



Air Quality Action Plan for Alcester Road, Studley

**Stratford on Avon
District Council**

Document Control

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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 Ireland² (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 2000³. These were subsequently amended in 2002⁴. Since then, the UK Air Quality Strategy has been further reviewed⁵, 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 National 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.

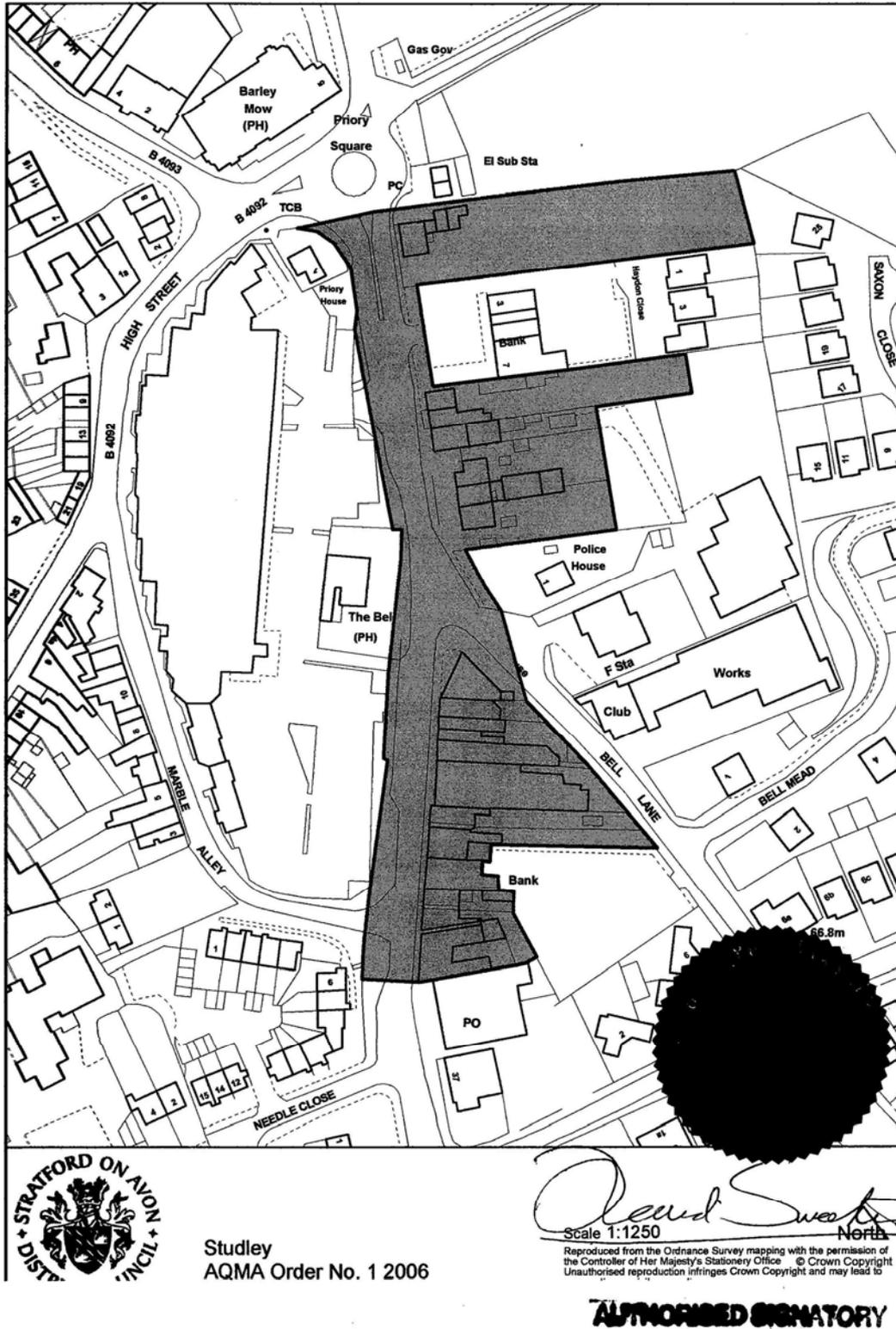


Figure 1: Studley AQMA



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 (AQMA) 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 façades 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 NO_x and nitrogen dioxide (NO₂). 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 NO_x and NO₂. In addition, 25% of traffic NO_x and NO₂ is predicted to arise from stationary traffic. Reductions in queuing and congestion are therefore likely to lead to a significant reduction in roadside NO_x and NO₂.
- 2.10 It is predicted that a reduction of 23% in NO₂ concentrations from 51 µg/m³ to 40 µg/m³ would be required to eliminate all exceedences. This corresponds to a reduction in NO_x 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 Sernal 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 Assessment¹¹. 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

<p>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</p>	<p>improve and developments are not approved which may cause air quality objectives to be exceeded or worsen air quality in areas which already exceed</p>		<p>system is used to gain funding for air quality improvements</p>	
<p>7. Other measures to influence air quality through the land use planning process – Supplementary Planning Document and input into policy processes</p>	<p>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</p>	<p>Potentially large but over a long time period</p>	<p>May be an income generator if planning system is used to gain funding for air quality improvements</p>	<p>Feasible through LDF process</p>

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 NO₂ 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/m³ NO₂, 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/m³ NO₂. 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 2008/9¹², 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 emissions¹³, 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 $51 \mu\text{g}/\text{m}^2$ to $40 \mu\text{g}/\text{m}^2$ would be required to achieve the air quality objective. This corresponds to a reduction in NO_x 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
NO₂	Nitrogen dioxide.
NO	Nitric oxide.
NO_x	Nitrogen oxides (taken to be NO ₂ + NO).
µg/m³	Micrograms per cubic metre.
HDV	Heavy Duty Vehicles (> 3.5 tonnes)