contain the following:

- Quantification of the source contributions to the predicted exceedences of the objectives (to allow the measures to be targeted).
- Evidence that all available options have been considered on the grounds of cost effectiveness and feasibility.
- How the Local Authority will use its powers and also work in conjunction with other organisations in pursuit of the relevant air quality objectives.
- Clear timescales within which the authority and other organisations propose to implement the measures contained in the plan.
- Quantification of the expected impacts of the proposed measures and, where possible, an indication as to whether these will be sufficient to ensure compliance with the objectives.

- How the Local Authority intends to monitor and evaluate the effectiveness of the plan.

This Guidance has been observed during the production of this addendum to the LTP.

The National Society for Clean Air and Environmental Protection (NSCA) has also issued informal guidance on action planning. This recommends processes to follow for formulating options, evaluating then prioritising the measures proposed. This guidance has also been observed in the production of this document.

2 RUGBY BOROUGH AND AIR POLLUTION

2.1 Rugby

Air quality differs greatly both spatially and temporally because pollutants are influenced by a variety of factors including source location, topography and meteorology. Pollutants in urban areas arise from a wide variety of sources, predominantly as a result of combustion processes. The largest source of pollution is generally motor vehicles, and to a lesser extent industry.

The majority of the urban area of Rugby town is classed as a smoke control area making it an offence under the Clean Air Act 1993 to emit smoke from a chimney caused by the burning of unauthorised fuel or use of an unauthorised appliance.

Rugby Borough Council has a total of 26 significant industrial installations from an air pollution perspective operating within its boundaries. This includes one Part A2 process for the manufacturing of drinks cans which involves solvent based coating processes. In addition there are 13 minor installations (petrol filling stations and small waste oil burners). Each process / installation is regulated under the Pollution Prevention and Control (England and Wales) Regulations 2000. The processes / installations are regularly inspected by the Rugby Borough Council Regulatory Services unit (formerly Environmental Health) to ensure they are controlling their emissions to atmosphere. Rugby Borough also has 6 of the more significant Part A1 installations that are regulated and inspected by the Environment Agency under the Pollution Prevention and Control (England and Wales) Regulations 2000.

The main pollutants of concern in Rugby Borough, as in most urban areas of the UK, are associated with road traffic, in particular NO_2 and particulate matter at locations near to busy, congested roads where people may live, work or shop. Local knowledge and the Updating and Screening Assessments have identified areas where UK objectives may be exceeded. This has led to the declaration of the current AQMA that is considered in this addendum to the LTP.

2.2 Reasons for Air Quality Action Planning In Rugby Borough

The first, second and third rounds of the Review and Assessment process have demonstrated that Rugby should not have any problems in meeting the UK air quality objectives for the majority of pollutants by the required dates due to the implementation of national measures. Therefore there is no requirement to impose any local measures for these pollutants.

However, the annual mean objective for NO_2 is still exceeded in the town's AQMA after the target date of 2005. Therefore Rugby Borough Council is required to submit an Action Plan to try to reduce concentrations of NO_2 in these areas.

The annual mean objective for nitrogen dioxide applies to areas where members of the public might regularly be exposed; building facades of residential properties, schools, hospitals, libraries etc. It does not generally apply to places of work, gardens of residential properties or kerbsides.

2.3 Nitrogen Dioxide and Oxides of Nitrogen

2.3.1 What is Nitrogen Dioxide?

Nitrogen dioxide (NO_2) is a reddish-brown gas with a pungent and irritating odour. It transforms in the air to form gaseous nitric acid and toxic organic nitrates. NO_2 also plays a major role in atmospheric reactions that produce ground-level ozone, a major component of photochemical smog. Smog can sometimes be seen as a brown haze on sunny days. It is also a precursor to nitrates, which contribute to increased respirable particle levels in the atmosphere and hence contributes to PM_{10} concentrations. Nitrates are also responsible for significant damage to ecosystems and vegetation.

2.3.2 Health Impacts of Nitrogen Dioxide

Exposure to NO_2 enhances the response to allergens in sensitive individuals such as those with asthma or bronchitis and there is evidence that hospital admissions of people with respiratory diseases are related to concentrations of nitrogen dioxide. Research in the UK has also shown that nitrogen dioxide may increase the prevalence of respiratory infections in children.

Because the presence of NO_2 is closely linked to the formation or presence of other air pollutants, it is not yet entirely clear whether long-term exposure to relatively low concentrations of NO_2 itself can affect mortality or disease progression. Because adverse effects have been observed within a range that includes the current annual WHO (World Health Organisation) guideline value for NO_2, it is recommended to maintain or lower that value. The UK air quality objectives are in-line with current WHO guidelines.

2.3.3 Sources of Nitrogen Dioxide

Oxides of nitrogen (NO_x) are produced when fossil fuels are burned in air and are mainly composed of nitric oxide (NO) and nitrogen dioxide (NO_2). The greatest source of NO_x is road transport. Power stations, industry and domestic properties are also sources.

When NO_2 is released directly during combustion it is known as a primary emission. However the major component of NOx emitted during combustion is NO. NO then reacts with ozone (O_3) to form NO_2. This source of NO_2 is known as a secondary emission.

In urban areas concentrations of NO_x have been decreasing since the early 1990's largely due to reduced emissions from road traffic. However in recent years, in urban areas the levels of NO_2 have not been decreasing as expected and in some areas concentrations of NO_2 have been increasing. The Air Quality Expert Group (AQEG) have reported that this is due to an increase in the number of diesel vehicles, which have been found to emit a greater proportion of NO_2 as a primary emission than originally predicted. Retrofitting of diesel particulate filters has been found to substantially increase the emission of primary NO_2 from buses.

The rate at which NO_2 is formed from NO is proportional to the ambient temperature and the availability of other reactants, including ozone and hydrocarbons. Whenever high levels of NO_X are present, the conversion of NO to NO_2 is rate limited if other chemicals are not present. Thus, in the summer, the chemical reactions are faster so that at low pollution concentrations, more than 80% of the NO_X might consist of NO_2. In the winter, the chemical reactions are much slower so that at high pollution concentrations in particular, perhaps only 20% of the NO_X consist of NO_2. The overall effect of the atmospheric chemistry is to have a reserve of NO in the atmosphere so that a reduction in the levels of NO_x does not produce a proportionate reduction in the levels of NO_2.

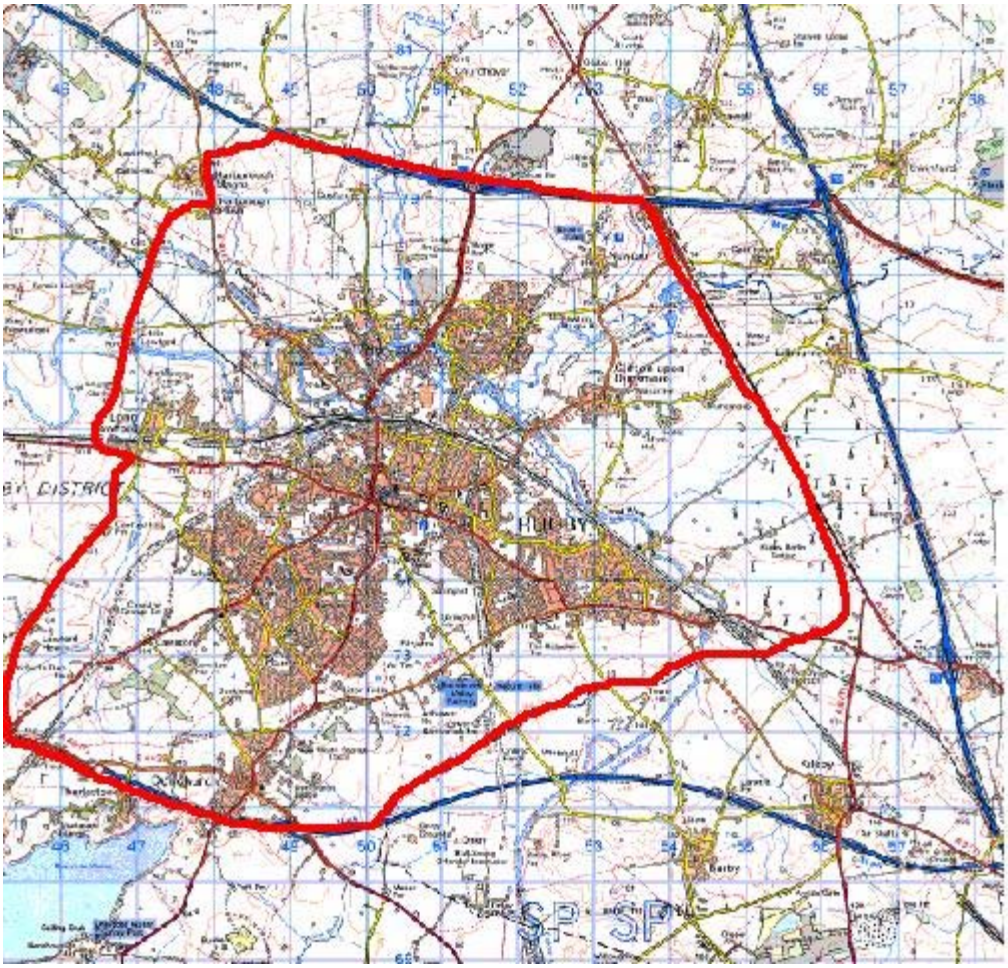
3 RUGBY'S AIR QUALITY MANAGEMENT AREA

3.1 Rugby Borough AQMA

The Detailed Assessment of June 2004 had identified that traffic pollution in the centre of the urban area of Rugby town was likely to result in an exceedance of the nitrogen dioxide annual mean air quality objective. The Council recommended in the report that an air quality management area should be declared for nitrogen dioxide and DEFRA, following consultation, agreed with this recommendation.

The Council made an order under the Environment Act 1995 on 16th December 2004. Councillors had considered a number of options regarding the extent of the AQMA from individual properties to the whole of the urban area of the town. Because of the limited number of north-south routes in Rugby town and the proposed Rugby Western Relief Road, they decided that strategically the AQMA should cover the whole of the urban area of Rugby town because any action to control traffic or pollution could have a significant effect on other parts of the town.

The extent of the AQMA is shown in Figure 1.



Boundary

Figure1: map of the Rugby AQMA

This urban area of Rugby town and Dunchurch have been declared an AQMA for strategic purposes, but the main roads affected are Newbold Road (from the Avon Mill roundabout), Corporation Street and the Warwick Street gyratory system, and roads leading off these roads, mainly Oliver Street, Lawford Road, Bilton Road and Dunchurch Road. This is due to the high traffic flows that occur within the town centre, particularly in the north/south and east/west corridors. The Rugby Western Relief Road, which is currently in the process of being constructed, was originally planned to link major areas of development proposed in the Rugby Borough Local Plan at Cawston, Swift Valley and Coton Park. The road will also assist in reducing the impact of traffic within the town centre, and to providing an alternative route for through traffic.

The Further Assessment considered air quality both with and without the Rugby Western Relief Road. The overall conclusions were:

- *It is likely that the UK National Air Quality objectives for NO_2 and PM_{10} will be met throughout the vast majority of the Borough.*
- *An exceedance of the NO_2 annual mean objective is predicted by the model at one sensitive receptor, the William Webb Ellis pub (2005: 41.2 µg/m^3). Less than ten people would be regularly exposed (i.e. are resident at this location). It is expected that the air quality objectives will be met at this location within 2 years. No other sensitive locations were predicted to experience concentrations in 2005 above the annual mean objective.*
- *A reduction in the NO_2 2005 annual mean of 1.2 µg/m^3 is required to meet the annual mean objective at the at William Webb Ellis pub.*
- *It is advised that the Council consider retaining the existing AQMA for NO_2.*

For the impact on air quality of the Rugby Western Relief Road the assessment concluded that '*The RWRR was predicted to have a beneficial impact on local air quality; ambient concentrations are predicted to drop significantly on several main routes in Rugby. These tend to be areas where there is a high density of sensitive receptors. Whilst concentrations will rise along the route of the RWRR and a number of other links, fewer sensitive receptors will be affected.*'

NO_2 is monitored by diffusion tubes at 23 locations in the Borough, but three sites are in the centre of the Rugby town where concentrations are highest. These locations are outside the Council Offices (Newbold Road), the Webb Ellis public house (Corporation Street) and 15 Oliver Street. The annual mean bias corrected diffusion tube results for 2003 to 2006 were Council Offices 43.3 µg/m^3 2003, 46.5µg/m^3 2004, 36.7µg/m^3 2005 and 34.1µg/m^3 2006, Webb Ellis public house 40.3µg/m^3 2003, 48.8µg/m^3 2004, 41.6µg/m^3 2005 and 38.0µg/m^3 2006, 15 Oliver Street 39.3µg/m^3 2003, 42.5µg/m^3 2004, 35.6µg/m^3 2005 and 33.4µg/m^3 2006. In addition, air quality is monitored by an automatic monitoring station on Newbold Road (in front of the police station). The annual mean NO_2 data are 39.1µg/m^3 2003, 35.3µg/m^3 2004, 35.1µg/m^3 2005, 35.7µg/m^3 2006. The objective for NO_2 is 40µg/m^3 as an annual mean, to be met by 31st December 2005.

In the Council's ***Air Quality Progress Report and Action Plan Progress Report***, April 2007, predicted levels of NO_2 were determined for 2007 and 2010 using the approach specified in the Guidance *LAQM TG (03) Review and assessment of nitrogen dioxide,* box 6.4. Locally determined bias adjustment factors were used, as triplicate diffusion tubes are co-located with an air quality monitoring station at Webb Ellis Road, Rugby, rather than the general bias correction factors from Harwelll Scientific. The predicted levels are Council Offices 33.0µg/m^3 2007, 29.5µg/m^3 2010, Webb Ellis public house 36.8µg/m^3 2007, 32.9µg/m^3 2010 and 15 Oliver Street 32.3µg/m^3 2007, 28.9µg/m^3 2010.

4 SOURCE APPORTIONMENT FOR OXIDES OF NITROGEN

Source apportionment is used to show what proportion of NO_x is contributed by different sources. This is shown for within the AQMA and allows the major sources of oxides of nitrogen to be targeted in the action plan. This section is a review of the Further Assessments for the AQMA which have been accepted by DEFRA and details of modelling methodology can be found in these documents. Source apportionment modelling was undertaken by the Council's air quality consultants, Faber Maunsell.

It must be remembered that this modelling was based on the information available at the time of the original assessments and that data up to and including the 3rd quarter of 2005 were used. As noted in section 2.1.3 there is now evidence that diesel vehicles are emitting higher proportions of nitrogen dioxide to nitrogen oxides than was previously thought.

4.1 Overview of Rugby

A source apportionment study was carried out at certain representative sensitive receptors to determine the contributions made by cars, HGVs, the Cemex site (large cement plant in Rugby town), and background sources, to the predicted NO_X and PM_{10} concentrations. Five receptors were chosen; one is near to the Cemex site on Lawford Road; one is on Newbold Road where high concentrations are predicted; one is on Bilton Road, a busy A road leading into Rugby; one is on Parkfield Road, a less busy road to the north of the Cemex site; and one is at the William Webb Ellis Pub where the highest concentrations were predicted. The results of the study are presented in Table 2.

Receptor No. / Area		NO_X % Contribution			
		Cars	HGVs	Cemex	Background
9	Bilton Road, Bilton	19	28	1	53
19	Newbold Road (Lancaster Road)	19	42	1	38
34	Parkfield Road, Newbold on Avon	8	8	2	82
41	Lawford Road, New Bilton	19	21	0	60
35	William Webb Ellis Pub, (Central gyratory)	26	39	1	35

Table 2: Source Apportionment Study Results (2004)

For NO_X, the contribution made by the Cemex site was predicted to be small (less than 2%) for all four sites. At receptor 19 and 35, HGVs were assessed to be the greatest contributor (42% & 39% respectively) to the total concentration. At the other receptors, background sources were assessed to be the greatest contributors. Parkfield Road is the least busy of the four areas chosen, and hence background sources contribute 82% to the total concentration.

The Cemex site is more significant with regard to PM_{10} than NO_X due to the large number of low level and fugitive PM_{10} sources at the site; NO_X is only emitted in significant quantities from the main stack. However, studies have shown no exceedances as a result of the Cemex plant or their operations of the PM_{10} National Air Quality Objectives.

4.2 The Level Of Reduction in Nitrogen Dioxide Needed

This section presents an estimation of the reduction in nitrogen dioxide levels needed so that the UK air quality objectives are met in the AQMA. Prediction of nitrogen dioxide concentrations is difficult due to the fact that it is formed as both a secondary and primary pollution source as discussed in paragraph 2.3.3. Concentrations of nitrogen dioxide depend upon the proportion of NO_2 to NO found in the initial emission and on the availability of atmospheric oxidants. The implication of this for the Air Quality Action Plan is that a reduction in the levels of NO_X does not produce a proportionate reduction in the levels of NO_2. This effect can be seen in the levels of pollution that have been observed in the past decade.

The Further Assessment and the data obtained in 2005 and 2006 suggests that, at present, there are no areas in the Borough where the annual NO_2 national air quality objective is being exceeded.

Predicted annual average levels of NO_2 have been determined by the Further Assessment, including the centre of Rugby town where levels are highest. Figure 2 shows predicted levels in 2010 with the Rugby Western Relief Road constructed.

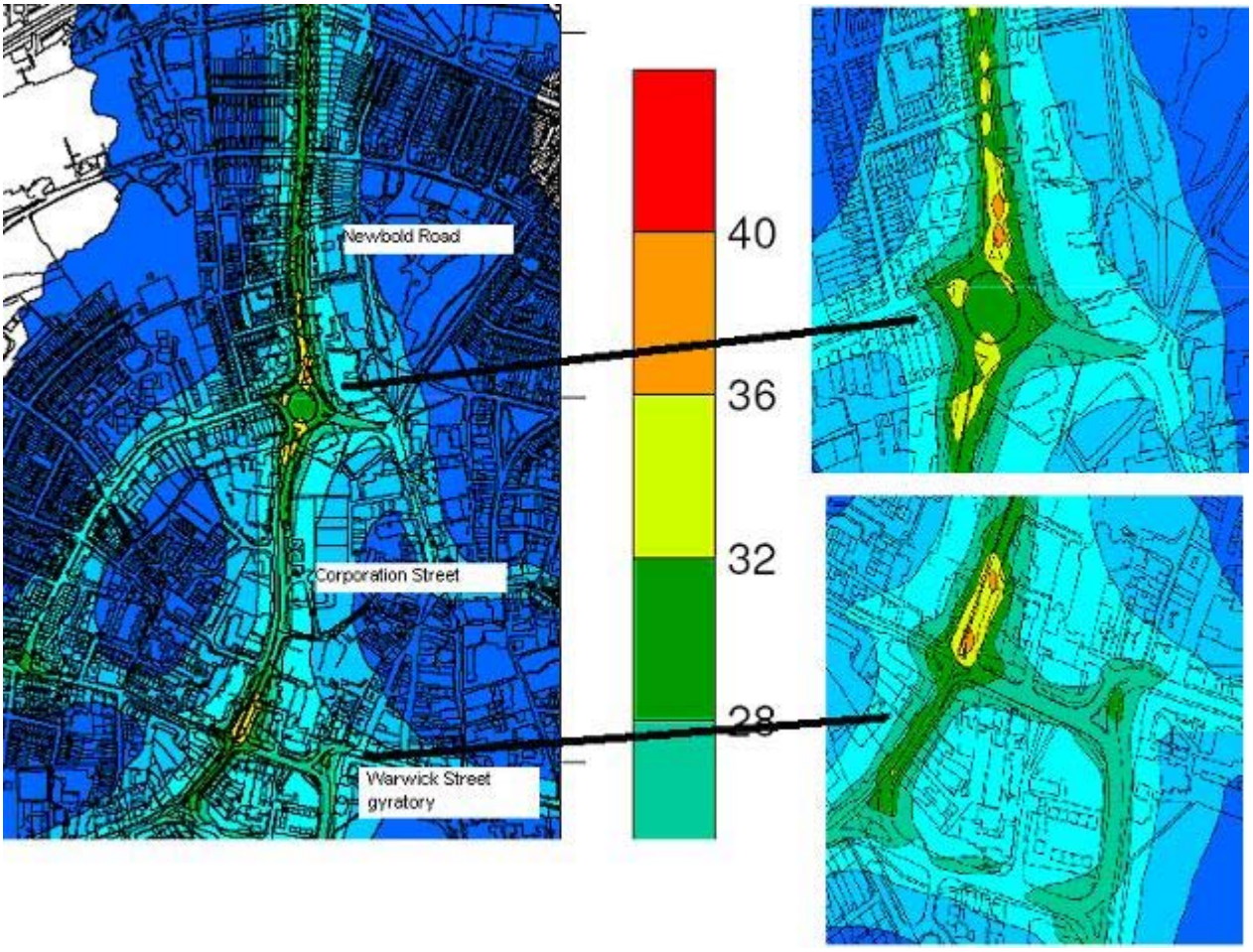


Figure 2: Predicted nitrogen dioxide concentrations in 2010 with the Rugby Western Relief Road constructed. Units µg/m^3. Source: Further Assessment, February 2006.

5 WHEN ARE THE AIR QUALITY OBJECTIVES LIKELY TO BE ACHIEVED?

The Further Assessment, which was first published in December 2005, determined that there was only one sensitive receptor in the Borough where the annual average NO_2 national air quality objective would not be met, and that within 2 years, without additional works, there would be no exceedances. The data used in the report included data up to and including the 3rd quarter of 2005. The modelling was reliant on predicted traffic flow data obtained from the highway authority, Warwickshire County Council, and as indicated in 2.3.3 emission data for models has had to be altered. However, although diffusion tubes and an automatic monitoring station have been located at key points in the air quality management area, none have shown exceedances of the annual average NO_2 national air quality objective in 2006. While 2006 may be an atypical year, major projects such as the Rugby Western Relief Road (RWRR) (construction began in mid-2007 and is due to open late 2009/early 2010) and improvements of the Warwick Street gyratory system, which are both commitments in the LTP, are predicted to further reduce pollution in the town centre. The RWRR was predicted in the Further Assessment to reduce annual average NO_2 at the Webb Ellis public house, which is the only receptor to be identified where the national air quality objective may be exceeded, to 36 $\mu g/m^3$ in 2010.

While the data and modelling suggests that air quality is being controlled, the modelling is now less robust, exceedances have only been shown for one year which may be atypical and the Council's ***Air Quality Progress Report and Action Plan Progress Report***, April 2007, identified a number of issues which could adversely affect air quality in the AQMA. Currently, issues include closure of important roads (e.g. Parkfield Road, Lawford Road) during construction of the Rugby Western Relief Road, development of the former GEC/Alstom sites, the ASDA development on Corporation Street, and taking account of the West Midlands Regional Spatial Strategy (RSS) Phase Two Review preferred housing option for Rugby Borough of 10,800 dwellings to be built over the period 2006 to 2026 and growth in employment land. Therefore, the Council considers it important to

(a) retain the AQMA
(b) continue to monitor air pollution
(c) support Warwickshire County Council and other groups in a range of measures designed to reduce the impact on air quality which are detailed in this action plan addendum.

6 DEVELOPMENT OF THE ACTION PLAN

A Steering Group consisting of representatives from local groups, local businesses, Rugby Borough Council and Warwickshire County Council was established to oversee the preparation of the addendum to the LTP. A full list of organisations represented is shown in Appendix 2. The aim of this group was to identify existing and proposed policies and strategies, county based and local, including those within the Local Transport Plan (LTP), that would impact positively on the air quality within the AQMA.

The Steering Group meetings began with discussions on air quality and health, the legislative background, the national objectives, the current state of air quality in Rugby Borough and the action planning process. Forecasts of future air quality were then considered against the required limit values. A Scoping Checklist was also agreed.

The Steering Group then began the process of identifying actions under existing policy that were likely to result in an improvement in air quality. The broad background of the group enabled a large number of existing actions to be identified. In particular the LTP for Warwickshire was recognised as containing both the broad vision and a multitude of specific initiatives and proposals aimed at improving the transport system of the entire Borough. Measures that generate an improvement in traffic flow can often be beneficial to the improvement of air quality so the proposals in the LTP were essential to the development of this action plan specific addendum.

The Steering Group then reviewed the existing actions and sought to identify additional actions that were both feasible and had the potential to improve air quality within the AQMA.

It was recognised that the Action Plan specific addendum to the LTP would only be effective if the effect of the actions and the likely impact on air quality were balanced. Appendix 1 of this report consists of tables of actions that have been developed by the Steering Group. The tables include information about the measures, some qualitative evaluation (impacts on air quality, other environmental impacts, economic impacts, cost, feasibility, compatibility with other council policies etc). From this evaluation, a prioritisation has been undertaken based on high, medium and low priority actions. The list is not a full list of all possible actions. Further actions were

considered, for example low emission zones, road user charging, park and ride schemes, and roadside car testing, but when evaluated were not considered suitable for inclusion in the action plan for the Borough.

7 TRANSPORT AND THE AIR QUALITY ACTION PLAN

7.1 The Local Transport Plan for Warwickshire

During the preparation of the second LTP, the five Warwickshire borough and district councils liased closely with transport planners from Warwickshire County Council, and their consultants Arup, to develop a countywide Air Quality Strategy. As a result, the LTP forms the basis of the Air Quality Action Plan, in accordance with the advice regarding integration of traffic related action plans into LTPs given in LAQM PGA (05).

The current LTP, Warwickshire County Council Local Transport Plan 2006 – 2011, known as LTP2, was submitted to the Department for Transport (DfT) in March 2006. The Air Quality Strategy contained within the LTP is attached as Appendix 4 to this report.

It is a mandatory requirement for LTP2 to contain a target on air quality. The targets chosen for Warwickshire are shown in Table 3.

Air Quality Strategy - Targets and Indicators			
Local Target/Indicator	**Performance Indicator**	**Source of Data**	**Frequency of Monitoring**
Target (LTP8): Reduce the number of exceedances of the national air quality standards and objectives between 2005 and 2010.	Monitored and modelled pollutant levels across the County. The revocation of AQMAs.	Countywide air quality monitoring stations.	Annual
Target: Retain traffic volumes at 2004 levels in the urban areas of Nuneaton, Rugby, Warwick and Leamington Spa.	Road traffic levels on local road networks.	Road traffic surveys. Traffic modelling.	Annual
Local Indicator: Ensure that air pollutant levels do not exceed national standards in the County where they previously have not.	Air quality assessment of major transport proposals within Warwickshire.	Countywide air quality monitoring stations. Regular and continued dialogue with the District/Borough Councils.	Annual

Table 3: LTP Air Quality targets for Warwickshire

While the action plan will ultimately be integrated into the LTP, it was clear when the LTP was submitted to DfT in March 2006 that the LTP did not fully meet the guidance in LAQM PGA(05) for action plans and was also limited in local air quality options. Therefore, a decision was made by Rugby Borough Council to set up an action plan steering group and produce an addendum to the LTP.

8 PLANNING AND AIR QUALITY

In November 2004 Planning Policy Statement 23: Planning and Pollution Control was released. This document recognises air quality is a material consideration in the planning process as development control decisions can have a direct or indirect bearing on existing air quality and creating exposure to poor air quality. It is also recognised that all developments within an AQMA which may cause air quality deterioration should not be refused, especially as some Local Authorities have declared whole borough AQMA's. Road transport is the major contributor to poor air quality and planning can play a key role in ensuring developments reduce the need to travel and encouraging travel choices. PPS 23 acknowledges the importance that the planning, transport and air quality control functions of Local Authorities work closely together on development issues.

Rugby Borough Council adopted its latest Local Plan in July 2006. The Rugby Borough Local Plan forms part of the 'development plan' for the Borough. Together with the Warwickshire Structure Plan (WASP) and the West Midlands Regional Spatial Strategy (RSS) it sets out the framework by which development should take place. The Local Plan covers the period 1996 – 2011 although in respect of housing, provision is made to 2016 and the policies contained within it are used in the assessment of planning applications within the Borough. Section 38(6) of the Planning and Compulsory Purchase Act 2004 requires that where an adopted or approved development plan contains relevant policies, an application for planning permission shall be determined in accordance with the development plan unless other material considerations indicate otherwise. General air quality controls can be found in *Chapter 4 – General Principles*. Policy GP12 is specific to the AQMA:

Policy GP12 – Air Quality Management Area

Development proposals within the Air Quality Management Area (AQMA) that fulfil the requirements specified for air quality assessments (Table 2), or are likely to hinder the achievement of the Council's air quality objectives, will be required to demonstrate their impact on air quality.

Development that is likely to have a net adverse impact on air quality in the AQMA will not be permitted, unless such effects are mitigated to the satisfaction of the Council.

Table 2 of Chapter 4 also includes thresholds for assessment of air quality. A detailed assessment is required where a proposed development would exceed thresholds set out in Table 2:

Table 2: AQMA thresholds

Use	Thresholds above which a an air quality assessment will generally be necessary
A1, A2 and A3 retail development	1,000 m²
B1 including offices	2,500 m²
B2 general industry	5,000 m²
B8 storage and distribution	5,000 m²
Educational establishments-	2,500 m²
D2 Assembly and leisure facilities, including stadia	1,000 m²
C3 residential development	100 dwellings
Health establishments	2,500 m²

Chapter 6 – Transport is a comprehensive policy which has the following polices which influence air quality:

Policy T1 – Integrated and sustainable transport
Policy T2 – Travel Plans
PolicyT3 – Access and highway layout
Policy T4 – Cycle and pedestrian facilities
Policy T5 - Parking facilities
Policy T6 - Vehicle servicing of commercial development
Policy T7 - Bus/rail interchange
Policy T8 – Key transport corridors
Policy T9 – Safeguarding the route of the Rugby Western Relief Road
Policy T10 – Safeguarding of County route improvement schemes
Policy T11 – Safeguarding future railway opportunities
Policy T12 – Motorway service areas
Policy T13 – Airport flight paths

Warwickshire County Council is also a planning authority and have committed in their LTP (*Action AQA5 – Integration of air quality and transport planning goals*) to manage traffic to take account, where possible, of the need to minimise impacts on air quality. In new developments, air quality issues will be considered in all situations, including the consideration that all new developments are to have reasonable access to public transport and sufficient provision is made for pedestrians and cyclists.

9 PUBLIC CONSULTATION

The process of public consultation is critical to the success of any Air Quality Action Plan, however there is little flexibility in terms of different courses of action available to tackle NO_2 in Rugby Borough as the most significant source is from transportation, and the LTP published in 2006 already sets out a comprehensive strategy for transportation policy across Warwickshire and within Rugby Borough.

The method of consultation to be employed for this action plan specific addendum to the LTP is to focus upon groups of people at a local level where the specific detail of the broad policies can be discussed. Copies of the draft addendum will be sent to those people and organisations listed in Appendix 3, with a formal request for comments.

Copies of the report will also be made available in local libraries and on the Rugby Borough Council Internet site at www.rugby.gov.uk

10 PROPOSED ACTIONS

Appendix 1 of this report consists of a number of actions that have been identified by the Steering Group as having the potential to improve air quality in the AQMA. The actions are listed under the following headings:

1. Specific proposals for the AQMA
2. Non-specific proposals for general improvement of air quality in the Borough
3. Reducing vehicle emissions
4. Alternative transport modes/ policies
5. Non-transport measures

Each action lists the body (or bodies) responsible for its implementation, how it will be implemented, an intended completion date, an estimate of financial cost, a qualitative evaluation including issues such as impacts on air quality, climate change, public perception, social impact, feasibility and a prioritisation that was reached by not only using this evaluation, costs and benefits, but also taking into consideration issues such as whether funding is already available, and the timescales the measure could be feasibility implemented within. For the purposes of this cost - benefit analysis 'Low' equates to less than £100,000, 'Medium' equates to between £100, 000 and £1,000,000 and 'High' equates to greater than £1000,000. It is not possible to accurately quantify the expected improvement in air quality for each option and therefore an estimate of high, medium or low improvement has been used to allow a comparison between the proposed actions. The wider impacts of the work have been considered by estimating the percentage of people in Rugby Borough who would be positively affected.

While it is possible that air quality objectives are now being met, this is not guaranteed and there are significant projects, which will affect air quality. These actions are considered to strike an appropriate balance between the direct and indirect costs of taking action and the benefit in terms of improved air quality required to generally improve air quality in the Borough.

11 IMPLEMENTATION OF THE ACTION PLAN

Environmental Services of Rugby Borough Council, in partnership with Warwickshire County Council, will take the lead role in ensuring the implementation of the Action Plan and monitoring the improvements in air quality achieved as a result of the actions taken. Annual Action Planning Progress Reports will be published on the progress of implementation. Since road traffic is the most significant source of NO_2 it is especially important to ensure that the Air Quality Action Planning process is harmonised with the process of Local Transport Planning. The two processes will work alongside each other with each feeding information into the other. Rugby Borough Council will ensure that this Action Plan specific addendum is kept up to date, and the Secretary of State and other statutory consultees will be consulted if the need arises to revise it.

This Air Quality Management Area Action Plan was approved by Rugby Borough Council's Cabinet on 10th March 2008. It is proposed that Warwickshire County Council will formally adopt it as an addendum to the Warwickshire Local Transport Plan 2006. In due course, the Action Plan will be incorporated into the next LTP submission, which is due to be prepared in 2010/11.

12 SUPPORTING DOCUMENTS

Rugby Borough Council Documents (available on the Council web site www.rugby.gov.uk)

Air Quality Progress Report and Action Plan Progress Report (2007)
Local Plan (2006)
Updating and Screening Assessment (2006)
Further Assessment (2006)
Air Quality Progress Report and Action Plan Progress Report (2005)
Detailed Assessment of Particulate Matter (2005)
Detailed Assessment (2004)
Updating and Screening Assessment (2003)

Warwickshire County Council Documents (available on their web site www.warwickshire.gov.uk)

Local Transport Plan 2006 – 2011 (2006)
Structure Plan 1996-2011 (2002)

Other Documents

Air Quality Action Plans: Interim Guidance for Local Authorities. NSCA
Air Quality and Traffic Management. DETR (1997)
Air Quality Management Areas: Turning Reviews into Action. NSCA
Air Quality: Planning for Action PART 2 of the NSCA Guidance on the
Development of Air Quality Action Plans and Local Air Quality Strategies. NSCA (2001)
Consultation for Local Air Quality Management. The How To Guide NSCA (1999)
Developing Local Air Quality Action Plans and Strategies: The Principal
Considerations. DETR (1997)
Part IV of the Environment Act 1995 Local Air Quality Management Policy Guidance
LAQM.PG(03). DEFRA (2003) (and addendum LAQM.PGA(05))
AQEG "Trends in Primary Nitrogen Dioxide in the UK -draft report for comment" August 2006
"The Air Quality Strategy for England, Scotland, Wales and Northern Ireland", Defra, July 2007

APPENDIX 1: ACTIONS PROPOSED

Notes on evaluation:
The following tables outline the actions proposed to improve air quality, the stakeholder responsible for those actions and what projects are currently ongoing or planned. An evaluation of the feasibility and impacts has been undertaken using a 'traffic light' system with green meaning some positive impact (even if only minimal), amber signifying either some positive and some negative impacts, or a generally neutral effect, and red signifying negative impacts. In terms of economic impact this relates to any impacts on local businesses or other stakeholders, rather than the cost of the measure itself, which is reflected under cost. A prioritisation has then been undertaken taking into account this evaluation, but inevitably also based on judgement, the magnitude of impacts (which is not explicit from the colour system) and whether funding is available. Costs are defined as low, medium and high as follows: Low = < £100K Medium = £100K to £1 Million High - > £1 Million. Costs are only relevant where funding is needed for implementation. In many cases, schemes are being implemented for a wide variety of reasons and hence it should be noted that funding is not required in terms of this document.

1. Specific proposals for the AQMA

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
1.1 Rugby Western Relief Road	Warwickshire County Council - Highways	The construction of the RWRR has been approved and has now started. The Further Assessment has indicated this will have a positive impact on air quality in the town centre, but increases pollution in other areas.	Local air quality		High	No extra funding required – already fully funded	Due to start construction August 2007. Complete by late 2009/early 2010.
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				
Background information: The existing Rugby Borough Local Plan proposes substantial development at Coton Park, Swift Valley and Cawston in the South West – North corridor of the town. A new section of highway, known as the Rugby Western Relief Road, has been identified as critical to supporting these developments and reducing traffic congestion in Rugby town centre. The route of the Western Relief Road is from the A426 Avon Mill roundabout to Potford's Dam has been established, and will provide a strategic link between the M6/A426 in the north and the A45/M45 in the south.							

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
1.2 Improvements to Warwick Street gyratory system	Warwickshire County Council - Highways	The only residential property identified by the Further Assessment where an exceedance of a national air quality objective is likely is on Warwick Street. This improvement compliments the Rugby Western Relief Road.	Local air quality		High	No extra funding required – to be funded within existing funds	Due to coincide with completion of Rugby Western Relief Road in late 2009/early 2010.
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
The Warwick Street gyratory is located to the south west of the town centre, and provides a significant highway interchange between the A4071, A428 and A426 (i.e. the three key routes into or across the urban area of Rugby). The gyratory is currently one way in a clockwise direction, and is partially signalised. In conjunction with the implementation in full of the Rugby Western Relief Road, the County Council intend to review the operation of the gyratory, and consider the possibility of improvements for pedestrians, cyclists and buses. Options for the improvement of the gyratory will be identified in the Rugby Transport Study, of which Stage 1 has been completed. Should the Western Relief Road be complete by 2009/2010 as planned, a major improvement of the gyratory could begin on site towards the end of the LTP period. It is also anticipated that the completion of the Rugby Western Relief Road will have a positive impact on the air quality issues that have been highlighted as a problem at the gyratory, but the exact impact has not been assessed.

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
1.3 Church Street/North Street	Warwickshire County Council - Highways	Options to 'lock in' the benefits of the Western Relief Road in the town centre (including Church Street/North Street) will be explored as part of the forthcoming Rugby Transport Study.	Local air quality		Medium	No extra funding required – to be funded within existing funds	Due to coincide with completion of Rugby Western Relief Road in late 2009/early 2010.
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				
Background information: Church Street/North Street runs in a north west to east direction through Rugby, and provides the main highway access into the core retail and business centre of the town. It also acts as the principal thoroughfare for bus services in Rugby. Without the Rugby Western Relief Road in place, any significant alteration to this corridor is not possible because of the impact it would have on traffic conditions on the Warwick Street gyratory, and the distribution of traffic around the town generally. Options to 'lock in' the benefits of the Western Relief Road in the town centre (including Church Street/North Street) will be explored as part of the forthcoming Rugby Transport Study. One possibility is either full or partial pedestrianisation, but the effect of closing the corridor to bus services will need to be carefully considered.							

2. Non-specific proposals for general improvement of air quality in the Borough

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
2.1 Decriminalisation of Parking Enforcement	Rugby Borough Council – Public Realm Unit and Regulatory Services Unit, and Warwickshire County Council - Highways	Decriminalised parking powers are being used by RBC (under agreement with WCC) to reduce illegal parking which restricts traffic flows	Local air quality		Low	No extra funding required – funding secured	On-going
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				
Background information: Decriminalisation of Parking Enforcement was introduced in Rugby Borough in October 2006. It is thought that availability of on-street parking spaces has increased and, therefore, there is less need for traffic to circulate unnecessarily within the town centre. Impact on air quality is considered low.							

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
2.3 Rugby Town Centre 20:20 Vision	Rugby First in partnership with Rugby Borough Council and Warwickshire County Council	This is a strategic, long-term (15 year) vision for the Town Centre produced by a private venture and is aimed primarily at businesses	Local air quality		Medium	No extra funding required – integrated with other initiatives	On-going
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
This is a strategic, long-term (15 year) vision for the Town Centre. It is a partnership document produced by Rugby First (formerly the Rugby Town Centre Company), with Rugby Borough Council (RBC) and Warwickshire County Council playing key roles in its development. It has been developed over the course of a year, beginning with a workshop event which involved a number of elected members.

The document is aimed primarily at businesses that may have an interest in investing in the town, and is intentionally designed as a high quality promotional publication. It was launched at an event in October 2005. It includes a foreword from the Leader of RBC, and the Labour Group Leader spoke at the launch. This document complements RBC's Local Plan, which contains statutory planning policies for the town centre.

The 20:20 Vision statement is that:

"The Town Centre of Rugby will become the shopping, leisure and arts centre of choice for all sectors of the local community and importantly, owing to the distinctiveness of our offer, it will also attract customers from the sub-region."

The document is available at:

http://www.rtccompany.co.uk/uploaded/documents/rtcvision.pdf

See page 14 *Transport and Accessibility*.

Key actions in the Vision are improved public transport, improved access by foot and cycling, reducing town centre through traffic, pedestrianisation, Green Travel Plans for employers, improved connections to the railway station (walking, cycling, shuttle service), sufficient parking for visitors (employee parking reduced by improved public transport), improved pedestrian access from car parks, improved disabled access.

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
2.4 Re-Routing traffic – Lorry Route Maps and local agreements	Warwickshire County Council – Highways and Rugby Borough Council - Public Realm Unit and Regulatory Services Unit		Local air quality		Medium	Possible extra funding required from the Highways Agency.	On-going. Main impact after completion of Rugby Western Relief Road in late 2009/early 2010.
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				
Background information: Currently traffic, especially HGVs have to go through the areas of the AQMA with the highest pollution levels. Source apportionment has shown the disproportionate impact of HGVs on air quality. The Rugby Western Relief Road provides an opportunity to encourage companies which use the Borough to use routes which minimise traffic pollution in the AQMA. Voluntary agreements can also be negotiated with local businesses or can be incorporated into new planning applications to encourage businesses to use specific routes and/or restrict the times when the routes should be used. Some voluntary agreements with local businesses are already in place, although mainly to prevent general nuisance. The Warwickshire Advisory Lorry Route Map was published in 2005. The Rugby Western Relief Road provides an improved opportunity to encourage companies which use the Borough to use routes which minimise traffic pollution in the AQMA. Signing on trunk roads and motorways is under the control of the Highways Agency and will require them to agree to change and/or fund any alterations.							

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
2.5 Variable Message Signs	Warwickshire County Council - Highways	WCC will use VMS to improve car park usage and reduce traffic circulation in the town centre.	Local air quality		Medium	No extra funding required – funding secured	Unknown.
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				
Background information: A series of signs will be provided on the key approaches to the town centre to inform drivers of car park locations and availability of spaces in the main off-street facilities. This will compliment the aim of Decriminalisation of Parking Enforcement by reducing the amount of traffic circulation within the town centre. Using VMS also has the potential to provide real time air quality information, to help to raise awareness of air quality issues and potentially persuade people to change mode of travel away from private vehicles. This is particularly important in relation to raising awareness during pollution episodes.VMS is also being pursued elsewhere in the County, most notably in Warwick and Leamington Spa.							

3. Reducing vehicle emissions

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
3.1 Enforcement of idling vehicles legislation	Rugby Borough Council - Regulatory Services Unit	Not currently being implemented. Feasibility in terms of resources currently being investigated.	Local air quality		Low	Low Cost	2008 for feasibility – ongoing if implemented
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
The Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002 (Statutory Instrument 2002 No. 1808) enables authorised individuals to issue a fixed penalty notice to vehicles stationery on a road and can require them to switch off their engine. In some circumstances, for example where buses congregate, this may provide localised improvements in air quality. Enforcement of this legislation is not currently underway in Rugby but prioritised locations for enforcement will be considered as part of this action plan. Rugby Borough Council is currently being restructured with parking enforcement being incorporated into a Regulatory Services Unit which also includes the team responsible for air quality. This gives the opportunity for targeted action in the town centre where the parking enforcement operators already operate. BID Area Rangers could also give advice to drivers.

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
3.2 Improve the Council fleet (in terms of emissions)	Rugby Borough Council – Works Services Unit	Currently fleet management is undertaken across the Council.	Local air quality		Medium	No extra funding required – funding within existing funds	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
As an organisation with a large vehicle fleet, it is important that Rugby Borough Council leads by example by favouring low emissions vehicles when purchasing vehicles for its own fleet. Works Services Unit is the main operator of RBC vehicles and has approximately 70 vehicles of which about 19 are refuse collection vehicles or large freighters. All the large vehicles are Euro III and will be replaced on a rolling replacement schedule starting in 2007 with Euro IV vehicles (fitted with AdBlue to control particulates) and Euro V when introduced in 2008. Eminox exhaust filters are also being fitted to some vehicles. The small, non-HGV type vehicles are replaced after 5 years fleet life, the larger vehicles after 7 years and some of the tractors after 10. Replacement vehicles are always purchased, meeting the emission controls applicable at that time, so as emission controls are tightened, vehicles purchased by RBC will always meet those requirements. At some point in their fleet life, if emission controls change, existing vehicles may not comply with the new legislation, but none of the emission controls are retrospective so RBC is compliant at all times. In addition, emissions are measured as part of the annual test of the vehicle, which unlike cars, is carried out from the vehicles first birthday. While environmental issues are of importance, the frequency of replacement of vehicles has to consider budgets.

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
3.3 Improve bus emissions	Stagecoach, as the largest fleet operator in the Borough, and potentially other key companies such as De Courcey Travel Ltd and Geoff Amos Coaches	The bus operators will continue modernisation of the bus fleets with low emission vehicles	Local air quality		Medium	Commercial investment would be required for any large scale improvements	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
The introduction of increasingly stringent European emissions standards mean that new buses are increasingly cleaner. There is the potential for significant impact on air quality for Euro IV buses and potential for alternative low emission fuelled buses or electric buses if introduced by Stagecoach. Potentially important but subject to financial considerations by the private bus operators. Stagecoach take seriously any issues in regard to air/noise pollution. The introduction of Euro IV buses is ongoing throughout the whole company. The steering group are aware that there is a very significant financial implication of renewing every vehicle. Stagecoach are researching and upgrading older vehicles as much as possible as well as continuing to asses new low emission vehicles and electric buses. The County Council also has a role to play in bus vehicle replacement as part of the Quality Bus Initiative. This delivers new low floor, lower emission vehicles on selected tendered bus services.

4. Alternative transport modes/ policies

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
4.1 Cycling	Warwickshire County Council – Highways, and Rugby Borough Council - Public Realm Unit	WCC and RBC will continue to promote cycling as a lower polluting means of transport including new cycle lanes as part of the National Cycle Network and the local cycle network, and cycle parking	Local air quality		High	No extra funding required – funding secured through LTP2, Rugby Borough Council and supplemented by developer contributions	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				
Background information: The Cycling Strategy is contained within the Warwickshire County Council LTP (http://www.warwickshire.gov.uk/ltpannex/chapter_151.html). The purpose of the Cycling Strategy is to bring together in a single document the policies and actions required to further improve conditions for cycling and deliver an increase in cycle journeys in Warwickshire. The strategy sets out a framework for the further development of cycling in Warwickshire as part of the overall integrated LTP strategy. The strategy forms a long-term strategy for cycling and it will not be possible to achieve everything within the life of this Local Transport Plan or even the subsequent one. The action plan at the end of the strategy lists the key steps that the County Council will take over the short, medium and long term, to encourage more people to cycle.							

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
4.2 Walking	Warwickshire County Council – Highways, and Rugby Borough Council – Public Realm Unit	WCC and RBC will continue to promote walking as a lower polluting means of transport.	Local air quality		High	No extra funding required – funding secured through LTP2	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
The Walking Strategy is contained within the Warwickshire County Council LTP (http://www.warwickshire.gov.uk/ltpannex/chapter_168.html). The purpose of this strategy is to set out what is needed in Warwickshire to improve conditions for walking and encourage more people to walk for local journeys. The Walking Strategy sets out a range of policies and actions to encourage more walking in Warwickshire. The main aim is *'To improve the pedestrian environment and promote the benefits of walking to encourage more people to walk for short utility journeys and for recreation'.* The walking strategy is a daughter document to the LTP and will contribute towards the achievement of the overall objectives of the Local Transport Plan

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
4.3 Work Travel Plans	Warwickshire County Council – Highways, Planning, and Rugby Borough Council - Development and Enforcement Unit	WCC and RBC will continue to require green travel plans with all major planning applications as well as continue to work with schools on school-based travel plans. Both Authorities already have their own Green Travel Plans which are ongoing in terms of their implementation.	Local air quality		High	No extra funding required – funding secured from internal budgets, commercial investment and developer contributions	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
Travel Plans can help companies or schools reduce the traffic impacts of their activities. Travel Plans look to reduce work related car trips through initiatives such as car sharing, providing pool cars, cycling incentives, cycle parking, showers and changing facilities, video conferencing, flexible working and discounted bus and train tickets. Travel Plans can be extremely cost-effective and have proved very successful in cutting car use. In many cases Travel Plans have been shown to have positive economic impacts for the organisation involved particularly where the cost of land is high and parking spaces can be utilised for other uses.

Many travel plans are secured through the planning process using Conditions or Section 106 agreements.

WCC Policy PR1 encourages existing major employers to adopt travel plans. Travel plans form part of the LTP Changing Travel Behaviour Strategy (http://www.warwickshire.gov.uk/ltpannex/chapter_149.html).

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
4.4 School Travel Plans and Safer Routes to School	Warwickshire County Council - Highways	WCC will continue to invest in encouraging school children and staff to use more sustainable forms of travel to get to school and back, through safer routes for walking and cycling	Local air quality		High	No extra funding required – funding secured through LTP2	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
Safe Routes to Schools (SRS) was originally conceived by Sustrans www.sustrans.org.uk - a national organisation which promotes walking, cycling, and other forms of sustainable transport, but it is now substantially delivered by Local Authorities through the LTP process. One element of sustainable travel is to increase the safety of children and young people walking and cycling to/from school. Schools must have a Travel Plan in place prior to any Safer Routes to School schemes being implemented. These aim to encourage children to travel to school by more sustainable means and therefore cut car usage. This could have a positive localised benefit on air quality. WCC are investing heavily in Safer Routes to School. 2005 saw the completion of the Dunchurch Road cycleway serving Harris School. 2007 will see the construction of a new cycle route serving Avon Valley School from Brownsover. All new developments include cycle facilities.

Travel plans are part of the WCC LTP Changing Travel Behaviour Strategy (http://www.warwickshire.gov.uk/ltpannex/chapter_149.html).

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
4.5 Public Transport Strategy, including the Bus Strategy	Warwickshire County Council - Highways	WCC will continue to encourage public transport. The key public transport mode in the AQMA is buses.	Local air quality		High	No extra funding required – funding secured through LTP2	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
The purpose of the Public Transport Strategy (including the Bus Strategy) is to set out what is needed in Warwickshire to ensure excellent public transport services and facilities which will address the needs of both current and potential passengers in Warwickshire and deliver the transport objectives of the Government and the County Council.

The LTP Public Transport Strategy is actually made up of a number of subsidiary strategies as well as the Bus Strategy. These include the Bus Strategy, the Public Transport Strategy, the Bus Information Strategy and the Public Transport Interchange Strategy.

Details can be found at:

http://www.warwickshire.gov.uk/ltpannex/chapter_160.html
http://www.warwickshire.gov.uk/ltpannex/chapter_159.html
http://www.warwickshire.gov.uk/ltpannex/chapter_165.html
http://www.warwickshire.gov.uk/ltpannex/chapter_164.html

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
4.6 Travel Awareness Campaigns	Warwickshire County Council - Highways	The TravelWise campaign brings together around 160 public sector organisations, including councils, health authorities and Government advisory groups, which work together to promote alternative ways to travel.	Local air quality		High	No extra funding required – funding secured through LTP2	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
The main aims of the Warwickshire TravelWise Campaign are:

- to raise the awareness of the environmental, economic and social effects of travelling by foot, bike, motorcycle and public transport
- to encourage socially responsible car use
- to promote more sustainable modes of travel, and lifestyles which require less travel
- to increase the number of walkers, cyclists, motorcyclists, public transport users and car sharers.

Details can be found at:

http://www.warwickshire.gov.uk/web/corporate/pages.nsf/(DisplayLinks)/583EB900B169BFB480256FB0005DC8DE
http://www.warwickshire.gov.uk/TravelWise

5. Non-transport measures

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
5.1 Energy Efficiency measures	Rugby Borough Council – Corporate Planning Assurance and Improvement Team	RBC to continue its programme of energy efficiency improvements in the domestic and commercial sector.	Local air quality		Medium	High for improvements in domestic sector (additional funding required)	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
Although not tackling the main source of pollution within the AQMA, energy efficiency measures should generally decrease NOx emissions from the domestic and commercial sector thus decreasing background concentrations across the Borough. Energy efficiency measures can also help in raising awareness of pollution issues more generally. A related initiative called *Switch it Off* is an energy saving campaign covering Coventry, Warwickshire and Worcestershire. Its aim is simple – to show the saving that can be achieved when a lot of people turn off unwanted lights and electrical appliances that have been left on standby. RBC and WCC are also partners in the Warwickshire Climate Change Partnership (see www.warwickshire.gov.uk/climatechange). The vision of The Warwickshire Climate Change Partnership is to reduce greenhouse gas emissions in Warwickshire to at least the level set out by Government policy. This means a 15%-18% reduction in emissions of carbon dioxide by 2010 and a 60% reduction by 2050 (against 1990 levels).

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
5.2 Control of Industrial emissions	Rugby Borough Council – Regulatory Services Unit, Environment Agency	RBC will continue to actively regulate its processes under the Pollution Prevention and Control Act 1999. In addition the Council will survey its district for further premises requiring regulation under the above legislation	Local air quality		Medium	No extra funding required – within existing funds	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				
Background information: The Pollution Prevention and Control Act 1999 requires certain industrial processes to have a Permit to operate. This prior approval must be in place before the process is first operated. Rugby Borough Council is responsible for permitting 39 processes within the Borough including activities such as vehicle re-spraying, concrete batching and unloading of petrol at petrol stations by delivery tankers. The operator of the prescribed process must comply with the conditions of the permit, and they will be subject to inspection to ensure this is the case. Conditions relate to the control of pollution by for example setting emission limits for certain pollutants, materials handling, staff training and equipment maintenance. Again, although not tackling the main source of pollution within the AQMA this measure should generally reduce NOx emissions and therefore reduce background concentrations across the Borough. 6 sites are also regulated by the Environment Agency and Rugby Borough Council will work with them to ensure emissions are controlled.							

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
5.3 Emissions from domestic and commercial sources	Rugby Borough Council - Regulatory Services Unit	RBC will continue to enforce the provisions of the Clean Air Act 1993 as applied to stack height provision, dark smoke offences and permitted domestic fuels.	Local air quality		Low	No extra funding required – within existing funds	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				
Background information: Similarly to measure 5.2, enforcing the Clean Air Act 1993 may make some improvements to background concentrations of pollutants, thereby helping to reduce concentrations over the Borough as a whole.							

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
5.4 Control of Bonfires	Rugby Borough Council - Regulatory Services Unit	RBC will enforce the provisions of the Clean Air Act 1993 and part III of the Environmental Protection Act 1990 regarding emissions from bonfires within its area.	Local air quality		Low	No extra funding required – within existing funds	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				
Background information: One particular statutory function of the Regulatory Services Unit is to respond to complaints, including those relating to bonfires, and thus control emissions from localised sources, which can add to the overall pollution in the Borough. This is unlikely to have much impact on concentrations of NO_2 but may help to make some improvements to background concentrations.							

Measure	Stakeholder	Current/ planned projects	Feasibility/ impacts		Prioritisation	Cost/ Funding	Completion date
5.5 Planning Development and Planning Applications	Rugby Borough Council - Forward Planning and Economic Development Unit, Development and Enforcement Unit and Regulatory Services Unit	Air quality is specifically covered in the adopted Local Plan July 2006 (see section 8 of this action plan).	Local air quality		High	No extra funding required – within existing funds	Ongoing
			Climate change				
			Compatibility with other council policies				
			Public perception				
			Economic impact				
			Social impact				
			Feasibility				
			% of people positively affected				

Background information:
The assessment of planning applications in order to secure improvements in air quality through mitigation measures, emphasis on sustainable development and through contributions from planning obligations or conditions can in the long term make a significant step towards improving air quality or preventing deterioration. This measure is already being implemented. The adopted Local Plan (July 2006) contains a policy (GP16) which specifically covers Air Quality Management and sets thresholds above which an air quality assessment will be required. This is aimed at controlling the impact of development on air quality. The Local Plan also contains various policies relating to travel plans and reducing the impacts of development in terms of noise and air pollution. Among the key aims of the Local Plan is to promote more integrated and sustainable approach to transport and taking care of the environment. The preferred housing option for Rugby put forward in the West Midlands Regional Spatial Strategy (RSS) Phase Two Review is 10800 dwellings to be built over the period 2006 to 2026. The Council is in the process of starting work on its Local Development Framework which will replace the Local Plan and provide the long term planning framework for the Borough. Production has started on the Core Strategy (part of the LDF) which will set out the principles for development over the next 20 years. This will plan for all the types and levels of development set out by the RSS. It would be envisaged that any substantial increase in housing numbers would be accompanied by a need for increased infrastructure but would also lead to more traffic movements and potential air quality issues. This whole issue will require much further discussion once the RSS options have been finalised. The issue of parking provision is very relevant to Planning. The Local Plan adopts a maximum standard for new car parking which is split between sites that are of low and high access (dependent upon proximity to public transport) and these standards are to be applied along with the requirements for cycle parking facilities.

APPENDIX 2: AQAP STEERING GROUP

Sustainable Rugby

- Councillor Neil Sanderson, Chair (formerly Vice-Chair), Sustainable Rugby
- Martin Eversfield, formerly Chair, Sustainable Rugby

Rugby Borough Council Regulatory Services Unit (formerly Environmental Health)

- David Burrows, Commercial Manager

Rugby Borough Council Business Transformation Service (formerly part of Environmental Health)

- Stephen Marks, Sustainable Partnership Manager, Rugby Borough Council

Rugby Borough Council Public Realm Unit (formerly Engineers Division)

- David Hanger, Acting Transportation Services Manager

Rugby Borough Council Forward Planning and Economic Development Unit (formerly Planning Policy and Information Team)

- Rob Back, Forward Planning and Economic Development Manager
- Richard Cowell, Planning Officer

Faber Maunsell

- Gareth Collins, Technical Director

Warwickshire County Council Highways

- Adrian Hart, Team Leader - Transport Planning
- Nick Sidhu, Design Services, Environment and Economy

Rugby First (formerly The Town Centre Company)

- Robin Richter

Stagecoach

- Wayne Simpson, Depot Manager, Rugby

Cemex

- Ian Southcott, UK Community Affairs Manager

Invitations were also sent to

Road Haulage Association
Wincanton plc

Rugby Borough Council would like to extend its thanks to all the members of the steering group and to Kathryn Bell, Air Quality Officer, Coventry City Council, for their invaluable help in producing this action plan.

APPENDIX 3: STAKEHOLDER CONSULTATION

Formal Request for Comments will be sent to:

Sustainable Rugby
Secretary of State (Department of the Environment, Food and Rural Affairs (DEFRA))
The Environment Agency
The Highways Agency
The Health Protection Agency
Warwickshire Primary Care Trust
Warwickshire County Council
Nuneaton and Bedworth Borough Council
Warwick District Council
Stratford on Avon District Council
Daventry District Council
Harborough District Council
Hinckley and Bosworth Borough Council
Coventry City Council
Stagecoach
Cemex
De Courcey Travel
Geoff Amos Coaches
Rugby First
Coventry and Warwickshire Chamber of Commerce
Rugby Hackney Carriage Owners and Drivers Association (RHODA)
Road Haulage Association
Residents of Newbold Road (Wood Street to Corporation Street), Oliver Street and Lawford Road (junctions with Newbold Road and Lawford Road), Warwick Street (junctions Corporation Street, Bilton Road, Dunchurch Road and Lawrence Sheriff Street).

In line with the Warwickshire Compact 2005 agreement, at least 12 weeks will be given to receive consultation responses.

APPENDIX 4: AIR QUALITY STRATEGY, WCC LTP

WARWICKSHIRE COUNTY COUNCIL 2006-2011 MAIN LTP

PART 2 – THE CORE STRATEGIES

AIR QUALITY STRATEGY

Introduction

Air quality is a key issue for society, as it has the potential to impact on human health and the environment. Air quality is determined in part by the emissions from activities such as energy production, industrial processes and road transport. These activities contribute different pollutants at differing concentrations into the air.

Poor air quality can be particularly harmful for the most vulnerable members of society such as babies and young children, the elderly and those with pre-existing illnesses such as asthma, heart disease or other cardio-respiratory conditions. Exposure to poor air quality, particularly over a long time scale and at elevated concentrations, is believed to play a role in diseases such as asthma and cancer. Depending on the pollutant type, exposure to high levels over short time scales can lead to difficulties in breathing and acute symptoms such as wheezing, coughing, headache and nausea.

Poor air quality does not just impact upon human health; air pollution can also have an adverse effect upon wildlife and vegetation, including crops. Some pollutants contribute to acid rain which can erode the facades of buildings and other structures. Certain pollutants (specifically carbon dioxide in relation to road transport) are known to contribute to global climate change.

Activities such as those highlighted above can also affect the immediate environment and human health on a local scale. An Air Quality Strategy for Warwickshire will help to manage potentially polluting actions and activities, particularly the use of road transport and to minimise the impact on air quality thereby aiming towards a healthier environment.

The Air Quality Strategy aims to focus on air quality issues within Warwickshire, drawing strong links with the five District/Borough Councils, whilst also taking into account regional considerations and the UK National Air Quality Strategy objectives. The Government's targets on reducing greenhouse gas (carbon dioxide) emissions are also taken into consideration, as is the promotion of more sustainable lifestyles.

The Strategy focuses on road transport as this is the main contributor of polluting emissions in Warwickshire, and puts forward an Air Quality Action Plan for reducing these emissions. Warwickshire's air quality issues have been considered in an inclusive, multi-disciplinary fashion in order to achieve the most appropriate, realistic and practical solutions.

Many of the schemes and initiatives outlined in the Action Plan have common, interlinked approaches, answering directly to the most relevant air quality issues in the County, often seeking out the same end result. These are also used to inform transport policy for the County and complement the LTP objectives.

The Need for an Air Quality Strategy

Improving local air quality delivers a number of benefits, the most important of which is the improvement of public health and quality of life. In addition to influencing air quality, transport policy can determine other benefits including the improvement of road safety, increased provision, security and comfort of public

transport, the improvement of public spaces and the promotion of healthier lifestyles through the encouragement of walking and cycling. Addressing air quality issues can also help meet Governmental objectives on greenhouse gas emissions.

The Government has set out standards in legislation for seven key pollutants in its National Air Quality Strategy. The standards are in place to protect human health and are based on European legislation and guidance from organisations such as the World Health Organisation. In the UK each local authority is obliged to meet these standards within their respective areas.

The remainder of this Strategy sets out:

- The objectives of the Air Quality Strategy;
- Local, regional and national policy framework related to air quality;
- The current air quality in Warwickshire;
- Existing and potential air quality issues affecting the five Boroughs and Districts;
- The Air Quality Strategy developed in response to the cited issues;
- Constraints and limitations in carrying out the Air Quality Strategy;
- The Action Plan for delivering the proposed schemes and initiatives; and
- Monitoring of the Action Plan.

The Objectives of the Air Quality Strategy

The objectives for this Air Quality Strategy, which have been developed in conjunction with the Local Transport Plan, reflect local, regional and national policy on air quality and transport. The objectives of the Strategy are:

- To be primarily concerned with air quality issues that have, and will arise, due to transport-related issues;
- To create a general five-year Action Plan for Warwickshire with schemes and initiatives for improving air quality related to transport issues within the County;
- To inform the County Council's transport policy;
- To take a proactive stance, rather than a reactive one, foreseeing potential future problems and taking measures to minimise them before they occur;
- To integrate the Strategy fully within the Local Transport Plan, complementing the schemes and objectives contained within all other parts of the larger document; and
- To be able to act as a freestanding document on its own merits away from the Local Transport Plan.

Pollutants, Sources and Effects

There are seven key pollutants considered in the UK National Air Quality Strategy, and each of these have objectives set on them as threshold concentrations in the air to protect human health. All of these substances are present in the atmosphere, at 'background' levels. It is human activities that contribute to excess or elevated concentrations of these substances in quantities enough for them to become polluting. These seven pollutants, their primary sources and effects are briefly described below.

Nitrogen dioxide

The main source of nitrogen dioxide (NO_2) in the UK is road transport (around 43% of total emissions). It is the primary pollutant of concern in Warwickshire and gives rise most frequently to the declaration of Air Quality Management Areas.

The health effects of exposure to nitrogen dioxide at levels above normal ambient concentrations include irritation of the lungs and an increase in the symptoms felt by those with existing lung conditions such as asthma and also those with heart conditions. Exposure of young children to high levels of nitrogen dioxide can increase the risk of respiratory conditions and can even limit lung growth, leading to poor lung function in the long-term.

Particles (PM_{10})

Particles less than 10 µm (0.01 mm) are considered a pollutant because they are easily inhaled into the human lungs and airways, potentially causing damage. In Warwickshire there are currently no exceedances of the PM_{10} objective, although it is still a pollutant of some concern in the County.

Carbon Monoxide

Carbon monoxide levels have dropped considerably in the UK in the last 30 years and it is not a significant pollutant for Warwickshire.

Benzene

Benzene levels in Warwickshire are appreciably below the UK objective and this is not considered to be a pollutant of concern in the County.

1,3-Butadiene

1,3-butadiene levels in Warwickshire are not significant.

Lead

As a result of the introduction of unleaded fuels and the catalytic converter the emissions of lead from road transport have significantly reduced in the last 30 years and lead is not an air pollutant of significant concern in Warwickshire.

Sulphur Dioxide

The principal sources of sulphur dioxide in the UK are energy production and industrial combustion and road transport is a comparatively insignificant source.

Policy and Guidance Context

National Policy

National air quality policy comes in the form of the Local Air Quality Management Policy Guidance Note LAQM. PG(03) (2003), which provides guidance and assists local authorities in working towards meeting the UK air quality standards and objectives.

LAQM. PG(03) (2003) also provides guidance on the development of local and regional air quality strategies. Chapter 5 of the document includes particular points of guidance such as:

- Co-operation between local authorities, neighbouring authorities and local authority departments in the devising of air quality strategies to ensure a fully-integrated, “corporate” approach;
- Linking strategies to other local initiatives and strategies;
- Linking the strategy to plans such as the Local Transport Plan;
- Setting out measures to maintain or further improve areas with existing air quality as well as seeking to improve areas with poor air quality; and
- Following the same principles in developing an air quality strategy as one would in developing an Air Quality Action Plan for an Air Quality Management Area.

Advice is also given in the LAQM document to consider the National Society for Clean Air (NSCA) documents “Air Quality Action Plans: Interim Guidance for Local Authorities” and “Air Quality: Planning For Action”. These documents advise that objectives and targets within schemes and initiatives are:

- Practicable, to ensure that they can actually be carried out as desired;
- Measurable, in order to determine their success;
- Set to be carried out within a reasonable timescale; and
- Have the involvement and support of key stakeholders as well as ensuring that the wider benefits of a Strategy are given greater emphasis to the public.

It is also recommended that longer-term objectives and targets be considered as well as the more medium and short-term ones.

UK national policy also exists in terms of climate change and the emission of greenhouse gases. Following the Kyoto Protocol, the UK Government has committed itself to reducing carbon dioxide emissions by 20% below 1990 levels by 2010, and to cut overall greenhouse gas emissions by 12.5% below 1990 levels by 2008 – 2012. Some of these cuts will come from the transport sector with agreements with European car manufacturers to increase fuel efficiency, and for Government to invest in transport, aiming to cut congestion and pollution.

Regional Policy

There are a number of regional policies in the Regional Spatial Strategy (RSS11) relating directly to transport and therefore impacting on air quality. Policies include increasing the awareness of “alternative travel choices”, reducing current levels of car use (Policy T4) and encouraging more walking and cycling journeys (Policy T3).

Other policies that have positive implications for air quality include reducing the need to travel (Policy T2), improving access to public transport and providing attractive alternatives to the private car (Policy T5), putting in place Park and Ride schemes where viable (Policy T6) and addressing the issues of road freight, tackling problems with through traffic and encouraging the movement of freight away from the roads (Policy T10).

Local Policy

On a local level, the Warwickshire Structure Plan 1996 – 2011, in line with the Regional Spatial Strategy, also contains policies relating to transport, which have the potential to impact positively on air quality. Policy T1 aims to “reduce the impact of traffic on residential areas and the countryside whilst recognising travel needs”, and “encourage industry to develop distribution arrangements, including the use of rail, pipeline and canal, which minimise environmental damage.”

Other policies within the Warwickshire Structure Plan seek to promote alternative modes of transport, encourage the use of public transport, improve facilities for walking and cycling, reduce the number of short car journeys and encourage an overall modal shift away from the private car.

Air Quality in Warwickshire

Air quality across the County is largely good. There are a few areas however, where the air quality objective for nitrogen dioxide is not being met. In these locations Air Quality Management Areas (AQMA) have had to be declared or will soon be declared by the relevant District/Borough Council. In each of these AQMAs road transport has been identified as the most significant contributor to elevated air pollution levels.

North Warwickshire Borough

A declared AQMA for NO_2 at Coleshill in North Warwickshire has been in place since March 2001, and relates to one relevant residential property adjacent to Junction 4 of the M6. The AQMA is bounded by Stonebridge Road, Coleshill Heath Road, the M42 and the M6, and relates directly to the traffic on these major roads. The AQMA was declared for a marginal exceedance (42 µg/m^3) of the annual NO_2 objective (40 µg/m^3).

It is possible that the AQMA may be revoked in the near future, although continued monitoring, as set out in the North Warwickshire Borough Air Quality Action Plan will dictate the possible timescale of this. This monitoring programme will also assess the possible influence of the new M6 Toll Road on the AQMA.

Nuneaton and Bedworth Borough

There is a possibility that an AQMA may be declared on the Leicester Road gyratory, specifically around the Weddington Road/Old Hinckley Road and Old Hinckley Road/Leicester Road junctions. Modelling predicts the highest 2005 concentrations to occur at the junction of Weddington Road and Old Hinckley Road, with a value of 47.8 µg/m3. This road network is known to be particularly congested and recent works have been carried out to ease the flow of traffic. It is possible that the ambient air quality in the immediate area surrounding Weddington Road and Old Hinckley Road may improve slightly due to a freer flow of road traffic.

The County Council will work with Nuneaton and Bedworth Borough Council to put together an Air Quality Action Plan if/when an AQMA is declared.

Rugby Borough

An AQMA for exceedances of the NO_2 objective came into force across the entire urban area of Rugby in December 2004. The AQMA is bounded by the M45, M6, A45, minor roads to the west of Long Lawford and the boundary with Daventry District. Air quality problems in Rugby are directly related to the large number of peak hour vehicles and HGVs travelling through the town centre.

Exceedances of the NO_2 objectives (with concentrations of between 40 and 44 µg/m^3) for the objective year of 2005 are predicted to occur around the gyratory in the centre of Rugby, specifically next to and approaching the Bilton Road, Lawford Road and Dunchurch Road junctions. It is on the basis of these predicted exceedances that the Rugby AQMA has been declared.

It is also possible that exceedances of the NO_2 objective could occur in the centre of the village of Dunchurch, although at present the highest predicted 2005 concentration is reported as being 40 µg/m^3 at the façade of a property closest to the central crossroads in the village.
An Air Quality Action Plan to address the AQMA is currently being prepared by Rugby Borough Council in conjunction with the County Council, and is due for publication in July 2006.

Warwick District

There are a number of areas in Warwick District where there are potential exceedances of the 2005 NO_2 objective. As a result of this, three AQMAs were declared in December 2004 covering the following areas:

- Leamington Spa around the junctiojn of Bath Street, High Street and Clemens Street. The highest predicted concentration at a roadside property is 56.9 µg/m^3 and the lowest predicted concentration is 49.4 µg/m^3;
- Warwick town centre, where exceedance of the 2005 NO_2 objective have been predicted in High Street, Jury Street, Church Street and Castle Street. The highest predicted concentration is at the corner of Jury Street and Castle Street (55.7 µg/m^3); and
- Barford, where the highest 2005 concentration (59.1 µg/m^3) is predicted to occur around Church Street and Bridge Street.

An Air Quality Action Plan to address these three AQMA's is currently being prepared by Warwick District Council in conjunction with the County Council, and is due for publication in July 2006.

Stratford-on-Avon District

There are currently no AQMAs declared within Stratford District. Monitoring undertaken by the District Council suggests that an AQMA is likely to be declared in the near future in Studley. This relates directly to the high traffic volumes carried by the A435 trunk road between the M42 and the A46 at Alcester. Further monitoring will continue to be undertaken by the District Council to identify other air quality problems as they arise, including within Stratford-upon-Avon town centre.

The County Council will work with Stratford District Council to put together an Air Quality Action Plan if/when an AQMA is declared.

Air Quality Challenges

There are a number of other air quality issues or potential issues that will need to be observed and monitored closely. It is partly the purpose of this Strategy to assist areas such as this and ensure that air quality does not deteriorate further and fail to achieve national objectives. The Strategy also aims to assist areas that have already declared AQMAs to help regain the UK standards for air quality.

If policies and action plans to improve and maintain air quality in Warwickshire are not put in place then problem areas may degrade further and areas that are seen as potential future problems may become real and significant problems. All the potentially emerging air quality issues in Warwickshire are related to road traffic in and around the county's town centres and along major commuter arterial routes and junctions.

There are a number of challenges related to air quality in Warwickshire that need to be addressed in the immediate future which this Strategy seeks to tackle. These include:

- Discerning whether movement of congested traffic to other areas is merely moving the entire problem, including air quality, to other areas;
- Continuing monitoring in areas that may emerge as significant air quality problem areas;
- Solving existing or potential air quality problems related to main arterial routes in the County;
- Assessing whether traffic problems are a result of localised traffic or through traffic in order to allow the best approaches to traffic and air quality management;

- Increased road traffic in the County associated with increased use of Coventry Airport;
- Dealing with town centre traffic, (both commuter and visitor/ tourist traffic in towns such as Warwick, Leamington Spa, Rugby and Nuneaton) where many air quality problems occur, including the presence of HGVs in town centres;
- School related traffic; and
- Assessing the impact that the newly opened M6 Toll will have on the AQMA at Coleshill. The real effect of this will not be fully realised for a number of years, as patterns of usage on the road need to become established. However, continued monitoring of air quality in the area for the foreseeable future will help establish any improvements or otherwise in air quality at Coleshill.

The Air Quality Strategy

The vision of Warwickshire County Council's Air Quality Strategy is:

'To take a proactive approach to maintaining and improving air quality within the County where transport is causing unacceptable levels of air pollution, in order to improve quality of life for all'.

The overall aim of the Air Quality Strategy is to work to improve areas of existing air quality problems, maintain areas with good air quality and to promote and support practices, activities and lifestyles, including modes of transport that can achieve this. The Air Quality Strategy also aims to support and promote all transport policies that contribute to improving air quality within Warwickshire.

The Air Quality Strategy seeks to present a number of broad ranging policies, highlighting the air quality problems specific to Warwickshire. These inform the specific schemes and initiatives in the Action Plan.

The major themes of the Air Quality Strategy are:

- To improve areas with poor air quality and maintain those areas that currently experience good air quality
- To encourage sustainable forms of transport, which reduces reliance on private cars and minimises emissions to air; and
- To promote awareness of alternative travel choices.

Air Quality Strategy Policies

Policy

Policy

Improving poor air quality through partnership working

The County Council will work in partnership with the five District/Borough Councils in Warwickshire to meet the UK air quality objectives, focusing on existing Air Quality Management Areas to achieve improved air quality. Within 18 months of the declaration of an AQMA, the County Council will work with the relevant District/Borough Council to formulate an Air Quality Action Plan designed to revoke the AQMA over a specified period. Where the air quality issues relate primarily to transport, the Action Plans will comprise existing schemes drawn from the LTP, plus other complementary measures.

Schemes and initiatives put in place to tackle poor air quality, by reducing the impact of road traffic on air quality, will assist in improving quality of life across Warwickshire.

The County Council will also make a commitment to increase it's own awareness of air quality issues, in order to assist in improving air quality. The County Council will take greater involvement in local and regional air quality action groups.

Policy

Maintaining areas of good air quality

The County Council will seek to maintain good air quality in areas without any existing air quality problems.

A proactive approach will be undertaken with the five District/Borough Councils in Warwickshire to monitor and address known air quality problems in the County, in order to ensure that potential AQMAs are tackled prior to any formal declaration.

Policy

Education and information

The County Council will aim to promote, educate and inform as widely as possible about air quality, transport choices and their implications for air quality and health.

The County Council will place the LTP Air Quality Strategy on the Warwickshire website on a dedicated air quality page, also providing other air quality information. The page will be updated with relevant information on a regular basis and will be related to the transport pages of the existing website.

The County Council will promote the implementation of travel plans amongst companies and schools in the County. Reducing dependency on cars, especially in congested areas, will be a key focus.

The County Council will actively encourage its staff members to travel to work and undertake work related activities through the use of public transport, cycling or walking.

Policy

Strategy Review

The Air Quality Strategy will be reviewed at regular intervals, keeping it up to date with the latest air quality information in the County, advances in air quality knowledge and best practice techniques, regional and national policy and legislative developments. The schemes and initiatives in the Action Plan will also be revised as necessary to reflect any changes to the Strategy.

Progress on addressing air quality issues within the County will be reported annually through the LTP Annual Progress Report.

Policy

Integration of air quality and transport planning goals

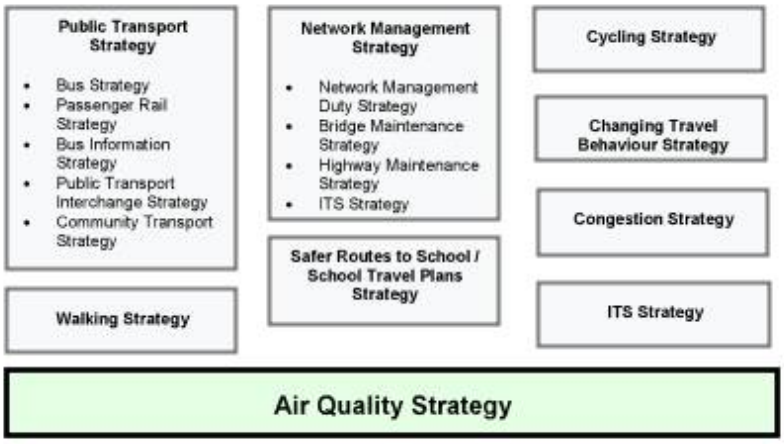
Warwickshire County Council will promote the use of public transport, and will seek to provide better facilities and services to improve accessibility and safety, and reduce dependency on the car. The County Council will aim to limit road traffic growth, particularly in areas with existing poor air quality.

The County Council will actively promote cycling and walking as alternative modes of transport to the car, especially for shorter journeys.

Freight vehicles will be encouraged, where possible, to travel on designated freight routes only. Drivers will be encouraged to do this through the promotion and use of the Warwickshire Lorry Route Map.

The County Council will promote and use cleaner vehicles and fuels where it is economically viable to do so

The figure below highlights the key links between the Air Quality Strategy and the other LTP strategies.



Constraints to Delivering the Strategy

There are a number of constraints on the delivery of the Air Quality Strategy, due to transport schemes that are already planned and are being implemented, or which are due to be implemented in the near future. Constraints also exist because motorways and trunk roads are outside the control of the County Council.

In terms of planned schemes, the Leamington Urban Mixed Priority (LUMP) scheme in the Parade, Victoria Terrace and Bath Street, is being implemented during 2006/07. One element involves traffic signal management to promote smoother traffic flow. This scheme in itself may have a positive impact on air quality in this area, although clearly monitoring and modelling work will have to be carried out to confirm this. Given that the LUMP scheme is a demonstration project being undertaken in partnership with DfT, it is unlikely that any further schemes to address air quality in this area will be implemented given the need to monitor the impact of the project over the next few years.

With regard to motorways and trunk roads passing through Warwickshire, these and any schemes related to them are the responsibility of the Highways Agency. The County Council will maintain regular contact with the Highways Agency to ensure that it is fully aware of any future schemes which could impact on any declared AQMAs or air quality issues generally on the strategic network.

The Action Plan

Actions for delivering the Air Quality Strategy are as follows:

Action AQA1 - Improving poor air quality through partnership working

Improving air quality in the County will include assisting the District/Borough Councils in drawing up Air Quality Action Plans as required (if and when Air Quality Management Areas are declared) and providing support in implementing the Plans.

Regular communication with the District/Borough Councils, as well as neighbouring authorities and other organisations such as the Highways Agency, will be carried out to ensure maximum awareness of all air quality issues.

The County Council will seek to implement traffic management schemes where air quality is poor, particularly within town centres.

Air quality monitoring will be carried out in support of the District/Borough Councils, in order to foresee any potential air quality problems, improve the local and regional air quality data set, and improve the knowledge and understanding of the air quality situation in the County.

The County Council has recently published a Lorry Route Map for Warwickshire, which aims to take road freight vehicles away from sensitive locations, such as residential areas and onto more appropriate routes.

The Council also aims to operate a “cleaner” vehicle fleet by introducing alternative-fuel vehicles, as they become economically viable. The Council currently operates 344 vehicles, of which 222 are diesel, 94 are petrol (largely motor scooters used in the “Wheels To Work” scheme) and 28 are rebated diesel. Fleet vehicles are currently purchased according to the carbon dioxide performance of the vehicle.

Action AQA2 - Maintaining areas of good air quality

Maintaining on-going communication with the District/Borough Councils to ensure full awareness of potential future air quality issues.

Implementation and promotion of a Lorry Route Map for the County, encouraging goods vehicles to remain on designated routes.

Action AQA3 - Education and information

Increasing public awareness of road transport-related air quality issues, through a number of initiatives, including a dedicated air quality page on the Warwickshire County Council website.

Promoting the use of public transport and alternative methods of transport to the private car, including TravelWise initiatives and travel plans for schools and workplaces. Promotion of cycling and walking as alternative methods of transport, highlighting the health benefits that both these modes can bring.

Continued promotion of the Safer Routes to School initiative, including Walk to School Weeks throughout the County and possible introduction of Car Free Days to the main town centres of the County.

Improving route signage, particularly in town centres, in order to alert drivers to more preferable, possibly less congested routes.

It is anticipated that the Council's use of "cleaner" vehicle technology will encourage other employers to make use of similar types of vehicles.

Action AQA4 - Strategy review

The Air Quality Strategy is to be reviewed no less than once a year and is to be informed by the District/Borough Council reviews of air quality.

Action AQA5 - Integration of air quality and transport planning goals

Traffic will be managed, where possible, to take account of the need to minimise impacts on local air quality. In new developments, air quality issues will be considered in all situations, including the consideration that all new developments are to have reasonable access to public transport and sufficient provision is made for pedestrians and cyclists.

Local bus services will be improved, by increasing the accessibility, affordability and safety of services.

The County Council will contribute to the national targets on greenhouse gases, which includes an overall reduction of 20% in CO_2 emissions by 2010.

Targets, Indicators and Monitoring

Targets and indicators are described in the table below. These have been set within the context of other LTP strategies that impact on air quality, including:

- Congestion Strategy;
- Sustainable Freight Distribution Strategy;
- Public Transport Strategy;
- Cycling Strategy;
- Walking Strategy;
- Safer Routes to School/School Travel Plan Strategy;
- Changing Travel Behaviour Strategy; and,
- Land Use and Transportation Strategy.

Extensive modelling has been carried out to ascertain the degree of change in traffic levels that will be required to address the current AQMAs and return air quality to within national guidelines for NO_2. This data, plus predictions related to improvements in vehicle emissions, have been instrumental in developing appropriate targets.

Table 8 Targets and Indicators			
Air Quality Strategy - Targets and Indicators			
Local Target/Indicator	**Performance Indicator**	**Source of Data**	**Frequency of Monitoring**
Target (LTP8): Reduce the number of exceedances of the national air quality standards and objectives between 2005 and 2010.	Monitored and modelled pollutant levels across the County. The revocation of AQMAs.	Countywide air quality monitoring stations.	Annual
Target: Retain traffic volumes at 2004 levels in the urban areas of Nuneaton, Rugby, Warwick and Leamington Spa.	Road traffic levels on local road networks.	Road traffic surveys. Traffic modelling.	Annual
Local Indicator: Ensure that air pollutant levels do not exceed national standards in the County where they previously have not.	Air quality assessment of major transport proposals within Warwickshire.	Countywide air quality monitoring stations. Regular and continued dialogue with the District/Borough Councils.	Annual

Warwick District Air Quality Action Plan 2008

This report has been prepared by Officers of Warwick District Council, Warwickshire County Council and in consultation with Air Quality Consultants Ltd.

Warwick District Council

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Thanks also go to Air Quality Consultants Ltd. (AQC) for their assistance and advice in producing this document, as well as their continued support in assisting us with our Air Quality work within the District.

Contents

Executive Summary

Warwick District Council, in association with Warwickshire County Council (WCC), is legally responsible for the introduction of actions to improve the air quality throughout the District, and thereby improve the health of people living or working within the District.

This report follows on from assessment work undertaken within the District over a number of years. Following these assessments, areas (predominantly in the urban centres) have been identified as having poor air quality, specifically identifying the pollutant Nitrogen Dioxide (NO_2), with the major source identified as being emissions from road traffic.

This work lead to the declaration of AQMA's in Warwick, Barford and Leamington Spa in 2004 and, in 2007, the identification of two further areas within Kenilworth requiring declaration as AQMA's, and the extension of the previously declared Warwick AQMA, where levels of NO_2 consistently exceeded the Air Quality Standard (AQS).

This Action Plan has been produced following recent consultation with statutory bodies, a public consultation and involvement of other stakeholders. The Report has been prepared in association with WCC to integrate with, and complement, the WCC Local Transport Plan 2006 – 2011 (LTP), and has been drawn up identifying potential options available to tackle pollution levels. Actions being considered within the report are grouped under the following themes:

- Specific proposals related to the AQMA's
- Non-specific proposals for improving air quality throughout the District
- Vehicle emission reduction
- Improvement in alternative transport / public transport
- Other non-transport related measures.

Warwickshire County Council is the local authority responsible for the roads within the District, and as such is responsible for the delivery of the Government's Shared Priorities for Transport, requiring them to:

- Improve air quality
- Tackle congestion
- Make roads safer
- Deliver accessibility

The Action Plan also incorporates data, in particular pollution monitoring and traffic flow data, which have been used to estimate improvements required to achieve the air quality objectives and identify contributions from different vehicle classes to pollutant concentrations. The Council will continue to monitor the concentrations of Nitrogen Dioxide (NO_2) within the District to confirm the expected reductions with the aim of revoking the Air Quality Management Areas designations as soon as is practicable

WDC Air Quality Strategy – Outline of Document

1. Introduction

This report is relevant for all available information up to and including the 'Progress Report' of June 2008.

1.1 Context Setting

This Air Quality Action Plan is the culmination of the second round of local air quality review and assessment for Warwick District Council (WDC). The process of Local Air Quality Management (LAQM) review and assessment has been set down in Part IV of the Environment Act 1995, which forms part of the Government's response to European Directives on Air Quality to which the UK Air Quality Strategy responds.

Following the Detailed Assessment in 2004 and the Department for Environment, Food and Rural Affairs (DEFRA) acceptance of the findings of the report, WDC declared Air Quality Management Areas (AQMA's) in Leamington Spa, Warwick and Barford. Following a Further Assessment the AQMA in Warwick was extended with effect from 1st July 2008. Following the Detailed Assessment in Kenilworth, two new AQMA's are proposed, in sections of Warwick Road and New Street.

As such, the aim of this Action Plan is to identify how WDC will use its existing powers and work together with other organisations in pursuit of the Air Quality Objectives for nitrogen dioxide. Measures are proposed to improve air quality both within the AQMA's and across the District as a whole.

Warwickshire County Council (WCC) is responsible for the management of the local highway network and as such is responsible for any direct actions proposed for the AQMA's in order to reduce road traffic emissions. WDC will work together with the County Council to improve air quality within the AQMA's and throughout the District.

The direct measures, either already undertaken or in the process of being implemented, within the AQMA's are:

- Construction of the A429 Barford bypass (completed in 2007)
- Improving the effectiveness of public transport
- Establishment of a demonstration Urban Mixed Priority Route scheme in Leamington Spa
- Improving the local urban cycle network, including National Cycle Network routes proposed by Sustrans
- Development of Intelligent Transport Systems (ITS), including car park management systems and Variable Message Signing
- Improving and promoting bus and passenger rail services
- Delivering a sustainable Parking Strategy
- Delivering improvements for Powered Two Wheelers

The indirect measures to improve air quality across the whole District are:

- Changing travel behaviour by working with the County Council to promote car sharing and other travel campaigns
- Decreasing the number of utility journeys made by car by encouraging walking and cycling
- Encouraging new development in the District to be sustainable by providing improvements to public transport, walking and cycling

- Supporting improvements to Junctions 13, 14 and 15 of the M40 where existing levels of traffic can affect travel habits and route choice (J15 due for completion in 2010 no projected dates to start J13 and 14)
- WDC to continue their commitment to local air quality monitoring

The proposed actions will help work towards the NO_2 Air Quality Objectives.

It has not been possible to assess all the air quality impacts of the measures to improve air quality within this Plan through detailed modelling, so additional benefits beyond those assessed may be achieved. A qualitative assessment of impacts of all measures has been included in the action plan summary tables by way of indication of potential benefits. The impacts of measures will be further considered through future progress reports.

1.2 Consultation

Under Schedule 11 of the Environment Act, Local Authorities are required to consult on their draft LAQM Action Plan. It is important for the success of the Action Plan to have involvement from all local stakeholders including local residents, community groups and local businesses in drawing up the Action Plan, in addition to their active participation in achieving the action plan measures. The Action Plan was prepared for consultation with relevant environmental health, planning and transport representatives from both WDC and WCC.

The following is a list of statutory and non-statutory consultees to which this draft Plan was sent:

- The Secretary of State
- The Environment Agency
- The Highways Agency
- Primary Care Trusts
- WDC and WCC Councillors and Officers
- Neighbouring local authorities
- Local residents within and bordering the AQMA's
- Relevant local businesses, community groups and forums
- Other relevant local stakeholders

The Public Consultation commenced on the 5th November 2007 and concluded on the 1st January 2008. All comments from both statutory and non-statutory consultees received on the draft Action Plan have been considered and incorporated, where appropriate, into the final Action Plan. (see Appendix 4 for the results of the public consultation)

1.3 Project Background

A working document relating ultimately to the completion of a Local Air Quality Management Action Plan for Leamington Spa and Warwick town centres has been devised. Consideration of the declared AQMA within Barford will be reviewed in the context of the A429 Barford bypass, which opened in March 2007. This document will equally be applicable to the identified AQMA's in Kenilworth

This Action Plan will review current measures undertaken by WDC to tackle air quality, as well as a review of proposed measures, including those detailed within the County Council's second local transport (LTP2) and Air Quality Strategy.

Clearly, the aims of the Action Plan will be to describe those measures and indicate how they may translate to achieving delivery of the Air Quality Strategy contained within the LTP2 and its five key areas of action.

An Action Plan is required to be prepared as part of the local authority's statutory duties as defined within Part IV of the Environment Act 1995. Figure 1.1 illustrates the linkages between the Air Quality Strategy and other LTP strategies.

2. Aims and Objectives

The overall aim of this Action Plan is to reduce the impact of transport on the environment, and thus improve local air quality to an acceptable level.

The objectives by which this aim will be delivered are as follows:

- To improve areas with poor air quality and maintain those areas that currently experience good air quality;
- To encourage sustainable forms of transport, in order to reduce reliance on the private car and thus minimise emissions to air; and
- To promote awareness of alternative travel choices.

Figure 1.1 : The Air Quality Strategy and other LTP Strategies

3. Legislative and Policy Background

3.1 National

Part IV of the Environment Act 1995 places a statutory duty on local authorities to periodically review and assess air quality within their area. This involves consideration of present and likely future air quality against air quality standards and objectives. Guidelines for the 'Review and Assessment' of local air quality were published in the 1997 National Air Quality Strategy (NAQS)[1] and associated guidance and technical guidance. In 2000, Government reviewed the NAQS and set down a revised Air Quality Strategy for England, Scotland, Wales and Northern Ireland[2] (AQS). The Air Quality Strategy (AQS) along with its addendum[3] contains national air quality standards and objectives established by the Government to protect human health and set by Regulation[4,5,6]. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland was further revised in 2007, with no further changes to the air quality objectives for local air quality management.

Where it appears that the air quality objectives will not be met by the designated target dates local authorities must declare an Air Quality Management Area (AQMA) and develop action plans in pursuit of the air quality objectives. Following declaration, Warwick District Council is required to develop an Action Plan for the AQMA within 12 – 18 months.

Policy Guidance LAQM.PG(03) was published by the Government in 2003, which included guidance on the development of action plans. The NSCA have published guidance 'Air Quality Action Plans (2000)' and 'Air Quality: Planning for Action (2001)'. These guidance documents have been taken into account in development of this Action Plan for WDC, alongside guidance provided by the Department for Environment, Food and Rural Affairs through its Air Quality Action Plan Help Desk, which provides examples of best practice and an Action Plan appraisal checklist.

1 DoE (1997) The United Kingdom Nation Air Quality Strategy The Stationery Office

2 DETR (2000) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Working together for Clean Air, The Stationery Office

3 Defra (2002) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum, The Stationery Office

4 DETR (2000) The Air Quality Regulations 2000, The Stationery Office

5 Defra (2002) The Air Quality Regulations 2002,The Stationery Office

6 Defra (2007), The Air Quality Standard Regulations 2007

3.2 Regional and Countywide

3.2.1 West Midlands Regional Spatial Strategy (RSS)

The West Midlands Regional Spatial Strategy (RSS) covers a wide range of subjects including housing, economic development, the built, historic and natural environment, renewable energy, minerals, waste and transport. The Strategy seeks to establish a more balanced and sustainable pattern of development by way of local authority development plans and local transport plans.

There are a number of strategic objectives that make up the focus of the RSS. However, in relation to this Draft Action Plan, the RSS provides a context for policies relating to the conservation of the environment and the improvement of the Region's transport systems.

For example, Policy QE4 states the following:

Policy QE4: Greenery, Urban Green-Space and Public Spaces

"Local authorities and others should also encourage patterns of development which maintain and improve air quality and minimise the impact of noise upon public space."

The RSS includes both the Regional Transport Strategy and the Transport Delivery Plan (see Sections 3.2.2 and 3.2.3, respectively) and is currently being reviewed. The scale of development proposed for Warwick District within the RSS may have a significant impact on Air Quality in Leamington Spa and Warwick. However, any such changes will need to be reviewed in future rounds of the Air Quality Review and Assessment process once the revised RSS has been published.

3.2.2 West Midlands Regional Transport Strategy (RTS)

The Regional Transport Strategy (RTS) forms part of the Regional Spatial Strategy for the West Midlands.

The aim of the RTS is to provide a strategic framework for regional and local transport planning in the West Midlands by:

- ensuring better integration between transport policies and priorities and the wider Spatial Strategy;
- bringing together the outcomes of the multi-modal studies affecting the Region; and
- steering the development of the Region's LTP's.

A major theme of the RTS (and this Draft Action Plan) is the need for behavioural change across the Region. As such, the RTS puts forward a number of measures aimed at changing behavioural travel patterns. These are as follows:

- measures to reduce the need to travel;
- well located facilities;
- provision of good quality, well designed walking and cycling facilities;
- promotion of travel awareness initiatives;
- better public transport;
- introduction of well-designed Park & Ride schemes;
- improved provisions for powered two-wheelers and taxis;
- better management of public and private car parking; and
- consideration of appropriate demand management measures.

These measures are formalised through Policies T1 to T8 in the RTS, with wider policies relating to "Transport and Accessibility" covered in Policies T9 to T12.

3.2.3 Transport Delivery Plan (TDP)

By way of achieving an ongoing review of the RTS, the West Midlands Regional Assembly has established an active Transport Partnership (including local authorities, the Highways Agency, the Department for Transport, Centro, the business community, Birmingham International Airport, the freight industry and bus and rail industries), and a Transport Delivery Plan was produced in March 2005.

The current version of the TDP focuses on the status and progress of implementing each of the RTS Priorities for Investment (as detailed under Policy T12), with the aim of ensuring that the RSS policies are reflected in other plans and strategies such as LTP's. Interventions include changing travel behaviour, local congestion charging studies and strategic 'Park & Ride' schemes.

3.2.4 Regional Sustainable Development Framework

The Regional Sustainable Development Framework has been designed such that it helps all strategies, policies and plans to contribute to a sustainable future for the West Midlands at all levels (regional, sub-regional and local). The main objectives of the Regional SDF are centred on the key regional priorities relating to society, the environment, resources and the economy.

These objectives are as follows:

- Sustainable consumption and production;
- Climate change and energy;
- Natural resource protection and environmental enhancement; and
- Sustainable communities.

More specifically (with regard to air quality), Objective 3.3 states the following:

> *"Minimise air, water, soil, light and noise pollution levels and create good quality air, water and soils"*

3.2.5 Warwickshire Local Transport Plan (2006 – 2011)

Warwickshire County Council is responsible for preparing the Local Transport Plan. This document sets out the transport improvements that are due to come forward over the next five years. These improvements are set within the context of the four Shared Priorities for Transport, these being:

- Delivering accessibility;
- Tackling congestion;
- Better air quality; and
- Making roads safer.

The LTP provides the main emphasis for those measures detailed in Section 6 of this Action Plan.

"In considering the issues relating to traffic management in Warwick town centre and the above priorities, a stakeholder group, Warwick Town Centre Traffic Management Forum, was convened in 2004. The Forum's vision is "To make Warwick's historic town centre safer, easier and more pleasurable to live in, to work in, and to visit, now and in the future". The need to reduce pollution and its impact on people and buildings is one of its principle objectives. Over the last four years the Forum has produced an approach to traffic management in Warwick through consensus building, the implementation of which is incorporated in many parts of this action plan."

3.2.6 Warwickshire Air Quality Strategy

Formally, the Warwickshire Air Quality Strategy sits within the LTP (see Section 1.1) as a Core Strategy (along with Accessibility, Road Safety and Congestion). As part of the Air Quality Strategy, a number of targets and indicators have been set. These are detailed in Table 3.1 below:

Table 3.1 : Air Quality Strategy – Targets and Indicators

Local Target / Indicator	Performance Indicator	Source of Data	Frequency of Monitoring
Target (LTP8): Reduce the number of exceedences of the national air quality standards and objectives between 2005 and 2010	Monitored and modelled pollutant levels across the County. The revocation of AQMA's.	Countywide air quality monitoring stations	Annual
Target: Retain traffic volumes at 2004 levels in the urban areas of Nuneaton, Rugby, Warwick and Leamington Spa	Road traffic levels on local road networks	Road traffic surveys. Traffic modelling	Annual
Local Indicator: Ensure that air pollutant levels do not exceed national standards in the County where they occur	Air quality assessment of major transport proposals within Warwickshire	Countywide air quality monitoring stations. Regular and continued dialogue with the District / Borough Councils	Annual

The measures included in this Action Plan have been set within the context of other LTP strategies which will have a significant impact of air quality, most notably:

- Congestion Strategy;
- Sustainable Freight Distribution Strategy;
- Public Transport Strategy, which includes Bus Strategy, Passenger Rail Strategy, Community Transport Strategy, Bus Information Strategy and the Public Transport Interchange Strategy;
- Cycling Strategy;
- Walking Strategy;
- Safer Routes to School/School Travel Plan Strategy;
- Changing Travel Behaviour Strategy; and
- Land Use and Transportation Strategy.

3.2.7 Warwickshire Structure Plan (WASP)

The Warwickshire Structure Plan (WASP) for the period 1996 – 2011 was adopted by Warwickshire County Council in August 2001. WASP is the strategic land use plan for Warwickshire and forms part of the statutory development plan for the county. In relation to air quality, relevant objectives contained within WASP are as follows:

- reduce the distances people need to travel, whilst acknowledging the continuing role of commuting in the County and the need to facilitate this through transport improvement;
- protect from unnecessary harm, the environment and our cultural, historical and social heritage;
- support walking, cycling and public transport as alternatives to the private car;
- maintain and improve a regional and county strategic transport network;
- encourage new tourism, recreation and leisure initiatives where these are compatible with the built and natural environment; and
- encourage the use of renewable natural resources, and conserve non-renewable resources.

As an extension to Policy ER.1 (which seeks to apply international, national and regional policy framework to the environmental resources within Warwickshire), Policy ER.2 is intended to be applied through more detailed local plan policies and reflect environmental assessment requirements in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 1999, and other Government guidance. Policy ER.2 is summarised below:

Policy ER.2: Environmental Impact of Development

"The environmental impact of all proposed development on human beings, soil, fauna, flora, water, air, climate, the landscape, geology, cultural heritage and material assets must be thoroughly assessed, and measures secured to mitigate adverse environmental effects to acceptable levels. Local plans should include policies to ensure this takes place. The impact of existing sources of environmental pollution on the occupants of any proposed new development should also be taken into account. All assessment of environmental impact should take account of, and where possible seek to reduce, uncertainty over the implications of the proposed development. If adverse impacts cannot be mitigated to acceptable levels, development will not be permitted."

3.2.8 Warwickshire County Council Green Travel Plan

Warwickshire County Council established a Green Travel Plan in July 2004. The overall aim of the Travel Plan is to ensure that staff working at the Warwickshire County Council headquarters uses modes of transport other than cars in order to get to and from work. Such a Plan portrays an outgoing, proactive image of the Council and that its own employees are able to lead by example, providing positive publicity throughout the County and a better response by members of the public in relation to those measures discussed in this document.

The five key objectives that the Green Travel Plan incorporates are as follows:

- to set out measures that will enable the organisation to meet the target car / employee ratio as set out by WCC for other businesses in the area;
- to enhance the organisations corporate social responsibility and environmental image;
- to encourage the use of more sustainable modes of transport;
- to reduce unnecessary travel; and
- to ensure that all staff are aware of the Travel Plan.

The core measures adopted as part of the Green Travel Plan aim to reduce the use of cars, where possible, by way of increasing the number of people walking, cycling, using motorcycles, using public transport, and the number of people lift sharing. Integral to these objectives is the promotion of the Councils commitment to the Green Travel Plan, both internally (to employees) and externally (to visitors to the Councils offices in Warwick).

A monitoring strategy has also been defined that will allow the objectives of the Green Transport Plan to be assessed.

3.3 Local

3.3.1 Warwick District Local Plan

The Local Plan details the land use planning policies and proposals for the District. The Local Plan conforms to strategic planning policies, as set out in the Warwickshire Structure Plan (WASP) prepared by Warwickshire County Council and the Regional Planning Guidance (by way of the Regional Spatial Strategy) prepared by the West Midlands Regional Assembly.

It is fundamental to the achievement of the aims of the Air Quality Action Plan to have a Local Plan that recognises the importance of air quality in terms of the environmental impact of development and the need for sustainable transport measures. Warwick District Local Plan (2005) incorporates relevant policies of WASP and Regional Spatial Strategy (RSS), and addresses air quality issues through the following policies within the Core Strategy and Development Policies chapters (summarised):

Chapter 3: Core Strategy

Objective 2F : To protect and improve air quality

Warwick District Council will seek to maintain and improve local air quality by guiding and controlling the location of new development, particularly where this would have an impact upon public health or the natural environment.

Chapter 4: Development Policies

DP2 Amenity[7]: Development will not be permitted which has an unacceptable adverse impact on the amenity of nearby uses and residents, and / or does not provide acceptable standards of amenity for future users / occupiers of the development. This policy is applicable to all development proposals, including extensions and changes of use

DP7 Traffic Generation: Development will not be permitted which generates significant road traffic movements unless practicable and effective measures are taken to avoid adverse impact from traffic generation

DP9 Pollution Control: Development will only be permitted which does not give rise to soil contamination or air, noise, radiation, light or water pollution where the level of discharge, emissions or contamination could cause harm to sensitive receptors

In addition to a policy on Pollution, the Local Plan includes strategies and policies with the following aims:

- to reduce the need to travel;
- to promote the use of more sustainable travel options;
- to ensure the prudent use of scarce resources, and limit and reduce the impacts of climate change;
- to protect and enhance the natural environment; and
- to promote sustainable tourism.

3.3.2 Other Local Plans and Strategies

The Air Quality Action Plan will directly contribute to the Warwick District Council Corporate Strategy 2008 – 2011 and the Warwick District 2020 Community Plan in the areas of Safety, Health, and Sustainability.

3.3.3 Planning & General Development

The potential affect of proposed developments on local air quality as well as the potential effects of poor air quality on proposed development will be assessed and comments made to the planning authorities (County and District), as appropriate, in line with the objectives of this action plan.

[7] 'Amenity' is defined as the extent to which people are able to enjoy public places and their own dwellings without undue distance or intrusion from nearby uses. Examples of disturbance and intrusion include air pollution

4. Overview of Air Quality in Warwick District

The main sources of air pollution in Warwick District are road traffic emissions. A summary of Warwick District Councils review and assessment of air quality (second round) is summarised briefly in Table 4.1

Table 4.1 : Summary of Air Quality Review and Assessment for Warwick District Council

USA (2003)	Detailed Assessment (2004)	Progress Report (2005)	Further Assessment (2006)	Progress Report (2008)
NO_2	Confirmed annual mean NO_2 concentrations were expected to exceed the AQS objective in each of the assessment areas. AQMA's declared in 2004 in Leamington Spa, Warwick, and Barford	Recommended that the study area for the Further Assessment be increased to consider additional areas of monitored exceedences and re-assess the boundary of the existing AQMA's	Confirmed the AQMA in Warwick town centre requires extension to encompass roadside properties along Saltisford, Theatre Street, Bowling Green Street, West Street, St. Nicholas Church Street, Smith Street, and The Butts. The existing AQMA in Leamington Spa is required to be retained The Barford AQMA was not modelled due to the construction of a bypass (see Section 2.1)	There were exceedences of annual mean objective in Warwick. Also exceedence of hourly objective at Pageant House, which was covered by the AQMA Warwick (Variation) order which came into effect from 1st July 2008. Coventry Road, currently outside the Warwick AQMA, exceeds the annual mean objective and is subject to further assessment for possible future inclusion
PM_{10}	No Detailed Assessment required	No exceedences of the PM_{10} objective, although it is still a pollutant of some concern in the County. The remaining pollutants are not considered to be a concern within WDC	No Further Assessment required	No exceedences of the PM_{10} objective, although it is still a pollutant of some concern in the County. The remaining pollutants are not considered to be a concern within WDC
CO				
Benzene				
1,3 Butadiene				
Lead				
SO_2				

4.1 Source Apportionment and NO_2 Reduction

Table 4.1 (shown on page 20) gave an overview of all Air Quality parameters as relating to Warwick District Council, indicating NO_2 exceedence as the only parameter of concern.

In order to develop an appropriate action plan it is necessary to identify the sources contributing to the objective exceedences at locations within the AQMA's. Figure 1.2 is provided in Appendix 1 and sets out the source contributions of traffic related sources which have been apportioned to the following categories:

- Cars;
- Light Goods Vehicles;
- Rigid Heavy Goods Vehicles;
- Articulated Heavy Goods Vehicles; and
- Buses and Coaches.

A number of locations within the AQMA's have been chosen to provide an overview of source contributions at these different locations. The locations cover the majority of roads within the AQMA's. The proportions of vehicles in the different categories above have been run through the Emissions Factor Toolkit[8] to convert proportions of vehicles to proportions of emissions. The proportions of emissions are then illustrated in Figure 1.2

Of the locally-generated road component of nitrogen oxides, cars and rigid HGV's make up the major proportion of emissions.

As part of the Further Assessment (2006), it was identified as part of the source apportionment work that for both the Warwick and Leamington Spa AQMA's, emissions from HGV traffic were significant, despite making up a relatively small proportion of the vehicle fleet. Along those streets in Warwick and Leamington Spa where predicted NOx concentrations are highest, the contribution from HGV traffic is highest (42.2%) along the High Street (junction with Wise Street) in Leamington Spa. This compares with 24.4% for LDV and 33.8% for background at the same location. The highest NOx contribution from HGV traffic in Warwick (26.3%) occurs along High Street (Jury Street), compared with 38.8% for LDV and 40.2% for background in the same location. A table presenting the source apportionment work carried out as part of the Further Assessment is provided in Appendix 1 – Tables A1 and A1.1

This document has also considered the NOx and NO_2 reduction required at the worst case receptors in each AQMA, based on monitored concentrations in 2007. These are detailed in Table 4.2

Within the Warwick AQMA, a minimum reduction of 43.1% in NOx is required. For the Leamington Spa AQMA, a minimum reduction of 45.3% in NOx is required.

[8] Available from www.airquality.co.uk/archive/laqm/tools.php

Table 4.2 : Minimum NOx and NO_2 reduction required in 2007 based on monitored data

Location	Predicted NOx 2005	NOx (equivalent to 40µg/m^3 NO_2) µg/m^3	Reduction required		Predicted NO_2 2005	NO_2 AQS objective µg/m^3	Reduction required	
			µg/m^3	%			µg/m^3	%
Jury Street	140.9	80.2	60.7	43.1%	56.4	40.0	16.4	29.1%
Wise Street	146.6	80.2	66.4	45.3%	52.3	40.0	12.3	23.5%

4.2 Air Quality Management Areas

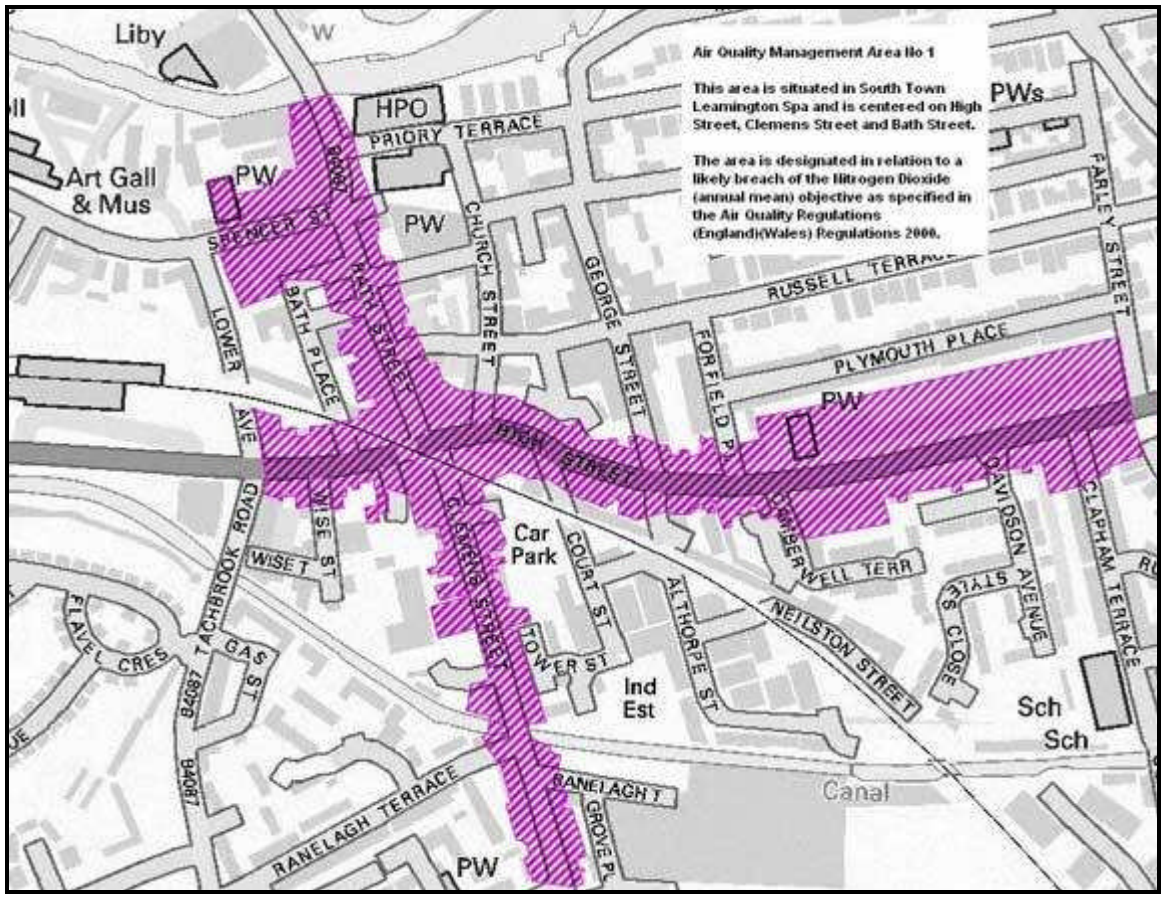
Following the Detailed Assessment in 2004 and the Department for Environment, Food and Rural Affairs (DEFRA) acceptance of the findings of the report, WDC declared AQMA's in Leamington Spa, Warwick and Barford.

The NO_2 passive tube monitoring within Leamington Spa and Barford has determined that the existing boundary of the AQMA's do not require altering.

The NO_2 passive tube monitoring within Warwick has resulted in the extension of the AQMA in force from 1st July 2008 to include most of the central roads within Warwick.

4.2.1 Leamington Spa

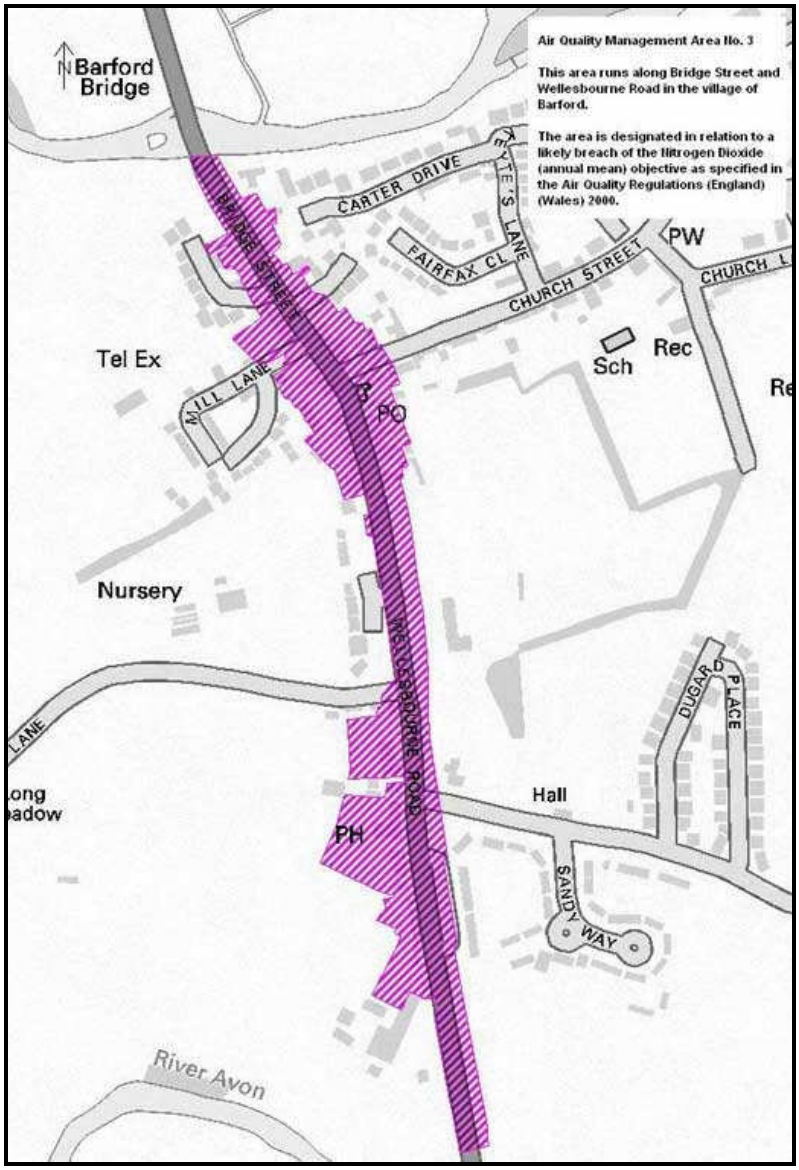
This area is situated in South Town Leamington Spa and is centred on High Street, Clemens Street and Bath Street. The area is designated in relation to a likely breach of the Nitrogen Dioxide (annual mean) objective as specified in the Air Quality Regulations (England) (Wales) 2000 (as amended).



View from Clements Street Junction looking up Bath Street, Leamington Spa

4.2.2 Barford

This area runs along Bridge Street and Wellesbourne Road in the village of Barford. The area is designated in relation to a likely breach of the Nitrogen Dioxide (annual mean) objective as specified in the Air Quality Regulations (England) (Wales) 2000 (as amended).



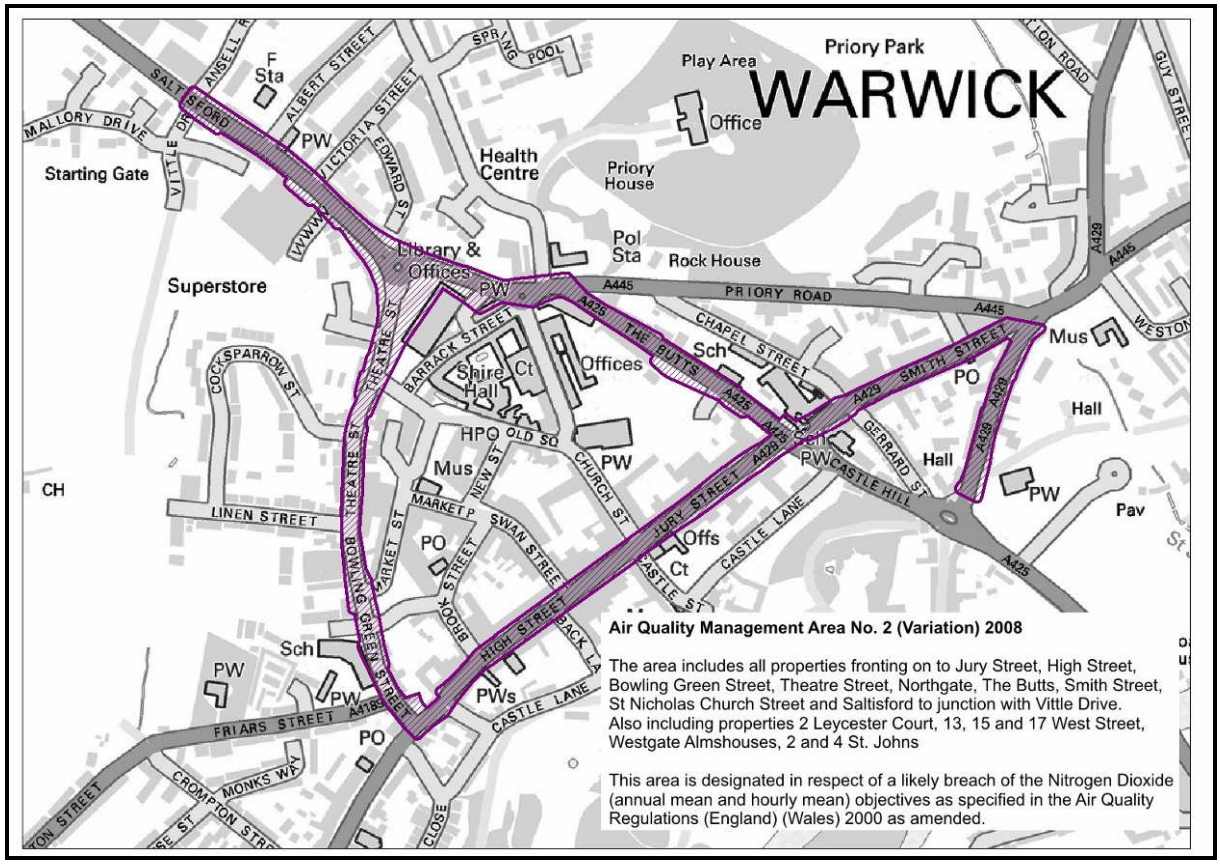
Following declaration of the AQMA's, a Further Assessment of the AQMA in Barford was not carried out due to the recent construction of the A429 Barford bypass. Given that the Barford AQMA was declared on the basis of road traffic sources, it was considered likely the annual mean NO_2 concentrations within Barford would decrease following completion of the bypass such that the annual mean objective would not be exceeded and the AQMA could be revoked.

The results of NO_2 passive tube monitoring from March 2007 to April 2008 has shown a decrease in NO_2 levels. Monitoring will continue for a further twelve months, as advised by DEFRA. Following assessment of the results, consideration will then be given to revoking the AQMA Order.

View of Barford Village Centre (Bridge Street)

4.2.3 Warwick

This area runs along High Street, Jury Street, Bowling Green Street, Theatre Street, the Butts and Northgate in the centre of Warwick, as well as The Saltisford (to the Vittle Drive / Ansell Way junction), Smith Street, and St. Nicholas Church Street on the edges of Warwick town centre. The area is designated in relation to a likely breach of the Nitrogen Dioxide (annual mean and hourly mean) objectives as specified in the Air Quality Regulations (England) (Wales) 2000 (as amended).



View of The Butts in Warwick

View of Jury Street, Warwick

4.2.4 Whitnash and other Parishes within Warwick District

There are currently no designated AQMA's within any of these areas. NO_2 monitoring and modelling have been conducted within the District. The modelling has been undertaken in earlier reports and the results have shown that no high concentrations of NO_2 currently exist in these areas.

4.3 Other areas of concern

4.3.1 Kenilworth

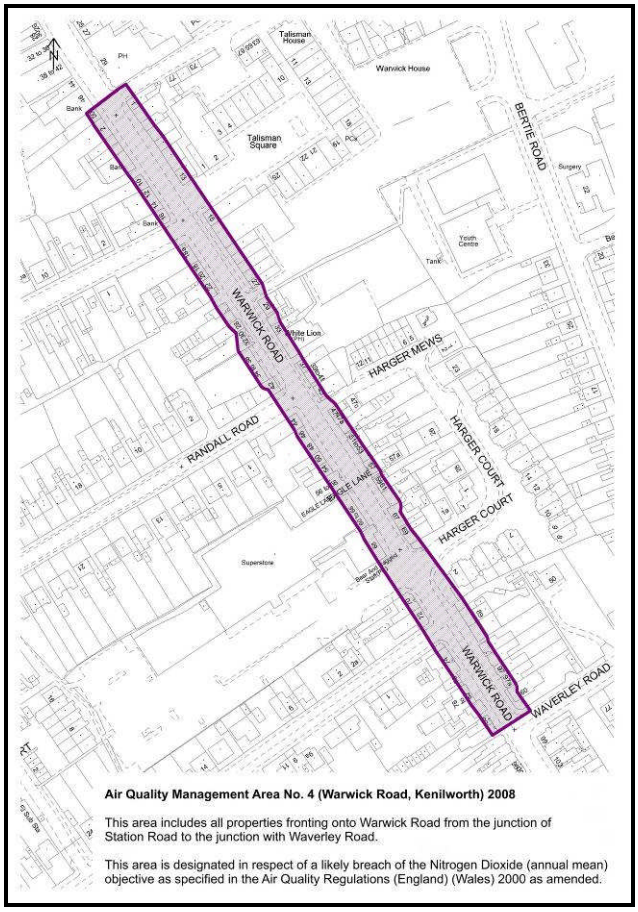
Initial monitoring in 2005, as reported in Updated and Screening Assessment Report, September 2006 identified a number of potential areas of poor air quality in Kenilworth. Further extended monitoring and assessment in 2006 / 2007 as reported in the Detailed Assessment (Kenilworth) report of November 2007 identified the potential need for declaration of AQMA's in New Street and Warwick Road in Kenilworth

The first AQMA area runs along the length of Warwick Road between the Station Road and Waverly Road junctions in the centre of Kenilworth.

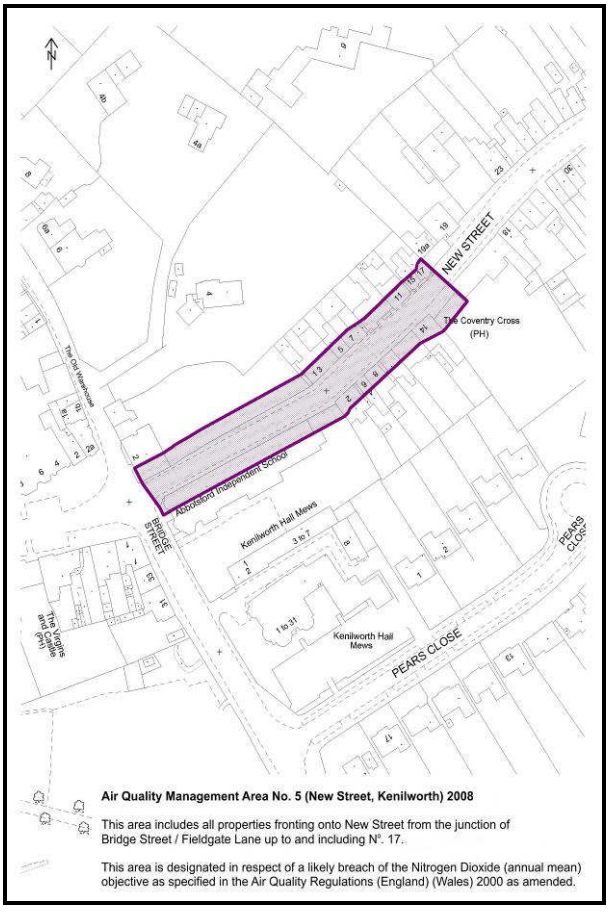
The second AQMA area runs along New Street from the junction with Bridge Street / Fieldgate Lane to N^{o}. 17 New Street.

The areas are designated in relation to a likely breach of the Nitrogen Dioxide (annual mean) objective as specified in the Air Quality Regulations (England) (Wales) 2000 (as amended).

Warwick Road



New Street



Proposed AQMA 1 : View of Warwick Road, Kenilworth

Proposed AQMA 2 : View of New Street, Kenilworth

4.3.2 Warwick and Leamington Spa

Roads adjacent to the current AQMA's are continuing to be assessed, together with isolated locations where traffic movements indicate potential exceedence of NO_2 levels. These include Coventry Road, Warwick; at road junctions along Emscote Road, Warwick and Rugby Road, Leamington Spa.

4.4 Monitoring and Reporting Arrangements

Warwick District Council currently has 62 NO_2 passive tubes installed within the identified AQMA's. There are also other tubes currently located in other areas of potential NO_2 exceedence.

The data is collated on an annual basis, together with continuous monitoring results from the Pageant House, Jury Street, Warwick site and the AURN site located at Hamilton Terrace, Leamington Spa, and forwarded to expert air quality consultants (contracted by Warwick District Council) for assessment.

As required under legislation, the data and assessments are then compiled into reports with recommendations for monitoring and declarations of AQMA's, and forwarded to DEFRA for assessment and acceptance.

4.5 Monitoring Network

The monitoring network operated by Warwick District Council in 2006 consists of two continuous NOx / NO_2 monitoring stations, including one AURN monitoring station (NOx / NO_2, PM_{10}, CO, O_3 and SO_2), and the use of NO_2 passive monitoring diffusion tubes. Both continuous monitoring stations are operated and maintained by Warwick District Council.

The monitoring results from these sites are discussed and summarised in the following sections.

4.6 Continuous Monitoring Stations

Warwick District Council operates a continuous monitoring station installed at Pageant House, Jury Street, Warwick. The monitor was previously located at the junction between High Street and Clemens Street, Leamington Spa, until April 2005. A summary of the data collected at this monitoring station is provided in Table A2. (Appendix 2) Table A2 also provides a summary of the data collected from the AURN monitoring station adjacent to Hamilton Terrace, Leamington Spa.

Continuous monitoring at Pageant House, Jury Street indicates an exceedence of the annual mean and hourly objective NO_2 objective in 2005. This continuous monitoring station is located within the extended AQMA actioned from on 1st July 2008.

The continuous AURN monitoring station at the rear of 10 Hamilton Terrace in Leamington Spa is classified as an urban background site. The measured concentrations in 2007 are significantly lower than the relevant AQS objectives for NO_2 and PM_{10}.

4.7 NO_2 Diffusion Tubes

Warwick District Council has currently established 62 NO_2 diffusion tubes throughout the District. Details relating to the current set of diffusion tubes are provided in Table 4.3, with bias adjustment calculations provided in Tables A2.1 and A2.2 (Appendix 2). Bias adjustment factors have been calculated based on co-located diffusion tubes at the Hamilton Terrace AURN site (Leamington Spa) and the Pageant House (Warwick) continuous monitoring stations.

Table 4.3 : NO_2 ($\mu g/m^3$) Bias Adjusted Diffusion Tube Monitoring Results

Location	Grid Ref	2006 Annual Mean ($\mu g/m^3$)	2007 Annual Mean ($\mu g/m^3$)
WARWICK			
Church Street	428189, 264930	25.1	25.1
St Marys Churchyard	428270, 264982	23.2	24.2
Saltisford / Northgate	428026, 265158	**53.1**	**54.4**
The Butts	428240, 265088	**46.3**	**43.8**
Coventry Road	428715, 265202	**49.0**	**46.2**
Bowling Green Street	427992, 264695	**51.1**	**49.2**
Theatre Street	427938, 264947	**41.0**	38.3
Pageant House 1	428263, 264877	**57.7**	**56.4**
Pageant House 2			
Pageant House 3			
Jury Street	428391,264966	**55.6**	**50.2**
High Street	428132, 264799	-	**42.7**
West Street	427974, 264613	-	28.6
Crompton Street	427910, 264541	-	33.5
Friars Street	427905, 264682	-	29.0
West Rock	427930, 265200	-	**41.0**
Albert Street / Saltisford Junc	427887, 265275	-	37.4
Priory Road	428422, 265127	-	20.6
Smith Street	428522, 265039	-	**42.5**
Gerrard Street	428501, 264967	-	28.9
St. Nicholas Church Street	428600, 264983	-	34.2
St Johns	428748, 265166	-	26.2
Coten End	426896, 260760	-	36.5
Emscote Road	429514, 265469	-	**40.6**
Charles Street	429500, 265492	-	**40.8**
Bridge Street	430020, 265721	-	37.0
Greville Road	429974, 265733	-	31.8
BARFORD			
Barford 1	426834, 260856	**50.2**	29.6
Barford 2			
Barford 3			
Bridge Street	426896, 260760	-	22.4

(Table 4.3 is continued overleaf…))

Location	Grid Ref	2006 Annual Mean (µg/m^3)	2007 Annual Mean (µg/m^3)
LEAMINGTON SPA			
Hamilton Terrace 1	431943, 265730	24.9	28.1
Hamilton Terrace 2			
Hamilton Terrace 3			
High Street	432054, 265218	**52.3**	**45.1**
Spencer Street	431860, 265365	**42.8**	**41.7**
Farley Street	432560, 265254	32.1	36.9
Clemens Street	432051, 265060	28.0	30.6
George Street	432163, 265294	31.9	30.6
Wise Street	431900, 265189	**65.5**	**52.3**
Tachbrook Road 1	431862, 265169	39.3	41.3
Tachbrook Road 2			
Old Warwick Road 1	431849, 265193	**43.7**	**42.8**
Old Warwick Road 2			
Bath Street (Old)[(a)]	431989, 265277	37.2	-
Bath Street (Old)[(b)]		**41.8**	-
Bath Street (New)[(c)]	437978, 265280	-	**48.7**
Clapham Terrace 1	432514, 265062	22.8	23.2
Clapham Terrace 2			
New Street	432255, 265435	26.8	27.9
KENILWORTH			
Bertie Road	428974, 271697	22.9	25.2
Barrow Road	428816, 271618	**48.1**	**43.9**
New Street	428707, 272556	38.1	37.5
Fieldgate Lane	428652, 272524	**43.4**	36.3
Warwick Road	428906, 271496	**45.1**	**42.6**
Moorlands Avenue	429078, 271207	-	38.0
Waverley Road	428974, 271402	-	33.7
The Square	428714, 271769	-	30.3

(a) Includes monitoring data in June, July and August when Bath Street was closed
(b) Excludes monitoring data in June, July and August when Bath Street was closed
(c) The diffusion tube along Bath Street was relocated at the end of August 2006. Current Bath Street data should be used and interpreted with caution

The monitored concentrations in Warwick, Leamington Spa, Barford, and Kenilworth are discussed below.

4.7.1 Warwick

Concentrations monitored within the AQMA, at Pageant House and Jury Street (kerbside) sites were above the AQS objective for 2006, confirming the need for the existing AQMA. The monitoring data outside the AQMA (the Saltisford / Northgate junction, the Butts, the St. Johns / Coventry Road junction and Bowling Green Street) also indicates an exceedence of the AQS objective for 2006 and 2007, triggering the revision, increasing the area of AQMA in the newly-declared AQMA in 2008. Monitoring along Theatre Street is lower than the annual mean AQS objective. With the exception of Jury Street (kerbside), all these diffusion tubes are close to the façades of residential properties. Therefore concentrations are likely to exceed the objectives at these properties.

Concentrations monitored at Church Street and St. Mary's Churchyard in 2007 are well below the annual mean AQS objective of 40 µg/m^3.

4.7.2 Leamington Spa

Annual mean NO_2 concentrations monitored in 2006 along the High Street, within the AQMA, are above the AQS objective. The concentration measured in 2007 at Wise Street, just within the western boundary of the AQMA, is well above the AQS objective at 52.3 µg/m^3.

Concentrations measured in 2007 along Bath Street at its new location (approximately 10m north northeast of its previous position), monitoring over the year shows an exceedence of the AQS annual mean objective.

Concentrations at all other sites, excluding Spencer Street (within the AQMA) are below the AQS objective.

4.7.3 Barford and Kenilworth

Concentrations monitored within the AQMA in Barford exceed the AQS objective for NO_2 in 2006. Following the construction of the bypass in 2007, the current monitoring shows significant reduction in NO_2 which is being factored into any further decisions, including future likely revocation of the existing AQMA status once sufficient data has been procured.

Concentration of NO_2 monitored in Kenilworth in 2006 and 2007 approached or exceeded the annual mean AQS objective. This resulted in the proposal to declare AQMA's in part of Warwick Road, and New Street. Following a public consultation formal declaration will occur later in 2008.

5. Problems and Opportunities

5.1 Problems

A full discussion of the transport problems within Warwick District can be found within the Warwickshire LTP. The main issues are:

- High levels of car ownership;
- Lowest peak period journey speeds within the County;
- Public transport hampered by traffic congestion;
- Inappropriate use of local roads when congestion or an incident affects the nearby motorway and trunk road network;
- The large numbers of visitors who come to the area;
- The historic nature of the transport network limits capacity and route choice; and
- Crime and fear of crime can deter people from walking, cycling or using public transport.

5.2 Opportunities

A full discussion of the transport opportunities within Warwick District can be found within the Warwickshire LTP. The main issues are:

- The majority of the population within the area live within easy walking or cycling distance of local services, public transport routes and interchange points;
- Bus service coverage within the main urban areas is generally comprehensive;
- There is good access to the national rail network at Warwick, Warwick Parkway and Leamington Spa;
- The provision of transport infrastructure to support the regeneration of Kenilworth town centre; and
- Improvements to the motorway and trunk road network, including the current works to improve M40 Junction 15 (Longbridge).

6. The Strategy

As set out earlier, the overall aim of this Action Plan is to reduce the impact of transport on the environment, and thus improve local air quality to an acceptable level.

The objectives by which this aim will be delivered are as follows:

- To improve areas with poor air quality and maintain those areas that currently experience good air quality;
- To encourage sustainable forms of transport, in order to reduce reliance on the private car and thus minimise emissions to air; and
- To promote awareness of alternative travel choices.

Policy AQ1 – Improving poor air quality through partnership working

Warwick District Council and Warwickshire County Council will work in partnership to work towards the UK air quality objectives, focusing on existing Air Quality Management Areas to achieve improved air quality. Within 18 months of the declaration of an AQMA, the two Authorities will work together to formulate an Air Quality Action Plan designed to revoke the AQMA over a specified period.

Policy AQ2 – Maintaining areas of good air quality

Warwick District Council and Warwickshire County Council will work in partnership to maintain good air quality in areas without any existing air quality problems. A proactive approach will be undertaken to monitor and address known air quality problems in the area, in order to ensure that potential AQMA's are tackled prior to any formal declaration.

Policy AQ3 – Education and Information

Warwick District Council and Warwickshire County Council will work in partnership to promote, educate and inform as widely as possible about air quality, transport choices and their implications for air quality and health. Both Authorities will actively encourage their staff to travel to work and undertake work related activities through the use of public transport, cycling and walking.

Policy AQ4 – Review of the Action Plan

The Air Quality Action Plan will be reviewed at regular intervals, in order to keep it up to date with the latest air quality information, advances in air quality knowledge and best practice techniques, regional and national policy and legislative developments. The schemes and initiatives in the Action Plan will also be revised as necessary.

Policy AQ5 – Integration of air quality with land use and transport planning goals

Warwick District Council and Warwickshire County Council will work in partnership to locate new development in a sustainable way.

Warwickshire County Council will promote the use of public transport, and will seek to provide better services and facilities to improve accessibility and safety, and reduce dependency on the private car. The County Council will actively promote cycling and walking as alternative modes of transport to the car, especially for shorter journeys.

6.1 Other Policies and Strategies to Improve Air Quality

There are a number of other related policies and strategies at the local and regional level that can be tied in directly with the aims of the Air Quality Action Plan, and will help contribute to overall improvements in air quality across Warwick District Council.

6.2 Constraints to delivering the Strategy

6.2.1 Sustainable Economy

There will always be a need to balance the economic pressures for public access to commercial and retail properties within the area, with the desire to restrict both commercial and private vehicles within the same potential area.

6.2.2 Financing

Financing will always pose constraints on the timeframe and scheduling of actions within the plan.

One of the key changes to the way that transport improvements are now funded has been the move towards the provision of 'planning guideline' figures from the Department for Transport, which have a five-year time horizon. This has allowed Transport Authorities to establish more robust plans with a greater degree of certainty regarding their funding.

The LTP contains a Delivery Strategy, which sets out the measures and improvements that will be funded over the period 2006 – 2011. Following receipt of the annual LTP settlement from Government in December, the Transport Capital Programme for the forthcoming year is established and agreed by the County Council's Cabinet. A significant number of the schemes set out in Section 6 of this Action Plan will be brought forward via this process.

6.3 Scenario Testing

The actions set out in this Plan are designed, either individually or in combination, to improve the air quality within the identified AQMA's.

In Appendix 3 the outcome of some scenarios are set out, utilising the data reported in Section 4, Table 4.3, and Appendix 2, together with traffic data, determining the improvements required to meet the designated air quality standards.

7. The Action Plan

7.1 Proposed Measures

Outlined below are the proposed direct measures for the identified AQMA's and indirect measures to improve air quality throughout the whole of Warwick District.

7.1.1 Direct Measures

Direct measures to reduce NO_2 concentrations within the AQMA's concentrate on the dominant source of emissions – road traffic. Direct measures incorporate the following themes:

- Theme A1 : Reduction of traffic flows within the AQMA's;
- Theme A2 : Reduction of pollutant emissions within the AQMA's; and
- Theme A3 : Encouraging public transport.

7.1.2 Indirect Measures

Indirect measures target those general emissions within an area that aim to further reduce background levels of pollution above and beyond that likely to be achieved by existing national and international agreements. Indirect measures incorporate the following themes:

- Theme B1 : Reduction of the need to travel by car; and
- Theme B2 : Reduction of background concentrations.

Unless stated otherwise, all those actions discussed in the following Sections are reflected in Warwick District Councils Local Plan (as discussed in Section 3.1), which itself conforms to the RSS, the WASP and the LTP2.

7.1.3 Proposed Direct Measures for Existing AQMA's

The following provides a number of action plan measures that have been proposed to reduce NOx / NO_2 emissions from traffic in the Warwick, Leamington Spa, and Barford AQMA's in pursuit of the NO_2 annual mean Air Quality Objective. A summary of the measures is provided in Table A3.1 (Appendix 3).

7.1.4 Theme A1 – Reduction in Traffic Flows

Action 1 : Highway Improvements and Traffic Management Measures

There is little scope to significantly increase highway capacity within the urban areas of the District. Measures will be implemented by way of continued support for improvements to Junctions 13, 14 and 15 on the M40 where existing levels of traffic can affect travel habits and route choice in and around Warwick and Leamington Spa.

The County Council is assessing the causes of queuing traffic at Junction 14 of the M40 (from the exit slip to Greys Mallory roundabout and at the roundabout itself). Alleviating congestion in this area could have a significant impact on travel patterns throughout Warwick and Leamington, and thus on the AQMA's.

In the particular case of Warwick, there is an ongoing project to look at various traffic management measures to reduce the amount of traffic in the town centre. A Forum of local residents and other stakeholders have drawn up a series of proposals for various town centre streets, and officers are being asked to investigate a number of different demand management measures to complement these. The effectiveness of these measures in improving air quality will be assessed as part of the decision making process.

Action 2 : Cycling Improvements

The main focus of the proposals in the LTP is the development of the urban cycle network within Warwick and Leamington Spa, in line with the County Council's Cycling Strategy. The development of such a network aims to increase the number of utility trips undertaken by bike.

In addition, as part of the continued development of the local and regional cycle route network, Warwick District Council, Warwickshire County Council and Sustrans will work closely to improve the National Cycle Network routes between Warwick and Kenilworth, Warwick and Stratford, and Leamington Spa and Rugby.

Action 3 : Powered Two Wheeler (PTW) Strategy

The Powered Two Wheeler Strategy includes the establishment of dedicated secure on or off-street parking facilities in Leamington Spa and Warwick.

7.1.5 Theme A2 – Reduction in Pollutant Emissions

Action 4 : Intelligent Transport Systems (ITS) Strategy

There are proposals in LTP2 which have the potential to improve local air quality through the use of ITS. The ITS Strategy includes such measures as urban traffic control, car park management, bus priority and travel information.

Following the success of ITS within Stratford-upon-Avon, a timetable for implementation has been drawn up for the entire County, including Leamington Spa and Warwick (for timescale see Table 7.1; page 46, Action 4).

Not all measures included within the Stratford ITS scheme will be rolled out across every town in Warwickshire. There are four key projects which will be implemented within the Warwick District area as a result of the ITS Strategy. These are as follows:

- Warwick car park management and information system;
- Leamington Spa car park management and information system;
- Provision of free text Variable Message Signing in Warwick / Leamington Spa, to advise on incidents and congestion; and
- Provision of Real Time information on Travel Coventry Service 12 between Leamington Spa and Warwick University / Coventry.

7.1.6 Theme A3 – Encouraging Public Transport

Action 5 : Improving the Attractiveness of Public Transport

A major transport scheme known as SPARK is being developed to achieve a 'step change' in the attractiveness of public transport in the Warwick, Leamington Spa and Whitnash area. SPARK will deliver a fully integrated and improved public transport network that will focus on the co-ordinated provision of Park and Ride, high quality bus services, real time information and integrated ticketing.

Action 6 : Public Transport Interchange Strategy

The LTP Public Transport Interchange Strategy aims to contribute towards the achievement of those objectives in the LTP by promoting a passenger transport network which offers the following:

- better accessibility, both in terms of physical access to transport and its availability, to the widest cross section of the population;
- more travel choices to access work, services and leisure activities;
- an attractive and sustainable travel alternative to the car thereby helping to reduce traffic congestion and pollution levels and improving air quality and the environment; and
- better integration with other modes of transport.

<u>Action 7</u> : Bus Strategy

The Bus Strategy will contribute to achieving the objectives of the LTP by promoting a bus network, which provides an attractive and sustainable travel alternative to the car thereby helping to reduce traffic congestion and pollution levels and improving air quality and the environment.

The County Council works in partnership with Stagecoach (as the principal local bus operator within Warwick District) to improve the quality of vehicles that operate on both the commercial and tendered service network. Route 66 between Warwick, Leamington Spa and Whitnash has recently been re-branded as the G1 'Goldline', with the introduction of a dedicated fleet of high quality, low emission vehicles. Service 63 / 64 between Rugby, Southam and Leamington Spa has also been improved through the introduction of new low emission vehicles. It is planned to deliver similar improvements on other routes within the District through the LTP process, or where opportunities for new or cascaded vehicles arise.

<u>Action 8</u> : Bus Information Strategy

The Bus Information Strategy will contribute to achieving the objectives in the LTP by promoting a transport network which offers the following:

- better accessibility to the widest cross section of the population;
- more travel choices to access work, services and leisure activities;
- an attractive and sustainable travel alternative to the car thereby helping to reduce traffic congestion and pollution levels and improving air quality and the environment; and
- better integration with other modes of transport

Action 9 : Passenger Rail Strategy

As with the Bus Strategy, the Passenger Rail Strategy will also contribute to achieving the objectives of the LTP by promoting a passenger rail network, which provides an attractive and sustainable travel alternative to the car thereby helping to reduce traffic congestion and pollution levels and improving air quality and the environment.

The West Midlands Route Utilisation Strategy (RUS) presents solutions to the principal issues that face the railways in the West Midlands. These are identified as improving performance, managing peak passenger demand and crowding, responding to forecast growth and managing growing and changing freight demand. The West Midlands RUS also acknowledges the need for a new station at Kenilworth, and improved track capacity between Leamington Spa and Coventry.

In relation to the proposed Kenilworth station, this is a key LTP proposal. As such, Warwickshire County Council is working with the new operator of the Cross Country franchise (Arriva) to deliver the scheme. In addition, the Warwick District Council Local Plan safeguards the site for the station.

Action 10 : Parking Strategy

The LTP Parking Strategy provides an opportunity to integrate a number of different mechanisms, such as the use of Intelligent Traffic Systems (ITS) to provide better information in relation to town centre car parking, the introduction of Decriminalised Parking Enforcement (DPE) in order to tackle on-street parking issues and improve traffic levels, and the introduction of Park and Ride schemes.

7.2 Proposed Indirect Measures to Improve Air Quality across Warwick District

There are a number of indirect measures that can be implemented by both the District and County Council that can improve air quality throughout Warwick District. These will reduce background pollution concentrations and indirectly will work towards achieving the Air Quality Objectives within the AQMA's. A summary of the measures is provided in Table 7.2 (Section 7.2.2).

7.2.1 Theme B1 – Reduction of the need to travel by car

Action 11 : Changing Travel Behaviour Strategy

The LTP contains a strategy with the aim to reduce the impact of cars on the environment by promoting and encouraging different modes of transport. The strategy focuses largely on school journeys (e.g. Walk to School initiatives) as well as journeys to and from work, with the aim of maintaining the proportion of car (sole passenger) journeys to school at the 2005 / 2006 level (15%).

Action 12 : Cycling Strategy

Warwickshire's Cycling Strategy contains a number of objectives aimed at improving the safety and quality of the cycling environment, whilst at the same time promoting cycling as an attractive mode of transport. One of the key goals of such a strategy is to increase the number of utility journeys made by cycling, these being journeys to school, work, the shops, the rail station and other locations / facilities. Proposed methods for increasing the number of people opting to use bicycles include the development of town cycle route network maps, prioritising routes, safer routes to school, advisory cycle routes (along less congested roads where dedicated cycle routes do not exist), rural cycle routes, canal towpaths and development of the Sustrans National Cycle Network. In addition, proposed strategic cycle routes for Warwick and Leamington Spa in particular are discussed under Action 2.

Action 13 : Safer Routes to School Strategy

As part of the Safer Routes to Schools initiative, schools are encouraged to write a School Travel Plan. Where a new school is being built, a School Travel Plan is required as part of the submission for planning approval. Funding is also available for schools with approved School Travel Plans to upgrade facilities that will encourage the use of sustainable travel, such as the provision of cycle storage and lockers. Safer Routes to School are normally only developed for schools that have produced a travel plan.

7.2.2 Theme B2 – Reduction of Background Concentrations

Action 14 : Land Use and Transportation Strategy

The principal aim of the Land Use and Transportation Strategy is to encourage new development in Warwickshire to be sustainable. Two key elements of the Strategy relate to the reduction in the need to travel and reducing the reliance on the use of cars by promoting improvements to public transport, walking and cycling. These elements are clearly outlined within a number of other actions contained within this Action Plan. Successful implementation of such strategies would not only have a positive impact on Leamington Spa and Warwick town centres, but also other areas within Warwickshire that would benefit from a reduction in background concentrations.

Action 15 : Sustainable Freight Distribution Strategy

As a way of working towards a sustainable freight distribution network in Warwickshire, a Countywide Freight Quality Partnership (FQP) was established in 2002. Through this Partnership, a number of measures have been proposed that are aimed to progress the LTP strategy in relation to freight distribution whilst achieving a balance between improving the local economy and protecting the environment. These measures include the production of freight route maps, zoning systems in urban areas to direct heavy goods vehicles, defining and enforcing delivery times, reviewing parking and loading restrictions, consolidation areas where goods are transferred to smaller deliver vehicles, and reducing the amount of HGV traffic through environmentally sensitive areas e.g. AQMA's. Such a strategy also includes the encouragement of switching from road to rail for the movement of freight.

<u>Action 16</u> : Local Air Quality Management and Pollution Control

The air quality monitoring network in Warwick District provides more accurate information and understanding of air quality. Continuous monitoring stations are installed at two sites within the District to monitor NO_2 concentrations so that modelled predictions can be verified and the progression of action plan measures can be monitored and assessed (the Leamington Spa AURN site also monitors ozone (O_3), carbon monoxide (CO), sulphur dioxide (SO_2) and particulates (PM_{10})). This is supplemented by NO_2 passive diffusion tubes throughout the District, a large number of which are within the declared AQMA's in Warwick and Leamington Spa.

WDC will continue their commitment to local air quality monitoring within the District to ensure a high standard of data is achieved to assess against air quality objectives.

Table 7.1 : Action Plan of Direct Measures Proposed for the AQMA's

Action	Description	Organisation Responsible	Timescale	Air Quality Improvement in AQMA	Other Potential Impacts	Indicator
1	Improvements to Junctions 13. 14 and 15 of the M40	Highways Agency / WCC	Short (Junction 15), Medium / Long (Junctions 13 and 14)	Potentially high	Potential increase in road traffic fatalities and/or reduced safety due to upward changes in traffic speed. Change in traffic habits due to decrease in congestion	Changes in traffic levels at junctions
2	Completion of the Urban Cycle Network within Warwick and Leamington Spa. Improve National Cycle Network routes between Warwick and Kenilworth, Warwick and Stratford, and Leamington Spa and Rugby	WCC / WDC / Sustrans	Medium / Long	Low	Improvements to health due to increased exercise over the population as a whole Decreases in climate change gas emissions	Changes in numbers of people cycling on routes which have been improved
3	Provision of dedicated secure on and off street PTW parking facilities in Leamington Spa and Warwick	WCC / WDC	Short / Medium	Low	Potential increase in accidents, injuries	Changes in parking levels at dedicated facilities
4	Development of Intelligent Transport Systems (ITS) in Warwick and Leamington Spa	WCC	Short / Medium	Medium	Potential improvements in safety	Changes in journey times/speeds
5	Improving the attractiveness of public transport in Warwick and Leamington Spa (SPARK), including the possible establishment of Park and Ride schemes	WCC / WDC	Short / Medium	Medium / High	Decreases in climate change gas emissions	Delivery of the SPARK major public transport scheme to time and budget
6	Implementation of the LTP Public Transport Interchange Strategy	WCC	Ongoing	Low / Medium		Delivery of the schemes and proposals within the strategy, in line with the proposed timescales

Action	Description	Organisation Responsible	Timescale	Air Quality Improvement in AQMA	Other Potential Impacts	Indicator
7	Improve (and promote) bus services between Leamington Spa, Warwick and Kenilworth	WCC / Stagecoach / Travel Coventry	Ongoing	Low / Medium	Decreases in climate change gas emissions	Delivery of the schemes and proposals within the Bus Strategy and other related LTP strategies
8	Implementation of the LTP Bus Information Strategy	WCC	Ongoing	Low / Medium	Potential decreases in climate change gas emissions	Delivery of the schemes and proposals within the strategy, in line with the proposed timescales
9	Promotion of a passenger rail network which provides an attractive and sustainable alternative to the car, including a new station at Kenilworth and improved services and infrastructure between Leamington Spa, Coventry and Nuneaton	WCC / Train Operators / Network Rail	Medium / Long	Medium	Potential issues for parking associated with a new station at Kenilworth, and capacity parking at existing stations	Delivery of improvements to heavy rail within the North / South Corridor, including a new railway station at Kenilworth, to time and budget
10	Implementation of the LTP Parking Strategy to integrate a number of different mechanisms, such as the use of Intelligent Traffic Systems (ITS)	WCC / WDC	Ongoing	Medium	Potential effectiveness may be reduced with new car parks in central locations	Delivery of the schemes and proposals within the strategy, in line with the proposed timescales

Table 7.2 : Action Plan of Indirect Measures to Improve Air Quality

Proposed Measure	Description	Organisation Responsible	Indicator	Date to be Achieved by
11	Reducing the impact of cars on the environment by promoting and encouraging different modes of transport	WCC / WDC	Mode share of bus, rail, walking and cycling	Ongoing
12	Improving the safety and quality of cycling routes across the county, and decrease the number of “utility” journeys	WCC / WDC / Sustrans	Changes in numbers of people cycling on routes which have been improved	Ongoing
13	Encouragement for Schools to write a School Travel Plan (to be included in planning applications for new schools)	Local schools	Number of schools submitting a Travel Plan	Ongoing
14	Implementation of the LTP Land Use and Transportation Strategy, which encourages new development in Warwickshire to be sustainable and promotes the use of public transport over personal car use.	WCC	Number of planning applications where sustainable transport	Ongoing
15	Implementation of the LTP Sustainable Freight Distribution Strategy, which includes measures to encourage the movement of goods by rail	WCC / Highways Agency / Department for Transport / Network Rail	Delivery of the schemes and proposals within the strategy, in line with the proposed timescales	Ongoing
16	WDC will continue their commitment to local air quality monitoring within the District to ensure a high standard of data is achieved to assess against air quality objectives	WDC	Number of monitoring sites, percentage data capture	Ongoing

8. Implementation and Monitoring

Warwick District Council will work jointly on the action plan measures with the relevant partners including the County Council, transport operators, schools and local businesses. To secure the necessary air quality improvements there must be involvement by all local stakeholders and WDC should actively work to encourage community participation in the process.

The implementation and effectiveness of the Action Plan will be carefully monitored through monitoring of NO_2 at relevant receptor locations within the relevant AQMA's. In addition, traffic flow changes on the key roads will also be assessed through the review and assessment process, and the uptake of local measures such as the Urban Mixed Priority Route will be monitored. Indicators have been provided for the indirect measures to be undertaken by the Council to monitor progress annually.

There will be regular review and assessment of the action plan proposals to evaluate progress and this will be reported annually

Glossary of Terms

Abbreviation	
AADT	Annual Average Daily Traffic
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
AQS	Air Quality Strategy
AURN	Automatic Urban and Rural Network
CO	Carbon Monoxide
DEFRA	Department for Environment, Food, and Rural Affairs
DETR	Department for Transport and Regions
DoE	Department of the Environment
DPE	Decriminalised Parking Enforcement
FQP	Freight Quality Partnership
HGV	Heavy Goods Vehicle
ITS	Intelligent Transport Systems
LAQM	Local Air Quality Management
LDV	Local Delivery Vehicle
LGV	Light Goods Vehicle
LTP	Local Transport Plan
NAQS	National Air Quality Strategy
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NSCA	National Society for Clean Air
O_3	Oxygen
$\mu g/m^3$	Micrograms per cubic metre
PM_{10}	Fine particle matter less than 10 µm diameter
RSS	Regional Spatial Strategy
RTS	Regional Transport Strategy
RUS	Route Utilisation Strategy
SDF	Sustainable Development Framework
SO_2	Sulphur Dioxide
SPARK	Leamington **SPA** and Wa**R**wic**K**
TDP	Transport Delivery Plan
USA	Updating and Screening Assessment
WASP	Warwickshire Structure Plan
WCC	Warwickshire County Council
WDC	Warwick District Council

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5. Defra, 2003b. Review and Assessment: Progress Report Guidance LAQM.PRG(03).

6. Defra, 2003c. Review and Assessment: Policy Guidance LAQM.PG(03).

7. Defra, 2007. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. July 2007.

8. Laxen and Marner, 2003. Analysis of the Relationship Between 1-Hour and Annual Mean Nitrogen Dioxide at UK Roadside and Kerbside Monitoring Sites. Available from Defra, 2006.

9. Stationery Office, 2000. Air Quality Regulations, 2000, Statutory Instrument 928.

10. Stationery Office, 2002. The Air Quality (England) (Amendment) Regulations 2002. Statutory Instrument 3043.

Appendices

Appendix 1

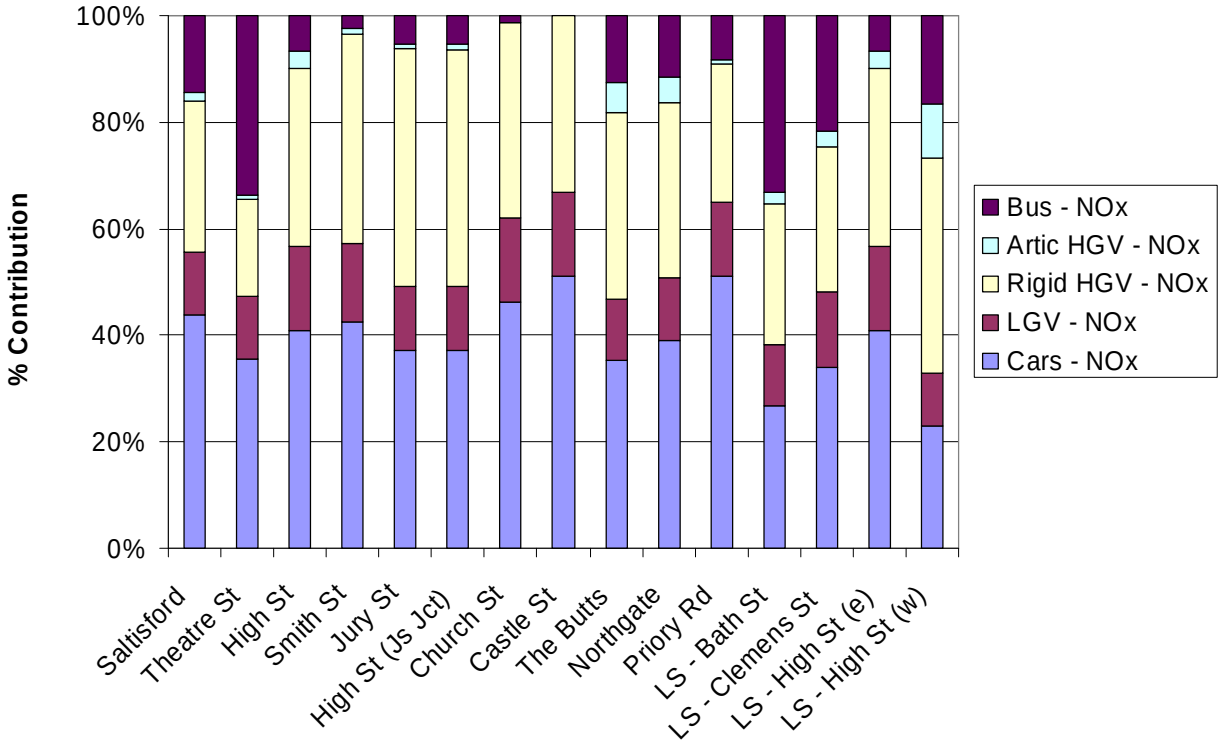
Table A1: Source Apportionment of NOx (Warwick AQMA)

Location	Predicted Total NO_2 2005 ($\mu g/m^3$)	Predicted Total NOx 2005 ($\mu g/m^3$)	Contribution ($\mu g/m^3$)			Contribution (%)		
			Background	LDV	HDV	Background	LDV	HDV
Saltisford (between West Rock roundabout & Parkes Street)	46.0	96.4	38.5	33.4	24.6	40.0%	34.7%	25.5%
Theatre Street (between Cocksparrow Street & Linen Street)	40.1	73.7	38.5	21.0	14.2	52.2%	28.5%	19.3%
Bowling Green Street (Junction with High Street & West Street)	43.4	85.6	38.5	28.0	19.1	45.0%	32.7%	22.3%
West Street	40.4	73.9	38.5	20.5	14.9	52.1%	27.7%	20.2%
High Street	49.2	110.2	38.5	42.8	29.0	34.9%	38.8%	26.3%
Jury Street (near Castle Street, The Butts & Smith Street Junction)	46.0	95.8	38.5	34.3	23.0	40.2%	35.8%	24.1%
The Butts	40.7	75.1	38.5	21.9	14.7	51.3%	29.1%	19.6%
Smith Street	34.4	58.2	38.5	12.0	7.6	66.2%	20.6%	13.1%
St. Nicholas Church Street	47.0	98.5	38.5	36.0	24.1	39.1%	36.6%	24.5%
Castle Lodge Roundabout	37.7	68.9	38.5	20.2	10.3	55.9%	29.3%	14.9%

Table A1.1 : Source Apportionment of NOx (Leamington AQMA)

Location	Predicted Total NO_2 2005 ($\mu g/m^3$)	Predicted Total NOx 2005 ($\mu g/m^3$)	Contribution ($\mu g/m^3$)			Contribution (%)		
			Background	LDV	HDV	Background	LDV	HDV
High Street (Junction with Church Street, Bath Street & Clemens Street)	36.9	64.5	38.5	11.3	14.7	59.7%	17.6%	22.8%
High Street (Junction with George Street & Althorpe Street)	36.6	63.6	38.5	10.2	14.9	60.5%	16.1%	23.4%
High Street (between St. Mary's Road & Farley Street)	30.8	48.7	38.5	4.9	5.4	79.0%	10.1%	11.0%
High Street (Junction with Wise Street)	50.6	114.0	38.5	27.8	48.1	33.8%	24.4%	42.2%
High Street / Old Warwick Road	32.1	52.2	38.5	6.1	7.7	73.8%	11.6%	14.8%
Bath Street (between Regent Place and Gloucester Street)	40.3	73.0	38.5	20.1	14.5	52.7%	27.6%	19.8%
Clemens Street (between Clemens Street & Tower Street)	33.1	53.3	38.5	6.2	8.7	72.2%	11.6%	16.3%
Clemens Street (adjacent to Charlotte Street)	28.2	43.0	38.5	2.3	2.2	89.5%	5.3%	5.2%
Church Street (Junction with Regent Place, Church Street & Chapel Street)	31.1	48.9	38.5	5.6	4.8	78.7%	11.4%	9.9%

Figure A1: Source apportionment of traffic related emissions at 15 locations within the Warwick and Leamington Spa AQMA's



Appendix 2

Table A2 : Continuous Monitoring Results (2007)

		Hamilton Terrace	Pageant House
Nitrogen Dioxide (NO_2)	Annual Mean (µg/m³) (a)	24.8	53.0
	Hourly mean > 200 µg/m³ (b)	0	63
	Capture Rate (%)	71	96
Particulates (PM_{10})	Annual Mean (µg/m³) (c)	21.0	--
	24 hourly mean > 50 µg/m³ (d)	10	--
	Capture Rate (%)	97	--
Sulphur Dioxide (SO_2)	15-minute mean > 266 µg/m³ (e)	0	--
	Hourly mean > 350 µg/m³ (f)	0	--
	Daily mean > 125 µg/m³ (g)	0	--
	Capture Rate (%)	96	--
Carbon Monoxide (CO)	Maximum Running 8 Hour Mean (mg/m³) (h)	2.1	--
	Capture Rate (%)	71	--
Ozone (O_3)	Annual mean of daily maximum 8-hour (µg/m³) (i)	39	--
	Daily maximum 8-hour running mean > 100 µg/m³ (j)	3	--
	Capture Rate (%)	96	--

(a) Annual mean objective 40 µg/m^3
(b) Not to be exceeded on more than 18 occasions
(c) Annual mean objective 40 µg/m^3
(d) Not to be exceeded on more than 35 occasions
(e) Not to be exceeded on more than 35 occasions
(f) Not to be exceeded on more than 24 occasions
(g) Not to be exceeded on more than 3 occasions
(h) Max running 8 hour mean 10 mg/m^3
(i) 8 hour mean objective 100 µg/m^3
(j) Not to be exceeded on more than 10 occasions

Table A2.1 : Bias Adjustment Factors for Co-Located Diffusion Tubes (2007)

Diffusion Tube	Unadjusted Mean [A]	Automatic Mean [B]	Bias	Bias Adjustment [B/A]
Hamilton Terrace 1	30.6	29.8	2.7% (a)	0.97 (a)
Hamilton Terrace 2				
Hamilton Terrace 3				
Pageant House 1	61.5	53.0	16.0% (b)	0.86 (b)
Pageant House 2				
Pageant House 3				
			Average Factor	0.918

(a) Based on the average of Hamilton Terrace 1, 2, and 3 diffusion tube results (24.1 µg/m^3)

(b) Based on the average of Pageant House 1, 2, and 3 diffusion tube results (56.1 µg/m^3)

The factor derived from Table A2.1 has been used for all 2007 diffusion tube data presented in this report.

For 2006 data, the site at Hamilton Terrace, Leamington Spa had low data capture and therefore for 2006 data a bias adjustment factor based on the collocation study at Pageant House, Warwick has been used as at Table A2.2

Table A2.2 : Bias Adjustment Factors for Co-Located Diffusion Tubes (2006)

Diffusion Tube	Unadjusted Mean [A]	Automatic Mean [B]	Bias	Bias Adjustment [B/A]
Pageant House 1	56.1	57.6	2.6% (b)	1.03 (b)
Pageant House 2				
Pageant House 3				

(b) Based on the average of Pageant House 1, 2, and 3 diffusion tube results (56.1 µg/m^3)

Appendix 3

Scenario Testing

3.1 Traffic Flows – High Street, Warwick

In order to put some of those measures discussed in Section 6 into context, a brief study was undertaken looking at the proposed impact of changes in traffic flows and traffic profiles along High Street, one of the busiest roads in Warwick. Such an assessment will provide some clarity as to the levels of traffic reduction required (along High Street, Warwick, at least) or changes in traffic composition, in order for the annual mean AQS objective for NO_2 to be met at sensitive receptors along this road.

As part of this study, the most recently available traffic count data has been used. This data was based on vehicle count data taken along High Street, Warwick, on 18th June 2008 and on Bath Street, Leamington Spa on 14th May 2008.

Scenario A : Percentage Reduction to Total Traffic

Using the Annual Average Daily Traffic (AADT) flows for High Street, Warwick, the reduction in predicted concentrations of NOx / NO_2 has been determined based on an AADT reduction of 5%, 10%, 20%, and 30% using the Design Manual for Roads and Bridges (DMRB). The DMRB has been adjusted in relation to the monitoring site on High Street. The reduction in AADT is provided in Table A3.1 along with the predicted NOx / NO_2 concentration. It has been assumed for this Scenario that percentage HGV will remain at 5.3%.

Table A3.1 : Predicted NOx / NO_2 based on Reduction AADT (Warwick)

	No Reduction	5%	10%	20%	30%
AADT	16,225	15,414	14,603	12,980	11,358
LDV	15,371	14,602	13,834	12,297	10,760
HGV	854	812	769	684	598
NO_2	**56.4**	**55.8**	**54.6**	**51.4**	**48.0**
NOx	174.0	170.8	165.0	149.1	133.3

Based on 2008 traffic data, not even a 30% reduction in traffic along High Street, Warwick would result in concentrations less than the annual mean NO_2 objective of 40 µg/m^3. However, vehicle emissions are expected to reduce as technologies improve, together with background concentrations of NOx / NO_2 therefore in the future, these reductions should be taken in the context of reducing NO_2 concentrations. In addition, given the high NO_2 concentrations along High Street compared to other areas within Warwick and Leamington Spa, such a reduction may also result in the AQS being met elsewhere.

Scenario B : Percentage Reduction in HGV Traffic

3.2 High Street, Warwick

In Appendix 1, Figure A1, the 'emissions' show a 50 / 50 split HGV to cars. However, based on 2008 traffic data, HGV's comprise 5.3% of the 'traffic' composition along High Street, Warwick. Given that the HGV proportion of the traffic composition is already relatively low, unfortunately, any further reductions are unlikely. However, any reductions in HGV's would have some effect in reducing those predicted concentrations detailed in Table A3.2

In practical terms, therefore, to enable reductions in emissions within High Street, the focus of the Action Plan needs to be skewed towards non-HGV traffic. This is reflected throughout this document and Section 6 in particular, where measures have been proposed that relate specifically to the movement of non-HGV traffic e.g. school runs, journeys to and from work, and efforts to change behavioural patterns in relation to the use of cars for such purposes.

3.3 High Street, Leamington Spa

As indicated in the LAQM Further Assessment (2006) and summarised in Appendix 1 – Table A1.1 of this Action Plan, and graphically shown in Appendix 1, Figure A1, emissions from HGV traffic along the High Street in Leamington Spa represent a slightly higher proportion of the total predicted NOx concentrations than those from LDV traffic. A reduction in the movement of HGV traffic along the High Street, Leamington Spa, should be addressed where possible through proposed measures within this Action Plan (e.g. Action 16 – Sustainable Freight Distribution).

3.4 Bath Street, Leamington Spa

Using the Annual Average Daily Traffic (AADT) flows for Bath Street, Leamington Spa, the reduction in predicted concentrations of NOx / NO_2 has been determined based on an AADT reduction of 5%, 10%, 20%, and 30% using the Design Manual for Roads and Bridges (DMRB). The DMRB has been adjusted in relation to the monitoring site on Bath Street. The reduction in AADT is provided in Table A3.2 along with the predicted NOx / NO_2 concentration. It has been assumed for this Scenario that percentage HGV will remain at 8%.

Table A3.2 : Predicted NOx / NO_2 based on Reduction AADT (Leamington Spa)

	No Reduction	5%	10%	20%	30%
AADT	8681	8247	7813	6945	6077
LDV	7985	7586	7187	6388	5590
HGV	695	661	626	556	487
NO_2	**48.7**	**47.8**	**46.9**	**44.9**	**42.5**
NOx	130.0	126.0	122.1	113.4	103.5

Based on 2008 traffic data, not even a 30% reduction in traffic along Bath Street, Leamington Spa would result in concentrations less than the annual mean NO_2 objective of 40 µg/m^3. However, vehicle emissions are expected to reduce as technologies improve, together with background concentrations of NOx / NO_2 therefore in the future, these reductions should be taken in the context of reducing NO_2 concentrations.

Appendix 4

The AQAP Public Consultation Process

An informative document pack, including a questionnaire (included in Appendix 4) and comments sheet, was delivered to all properties within the AQMA's areas (Warwick, Leamington Spa, and Barford). These packs were hand delivered.

All identified statutory consultees and other relevant consultees received packs via postal services, email, or hand delivery. There was also a designated 'helpline' setup for comments, queries etc

All information received from the consultation process was reviewed and the results were complied / reported on.

The Public Consultation ran for a period of 8 weeks, coming to an close on the 1st January 2008.

Results of Public Consultation on Draft Action Plan

A majority of respondents (63%) would support actions to improve air quality, even if it results in an inconvenience to them regarding travel times.

A significant proportion of all respondents (53%) gave their primary purpose for travelling through / within the District was as a route to work.

The main concerns / comments arising from the consultation were:

Public Transport:

The majority (65%) of the respondents either never / less than monthly used public transport. However, a total of 87% or respondents would support improved bus routes.

Many respondents referred to their negative perception regarding the cost of bus travel; timing reliability, journey time, bus condition, and frequency and comfort of the service. The perception was of inconvenience of the routes, not going where and when they require, compared to using the car.

One or two referred to lack of information as to route / times etc. A number suggested either Hybrid-fuel buses or those using "cleaner" fuels only be allowed into town. A few people referred to needed improvements in the train services and interlinking of services.

Bicycle Facilities:

76% of respondents either never / less than monthly used the cycle facilities provided in the District. A number of respondents reiterated the need for better and safer joined up cycle routes, with priority given to cyclists over motorized transport at junctions and / or installing cycle routes away from heavy traffic. It was also suggested that the installation of safe secure areas where bikes could be stored e.g. at railway station etc, could encourage their use.

A number of walkers complained of the problem caused by cyclists also using the pavement. The need to separate walkers from cyclists, as well as cars, was commented on.

School Run:

A number of respondents highlighted the need to reduce the impact of the school run, either by arranging for a bus shuttle service from an out of town point, or encouraging walking to school. 90% of respondents would support promotion of a “walk to school” scheme.

Traffic Management:

The need to discourage traffic from using the “through routes” was picked up by a number of respondents, with a number of solutions suggested:-

(i) Ban through traffic by pedestrianising various roads;
(ii) Impose strictly-enforced speed limits;
(iii) Introduce “obstacles” to encourage drivers to use other routes;
(iv) Ban HGV’s (NB: businesses still need deliveries); Introduce weight limits;
(v) Introduce one-way systems; and
(vi) A few refer to Congestion Charging.

Conclusion

Within the AQAP, these comments have been considered, and actions incorporated where feasible, which will implement improvements to address the respondents’ concerns.

Warwick District Council

PUBLIC CONSULTATION – AIR QUALITY ACTION PLAN

In December 2004 Warwick District Council declared three Air Quality Management Areas (AQMA) due to levels of Nitrogen Dioxide (NO_2), mainly associated with traffic related pollution.

The three areas currently designated are:

1. **Leamington Spa** – centred on High Street, Clemens Street, and Bath Street
2. **Warwick** – High Street, and Jury Street,
3. **Barford** – Bridge Street and Wellesbourne Road

Following the Local Air Quality Management (LAQM) 'Further Assessment Report' published in September 2006 the Warwick AQMA is to be extended. The following streets are to be included into the Warwick AQMA;

Warwick – The Butts, St. Nicholas Church Street, Bowling Green Street, Northgate, Theatre Street, Smith Street & The Saltisford

Warwick District Council, in conjunction with Warwickshire County Council, has now produced a draft Air Quality Action Plan (AQAP) for the District. The Government requires that we formulate the final draft in consultation with local residents, business, other organisations and statutory bodies. We would therefore like to hear your views on our draft plan and the issues that affect you, and would appreciate you taking 5 minutes to complete the questionnaire overleaf.

The Executive Summary of the Draft Action Plan and plans showing the extent of the AQMA's are enclosed in this pack. A full version of the Action Plan can be accessed on our website **www.warwickdc.gov.uk/aqap** Paper versions of the full plan can be viewed at 'Warwickshire Direct' within Kenilworth Library; 'Warwick Connection' within Warwick Library; Leamington Spa Library (opening times for these premises can be found on the website stated above); WDC Offices at Riverside House; or a copy can be obtained from the Environmental Protection Team at the address given below.

Your views are important to us and we will keep them confidential at all times.

I would be grateful if you could complete the questionnaire / comment sheet and return to the Council by **1st January 2008**.

If you have any queries on the plan, or the consultation process, please contact the Council on **(01926) 456701** where you can leave your details and you will be contacted by the Environmental Protection Team; you may also email any queries to; **ehpollution@warwickdc.gov.uk**

Name (Optional)…….. ----------
Postcode (Optional)…….. ----------

Thank you for taking time to complete this questionnaire (overleaf). Please hand it to a member of staff at the Riverside House Main Reception or return it to:

Warwick District Council, Environmental Health, Riverside House,
Milverton Hill, Royal Leamington Spa, CV32 5QF.

If you would like to receive a full copy of the Draft Air Quality Action Plan or any other Air Quality information please contact a member of the Environmental Protection Team on the numbers quoted above.

Please indicate by ticking the boxes below the options which reflect your personal circumstances, and whether you would support in principle or would use the measures set out if they were introduced within Warwick District.

Which 'AQMA' do you travel to / through the most?

Leamington Spa…… ☐

Warwick…… ☐

Barford…… ☐

Are you a frequent user of the road networks that run through this AQMA?

Every day…… ☐ *Occasionally…* ☐

At least once a week ☐ *Never……...* ☐

What is your primary purpose for using this route which passes through an AQMA?

Route to work (short journey still within the District).. ☐

Route to work (long journey outside the District)... ☐

School Run…… ☐

Other…….. ☐

(Please specify)

Would improvements to traffic management within the AQMA's affect your daily journeys?

Greatly improve…… ☐

Improve a little…….. ☐

Not improve at all…… ☐

(Please comment)

3 **How frequently do you use public transport within Warwick District?**

Every day…… ☐ *At least once a month….* ☐

At least once a week. ☐ *Less than monthly / Never.* ☐

4 **How frequently do you use the cycle facilities provided within the District?**

Every day…… ☐ *At least once a month…...* ☐

At least once a week. ☐ *Less than monthly / Never..* ☐

5 **Do you take part in any car sharing schemes, whether just sharing driving duties with a friend / colleague, or as part of a formal scheme such as a Car Club?**

Yes…… ☐ *No……* ☐

5a **If *No,* for what reason? (tick all that apply)**

Impractical or inconvenient…….. ☐

Nobody to car share with…… ☐

Job requires me to travel alone…….. ☐

Hadn't considered the option…….. ☐

6 **Could you accept delays in your journey, or a slightly longer journey, if it means that air quality is improved within the AQMA areas?**

Yes…… ☐ *No……* ☐

Maybe / Undecided……..…… ☐

7 **What would encourage you to use buses / cycles / walk rather than using your vehicle?**

(Please comment)

How do you feel about the following proposed measures to improve air quality within Warwick District? (Please refer to the Executive Summary enclosed with this letter or the Full Report)

	Strongly Support	Support	Neutral	Oppose	Strongly Oppose
Improved Bus Routes……					
Implementation of a Park & Ride Scheme……					
Development of new cycle routes……					
Promotion of 'Walk to School' schemes……					
Promotion of car-sharing schemes……					
Continuation of a sustainable Parking Strategy…					

Please use the space below (or an additional sheet) to provide any additional comments or suggestions that may be realistically considered to improve air quality within Warwick District

Air Quality Action Plan for Alcester Road, Studley

Stratford on Avon District Council

Document Control

Client	Stratford on Avon District Council	**Principal Contact**	Nick Ellison

Job Number	J728

Report Prepared By:	Clare Beattie

Document Status and Review Schedule

Issue No.	Report No.	Date	Status	Reviewed by
1	728/1/D1	3 June 2008	Draft Report	Prof Duncan Laxen
2	728/1/D2	11 September 2008	Draft Report	Stephen Moorcroft
3	728/1/D3	30 September 2008	Draft Report	Prof Duncan Laxen

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Contents

1 Introduction and Aims of the Plan

Introduction

1.1 Air Quality Consultants (AQC) have been commissioned by Stratford on Avon District Council to prepare an initial draft Air Quality Action Plan (AQAP) for Studley.

1.2 Part IV of the Environment Act, 1995, places a statutory duty on local authorities to periodically review and assess the air quality within their area. The concept of Local Air Quality Management (LAQM) and the process of 'review and assessment' was established in the 1997 National Air Quality Strategy (NAQS)[1]. In 2000, the Government reviewed the NAQS and set down the revised Air Quality Strategy for England, Scotland, Wales and Northern Ireland[2] (AQS). This established a revised framework for air quality objectives for seven pollutants, which were subsequently prescribed into Regulation in 2000 via the Air Quality Regulations 2000[3]. These were subsequently amended in 2002[4]. Since then, the UK Air Quality Strategy has been further reviewed[5], but the objectives relevant for LAQM remain unchanged.

1.3 For each air quality objective, local authorities have to consider whether the objective is likely to be achieved. Where it appears likely that the air quality objectives are not being met, local authorities must declare an Air Quality Management Area (AQMA). Following the declaration of an AQMA, the authority must then carry out a further assessment of existing and likely future air quality and develop an AQAP which sets out the local measures to be implemented in pursuit of the air quality objectives.

1.4 Policy Guidance LAQM.PG(03)[6] published by the Government in 2003, provides guidance on the development of action plans. Action planning is viewed as the most important and significant aspect of the LAQM process, playing a key role in helping the UK Government deliver the air quality objectives and the EU limit values. The AQAP is expected to include the following:

[1] DoE (1997) The United Kingdom Nation Air Quality Strategy The Stationery Office
[2] DETR (2000) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Working together for Clean Air, The Stationery Office
[3] DETR (2000) The Air Quality Regulations 2000, The Stationery Office
[4] Defra (2002) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland: Addendum, The Stationery Office
[5] Defra (2007) Air Quality Strategy for England, Scotland, Wales and Northern Ireland. (Cmd paper No 7169). http://www.defra.gov.uk/environment/airquality/strategy/index.htm
[6] Defra (2003) Policy Guidance LAQM.PG(03). http://www.defra.gov.uk/environment/airquality/local/guidance/pdf/laqm-pg03.pdf

- quantification of the source contributions to the predicted exceedences of the objectives, to allow the action plan measures to be effectively targeted;
- evidence that all available options have been considered on the grounds of cost-effectiveness and feasibility;
- how the local authority will use its powers and also work in conjunction with other organisations in pursuit of the air quality objectives;
- clear timescales in which the local authority and other organisations and agencies propose to implement measures within the action plan;
- quantification of the expected impacts of the proposed measures and, where appropriate, an indication as to whether the measures will be sufficient to meet the air quality objectives; and
- how the local authority intends to monitor and evaluate the effectiveness of the action plan.

1.5 In December 2001, the Office of the Deputy Prime Minister (ODPM) set out proposals to reform council services, with the intent to give more freedom and flexibilities to local authorities, and to reduce the burden to produce and submit plans. One outcome is that local authorities are no longer required to produce a separate AQAP where the problem is predominantly related to road transport. In such cases, local authorities are advised to incorporate the AQAP into their Local Transport Plan (LTP).

1.6 Supplementary guidance to help local authorities with the integration of their Action Plans into the LTP was issued by Defra in 2005 (LAQM.PGA(05))[7]. The LTP should contain the following:

- background information of the air quality situation (derived from the review and assessment reports);
- evidence that the local authority has considered all available measures to tackle the problems, and that these measures have been considered on the grounds of cost-effectiveness and feasibility;
- consideration of the wider environmental, social and economic impacts of the measures;
- the target dates for implementation of the measures, and indication of funding mechanisms;
- identification of those responsible for implementing the measures, and

[7] Defra (2005) Policy Guidance: Addendum LAQM.PGA(05)

- clarification of how the local authority intends to measure progress with the implementation of the measures and air quality improvement afforded.

1.7 Local authorities were also required to set out a 2004/05 baseline, a 2010/11 target, and "intermediate outcomes" to measure progress against the target. These may include indicators such as total emissions within the AQMA, traffic flows, etc.

1.8 The National Society for Clean Air (NSCA)[8] has also published two guidance documents entitled 'Air Quality Action Plans (2000)[9]' and 'Air Quality: Planning for Action (2001)[10]'. These guidance documents have also been taken into account in the development of this draft Action Plan.

Status of this report

1.9 This report sets out an initial draft of the Air Quality Action Plan (AQAP) for Studley in the District of Stratford-on-Avon. It describes the processes that are in place, and sets out the measures that are currently being considered to deliver improvements to air quality within the area. A qualitative evaluation of these measures has been prepared, but will require further work in close consultation with policy planners, development control officers and transport planners. As far as possible, the document includes an analysis of the measures that could be implemented together an indication of the improvements that are expected. However, at this stage, confirmation of timescales and funding for the measures are not included.

[8] Now called Environmental Protection UK
[9] http://www.environmental-protection.org.uk/assets/library/documents/AQActionPlansInterim.pdf
[10] http://www.environmental-protection.org.uk/assets/library/documents/AQActionPlansLAGuide.pdf

2 Overview of Air Quality and Transport in Stratford District

Review and Assessment Round 1

2.1 Stratford-on-Avon District Council undertook a Stage 1 and Stage 2 assessment as part of their Round 1 air quality assessment work. The Council concluded that there was no requirement to declare an Air Quality Management Area for any pollutant.

Review and Assessment Round 2

2.2 The second Round of Review and Assessment consisted initially of an Updating and Screening Assessment (July 2003), and identified one location, in the vicinity of Alcester Road, Studley, where the nitrogen dioxide objective may not be met. The Detailed Assessment (November 2004) and subsequent Addendum (November 2005) presented monitoring data for a six month period between May and October 2005. Five monitoring sites were established on the eastern side of Alcester Road, and a collocation study was commenced at the automatic monitoring site. The fully adjusted monitoring data confirmed that exceedences of the annual mean nitrogen dioxide objective were likely, and that declaration of an AQMA would therefore be required in Studley.

2.3 The Studley AQMA was declared on the 23rd February 2006 for exceedences of the nitrogen dioxide annual mean objective. The AQMA includes properties numbered 1 and 9 to 31 Alcester Road, and associated land.

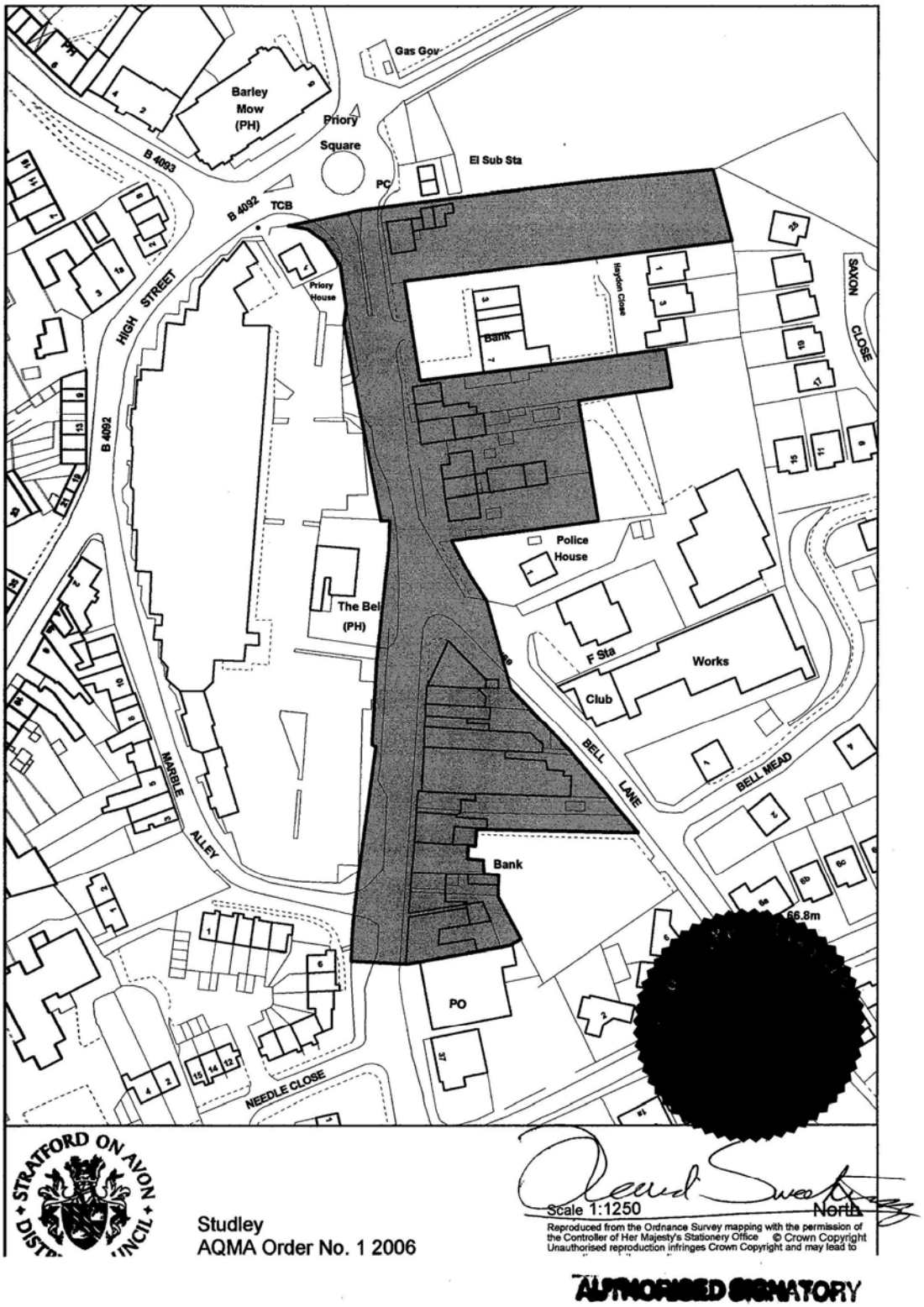

Figure 1: Studely AQMA

Figure 2: Alcester Road, Studley at the pedestrian crossing

Review and Assessment Round 3

2.4 In the third round of Review and Assessment, the Council's Updating and Screening Assessment (April 2006) concluded that there was no requirement to carry out a Detailed Assessment for any pollutant. It concluded that, with the exception of the Alcester Road, Studley AQMA, all monitoring locations met the 2005 annual mean objective for nitrogen dioxide. However, the diffusion tube located in Wood Street, Stratford-upon-Avon, measured high concentrations of nitrogen dioxide, and hence the USA recommended a 12-month collocation study at this location.

2.5 As part of Round 3, the Council was required to submit a Progress Report in 2007. Due to unforeseen circumstances, this was not undertaken. However, a review of monitoring data, which took place in 2007, highlighted the need for the Council to undertake a Detailed Assessment for nitrogen dioxide at a number of locations within the District. These locations were as follows:

- Henley-in-Arden;
- Wood Street, Stratford-upon-Avon;
- Grove Road, Stratford-upon-Avon;

- Greenhill Street, Stratford-upon-Avon; and
- Tiddington Road, Stratford-upon-Avon.

2.6 A Detailed Assessment has since been carried out, based on both modelling and monitoring studies. The report recommended that additional Air Quality Management Areas (AQMAs) should be declared for exceedences of the nitrogen dioxide annual mean objective, encompassing properties within Henley-in-Arden and Stratford-upon-Avon. For Tiddington Road, where modelling was not possible, the report recommended that an AQMA should be declared based on monitoring data alone.

Air Quality within the Studley AQMA

2.7 Following the declaration of an AQMA, authorities are required to carry out a Further Assessment. This is intended to confirm the conclusions of the Detailed Assessment, and provide information on source apportionment to assist the development of the Action Plan.

2.8 The Further Assessment confirmed that there is a risk of exceeding the annual mean objective for nitrogen dioxide within the centre of Studley. Both monitoring and modelling studies generally indicate that concentrations are above the objective along the eastern building facades of Alcester Road between Bell Lane and (but not including) Tesco, just north of Castle Street, and at properties south east and north west of the A435/B4092 roundabout including the Barley Mow pub. Vehicle emissions are significantly affected by queuing and congestion. Pollutant concentrations may also be significantly affected by limited local dispersion due to the close proximity of the building façades.

2.9 Source apportionment work indicates that at the location of the highest predicted roadside concentration, road traffic accounts for two thirds of roadside NOx and nitrogen dioxide (NO_2). Of the road traffic component to pollutant concentrations, broadly half is from LDVs and half from HGVs. Buses only contribute approximately 6% to road traffic NOx and NO_2. In addition, 25% of traffic NOx and NO_2 is predicted to arise from stationary traffic. Reductions in queuing and congestion are therefore likely to lead to a significant reduction in roadside NOx and NO_2.

2.10 It is predicted that a reduction of 23% in NO_2 concentrations from 51 µg/m^3 to 40 µg/m^3 would be required to eliminate all exceedences. This corresponds to a reduction in NOx concentrations of around 30%.

Transport

2.11 The second Warwickshire Local Transport Plan (2006-2011) includes an Air Quality Strategy, as part of the overall commitment to deliver the shared priorities of improving accessibility, reducing congestion, improving air quality, and making roads safer. This is set within an overall aim to make Warwickshire 'the best place to live and work'. The Air Quality Strategy sets out:

- The objectives of the Strategy;
- Local, regional and national policy framework related to air quality;
- The current status of air quality within Warwickshire;
- Existing and potential air quality issues affecting the five District/Boroughs within Warwickshire;
- The Air Quality Strategy developed in response to the cited issues;
- Constraints and limitations in carrying out the Air Quality Strategy;
- The Action Plan for delivering the proposed schemes and initiatives; and
- Arrangements for monitoring the Action Plan.

2.12 The Studley AQMA was declared following the submission of the LTP in March 2006. However, the LTP anticipated the AQMA declaration, and there is a commitment within the Air Quality Strategy for the County Council to work with Stratford-on-Avon District Council to put together an action plan when required in Studley. One of the local indicators within the LTP is *"to ensure that air pollutant levels do not exceed national standards in the County where previously they had not"*.

2.13 The Studley AQMA is situated on the A435, which has recently been de-trunked by the Highways Agency. Under this arrangement, Warwickshire County Council has taken responsibility for the A435 between Mappleborough Green and Alcester. The Secretary of State decided that the A435 would be more appropriately managed by the local highway authorities (in this case Warwickshire and Worcestershire County Councils) to enable decisions to be taken locally and to be better integrated with local transport and land use planning issues.

3 Existing Policies and Strategies relevant to air quality

Transport Policy

3.1 The Warwickshire Local Transport Plan (published in March 2006) provides details of how the County Council and its partners intend to improve transport and accessibility over the five year period to 2011. Warwickshire's transport priorities have been developed within the context of the wider priorities for the County, these being:

- To achieve improvement for all, but with the fastest improvement for the most deprived;
- To ensure equality of opportunity for all; and,
- To pursue sustainability by taking into account the needs of future generations in our planning.

3.2 The four Shared Priorities for Transport underpin all of the strategies, proposals and targets within this LTP. Of the four priorities, the County Council places the strongest emphasis on addressing issues of accessibility, and continuing to make roads safer. However, as pressure on the transport networks of the urban areas of Warwickshire increases, the need to address issues of congestion and air quality are also recognised.

3.3 Within the LTP, the Western Warwickshire Area Strategy recognises that the major environmental problem in the area is the impact of traffic in the A435 corridor, which includes Studley and connects the M5/M50 (via the A46) with Evesham, Alcester, Studley, Redditch and the West Midlands conurbation. In those settlements lying along the section of the A435 to the north of Alcester (including King's Coughton and Studley) there are serious adverse environmental effects due to high traffic volumes containing a large number of HGVs. This is primarily related to the role of the A435, which until January 2008 was a trunk road under the jurisdiction of the Highways Agency.

3.4 The environmental impacts felt in the remaining small towns and villages in Western Warwickshire are mainly related to through traffic and high vehicle speeds.

3.5 The Countywide strategy set out in Part 2 of this LTP will be implemented in this area by:

- Improving facilities for pedestrians, cyclists and motorcyclists;

- Continuing the implementation of the Safer Routes to School initiative, both in the main towns and the rural areas;
- Promoting better public transport services (bus, rail and community transport) throughout the District;
- Improving facilities for transport interchange within the three main towns and at key railway stations;
- Investigating approaches to mitigate the impact of traffic on towns and villages in the A435 corridor;
- Improving the management and condition of the transport asset of the area;
- Continued maintenance of the highway network, including bridges;
- Integrating land development proposals with accessibility improvements;
- Securing the provision of travel plans in relation to new development, and encouraging existing large trip generators to adopt their own travel plans (including schools);
- Controlling and managing car parking provision, and giving a high priority to the enforcement of parking regulations;
- Promoting alternatives to the use of the private car; and
- Promoting road safety, and implementing casualty reduction schemes in corridors and at specific locations where known problems exist.

3.6 The 2006 LTP Progress Report (covering the 2006/07 financial year) stated that the air quality indicator (LTP8) is 'on track'. Targets for air quality have been set using traffic flows at key points in AQMAs as a proxy for pollutant concentrations. Progress in 2006/07 against trajectories show mixed results. In one area the data shows traffic growth at a higher rate than projected; in the other three areas traffic growth is either in line with the trajectory, or there has been a reduction in traffic flows. The report sets out the intention to supplement data on traffic flows with locally sourced air quality data over the next 12 months to gain a better picture of actual air quality conditions across the County. Studley was not included in the LTP8 air quality indicator, as the AQMA was not declared at the beginning of the LTP2 period. Monitoring in 2007/8 to inform the 2008 LTP Progress Report suggests that traffic flows appear to have reduced slightly on the A435, when compared to 2007 counts.

Other Regional and Local Policies

3.7 There are a number of regional policies contained within the Regional Spatial Strategy (RSS11) which relate directly to transport, and therefore impact on air quality. Policies include increasing the awareness of "alternative travel choices", reducing current levels of car use (Policy T4) and encouraging more walking and cycling journeys (Policy T3).

3.8 Other policies that have positive implications for air quality include reducing the need to travel (Policy T2), improving access to public transport and providing attractive alternatives to the private car (Policy T5) and addressing the issues of road freight, tackling problems with through traffic and encouraging the movement of freight away from the roads (Policy T10).

3.9 On a local level, the Warwickshire Structure Plan 1996-2011, in line with the Regional Spatial Strategy, also contains policies relating to transport, which have the potential to impact positively on air quality. Policy T1 aims to "*reduce the impact of traffic on residential areas and the countryside whilst recognising transport needs*", and to "*encourage industry to develop distribution arrangements, including the use of rail, pipeline and canal, which minimise environmental damage*".

3.10 Other policies within the Warwickshire Structure Plan seek to promote alternative modes of transport, encourage the use of public transport, improve facilities for walking and cycling, reduce the number of short car journeys and encourage an overall modal shift away from the private car.

3.11 In 2004, the planning system in England and Wales underwent a significant change, with the Planning and Compulsory Purchase Act 2004 (the 'Act') replacing much of the Town and Country Planning Act 1990. The provisions in the Act intend to provide a more flexible plan-making system locally and regionally, with more community involvement and an improved development control process. The Act abolishes Structure Plans and Local Plans, replacing them with Local Development Frameworks (LDFs), Local Development Schemes (LDS) and Local Development Documents (LDDs), although the statutory status of Structure Plans, Unitary Development Plans, Local Plans or Structure Plans will be retained until LDFs are in place. In Stratford on Avon District, the current Local Plan was adopted on 14 July 2006. The policies and proposals in the Plan will remain in force for at least 3 years until it is replaced by the new Local Development Framework.

3.12 The policy of relevance in the Local Plan is Policy PR8, which states that "*Planning permission will not be granted for development which could give rise to air, noise, light or water pollution or soil contamination where the level of discharges or emissions is significant enough to cause harm to*

other land uses, health or the natural environment. The effectiveness of proposed mitigation measures will be fully taken into account".

Policy on Climate Change

3.13 Stratford-on-Avon District Council adopted a Climate Change Strategy in October 2004, through which the Council seeks to:

- Reduce greenhouse gas emissions including:
  - Reducing greenhouse gas emissions through Home energy conservation;
  - Reducing energy use by SDC;
  - Reducing council transport-related emissions;
  - Reducing emissions from transport.
- Encourage the provision and use of energy from renewable sources;
- Raise public awareness of the issues of Climate Change;
- Adapt to meet the effects of climate change.

3.14 The Warwickshire Climate Change Strategy has an overarching aim "*To reduce greenhouse gas emissions in Warwickshire to at least the level set out by Government policy, 15%-18% reduction by 2010 and a 60% reduction by 2050 (against 1990 levels). We will achieve this whilst maintaining and improving the quality of life of Warwickshire residents through the implementation o a policy of sustainable development*".

3.15 Under the Transport theme, the strategy aims to reduce greenhouse gas emissions resulting from transport (particularly road transport) both through Warwickshire's role in transport planning and the Council's own activities. It is envisaged that this will be achieved by effective consideration and promotion of the public transport, car sharing, home working and other interventions, as well as encouraging walking and cycling.

Stratford District Community Plan

3.16 Stratford-on-Avon District Council's Community Plan sets out a long-term vision for the District of Stratford-on-Avon by beginning to respond to three key questions:

- What do we want Stratford-on-Avon to be like in 2015?
- What needs to be done to create that kind of district?
- How are we all going to work together to achieve this?

3.17 One of the priority areas is for 'A Healthy Environment' which, acknowledges that the environmental quality of the District is adversely affected by the congestion and pollution associated with high volumes and traffic on the road network. It does not however acknowledge that air quality elsewhere in the district may be an issue that needs to be tackled. Actions and measures of the success of those actions therefore concentrate on implementation of transport measures in Stratford, rather than elsewhere in the district.

4 Specific measures for delivering air quality improvements in Studley

4.1 An analysis of traffic data within Studley has shown that just under 50% of traffic based emissions are from HDVs with a slightly greater proportion from LDVs. Following the recent de-trunking of the A435, Stratford-on-Avon District Council has approached Warwickshire County Council to begin discussions regarding potential action planning measures to address the AQMA. There have also been a number of meetings between Parish Council's and Warwickshire County Council to discuss a number of transport issues in the A435 corridor.

4.2 A number of measures have been identified which could have a positive effect on air quality within Studley. These measures have been collated following discussions with Warwickshire County Council. Some of the measures have been investigated as part of a Further Assessment undertaken on behalf of Stratford District Council.

4.3 The measures which have been identified thus far are set out below. It is suggested that these form the basis of the Air Quality Action Plan for Studley:

1. **Investigation of options for resigning of strategic traffic (including HGV movements) away from the A435 corridor.** This measure will necessitate discussions with the Highways Agency to review how traffic is signed following the de-trunking of the A435. More specifically, there will be a need to consider how traffic between the M1 in Nottinghamshire is signed to the south west, and the extent to which the M42 and M69/A46 are promoted as the most appropriate strategic route.

2. **Consideration of local HGV movements within the Studley area, with a view to altering or improving signage.** This measure will involve discussions with the local freight hauliers, as well as the Warwickshire Freight Quality Partnership to identify any possible alternative lorry routings in the Studley area (including HGVs visiting local industrial estates such as Brickyard Lane).

3. **Identification of the feasibility, cost and anticipated impact on air quality of a realignment of the A435 Alcester Road.** This proposal would move the existing road westwards away from sensitive receptors and potentially removing any localised effect of limited dispersion resulting from the proximity of traffic to the building facades.

4. **Delivery of a package of measures to reduce the impact of queuing and congestion to a minimum along the A435 Alcester Road around the parade of shops.** This scenario has

already been modelled as a 'best case' hypothetical situation, whereby queuing and congestion is eliminated. The range of measures under consideration includes the following:

- Conversion of the existing Pelican crossing on the A435 Alcester Road to a Puffin (in its existing location). Puffin crossings are more responsive to the presence (or absence) of pedestrians. The time when traffic is held at red would therefore be reduced, hence improving traffic flow;

- Relocation of the bus stop from outside number 15a Alcester Road to outside the Post Office, and possible creation of a bus lay-by in front of 33-35 Alcester Road, thereby moving the southbound bus stop to a newly formed lay-by opposite the northbound one;

- Provision of a new signal-controlled junction at the A435/A448 junction near Spernal Lane to control the release of northbound traffic into Studley. This junction is approximately 1500m to the south of the edge of the AQMA, at the entrance to the village;

- Preparation of a report to examine modelled queues and delays at Barley Mow roundabout, with a view to informing further options.

It is suggested that these measures be examined in detail, in terms of their feasibility, cost and likely impact on air quality within Studley before being taken forward for implementation.

5. **Measures to increase the use of public transport, walking and cycling in Studley.** This will be a package of measures including:

- Encouraging local businesses and schools to prepare, implement and monitor workplace and school travel plans;

- Improvements to local public transport, in particular bus services 26 (Stratford – Alcester – Studley – Redditch) and 247 (Evesham – Bidford – Alcester – Studley – Redditch);

- Increase in provision for pedestrians and cyclists, particularly in terms of cycle routes, secure parking facilities and signage.

6. **There is an urgent need to consider the potential impact of the West Midlands Regional Spatial Strategy housing and employment growth proposals on Studley and its environs, and how this could exacerbate air quality problems in the A435 corridor.** The West Midlands Regional Spatial Strategy (RSS) contains proposals for growth in both Redditch Borough and

Stratford-on-Avon District. Within Redditch, 3,300 additional houses are due to come forward by 2026. A further 3,300 need to be found in Bromsgrove District and/or Stratford-on-Avon District to meet Redditch's needs over the same timescale. A joint study is currently being undertaken by the three planning authorities in the area to identify how these housing numbers will be delivered. It is suggested that in considering which sites are identified close to Redditch, the issue of air quality (and in particular its impact on Studley) be considered by this piece of work.

Within Stratford-on-Avon District, around 180 new houses are due to come forward within Studley by 2026, predominantly to meet local needs. This includes a mixed-use development of business and housing (c. 45 dwellings) on the triangle of land between the B4093 Redditch Road and A435 Birmingham Road, immediately north of the existing Studley AQMA.

7. **Other measures to influence air quality through the land use planning process.** It is considered that this will entail discussions about including a Supplementary Planning Document on air quality within the Local Development Framework (LDF) process, which is at a fairly early stage of implementation. Such a document could include when Stratford-on-Avon District Council should ask for an air quality assessment to be undertaken, what form an air quality assessment should take, and what it should include. The document could also include what Stratford-on-Avon District Council would consider a 'significant' impact and the sorts of mitigation measures which would be expected from a developer, including any particular contributions as part of Section 106 agreements to partially fund action planning measures. In addition to working with development control, this action plan provides a commitment to work with policy planners within the Policy Unit to ensure that suitable policy backup is included within the LDF process specifically on air pollution.

4.4 An initial appraisal of the impacts of these measures, and whether they are considered feasible has been included in Table 1. Air quality impacts have been derived largely from modelling undertaken as part of the Further Assessment[11]. The various impacts of the measures presented will be refined as the action planning process progresses.

[11] AEA Energy and the Environment (April 2007) Further Assessment of Air Quality. Stratford on Avon District Council. ED05282001

Table 1: Potential measures and an initial evaluation

Option	Potential effects	Air Quality Impacts	Cost	Feasibility
1. Investigation of options for resigning of strategic traffic (including HGV movements) away from the A435 corridor	Reduction of HGVs along A435 Alcester Road	75% reduction in HGVs modelled as part of Further Assessment - AQ objectives likely to be achieved at all locations modelled. This is unlikely to be feasible, but potentially large positive impacts from reducing HGV emissions	Unclear until the measure is scoped. Could potentially be a fairly cheap measure relative to air quality improvements.	Potentially feasible, but unclear until actual measure is examined. Will also depend on the involvement of the HA.
2. Consideration of local HGV movements within the Studley area, with a view to altering or improving signage	Reduction of HGVs along A435 Alcester Road	75% reduction in HGVs modelled as part of Further Assessment - AQ objectives likely to be achieved at all locations modelled. This is unlikely to be feasible, but potentially large positive impacts from reducing HGV	Unclear until the measure is scoped. Could potentially be a fairly cheap measure relative to air quality improvements.	Potentially feasible, but unclear until actual measure is scoped out.

		emissions		
3. Identification of the feasibility, cost and anticipated impact on air quality of a realignment of the A435 Alcester Road	Increase the distance from the kerbside to the façade (increased from a minimum of 1.5m to 4.5m)	Marginal exceedences at building facades but improvements on the base case	Likely cost in the order of £200K	Technically feasible Likely to improve noise levels at properties.
4. Delivery of a package of measures to reduce the impact of queuing and congestion to a minimum along the A435 Alcester Road around the parade of shops	Includes the conversion of the crossing from Pelican to Puffin, relocation of the bus stop to a newly formed layby and other potential measures to reduce congestion and queuing	Air quality objectives likely to be achieved at most locations assuming package is successful (with possible exception of the property SE of the Roundabout)	In the region of £100K for the conversion of the crossing and relocation of the bus stop.	Potentially feasible. Could be funded through LTP3.
5. Measures to increase the use of public transport, walking and cycling in Studley	To effect a modal shift from private vehicles to public transport, walking and cycling. This in turn may help to reduce congestion	Likely to marginally improve air quality, but unlikely to be able to model improvement (i.e. improvements not large enough to show up on a model)	Unclear until the measure is scoped	Feasible as part of ongoing LTP work
6. An urgent need to consider the potential	To ensure that in the long term air quality continues to	Potentially large but over a long time period	May be an income generator if planning	Feasible through LDF process

impact of the West Midlands Regional Spatial Strategy housing and employment growth proposals on Studley and its environs, and how this could exacerbate air quality problems in the A435 corridor	improve and developments are not approved which may cause air quality objectives to be exceeded or worsen air quality in areas which already exceed		system is used to gain funding for air quality improvements	
7. Other measures to influence air quality through the land use planning process – Supplementary Planning Document and input into policy processes	To ensure that in the long term air quality continues to improve and developments are not approved which may cause air quality objectives to be exceeded or worsen air quality in areas which already exceed	Potentially large but over a long time period	May be an income generator if planning system is used to gain funding for air quality improvements	Feasible through LDF process

5 Evaluation of options

5.1 The identified options were evaluated against four specific criteria:

- air quality impact (i.e. reduction in emissions or concentrations);
- cost of measure;
- feasibility or practicability of option (including the wider non-air quality impacts);
- timescale for implementation.

Air Quality Impact

5.2 Air quality impacts have been classified as 'low', 'medium' or 'high'. For each measure, or package of measures, the expected reduction in annual mean NO_2 concentrations has been evaluated, either from the Further Assessment work, where a detailed analysis of some of the principal Action Plan measures was considered, or based on professional judgement, drawing wherever possible on experience gained from other studies.

5.3 The following classification scheme has been used:

Low: *imperceptible* (a step in the right direction). Improvements unlikely to be detected within the uncertainties of monitoring and modelling;

Medium: *perceptible* (a demonstrable improvement in air quality). An improvement of up to 2µg/m^3 NO_2, which could be shown by a modelling scenario. Improvement is not likely to be shown by monitoring due to confounding factors of the weather;

High: *significant*. Improvement of more than 2µg/m^3 NO_2. Can be clearly demonstrated by modelling or monitoring (a significant improvement is likely to be delivered by a package of options rather than by a single intervention).

Cost

5.4 The implementation of the measures set out in this draft Action Plan are dependant on securing a sufficient and consistent level of funding to both support any additional staff that may be required, and to deliver the programme. In line with current Government guidance, it is not necessary to carry out a detailed cost-benefit analysis. Rather the aim is to provide a broad indication of costs

so that the proposed measures can be ranked according to the cost and the expected improvement to air quality. The following classification scheme has been used; '**Low'** cost is taken to be <£50K, '**Medium'** cost is £50 - 500K, '**High'** cost is £500K - £1 million and '**Very High'** cost is over £1 million.

Cost effectiveness

5.5 Air Quality Impact and Cost could be combined to provide an indication of cost-effectiveness. Table 2 provides the classifications used in Table 3.

Table 2: Cost effectiveness criteria

		Cost			
		Very High	**High**	**Medium**	**Low**
Air quality impact	**High**	Medium	Medium	High	Very high
	Medium	Low	Low	Medium	High
	Low	Very low	Very low	Low	Medium

Feasibility

5.6 The feasibility of individual measures is not straightforward to quantify. The following factors have been taken into consideration:

- Alignment / synergies with other Stratford-on-Avon District Council initiatives, strategic initiatives, regional planning strategies or Local Transport Plans;
- Wider non-air quality impacts (social, environmental or economic);
- Stakeholder acceptance / "political" feasibility;
- Source of funding available or possible.

5.7 The wider (non-air quality) impacts reflect the potential impacts upon other environmental criteria (e.g. noise, visual amenity and climate change gas emissions) and non-environmental criteria (social and economic issues). Semi-quantitative descriptors have been used.

5.8 These descriptors are based on positive and negative impacts, with '++ve' being very positive, '+ve' being positive; negative impacts are described as '-ve' and '- -ve'. Where the measure has both positive and negative impacts, the overall impact has been evaluated. In arriving at the feasibility 'scores' there is inevitably some element of professional judgement included.

Timescale

5.9 The timescale for the implementation of measures has also been considered. The following classifications have been used; **Short-term** relates to those measures that can be implemented within 1 year; **Medium-term** relates to those implemented within 2-4 years; **Long-term** options are those which are 4+ years (i.e. those potentially subject to feasibility studies at this stage, and be considered for implementation in future rounds of Local Transport Plans).

Table 3: Evaluation of measures proposed

Action	Impact on air quality	Cost-effectiveness	Feasibility	Wider impacts	Timescale
1. Investigation of options for resigning of strategic traffic (including HGV) away from the A435	Potentially HIGH	Unclear until measure has been scoped and costed	MEDIUM	++ve noise benefits in Studley Any economic impacts? (unlikely?) Potential improvements in road safety in Studley?	SHORT for investigation. MEDIUM for potential action
2. Consideration of local HGV movements within the Studley area, with a view to altering or improving signage	Potentially HIGH	Unclear until measure has been scoped and costed	HIGH	++ve noise benefits in Studley Potential –ve local economic effects Improvements in road safety?	SHORT for investigation. SHORT to MEDIUM for potential action
3. Identification of the feasibility, cost and anticipated impact on air quality of a realignment of the A435 Alcester Road	HIGH	MEDIUM	MEDIUM	None at feasibility stage Disruption during road works likely to be significant +ve noise benefit for properties on east side of Alcester Road	SHORT for feasibility study. MEDIUM for potential action
4. Delivery of a package of measures to reduce the impact of queuing and congestion to a	HIGH	HIGH	MEDIUM	Improvements to journey times +ve climate change gas emissions	MEDIUM

minimum along the A435					
5. Measures to increase the use of public transport, walking and cycling in Studley	LOW	LOW	HIGH	+ve climate change gas emissions ++ve direct health benefits	SHORT to MEDIUM
6. Consider the potential impact of the West Midlands Regional Spatial Strategy housing and employment growth proposals on Studley	Potentially HIGH (in the longer term)	VERY HIGH	HIGH (for consideration)	Economic considerations? Social considerations?	SHORT
7. Other measures to influence air quality through the land use planning process – Supplementary Planning Document and input into policy processes	Potentially HIGH (in the longer term)	VERY HIGH	HIGH	Potentially +ve impacts on other environmental criteria Need to consider long term economic and social impacts which will depend on specific developments etc.	SHORT to LONG

6 Consultation

6.1 Under Schedule 11 of the Environment Act, local authorities are required to consult on their draft Air Quality Action Plan. It is important for the success of the Action Plan to have involvement of all local stakeholders. The Action Plan has been drafted through a partnership approach between Stratford-on-Avon District Council and Warwickshire County Council, who will be key implementers of some of the key measures proposed. In addition, local residents, community groups and local businesses also need involvement in the plan to incorporate ideas and local knowledge of the issues. This version of the document will now be consulted on more widely for comment on both measures and the evaluation of those measures.

6.2 The following is a list of statutory and non-statutory consultees to which this draft Plan will be sent:

- The Secretary of State
- The Highways Agency
- Redditch Borough Council
- Local residents within the AQMA
- Studley Parish Council
- Local businesses
- Community groups
- Other relevant local stakeholders

6.3 All comments from both Statutory and non-statutory consultees received on the draft Action Plan will be considered and incorporated where appropriate into the final Action Plan. The timescale for consultation shall be 6 weeks.

6.4 The following leaflet will be sent to all consultees. The leaflet consists of some background information on air quality and a short questionnaire.

IMPROVING AIR QUALITY IN STUDLEY

This leaflet is to gain views of residents and businesses in Studley on how air quality can be improved in the area.

Background

Clean air is essential for a good quality of life. Stratford-on-Avon District Council, in common with over 200 other local authorities, faces challenges in ensuring that its residents and visitors can breathe clean air and are not affected by air pollution. Poor air quality is linked to potential effects on health.

The Council routinely monitors levels of air quality in the district and reports its findings to Government in line with national air quality requirements.

Over recent years, air quality monitoring has indicated that certain objectives are not being achieved in Studley along the A435. The pollutant of concern is nitrogen dioxide. Nitrogen dioxide can exacerbate symptoms such as shortness of breath and chest pains, particularly in people already suffering from respiratory problems. The poor air quality is being caused by traffic and is worst close to the road and where traffic is congested. Heavy Goods Vehicles (HGVs) are important contributors to the poor air quality.

Action is now underway to improve local air quality for you through the preparation of an Air Quality Action Plan.

What is an Air Quality Action Plan?

The Air Quality Action Plan will set out practical measures aimed at improving air quality for residents and businesses in Studley. No one action will improve air quality enough, so it is likely that a number of actions will need to be undertaken. The full draft Action Plan is available from Nick Ellison (see contact details below) or available on line at **XXXXX**. The Air Quality Action Plan will eventually be included within the Local Transport Plan for Warwickshire

What can I do?

Actions must be based on sound information, so we are seeking to collect as many views as possible from residents and businesses in Studley. Please answer as many of the questions on the back of this page as you can, and return the whole questionnaire to the address below. Your views will be treated anonymously.

Thank you for your help.

Nick Ellison
Senior Environmental Health Officer
Stratford on Avon District Council
Elizabeth House, Church Street, Stratford upon Avon, CV37 6HX
Switchboard: 01789 267575 Direct: 01789 260817 Fax: 01789 260860
Email nick.ellison@stratford-dc.gov.uk, web www.stratford.gov.uk

Questions

- Do you, or any member of your household or business, suffer from any condition that you think may be worsened by poor air quality (e.g. asthma, other respiratory problems)?

Yes ☐ No ☐

- If so please indicate which condition……

- Which road is your house/ business in?

……..

Of the 7 proposals listed below, please indicate the three that you would support most for implementation in Studley? (PLEASE TICK UP TO 3 BOXES ONLY**)**

1. Re-signing of long distance traffic (including HGVs) away from the A435 ☐
2. Re-signing local HGV movements within the Studley area ☐
3. Slight (a few metres) realignment of the A435 Alcester Road away from properties ☐
4. Measures to reduce the impact of queuing and congestion along the A435 ☐
5. Measures to increase the use of public transport, walking and cycling in Studley ☐
6. Ensure that long term housing and employment proposals do not have a detrimental impact on Studley ☐
7. Measures to influence air quality through the planning process (e.g. minimising air quality impacts of new developments) ☐

- Do you think any of the proposals will have positive or negative effects on Studley other than improving air quality, if so, please state what effects?

- Do you think any of the proposals will have positive or negative effects on you personally, or your business, if so, please state what effects?

- Are there any further actions you would like to see included in the Air Quality Action Plan?

- Do you have any further comments on any of the proposals, or the Air Quality Action Plan more generally?

Thank you for taking your time to complete this questionnaire

Stratford-on Avon District Council would like to consult further with stakeholders in relation to the Air Quality Action Plan, would you be prepared to participate in further consultation?

Yes ☐ No ☐

If yes, please complete the following contact details:

Name

Contact Telephone Number

Contact Email address

7 Implementation and Monitoring

7.1 Stratford-on-Avon District Council will work jointly on the action plan measures with the relevant partners, particularly Warwickshire County Council, the Highways Agency, planners and transport operators. To secure the necessary air quality improvements there must be involvement by all local stakeholders and Stratford-on-Avon District Council will work to ensure this happens.

7.2 Ultimately the delivery of this action plan is dependant on adequate levels of resourcing, both of capital costs and staffing. At this stage, there are a number of funding sources which will be investigated:

- **Defra Air Quality Grant Programme**. The Scheme has now closed for 2008/9[12], but in recent years has been repeated every April. This year, air quality grants have been directed to support projects which are part of local authorities' Action Plans and other projects proposed by local authorities to improve local air quality. Grants have supported both capital and running costs of measures.

- **Local Transport Plan Funding**. A further potential source of funding for measures to improve air quality is the Local Transport Plan (LTP). LTPs work on 5 year planning cycles with the next bidding document to be complete in 2011. Work on the LTP is likely to start in 2009. Currently it is unclear what the Government's priorities will be for the next round of Local Transport Plans, as the Guidance has not yet been published. It is, however, likely that air quality will feature within the next Round of LTPs and could, in the longer term be used to fund suitable measures to alleviate potential air quality issues in Studley.

- **Section 106 Agreements**. Particularly where development proposals are likely to give rise to, or contribute to, exceedences of air quality objectives, payments for air quality mitigation measures can be justified. Some authorities are working towards a formula for use in development control decisions within their AQMAs (for example based on number of car-parking spaces, trips generated by the development, or similar). The guidance on using the planning system to reduce transport emissions[13], recently published for consultation, provides further examples of funding strategies.

[12] http://www.defra.gov.uk/environment/airquality/local/aqgrant/index.htm
[13] Low Emissions Strategies. Using the planning system to reduce transport emissions. Good Practice Guidance. June 2008. prepared by the Beacons Low Emission Strategies Group. http://www.cenex.co.uk/uploaded-documents/LES_Consultation_Draft.pdf

7.3 The implementation and effectiveness of the AQAP will be carefully monitored through the monitoring of nitrogen dioxide at relevant receptor locations within the Studley AQMA. In addition, traffic flow changes on the A435 will also be assessed through the Local Transport Planning Process, as well as the proportions of HGVs using the road. There will be regular review of the Action Planning proposals which will be reported on an annual basis to Defra and the public.

8 Summary and Conclusions

8.1 Stratford-on-Avon District Council is supporting a package of measures, detailed in this Draft Air Quality Action Plan, which are required to improve air quality in the Studley Air Quality Management Area. The measures eventually chosen will be implemented in partnership with some key stakeholders, namely Warwickshire County Council, the Highways Agency, planners and transport operators.

8.2 The measures highlighted in the draft action plan should reduce concentrations of nitrogen dioxide at the relevant sensitive receptors, although it is too early to say exactly what impact the measures will have on improving air quality. The Council is continuing to monitor air quality at several locations within the AQMA. The results of the monitoring will be made available through the annual review and assessment reports.

8.3 Both residents and businesses within and adjacent to the AQMA will be consulted fully in relation to the proposals included in this draft Air Quality Action Plan. This will be undertaken both through a questionnaire survey and by making the Air Quality Action Plan widely available. The responses from the consultation exercise will be considered and included in the final action plan.

8.4 It is predicted that a reduction of 23% in nitrogen dioxide concentrations from 51 $\mu g/m^2$ to 40 $\mu g/m^2$ would be required to achieve the air quality objective. This corresponds to a reduction in NOx emissions of about 30%.

9 Glossary

Standards A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal.

Objectives A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides.

Exceedence A period of time when the concentration of a pollutant is greater than the appropriate air quality objective. This applies to specified locations.

AQMA Air Quality Management Area

NO_2 Nitrogen dioxide.

NO Nitric oxide.

NOx Nitrogen oxides (taken to be NO_2 + NO).

$\mu g/m^3$ Micrograms per cubic metre.

HDV Heavy Duty Vehicles (> 3.5 tonnes)