

# Lyndhurst

Air Quality Action Plan 2008





## **EXECUTIVE SUMMARY**

**This document is the Air Quality Action Plan for Lyndhurst.**

**The Action Plan has been produced following the review and assessment of air quality in the New Forest. This process determined the likely exceedance of the annual mean objective for nitrogen dioxide in the High Street, Lyndhurst. As a result New Forest District Council had a duty to declare an Air Quality Management Area in Lyndhurst and prepare an Action Plan.**

**The main aim of the Action Plan is to present options which, if implemented, should reduce nitrogen dioxide concentrations in pursuit of the nitrogen dioxide annual mean objective.**

**The Action Plan confirms the likely source of nitrogen dioxide is from transport and in particular from heavy goods vehicles.**

**The Action Plan details 18 options. These options range from increasing public awareness of air quality issues, through to travel plans and traffic management schemes. The options have been ranked in accordance with basic cost / effectiveness analysis and other possible impacts caused by their implementation.**

**It is acknowledged that Lyndhurst is a village with a need to balance the requirements of a tourist destination, local businesses and community against improving local air quality and congestion issues. Hopefully through the Action Plan the air quality and in some respects the congestion can be tackled through positive steps which will involve the local community.**

**The Action Plan has been put out to consultation to all interested parties, and a summary of comments received has been included in the Action Plan. It is acknowledged that the Action Plan is a continuously evolving document involving numerous groups and Authorities which may require revision in the future.**



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## **1.0 INTRODUCTION**

### **1.1 Local Air Quality Management**

The management of local air quality is a statutory requirement under the Environment Act 1995. Part IV section 80 of this Act places a responsibility on Local Authorities to continuously review and assess air quality in their district.

The review and assessment of local air quality is undertaken by utilising modelling and monitoring techniques to determine if objectives and target dates set for seven pollutants are likely to be met. The air quality objectives for the seven pollutants are shown in Table 1.

If through the review and assessment process it is found that a pollutant is unlikely to meet its objective, the Local Authority has a duty to declare an Air Quality Management Area. Following such a declaration an Action Plan must be prepared, the main aim of which is to state how the Local Authority intends to improve air quality in pursuit of the objective within the Air Quality Management Area.

This particular Action Plan targets the exceedance of the annual mean objective for nitrogen dioxide (highlighted in red in Table 1) in the Lyndhurst High Street.

New Forest District Council is continuing to fulfil its legal obligations through monitoring and assessing the seven pollutants against the set air quality objectives.

**Table 1****Table showing the UK Air Quality Objectives**

<b>Pollutant</b>	<b>Air Quality Objective</b>
<b>Benzene</b>	16.25 $\mu\text{g}/\text{m}^3$ or less, when expressed as a running annual mean to be achieved by December 31 <sup>st</sup> 2003
	5.0 $\mu\text{g}/\text{m}^3$ or less, when expressed as a running annual mean to be achieved by December 31 <sup>st</sup> 2010
<b>1,3 Butadiene</b>	2.25 $\mu\text{g}/\text{m}^3$ or less, when expressed as a running annual mean to be achieved by December 31 <sup>st</sup> 2003
<b>Carbon Monoxide</b>	10.0 $\text{mg}/\text{m}^3$ or less, when expressed as a running 8 hour mean to be achieved by December 31 <sup>st</sup> 2003
<b>Lead</b>	0.5 $\mu\text{g}/\text{m}^3$ annual mean to be achieved by December 31 <sup>st</sup> 2004
	0.25 $\mu\text{g}/\text{m}^3$ annual mean to be achieved by December 31 <sup>st</sup> 2008
<b>Nitrogen Dioxide</b>	200 $\mu\text{g}/\text{m}^3$ when expressed as an hourly mean not to be exceeded more than 18 times a year to be achieved by 31st December 2005.
	40 $\mu\text{g}/\text{m}^3$ when expressed as an annual mean to be achieved by 31st December 2005.
<b>PM<sub>10</sub></b>	50 $\mu\text{g}/\text{m}^3$ or less when expressed as a 24hr mean not to be exceeded more than 35 times a year to be achieved by 31st December 2004.
	40 $\mu\text{g}/\text{m}^3$ or less when expressed as an annual mean to be achieved by 31st December 2004.
<b>Sulphur Dioxide</b>	125 $\mu\text{g}/\text{m}^3$ or less, when expressed as a 24 hour mean, not to be exceeded more than 3 times per year, to be achieved by 31 <sup>st</sup> December 2004.
	350 $\mu\text{g}/\text{m}^3$ or less when expressed as an hourly mean, not to be exceeded more than 24 times a year, to be achieved by 31 <sup>st</sup> December 2004.
	266 $\mu\text{g}/\text{m}^3$ or less when expressed as a 15 minute mean not to be exceeded more than 35 times a year, to be achieved by 31 <sup>st</sup> December 2005.

## **1.2 The Review and Assessment Process**

The review and assessment process is a three year continuous cycle of assessment and reports. This is achieved through a phased approach to the process which ensures that Local Authorities only undertake a level of assessment that is commensurate with the risk of an air quality objective being exceeded. It is not envisaged that every Local Authority will need to proceed beyond the first step.

Previous air quality reports can be viewed and downloaded from the New Forest District Council website; [www.newforest.gov.uk/index.cfm?articleid=185](http://www.newforest.gov.uk/index.cfm?articleid=185)

The Review and Assessment process can be summarized as follows ;

### **Step 1 – Updating and Screening Assessment**

The Updating and Screening Assessment is the first step of the air quality review and assessment process. The aim is to identify those matters that may have changed since the last review and assessment, and which might lead to a likelihood of an air quality objective being exceeded.

### **Step 2 – Detailed Assessment**

A Detailed Assessment is only required if the Updating and Screening Assessment concludes there is a likelihood of an exceedance of an air quality objective.

The aim of a Detailed Assessment is to provide an accurate assessment of the likelihood of an air quality objective being exceeded at locations with relevant exposure. This should be sufficiently detailed to allow the designation or amendment of Air Quality Management Areas.



If following the Detailed Assessment there is evidence of a likely exceedance of an air quality objective, the Local Authority has a duty to declare an Air Quality Management Area for the pollutant of concern, after which targeted reports relating to the Air Quality Management Area are required, namely;

**(i) Further Assessment**

A Further Assessment of the Air Quality Management Area is made 12 months after the declaration of the area to validate the decision to declare the Air Quality Management Area and proportion the source(s) of the pollution.

**(ii) Action Plan**

The overall aim of declaring the Air Quality Management Area is to produce an Action Plan within 18 months of the declaration. The aim of the Action Plan is to outline the Authority's plans to attempt to reduce the pollutant concentration in pursuit of the relevant air quality objective. The Action Plan will often involve other regulatory authorities for example the County Council with regards to transport related issues.

**Step 3 – Progress Report**

A Progress Report is required if there is no requirement to proceed to a Detailed Assessment following the Updating and Screening Assessment, and in the year following a Detailed Assessment.

The aim of a Progress Report is to update monitoring results from the previous year.

### **1.3 Aims of the Air Quality Action Plan**

This report is the draft air quality Action Plan for Lyndhurst and follows the declaration of an Air Quality Management Area in the High Street in respect of the exceedance of the annual mean objective for nitrogen dioxide. The Action Plan is a working document involving the Local Authority, other regulatory bodies and the local community. The overall aim is to attempt to reduce nitrogen dioxide concentrations within the Air Quality Management Area in pursuit of the annual mean objective for this pollutant.

Therefore the Action Plan, whilst being led by the Local Authority, attempts to engage communities to tackle the issue of local air quality. The more localised options presented in an Action Plan are often the most effective in terms of improvement in air quality and cost. The Action Plan will also assist the Local Authority in maintaining any reductions in pollutant concentrations and in the process improve air quality within its district.

The aims of this Action Plan are;

- to quantify the source contributions to the predicted exceedance of the annual mean objective for nitrogen dioxide in order to target the action
- to consider all available options in terms of effectiveness, cost and feasibility
- to quantify the expected impacts of each option and if possible indicate if the options will be sufficient to meet the relevant air quality objective
- to demonstrate the Local Authority has worked with other interested parties and used its legislative powers where necessary in pursuit of meeting the Air Quality objectives
- to determine realistic timescales in which to implement any options
- to state how the Local Authority intends to monitor and assess the effectiveness of the Air Quality Action Plan

## **2.0 REVIEW AND ASSESSMENT OF AIR QUALITY IN LYNDHURST**

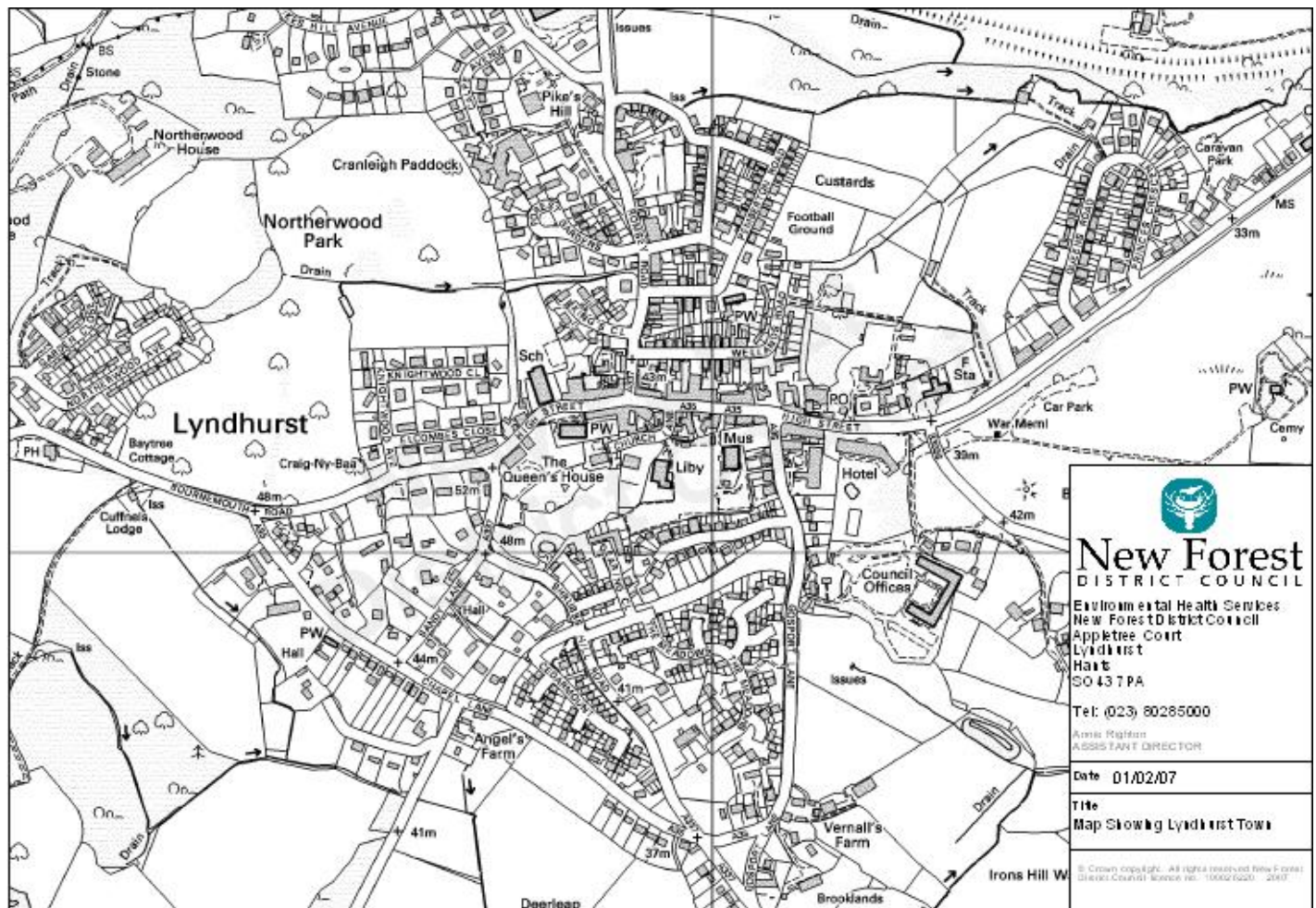
In order to determine which air quality options are worth progressing within the Action Plan, the air quality issues in Lyndhurst firstly need to be outlined.

### **2.1 Lyndhurst**

Lyndhurst is a village at the heart of the newly designated New Forest National Park. A map of the village is shown on page 12. Historically Lyndhurst has always been at the centre of the New Forest with the Local Authority, Forestry Commission and Verderers all with main offices in the village as well as the regional Magistrates Court and Police Station. The village is home to 3,000 residents (based on Census 2001 figures) with the associated schools and businesses. In addition, Lyndhurst also attracts numerous tourists throughout the year particularly during the summer months.

Lyndhurst is located on main routes to other destinations, for example to the coast and southern forest towns of Brockenhurst and Lymington via the A337, as well as being on the A35 between Christchurch and Southampton. These two 'A' roads meet at Lyndhurst and combine on a small one way system through the centre of the village.

The combination of a busy village, tourist destination and location on main 'A' roads can result in congestion on the routes approaching the town and on the one way system itself. This has left Lyndhurst with somewhat of a reputation locally as a 'bottle neck' for traffic which is not desirable for a village at the centre of a newly designated National Park.



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## **2.2 Review and Assessment Process for Lyndhurst**

The Review and Assessment process, as described in Chapter 1, was undertaken for Lyndhurst, with the following outcomes;

### **Updating and Screening Assessment**

The air quality in Lyndhurst was assessed in the Updating and Screening Assessment 2003, from which it was concluded that there was a likelihood of an exceedance of the annual mean objective for nitrogen dioxide (NO<sub>2</sub>) in Lyndhurst due to;

(i) the narrow and congested streets with residential properties close to the kerb

and

(ii) busy streets where people may spend 1 hour or more close to traffic

as shown in the photograph below;



Therefore the Authority had a duty under the Environment Act 1995 to undertake a Detailed Assessment.

The Updating and Screening Assessment also resulted in the Authority improving its monitoring programme in Lyndhurst by increasing the number of diffusion tube monitoring sites in the village from 7 to 15. These sites are shown in Appendix 1 and detailed further in Section 3.2.

### **Detailed Assessment**

The results from the diffusion tube monitoring sites provided the basis for the production of the Detailed Assessment 2004.

The conclusions from the Detailed Assessment were that there was a likelihood of an exceedance of the annual mean objective for NO<sub>2</sub> in the High Street, Lyndhurst. However it was unlikely that the hourly mean objective for nitrogen dioxide would be exceeded. Therefore the Authority had a duty under the Environment Act 1995 to declare an Air Quality Management Area in respect of the annual mean objective for nitrogen dioxide.

The Authority continued to improve its monitoring programme in Lyndhurst by installing an oxides of nitrogen real time analyser within the Air Quality Management Area in December 2004. The location of this site is shown in Appendix 2.

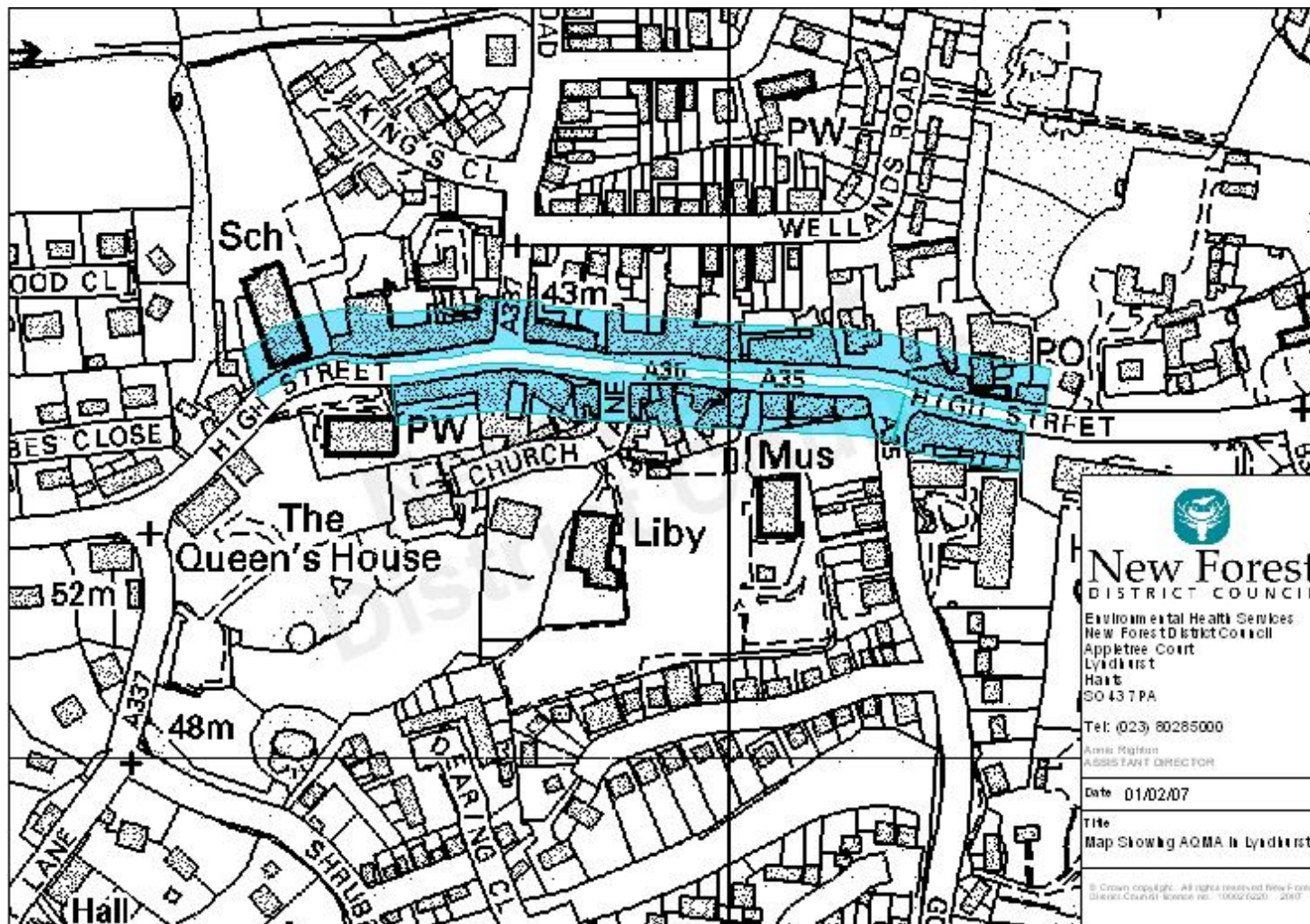
### **Air Quality Management Area**

Following the conclusions reached in the Detailed Assessment the Authority consulted with the local community, Hampshire County Council transport planners and Council Members, and formally declared an Air Quality Management Area in June 2005. The extent of the Area Quality Management Area is indicated by the shaded area shown on the map on page 16.

### **Further Assessment**

The Further Assessment 2006 was produced 12 months after the declaration of the Air Quality Management Area and was based on the monitoring data obtained in 2005. The purpose of this report was to validate the Air Quality Management Area, determine the reduction in oxides of nitrogen required to meet the nitrogen dioxide annual mean objective and proportion the source(s) of pollution in Lyndhurst.

It was concluded that the declaration of the Air Quality Management Area was justified and there was no requirement to revoke or amend the declared area. The required reduction in oxides of nitrogen and sources of pollution are discussed further in Chapter 3.



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### **3.0 NITROGEN DIOXIDE IN LYNDHURST**

#### **3.1 Health Impacts Of Nitrogen Dioxide**

The main sources of nitrogen dioxide are from road transport, commercial and industrial processes, and domestic sources. Basically any processes which burn fossil fuels.

The burning of fossil fuels produce a group of pollutants collectively known as oxides of nitrogen ( $\text{NO}_x$ ) which includes nitric oxide ( $\text{NO}$ ) and nitrogen dioxide ( $\text{NO}_2$ ). The oxides of nitrogen undergo complex chemical reactions with other atmospheric pollutants, including ozone ( $\text{O}_3$ ) to form further nitrogen dioxide. The formation of nitrogen dioxide, and therefore its concentration in the ambient atmosphere, is dependant on the availability of these other pollutants, including ozone, in the atmosphere.

The main health impacts associated with nitrogen dioxide concern the respiratory system. Short term exposure to high concentrations of nitrogen dioxide may precipitate or exacerbate existing respiratory problems such as asthma in individuals. Long term exposure to low concentrations may increase reactivity to allergens<sup>1</sup>.

### **3.2 Monitoring Of Nitrogen Dioxide**

The monitoring of nitrogen dioxide is undertaken in Lyndhurst utilising 15 diffusion tube sites and a real time continuous analyser located in a first floor office adjacent to the traffic lights at 14, High Street. A triplicate diffusion tube site (site 3 on graph 1) is also located at the inlet of the real time continuous analyser and forms the basis for bias correction of the diffusion tubes in Lyndhurst. The locations of these monitoring sites are shown in Appendix 1 and 2.

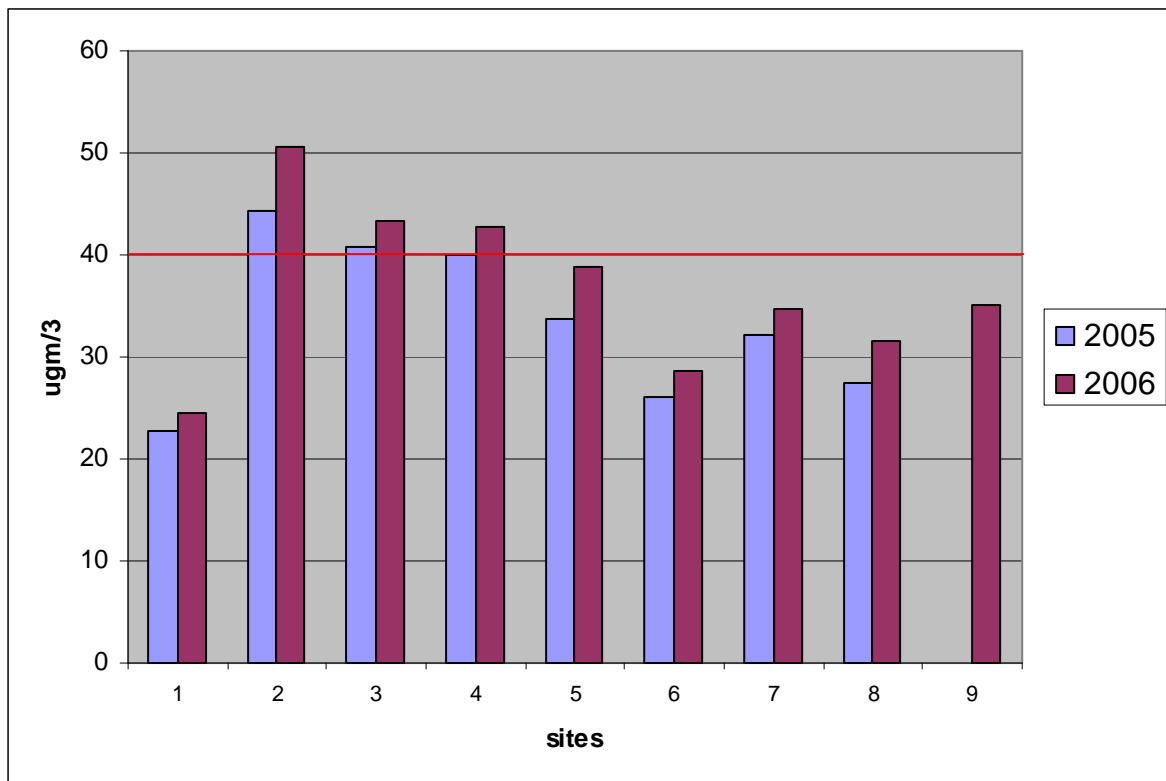
There are 8 diffusion tube sites located within the Air Quality Management Area. These tubes are exposed for a 4 week period before being replaced and sent off to an accredited laboratory for analysis.

Three of the diffusion tube sites, and the real time continuous analyser, have consistently shown an exceedance of the annual mean objective for nitrogen dioxide of  $40\mu\text{g}\text{m}^{-3}$ . These sites are located at the top of the High Street (which is subject to a canyon effect caused by the narrowness of the street and the tall buildings) on the approach to the traffic controlled junction with the A337 (Romsey Road), namely; 14, 15 and 16 High Street sites.

A graph showing the results from the diffusion tube sites within the Air Quality Management Area for 2005 and 2006 is shown on page 19. A further site in Gosport Lane is shown for interest, but this site is located just outside the Air Quality Management Area by 20m.

## **Graph 1**

### **Graph Showing Results for Diffusion Tube Sites**



#### **Notes;**

##### **(a) Sites**

1 = St. Michael and All Angels infant school, High Street

2 = 15, High Street

3 = 14, High Street

4 = 16, High Street

5 = 2a, Romsey Road

6 = 28, High Street

7 = 63, High Street

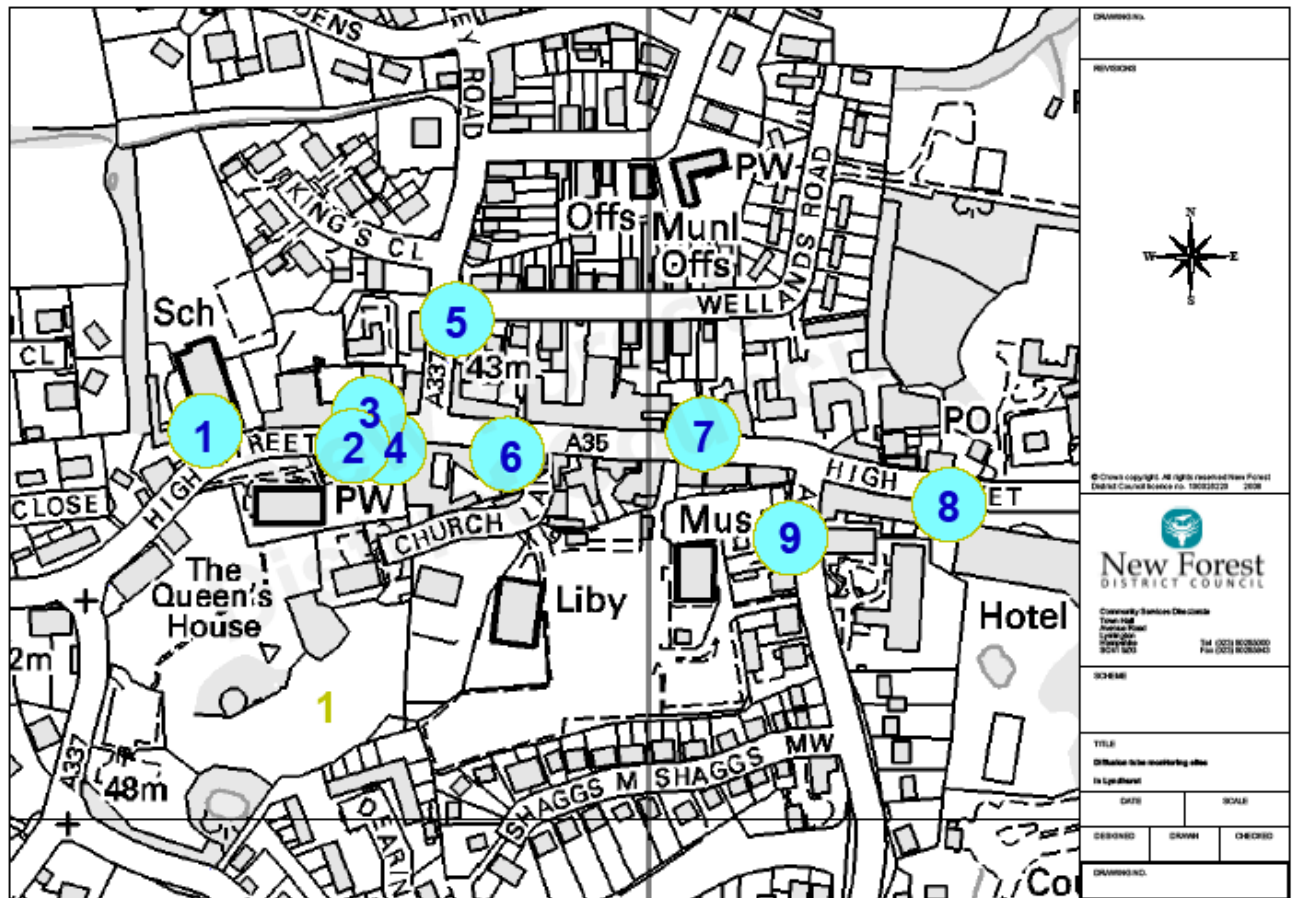
8 = Lyndhurst Park Hotel

9 = 2, Gosport Lane

**(b)** The diffusion tube data has been locally biased corrected using the continuous analyser results.

The locations of the sites noted in Graph 1 are shown on the map on page 20.

## Location of monitoring sites in Lyndhurst



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It can be seen from the results that there has been an increase in nitrogen dioxide concentrations at all the monitoring sites within the Air Quality Management Area from 2005 to 2006. Whilst the increase in monitored concentrations has been consistent for all of the sites, 15 High Street (site 2) and 2a Romsey Road (site 5) have shown the greatest increase when compared with the other sites.

It should be noted that whilst only 3 sites within the Air Quality Management Area have shown an exceedance of the nitrogen dioxide annual mean objective, following consultation at the Detailed Assessment stage, it was decided to declare the Air Quality Management Area covering the majority of Lyndhurst High Street as shown on page 16. Therefore the main part of the High Street that visitors and residents use and the local infant's school are included within the Air Quality Management Area.

### **3.3 Required Reduction Of Oxides of Nitrogen**

In order to determine the improvement required of nitrogen dioxide within the Air Quality Management Area to achieve the annual mean objective, the required reduction in total oxides of nitrogen (NO<sub>x</sub>) needs to be determined.

Total oxides of nitrogen includes a mixture of nitric oxide (NO) and nitrogen dioxide (NO<sub>2</sub>) as well as small volumes of other chemical compounds containing nitrogen. It should be noted however that nitrogen dioxide is still the pollutant of concern with regards to its adverse effect on human health.

Emissions from combustion processes which ultimately result in the production of nitrogen dioxide include some primary nitrogen dioxide, but principally nitric oxide. The nitric oxide reacts chemically with ozone in the atmosphere to produce secondary nitrogen dioxide. In addition there is nitric oxide and nitrogen dioxide available in the atmosphere from background sources. Therefore the concentration of nitrogen dioxide at a location is not only dependant on the source, but also on the atmospheric chemistry.

Therefore using the assumption that all nitric oxide will react with ozone to produce nitrogen dioxide it is advisable to determine the reduction required in total oxides of nitrogen in order to obtain the reduction in nitrogen dioxide required to achieve the annual mean objective.

In order to determine the required reduction of total oxides of nitrogen, the concentration at each exceeding monitoring location is calculated. This is achieved by using a spreadsheet taken from the Local Air Quality Management website<sup>2</sup> which is also used to determine the target total oxides of nitrogen concentration, i.e. the local total oxides of nitrogen concentration equivalent to a nitrogen dioxide concentration of 40 µg/m<sup>3</sup>. These calculations have to take into account the local background nitrogen dioxide concentration, which was obtained from background maps<sup>3</sup>.

During the production of the Further Assessment for Lyndhurst there was uncertainty in how the diffusion tube results for Lyndhurst should be bias corrected. Whilst the New Forest District Council's other co-located triplicate diffusion tube site in Totton read very accurately to the continuous analyser site to which it was adjacent, the Lyndhurst co-located triplicate diffusion tube site consistently gave higher results than the continuous analyser.

The bias correction factor is important to ensure the diffusion tubes are corrected as accurately as possible to take into account the error associated with diffusion tube monitoring and analysis techniques. This corrected result is then utilised to determine the percentage reduction of oxides of nitrogen required to meet the nitrogen dioxide annual mean objective.

Therefore in the Further Assessment for Lyndhurst the diffusion tubes were bias corrected using both the national bias correction factor (based on tube type, supplier and laboratory used) of 0.99 and the local bias correction factor of 0.85. As a result the determined reduction of oxides of nitrogen required to ensure the nitrogen dioxide annual mean objective was met was shown as a range for each exceeding site.

For example, the site with the highest diffusion tube monitored result was 15, High Street. When the results from this site were nationally bias corrected, it was determined there was a requirement for a 41% reduction in oxides of nitrogen. However using the local bias correction factor, this reduction in oxides of nitrogen decreased to 18% in order to meet the nitrogen dioxide annual mean objective.

It should be noted that the triplicate diffusion tube site at the analyser location was moved onto the analyser inlet tubing in July 2006, to ensure the diffusion tubes were as close to the analyser inlet as possible.

Since the production of the Further Assessment for Lyndhurst further advice has been obtained from netcen concerning this situation and as a result New Forest District Council has been advised to use the local bias correction factor for the diffusion tubes located in Lyndhurst. Therefore, the required reduction in oxides of nitrogen at the exceeding diffusion tube sites are shown in Table 2.

**Table 2**

**Table Showing Required Reduction in NOx at the Exceeding Diffusion Tube sites.**

Site	Current NOx ( $\mu\text{g}/\text{m}^3$ )	Target NOx ( $\mu\text{g}/\text{m}^3$ )	Required Reduction %
15, High Street	227.9	185.7	18
14, High Street	192.9	185.7	4
16, High Street	185.2	185.7	0

The reductions determined in Table 2 should result in a nitrogen dioxide annual mean concentration equal to the objective of  $40\mu\text{g}/\text{m}^3$ . Therefore the required reduction would be aimed at slightly more than that shown for the worse case location, i.e. required reduction of 20%.

However, it should be noted that the conclusions in the Further Assessment for Lyndhurst (June 2006), and therefore the predicted 20% required reduction in oxides of nitrogen, were determined using the 2005 monitored results. The monitored increase in the nitrogen dioxide concentrations in 2006 would obviously result in an increase in the required reduction of the oxides of nitrogen.

Whilst this is noted, the conclusions drawn from the Further Assessment utilising the 2005 results should remain. This is because there have been no local measures or schemes which may have impacted on nitrogen dioxide concentrations in Lyndhurst in 2006. Therefore, the increases in the monitored nitrogen dioxide concentrations are likely to be as a result of natural variations in accordance with local weather and transport conditions. Therefore the required reduction of the oxides of nitrogen will also vary accordingly.

In conclusion the required reduction of the oxides of nitrogen should aim to be a minimum of 18% in pursuit of the nitrogen dioxide annual mean objective.

It should also be noted that whilst these sites are very close to each other, there are very localised variations in the results. 15, High Street (site 2) is on the opposite side of the road to 14, High Street (site 3), a distance of 7m, however the required reduction in oxides of nitrogen varies by 14%.

### 3.4 Source Apportionment

During the production of the Further Assessment for Lyndhurst the sources of oxides of nitrogen (and therefore nitrogen dioxide) were determined. The report concluded that 78% of oxides of nitrogen were from road transport in Lyndhurst.

Since the production of the Further Assessment for Lyndhurst, New Forest District Council has contracted netcen to undertake modelling work<sup>4</sup> with regards to one of the possible options under consideration to improve nitrogen dioxide concentrations. Part of the modelling work involved further traffic surveys. The traffic surveys were undertaken during 2005<sup>4</sup> and resulted in the source apportionments shown in Table 3 in the location of the canyon effect at the top of the High Street.

**Table 3**

**Table Showing Source Apportionment of Concentrations of NOx and NO<sub>2</sub><sup>4</sup>**

Source Category	NO <sub>2</sub> concentration contribution		NOx concentration contribution	
	µg/m <sup>3</sup>	%	µg/m <sup>3</sup>	%
Light Duty Vehicles	19.8	41	53.9	46
Heavy Duty Vehicles	14.2	29	38.8	33
<b>Total Traffic</b>	<b>34.0</b>	<b>70</b>	<b>92.8</b>	<b>79</b>
Background	14.4	30	24.8	21
<b>Total</b>	<b>48.4</b>	<b>100</b>	<b>117.5</b>	<b>100</b>

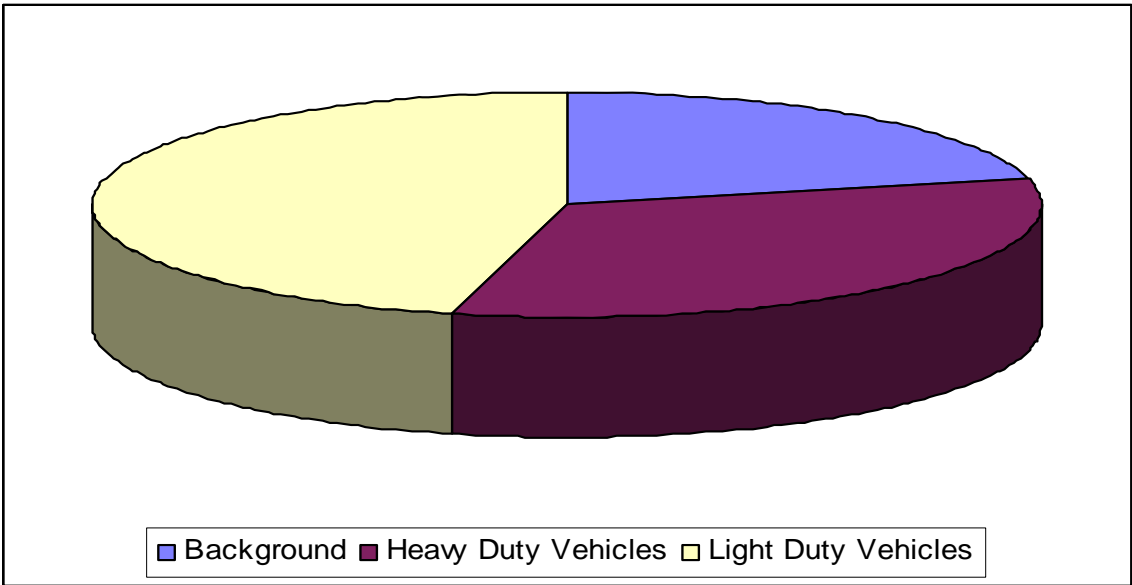
Table 3 shows that the total contribution of traffic to the oxides of nitrogen concentration at 79% to be similar to those predicted in the Further Assessment of 78%. The traffic figures have shown that the heavy duty vehicles at this location account for only 4.1% of the total traffic, but this equates to 33% of the total traffic oxides of nitrogen concentration.



This compares favourably to the conclusions in the Further Assessment for Lyndhurst. The Further Assessment determined that heavy duty vehicles contributed 43% of total oxides of nitrogen from road transport, which equates to 33.5% of the total oxides of nitrogen at the same location when taking into account the additional background oxides of nitrogen contributions.

The modelled figures in Table 3 can also be shown in Graph 2.

**Graph 2**  
**Graph Showing Source Apportionment of Oxides of Nitrogen in High Street, Lyndhurst.**



Therefore, it has been concluded that road transport is the major contributor towards oxides of nitrogen (and therefore nitrogen dioxide) concentrations. In the location of the exceedances of the nitrogen dioxide annual mean objective, heavy duty vehicles account for 33% of the total oxides of nitrogen concentration. As a result the areas to target to reduce oxides of nitrogen concentrations are road transport and in particular heavy duty vehicles.

## **4.0 POLICY CONTEXT AND EXISTING STRATEGIES AND CONSULTATIONS**

There are currently a number of policies and strategies within Hampshire County Council and New Forest District Council which have some regard or reference to air quality.

These are outlined below;

### **4.1 Local Transport Plan**

The latest Local Transport Plan (2006 – 2011)<sup>5</sup> has been produced by Hampshire County Council. The Local Transport Plan focuses in part on the issues surrounding the New Forest, with noted aims including;

- to help deliver the aims and objectives of the New Forest Committee's strategy for the New Forest.
- to reduce adverse impacts of traffic on the environment and local communities especially in the designated National Park.

and objectives including;

- to promote new and improved passenger transport, cycling and walking facilities that are accessible to all and that provide safe, reliable, affordable and attractive alternatives to the car.
- to provide imaginative local solutions . . . . . (to) reduce air pollution . . . .

Whilst the Air Quality Action Plan has not been fully integrated within the Local Transport Plan, the plan acknowledges the congestion and Air Quality Management Area affecting Lyndhurst with a commitment to produce a strategy for Lyndhurst and the New Forest.

The key elements to this strategy include;

- managing local congestion on the approaches to Lyndhurst village by intelligent traffic routeing.
- improvements to traffic control within the village at the A35 / A337 junction.

- improvements to traffic flow to the south.
- part of the terms of reference is to investigate a bypass for Lyndhurst. Whilst such a scheme would not be approached within the scope of this Local Transport Plan, the investigation of a by-pass will still remain part of the long term strategy for Lyndhurst.

The contents of the strategy for Lyndhurst have formed a number of the options outlined within this Action Plan and these are discussed further within Chapter 5.

## **4.2 Local Plan**

The New Forest District Local Plan (first alteration)<sup>6</sup> is a document produced by New Forest District Council. The Local Plan provides detailed planning policies to guide and control the use of land, against which applications for planning permission will be determined. The Local Plan, which was adopted in 2005, must conform generally to the adopted Hampshire County Structure Plan 1996 – 2011.

Objective 11 states that the Local Plan will;

- protect air and water quality and reduce the burden of pollution of air, land and water by controlling potentially polluting development (with reference to PPS23).

## **4.3 Future Matters**

Future Matters is a recently released consultation document, which has been jointly produced by New Forest Local Strategic Partnership, New Forest District Council and the New Forest National Park Authority.

Future Matters involves three plans which overlap in some capacity;

- New Forest District Community Strategy
- New Forest National Park Management Plan
- Local Framework Development (which will gradually replace the New Forest Local Plan)

These plans will set out policies for the future and what each organisation will achieve. The Future Matters consultation is the opportunity for the public and organisations to help determine their environment and quality of life in the New Forest now and in the future. Recent results have shown that 58% of 146 organisations and 63% of 429 individuals surveyed, list improving air quality in Lyndhurst as important.

Within the consultation document there is reference to the duty placed on Local Authorities to review and assess air quality within its District and the work that has, to date, been undertaken.

#### **4.4 Green Audit**

A Green Audit is currently being undertaken by New Forest District Council. The audit is concerned with the way the Authority and communities within New Forest District function with the aim to operate as environmentally as possible by, for example, reducing waste and energy use.

There are nine target areas within the Green Audit, for example, assessing the way the Authority's buildings are run and planning for climate change. However, some target areas are of common interest with air quality work, for example, one action in the Green Audit is to review the Authority's vehicles, including the operation of the transport fleet and officers vehicles. Such a review is currently being undertaken by the Energy Saving Trust. Further actions include the way in which communities are developed and run, both of which would also impact on air quality issues.

The Green Audit must ensure that any resulting policies do not have a negative impact on air quality, in particular with regards to nitrogen dioxide concentrations within the Air Quality Management Area in Lyndhurst. Therefore there will be close working between the officer implementing the Green Audit and Environmental Protection.

## **5.0 PROPOSED OPTIONS**

The options being proposed in this section are either currently being considered or are being forwarded for consideration as schemes which may decrease nitrogen dioxide concentrations within the Air Quality Management Area in Lyndhurst. Decreasing nitrogen dioxide concentrations may be achieved through a combination of proposed options.

Each option includes an option summary, and a target and performance indicator where appropriate. It should be noted that the targets set do not at this stage include a numerical value. Once options are selected for progression a realistic numerical target which has been agreed by interested parties will be determined which will be updated within the annual Progress Report for the Action Plan. For example a 30% decrease in the number of HGV's travelling along the High Street by 2012.

The options outlined below are not listed in order of priority.

## **5.1 Option 1**

### **Bypass**

It would be fair to state that there has been strong local support for a suitable bypass route for Lyndhurst for many years. For example in the 1980's a proposal for a bypass for Lyndhurst led to the promotion of a Private Members Bill, however the Bill did not progress to its conclusion. More recently, in 2005 the Lyndhurst Parish Council Bypass Committee was formed and proposed a north / south bypass route for Lyndhurst.

With regards to air quality, any route being proposed to bypass Lyndhurst would have to reduce traffic from travelling down the High Street from the A35 to the junction with the A337 or improve the flow of traffic along this route in order to reduce nitrogen dioxide concentrations at the locations where the exceedances are being monitored. Therefore a west to east bypass route is likely to have a greater impact in terms of air quality than a north to south bypass.

Whilst it is acknowledged that a bypass route for Lyndhurst is likely to reduce congestion in the village and may be a favoured option locally, the costs to build the road would be very high and the timescale extremely lengthy, always assuming the considerable environmental constraints were overcome and the necessary permission was obtained.

Hampshire County Council's Local Transport Plan which sets out the County Council's strategy for the five years 2006 – 2011 makes reference to a bypass route for Lyndhurst by stating . . . 'given the potential costs of such a project and the impact on areas of important nature conservation, a scheme of this nature will not be approached within the scope of this Local Transport Plan. The investigation of a bypass will still remain part of the long term strategy for Lyndhurst.'<sup>3</sup> Neither is a bypass included in the current South East Strategy Plan.

Furthermore, following the Hampshire County Council Lyndhurst Bypass Scrutiny Review (further details of which are contained in Section 7.3), the Cabinet at its meeting on the 31<sup>st</sup> March 2008 resolved that it could not support the prioritisation of either a Lyndhurst focused bypass or a New Forest wide bypass at the present time.

Whilst the provision of a bypass remains as an option within the Action Plan it is not ranked highly in the cost benefit analysis for the reasons mentioned above and from an air quality objective smaller scale options would have to be considered before a bypass route. These options could be implemented more quickly and at a lesser cost and may have the required impact on air quality in reducing nitrogen dioxide concentrations to the desired level. The Authority cannot put the air quality issue for Lyndhurst on hold whilst a possible bypass route is pursued and there is no intention to further explore this option in the foreseeable future.

Currently no air quality modelling has been undertaken to determine the likely impact of this option.

### **Option Summary**

- (i) to build a by-pass route around Lyndhurst.***

### **Target**

*to reduce the number of stationary vehicles with idling engines within the canyon effect of the High Street and to reduce the number of vehicles travelling through the AQMA and improve the flow of traffic through the High Street.*

### **Performance Indicator**

*to use passive diffusion tubes and a real time analyser in Lyndhurst to monitor annual mean nitrogen dioxide concentrations.*

*In addition to use biannual traffic surveys to assess the queue lengths on routes approaching the High Street and within the High Street itself.*

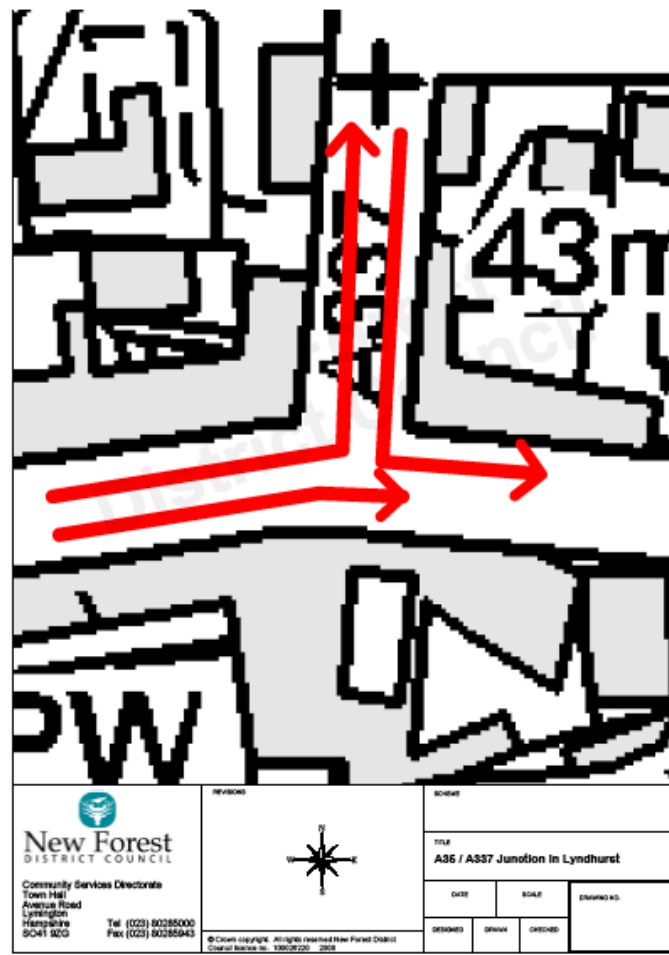
## 5.2 Option 2

### Works to improve junction of A337 and High Street

Currently vehicles, including heavy goods vehicles (HGV's), can travel eastbound from the A35 into the top of the High Street. At the junction with the A337, the traffic is controlled by two lanes; the left hand lane for vehicles turning onto the northbound A337 and the right hand lane for vehicles travelling straight on through Lyndhurst village centre along the High Street. The road map for the junction is shown in Figure 1.

**Figure 1**

**Diagram showing road network layout of the A337 and the High Street**



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The restriction on vehicles over 7.5 tonnes in the High Street has resulted in all such vehicles approaching Lyndhurst eastbound on the A35, except those delivering in the High Street turning left at this junction and therefore large vehicles including lorries queue in the left hand lane. Due to the left hand turn onto the A337 being a tight right angled turn, most large lorries will occupy both lanes in order to make the manoeuvre. This results in both lanes of traffic being slowed down when approaching the lights within the Air Quality Management Area. This is the location where the nitrogen dioxide concentrations are at their highest.

By improving the traffic controlled A337 / A35 junction the flow of traffic from the A35 into the High Street and also the north bound A337 could be improved by;

- allowing lorries which have to turn left at the junction from the High Street into the A337 the room to manoeuvre without using both lanes in the High Street, and / or
- allowing the possibility of a permanent left hand turn from the High Street onto the A337 if there is enough room to allow the safe turning of lorries from the High Street onto the A337 through a long vehicle detection system or a physical junction change.

This option would improve the flow of vehicles within the Air Quality Management Area and therefore would reduce nitrogen dioxide concentrations in the High Street in the vicinity of the junction. If a permanent left turn from the High Street onto the A337 could be achieved the likely reduction in nitrogen dioxide concentrations would be greater still, although there would still be queuing traffic at the junction waiting to travel straight through the junction into the High Street when these lights are on red. Therefore there would still be vehicles stationary with idling engines in the worst affected area of the Air Quality Management Area.

Currently this option is not included in any transport improvement programme and no air quality modelling has been undertaken to determine the likely impact of this option.

### **Option Summary**

- (i) ***to improve the High Street / A337 junction to improve the flow of traffic in the canyon effect of the High Street.***

### **Target**

*to improve vehicle flow through the A337 / A35 junction and to reduce the number of stationary vehicles with idling engines within the canyon effect of the High Street.*

### **Performance Indicator**

*to use passive diffusion tubes and a real time analyser in Lyndhurst to monitor annual mean nitrogen dioxide concentrations.*

*In addition to use biannual traffic surveys to assess the queue lengths on routes approaching the High Street and within the High Street itself.*

**5.3 Option 3**

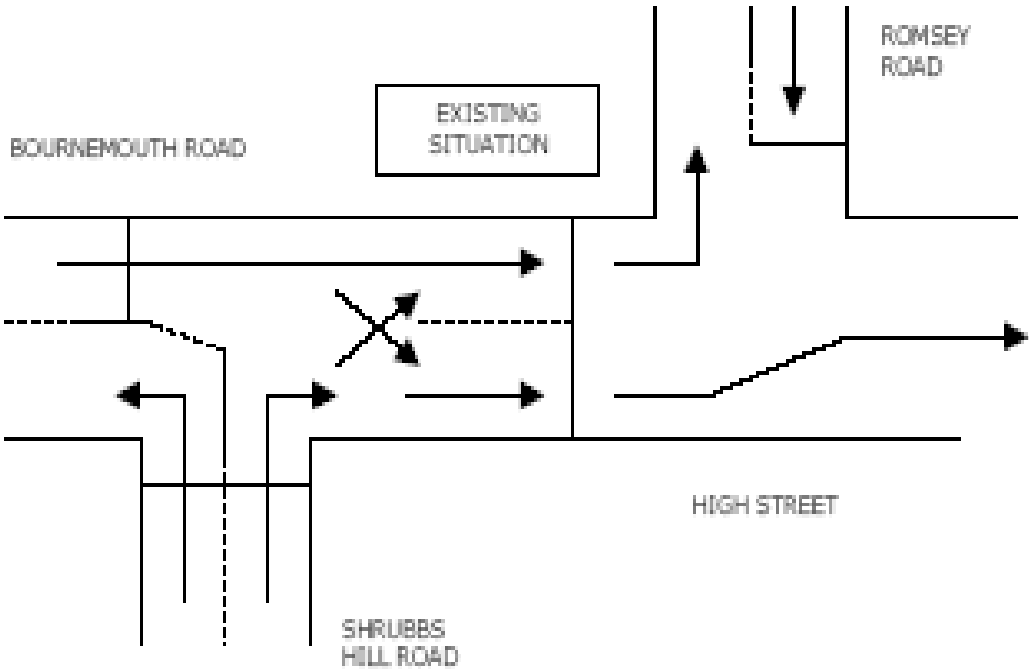
**Additional road traffic management scheme (schemes (i) and (ii))**

In order to prevent traffic queuing at the signalised junction of the High Street and A337, a further option is to install additional traffic signals at the junction of the A35 (Bournemouth Road) and Shrubbs Hill Road at the top of the High Street.

It is proposed that the traffic is held outside of the Air Quality Management Area, where the nitrogen dioxide concentrations are lower and the street is wider, by the use of the new signals. The traffic is then filtered through the top of the High Street and kept flowing through the Air Quality Management Area. This should result in a reduction of nitrogen dioxide concentrations.

The existing road scheme is shown in Figure 2. Currently traffic from the A35 (Bournemouth Road) and Shrubbs Hill Road combine at the top of the High Street and manoeuvre into the correct lane before the junction of the A337 (Romsey Road) and the High Street.

**Figure 2**  
**Diagram showing existing A35 / High Street road scheme**



Two traffic schemes have been proposed by New Forest District Council and Hampshire County Council transport planners. These schemes have been modelled in terms of air quality by netcen<sup>2</sup>.

Both proposed schemes would have additional signals at the top of Shrubbs Hill Road and on the east bound A35 (Bournemouth Road). The current set of traffic signals would be kept in use, therefore configuration between the current and new set of traffic signals would have to be undertaken in order for the scheme to be effective.

The proposed schemes differ depending on whether the traffic scheme is purely one way [scheme (i)] or whether the left hand turn is retained out of Shrubbs Hill Road and onto the west bound A35 [scheme (ii)].

The full netcen modelling report is available on the New Forest District Council's website; [www.hantsair.org.uk/hampshire/asp/reports.asp?la=NFDC](http://www.hantsair.org.uk/hampshire/asp/reports.asp?la=NFDC) and the executive summary is attached as Appendix 3.

In summary the results were as follows;

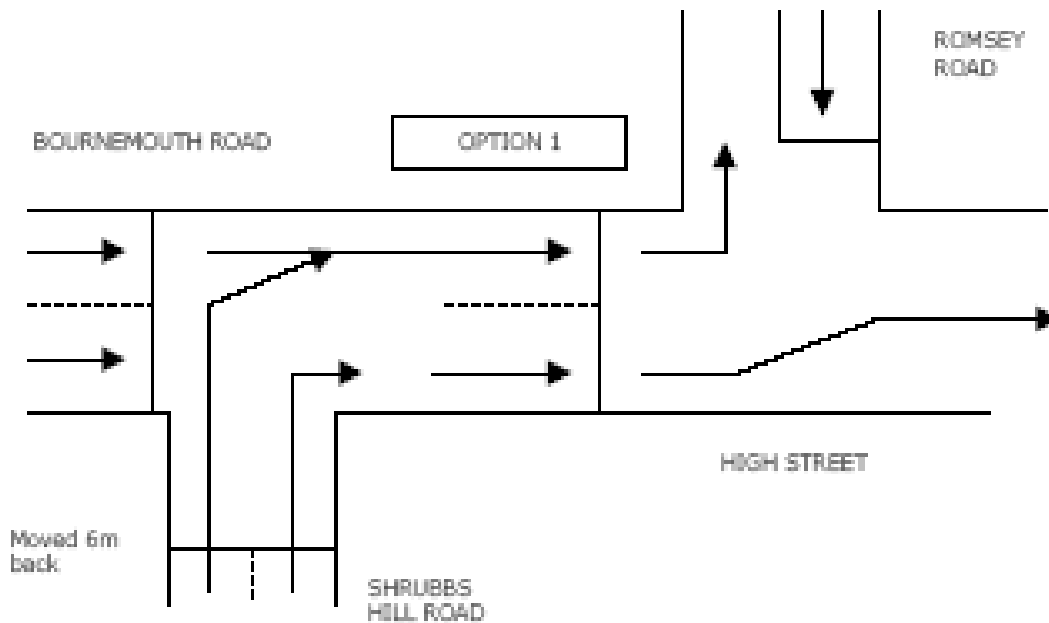
#### Scheme (i)

- A35 (Bournemouth Road) one way eastbound, utilising both lanes so traffic is in the correct lane before entering the top of the High Street.
- Shrubbs Hill Road one way northbound, utilising both lanes so traffic is in the correct lane before entering the top of the High Street.
- Chapel Lane for westbound traffic only onto the A35.

This scheme is shown in Figure 3.

**Figure 3**

**Diagram showing Scheme (i)**

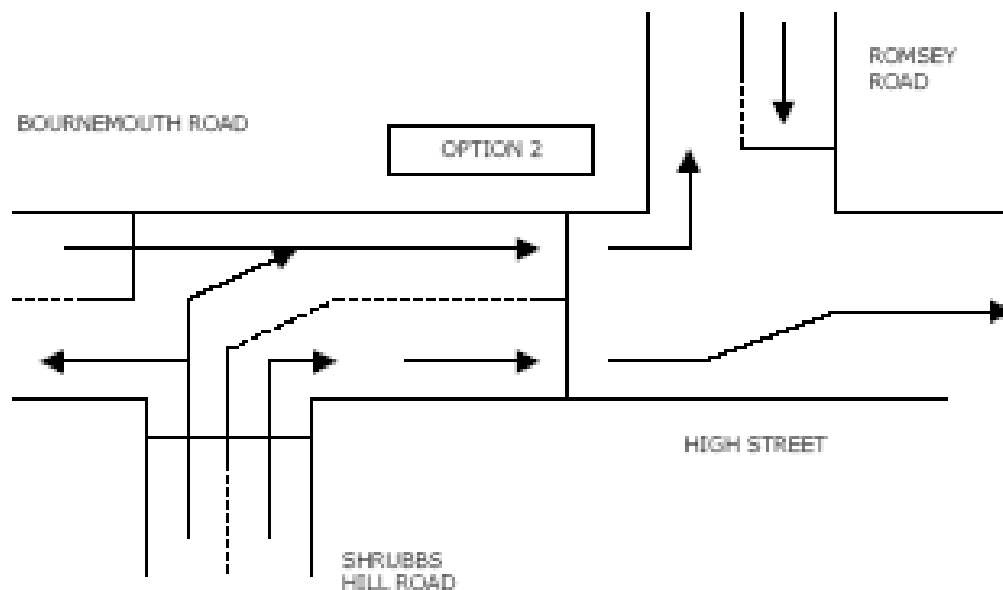


Scheme (ii)

- A35 (Bournemouth Road) two way, traffic would move into the correct lane on entering the top of the High Street after going through the proposed new traffic lights.
- Shrubbs Hill Road the left hand lane would retain the current left hand turn into Bournemouth Road or be used for entry onto the left hand lane on the High Street. The right hand lane in Shrubbs Hill Road used for entry into the right hand lane on the High Street.

This scheme is shown in Figure 4.

**Figure 4**  
**Diagram showing Scheme (ii)**



In both schemes, traffic would be held at the signals at either Bournemouth Road or Shrubbs Hill Road, before being released in turn to travel down the High Street. With improvements in the signalling the aim would be to minimise traffic being held up at the current signalised junction in the High Street.

The modelling results have shown that both Schemes would result in a reduction of nitrogen dioxide concentrations to below  $28\mu\text{g}\text{m}^{-3}$  which is significantly beneath the annual mean objective of  $40\mu\text{g}\text{m}^{-3}$  within the Air Quality Management Area. Scheme (i) was reported as showing a 'very significant decline in nitrogen dioxide concentration when compared with the 2005 situation' and a 'significant decline in nitrogen dioxide concentration' was reported for Scheme (ii)<sup>4</sup>.

It is acknowledged that with the implementation of either scheme nitrogen dioxide concentrations are likely to rise outside the current boundaries of the Air Quality Management Area, particularly in the locations of the new areas of queuing traffic in Shrubbs Hill Road and Bournemouth Road.

Such increases should not result in an exceedance of the nitrogen dioxide annual mean objective at these locations due to these roads being wider without a street canyon effect, leading to the improved dispersal conditions for pollutants on these roads. However it is recommended that further air quality modelling work is undertaken concerning the areas of Shrubbs Hill Road and Bournemouth Road should this option be considered further in terms of transport feasibility.

In addition, if one of these schemes be implemented then monitoring of nitrogen dioxide concentrations using diffusion tubes would be extended in Shrubbs Hill Road and Bournemouth Road. (There are currently 3 diffusion tube sites on Shrubbs Hill Road and 1 on Bournemouth Road).

A further impact of these schemes is the increase in congestion along Shrubbs Hill Road and Bournemouth Road which may give the perception of even greater traffic congestion leading into Lyndhurst. However if effective, once through the new signalised junction the congestion should be minimal and result in free flowing traffic conditions in the most confined part of the High Street.

It is with regards to the queuing traffic that scheme (i) is favoured. This scheme has a reduced modelled queue length on Bournemouth Road when compared with scheme (ii). This is due to scheme (i) using Bournemouth Road as a one way route, thus utilising both road lanes into Lyndhurst High Street. A negative impact of this scheme is that a number of local residents wishing to leave their properties and drive westbound on the A35 Bournemouth Road would have to drive around the one system before driving west bound down Chapel Lane and then onto the A35.

If the one way on Bournemouth Road was maintained east bound from Chapel Lane, this would impact on 30 properties in Bournemouth Road, Knightwood Avenue, Knightwood Close and Elcombes Close. It is acknowledged that this situation would be a worse case scenario for the residents in these roads.

The associated air quality and traffic modelling undertaken by netcen is currently being assessed by Hampshire County Council's Intelligent Transport Systems (ITS) department for the feasibility of both schemes. This work is being funded by Hampshire County Council.

### **Option Summary**

- (i) additional road traffic signals on the current Shrubbs Hill / Bournemouth Road junction to limit stationary traffic in the canyon effect of the High Street, two schemes proposed;**
  - a. Scheme (i) proposes a one way system on Bournemouth Road on the approach to the High Street.**
  - b. Scheme (ii) proposes to retain the current two way system on Bournemouth Road.**

### **Target**

*to reduce the number of stationary vehicles with idling engines within the canyon effect of the High Street.*

### **Performance Indicator**

*to use passive diffusion tubes and a real time analyser in Lyndhurst to monitor annual mean nitrogen dioxide concentrations.*

*In addition to use biannual traffic surveys to assess the queue lengths on routes approaching the High Street and within the High Street itself.*



## **5.4 Option 4**

### **Enforcement of heavy goods vehicle restriction in Lyndhurst.**

The Further Assessment for Lyndhurst concluded that whilst Heavy Goods Vehicles only accounted for between 4 – 9% of the road transport figures on the A35 east and west bound and the A337 north and south bound, this traffic group accounts for between 33% - 48% of the total NO<sub>x</sub> contribution in the vicinity of Lyndhurst. Therefore reducing heavy goods vehicle numbers on the roads through Lyndhurst should reduce nitrogen dioxide concentrations.

Since 1997 Hampshire County Council has imposed a restriction for vehicles over 7.5 tonnes from travelling down the High Street unless they are making a delivery. The restriction starts approximately 4 miles north of Lyndhurst on the A337 at Cadnam and runs along the A337 and through the High Street. However, the restriction does not include the top of the High Street, from the A35 to the junction with the A337, therefore the ban does not include the part of the Air Quality Management Area with the highest nitrogen dioxide concentrations.

However, it is noted that a number of restricted vehicles do still use the High Street from both the A35 and A337 without making a delivery. Therefore, by the continued enforcement of the restriction, the route will become less attractive to heavy goods vehicle drivers. By reducing the number of restricted heavy good vehicles through Lyndhurst, nitrogen dioxide concentrations would be reduced.

The restriction is enforced by the Police. Therefore, New Forest District Council and Hampshire County Council will work with the Police to ensure this restriction continues to be regularly enforced.

### **Option Summary**

- (i) to work with the police to enforce the current heavy goods vehicle restriction in Lyndhurst High Street.**

### **Target**

*to reduce the number of restricted vehicles illegally using routes through the AQMA.*

### **Performance Indicator**

*to undertake traffic surveys annually to monitor the types of vehicles using the High Street and the A337.*

*Monitor the annual mean nitrogen dioxide concentrations using passive diffusion tubes and a real time analyser in the High Street and surrounding routes.*

## **5.5 Option 5**

### **Installation of variable messaging system**

As previously stated, Lyndhurst is a tourist destination which can often result in traffic congestion on the routes into the village, particularly during peak holiday periods. An option for consideration is to redirect traffic away from the south bound A337 into Lyndhurst and to utilise the west bound A35 from Southampton into Lyndhurst.

Currently traffic entering the region on the west bound M27 is directed into Lyndhurst via Junction 1 at Cadnam and down the A337. By utilising an existing variable messaging system on the M27, traffic could be directed into Lyndhurst via Junction 2 and the A326.

This alternative route also utilises a new traffic junction at Colbury at the A326 / A35 junction, after which the traffic passes through Ashurst on the A35 before entering Lyndhurst. This route is currently the least congested of all the 'A' routes into Lyndhurst.

This option would not directly reduce congestion on the east bound A35 into Lyndhurst, and therefore through the area of highest concentrations of nitrogen dioxide. However, by reducing congestion on the south bound A337 into Lyndhurst, the signalised junction on the A337 and High Street may be able to give slightly more priority to the traffic travelling from the east bound A35. Therefore the flow of traffic through the Air Quality Management Area would be improved which should reduce nitrogen dioxide concentrations.

A trial has been undertaken by Hampshire County Council (with the assistance of New Forest District Council) with regards to this option. Over a 14 week period (September 2006 - November 2006) the variable messaging system on the M27 was used to direct traffic into Lyndhurst via Junction 2. Over the trial period the variable message signs were turned on and off on alternating weeks.

The variable messaging signs which have been utilised are located only on the west bound M27. Therefore traffic travelling east bound via the A31 would be unaware of the new route. It is also likely that during the trial local residents did not use the alternative route, mainly because the variable messaging signs only informed drivers to use Junction 2 as the route into Lyndhurst and did not state it was due to congestion on the south bound A337 into Lyndhurst.

The impact of the study was measured by traffic counts on the major routes into Lyndhurst and by monitoring weekly nitrogen dioxide concentrations using diffusion tubes at some existing and new sites in Lyndhurst and Ashurst. During the trial period the signalised junction in Lyndhurst was not altered to give priority flows to traffic flowing east bound along the A35.

It is acknowledged that the monitoring of nitrogen dioxide using diffusion tubes exposed for weekly periods will not produce accurate measurements, however the measured results were used as an indicator for any noticeable trends in monitored nitrogen dioxide concentrations during the trial.

In summary the traffic counts on the routes did show a measured upward trend when the alternative route was advised. However, the monitored nitrogen dioxide concentrations did not show any significant changes despite the use of the signs, with the monitored nitrogen dioxide concentrations in Ashurst remaining below the annual mean objective.

A 'queuing traffic' message on the M27 signs may encourage local residents to use the alternative route. Therefore it is likely that both tourists and local traffic travelling to or through Lyndhurst from a west bound direction on the M27 would use the proposed alternative route. The south bound A337 into Lyndhurst would have to be monitored, perhaps via a CCTV system, to ensure the variable messaging system is utilised during periods of queuing traffic.

There is some local opposition to this option, the majority of which comes from the residents of Ashurst who would have an increased traffic flow through the village. The operation of the variable messaging system may also rely on operators reacting to the queuing situation on the A337 to turn on the messaging system. In addition the current variable messaging system would be used for other motorway messages and therefore the congestion issue in Lyndhurst would not necessarily be a priority message on the M27.

**Option Summary**

- (i) **to work with Hampshire County Council to assess the viability of variable messaging system on the M27 to reroute traffic into Lyndhurst away from the A337.**

**Target**

*to reduce traffic congestion on the southbound A337 into Lyndhurst.*

**Performance Indicator**

*to undertake traffic surveys to monitor congestion on routes into Lyndhurst.*

*Monitor the annual mean nitrogen dioxide concentrations using passive diffusion tubes and a real time analyser in the High Street and surrounding routes.*

## **5.6 Option 6**

### **Enforcing parking restrictions in High Street**

It has been noted that vehicles stopping in the High Street in Lyndhurst often increase traffic congestion along the High Street and Romsey Road, particularly if this occurs during the hours of peak traffic flow.

This increase in congestion can impact on traffic waiting to pass through the traffic lights of the junction of the High Street and Romsey Road, which reduces the volume of traffic able to pass through the traffic lights and increases the number of vehicles waiting to pass through the Air Quality Management Area. Therefore the nitrogen dioxide concentrations could increase due to an increase in slow moving traffic through the village centre.

The top of the High Street is a dual lane, one way road which approaches the traffic lights with Romsey Road. After the traffic lights, the High Street becomes a single lane (5m wide). The width of the single lane High Street enables vehicles to pass most parked vehicles, however any parked vehicle slows the speed of the through traffic resulting in increased congestion.

The High Street and Romsey Road have adequate parking restrictions the majority of which are no waiting at any time. In addition the area around the junction of Romsey Road and the High Street is restricted further with no waiting and no loading.

Such restrictions are in place to attempt to keep the traffic flowing, however vehicles often illegally park, albeit is often on a temporary basis, usually whilst deliveries are made to stores. Vehicles parking illegally will slow the traffic travelling through the village centre and therefore increase the pollution from the vehicles within the Air Quality Management Area.

If the illegal parking of vehicles is enforced, the congestion in Lyndhurst village centre can be reduced thus improving the flow of traffic through the Air Quality Management Area. Therefore this option is to review the methods available to effectively enforce the parking restrictions in the High Street. One possible outcome could be via the installation of a small (for example one or two cameras) CCTV system. It should be noted that all enforcement methods should be reviewed however, a CCTV system could also be used to ensure there are no other traffic issues, for example a broken down vehicle causing congestion.

This work would be led by New Forest District Council as the traffic enforcement regulator, however in conjunction with Hampshire County Council.

### **Option Summary**

- (i) New Forest District Council to work with Hampshire County Council to investigate methods to effectively enforce the current parking restrictions in the High Street.***

### **Target**

*to reduce illegal parking of vehicles in the High Street.*

### **Performance Indicator**

*to assess annually formal enforcement action taken by New Forest District Council. Monitor the annual mean nitrogen dioxide concentrations using passive diffusion tubes and a real time analyser in the High Street and surrounding routes.*

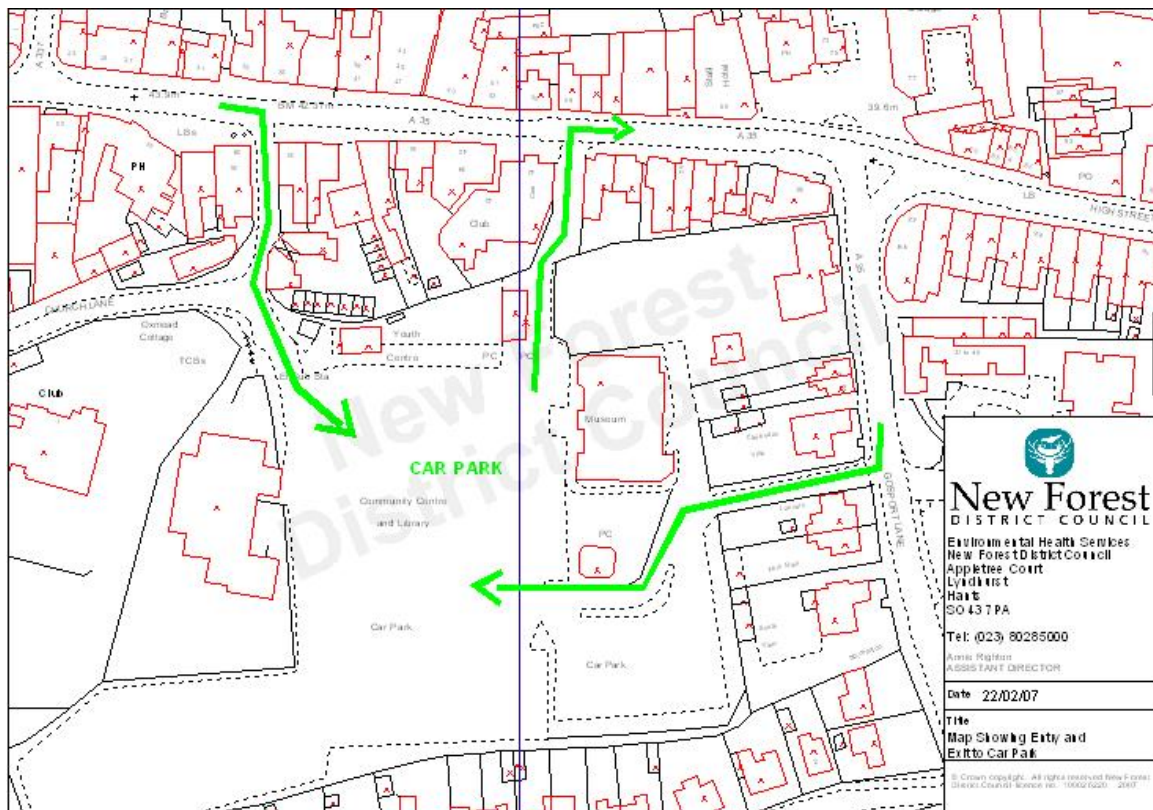
## 5.7 Option 7

### Review signage around Lyndhurst

The main car park for Lyndhurst is located in the centre of the village. There are two entrances into the car park, one off the High Street and the other off Gosport Lane, the exit from the site is back onto the High Street as shown in Figure 5.

**Figure 5**

### Diagram showing town centre layout with car park



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It has been noted that visitors to the village often miss the entrance in Gosport Lane. This may be due to traffic entering the village on the west bound A35, then turning sharply into Gosport Lane whereupon the vehicle then has to cross two lanes of traffic within 70m to enter the car park.



If this entrance is missed, vehicles have to travel around the one way system, through the Air Quality Management Area with the highest concentrations of nitrogen dioxide, to reach either entrance into the car park.

This situation is not desirable and is likely to get worse if visiting traffic is directed into Lyndhurst as discussed in Option 5, which would result in visiting vehicles having to enter the car park via Gosport Lane.

Whilst there are signs directing traffic to the car park, these signs should be reviewed to establish if an improved and more prominent location for the signs could be found.

A further improvement could also be made regarding the signs advising of the restrictions on heavy goods vehicles entering Lyndhurst. These are currently located on the M27 junction 1 and at the top of the High Street on the east bound A35. However, further signs may be required outside Lyndhurst on the east bound A35 and north bound A337, to prevent restricted vehicles from travelling down the whole of the High Street.

### **Option Summary**

- (i) to work with Hampshire County Council to review the signage into and around Lyndhurst, including the Lyndhurst HGV restriction.***

### **Target**

*to avoid unnecessary vehicle journeys around the one-way system in Lyndhurst.*

### **Performance Indicator**

*carry out customer surveys to assess the effectiveness of signing to the car park.*

## **5.8 Option 8**

### **Review and support New Forest District Council's travel plan**

New Forest District Council is the main employer in Lyndhurst, with approximately 280 employees located at the main offices at Appletree Court in Lyndhurst. However this number could increase significantly, for example up to 400 people at any one time, with employees from other offices, council members and visitors travelling to Appletree Court. A number of these people will travel to Appletree Court through the Air Quality Management Area and / or travel through it during their normal working day.

With the New Forest being mainly rural with limited public transport throughout the district, the use of a car for employees of the Authority is a way of life in terms of ease and convenience. In addition the various contracted working hours and conditions, for example flexible working hours and the requirement for some staff to provide a vehicle for work means it is not always easy to reduce the need for employees to drive into work. A survey undertaken in 2005 showed that 93% of employees travelled into the office alone in their car, 4% car shared, 1% walked, 1% cycled and 1% used a motorbike.

Despite these issues, New Forest District Council does have a Green Transport Plan (Go Green) which may assist in reducing the number of vehicles driven by employees into Lyndhurst and adding to the nitrogen dioxide concentrations within the Air Quality Management Area.

The Green Transport Plan was adopted by the Authority in November 2002 and has three main aims namely;

1. To encourage employees to reduce the number of 'driver only' car commuter journeys by 5% over 3 years.
2. To introduce new vehicle technology and less polluting fuels for the Authority's own fleet and lease cars.
3. To reduce the total length of business journeys by private cars by 10% over 3 years.

In order to facilitate the Authority's Green Transport Plan a working group known as 'Go Green' has been meeting quarterly.

In association with the Green Transport Plan and the Go Green working group numerous schemes have been implemented to encourage the Authority's employees to utilise alternative forms of transport to travel to work and reduce business miles. For example by ;

- Providing secure cycle parking at the Authority's offices.
- Providing shower and changing facilities at the Authority's offices.
- Running a monthly prize draw for those employees utilising an alternative means of transport (including car sharing) to travel into work.
- Providing 2 pool cars for business use.
- Providing reserved parking spaces for employees who car share.
- Paying all essential car users the same business mileage rate regardless of the vehicles' engine size, therefore providing an incentive to run a smaller more fuel efficient vehicle.
- Video conferencing facilities which assist in meetings at the Authority particularly when the Authority is run from 2 main office sites (Lyndhurst and Lymington).
- Home working is encouraged in some departments which reduces the requirement for officers to drive into the offices at Lyndhurst

Future schemes for consideration include;

- Possibility of moving both Lyndhurst and Lymington offices one site.
- A scheme to review the possibility of encouraging employees with lease cars to run smaller vehicles which emit lower emissions or alternatively fuelled vehicles. Currently employees with lease cars can choose any vehicle irrespective of type or engine size, although there is a tax incentive to use lower emission vehicles.
- Utilising the Authority's courier service to pick up employees from Ashurst Bridge railway station transport them to the Authority's offices at Lyndhurst, a distance of 5 miles. This scheme would be attractive to employees who do not require their vehicles to undertake their work activities.
- Additional cycle parking as demand increases.
- The option of a 9 day fortnight for employees.

Such schemes and measures will improve congestion in Lyndhurst by reducing the number of employees travelling through the Air Quality Management Area by car. As a result nitrogen dioxide concentrations will be reduced within the Air Quality Management Area.

Therefore despite New Forest District Council being essentially rural with limited public transport, numerous small measures have already been implemented. Larger scale schemes are also being discussed as future actions. Obviously some schemes, for example the reduction in car parking spaces at the Authority's office, would probably not have the support of employees, although it is important that such schemes are considered in full before being dismissed.

It is recommended that the Air Quality Action Plan for Lyndhurst should be used to assist in driving forward the Authority's Green Transport Plan. The Green Transport Plan needs to be reviewed in particular with regards to the statements concerning percentage reductions within 3 years and the possibility of setting further reviewable targets. It is also essential that local members and more employees take an active role in promoting the Green Transport Plan.

#### **Option Summary**

- (i) ensure New Forest District Council Green Transport Plan is fully implemented and reviewed regularly.***
- (ii) to review and assess large scale schemes to reduce the requirement of employee travel through Lyndhurst.***

#### **Target**

*to reduce New Forest District Council employee travel through Lyndhurst.*

#### **Performance Indicator**

*to use annual employee travel surveys to assess performance in respect of Aim 1 and mileage claims for Aim 3.*

*Monitor the annual mean nitrogen dioxide concentrations using passive diffusion tubes and a real time analyser in the High Street and surrounding routes.*

## **5.9 Option 9**

### **Review and support St. Michael and All Angels infant school travel plan**

The local primary school in Lyndhurst, St Michael and All Angels Infant School, is located within the Air Quality Management Area at the top of the High Street. There are currently 86 pupils at the school, the majority of which are from the local area. The school has full and part time pupils who are of an age where parents or carers will drop off and collect the pupils. Therefore there could be considerable movements to and from the school, potentially in vehicles, at either end of the day.

The school does not have its own car park available to parents and the neighbouring Crown Hotel car park has recently prevented the school from utilising its car park. A bus stop located outside of the school does provide a drop off point, however this is not often used by the primary school pupils, but rather for the local secondary school pupils who get collected by bus at this point.

The school does have an active travel plan which was adopted in July 2006. In summary the school travel plan has a number of actions which include pedestrian training for the pupils, the investigation of a park and walk scheme and a cycle track into the school. Any school travel actions which are investigated need to consider the Air Quality Management Area in Lyndhurst, for example a school park and walk scheme should avoid encouraging school related traffic through the Air Quality Management Area.

A pedestrian crossing is located outside the school. This crossing is controlled by a school crossing patrol person before and after school which ensures the safe crossing for pupils across the busy High Street. In addition signalised crossings have also been installed on the traffic lights on the junction of the High Street and the A337.

Whilst these crossings could potentially restrict the flow of traffic in the High Street (and Air Quality Management Area) and increase nitrogen dioxide concentrations when they are in use, the crossings do improve road safety for the school pupils, residents and visitors, thereby encouraging the pupils, in particular, to walk to school.

It is therefore essential that these crossings are maintained. However traffic management officers need to ensure the crossings are operated as effectively as possible to allow for the safe crossing of roads, but also to allow the maximum flow of traffic. For example for the crossings at the traffic lights to operate when the traffic lights are on red themselves.

### **Option Summary**

- (i) to encourage the school travel plan for St Michael and All Angels Infant School.***
- (ii) to advise the school of potential issues with regards to school related traffic passing through the AQMA.***

### **Target**

*to reduce the numbers of parents driving into Lyndhurst to visit the school.*

### **Performance Indicator**

*to use annual surveys of parents travel arrangements to and from the school. Monitor the annual mean nitrogen dioxide concentrations using passive diffusion tubes and a real time analyser in the High Street and surrounding routes.*

## 5.10 Option 10

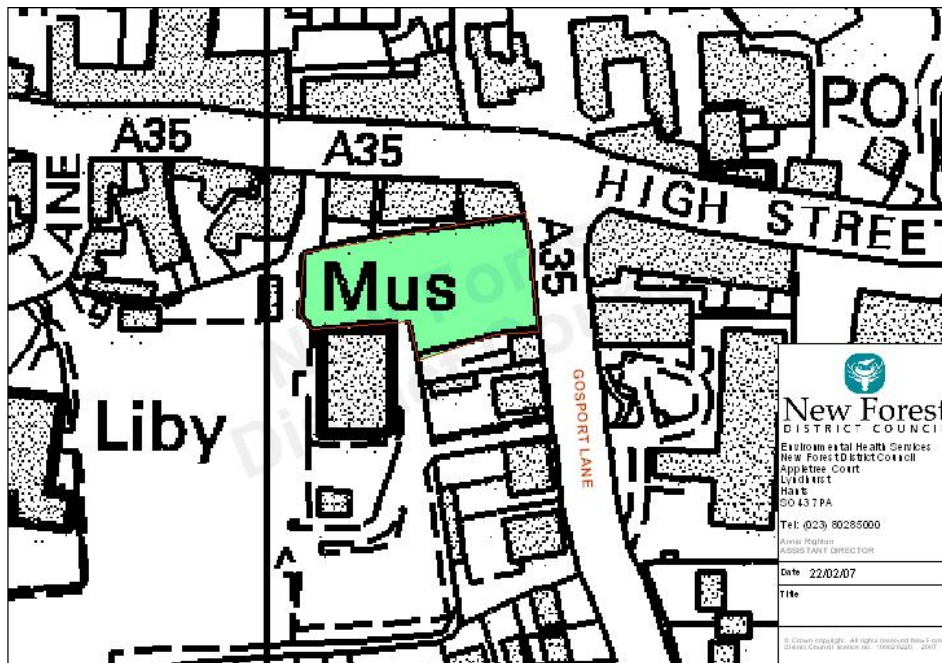
### Areas for development

The Air Quality Management Area in Lyndhurst is relatively small and narrow extending back 25m from both kerbs on the High Street. The area itself is developed with high street shops and accommodation above the shops. The type of premises within the Air Quality Management Area, which are now within the recently designated National Park, are unlikely to be redeveloped substantially leading to an increase in traffic within the Air Quality Management Area.

However, an area just outside the Air Quality Management Area situated between the High Street and Gosport Lane as shown in Figure 6 has been partially redeveloped. The development ceased at least 5 years ago and the site remains vacant. However, the redevelopment may resume as housing and / or shops. Such a development may increase traffic through the Air Quality Management Area and if possible should require an Environmental Impact Assessment with regards to the likely impact on air quality.

**Figure 6**

**Figure Showing the Partially Redeveloped Land in Lyndhurst**



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As Lyndhurst is on the main route into the southern forest towns and villages, any substantial developments, for example in Brockenhurst, may impact on the air quality in the Air Quality Management Area due to an increase in traffic flows. Given that air quality is a material planning consideration, it is likely that any such development would require an Environmental Impact Assessment with regards to the likely impact on air quality in Lyndhurst.

However due to the new National Park designation covering the majority of the New Forest (including Lyndhurst), it is highly unlikely that any substantial development will occur which would impact on air quality in Lyndhurst. To ensure there is consideration with regards to local development and air quality, the district and national park planning officers are aware of the Air Quality Management Area in Lyndhurst and are advised to consult with Environmental Health Officers on any future developments.

**Option Summary**

- (i) to continue to ensure future developments in Lyndhurst and the surrounding area which may impact on air quality in Lyndhurst are sufficiently assessed.***



## **5.11 Option 11**

### **Review of bus routes and services**

#### **Bus Service**

Lyndhurst, whilst being in the centre of the New Forest, has a limited bus service when compared to more urban areas. The bus service operating into and out of Lyndhurst is Wilts and Dorset. Currently the bus services are subsidised by Hampshire County Council to ensure there is an operating bus service.

Hampshire County Council has also undertaken a review during 2006 / 2007 of the bus services and as a result a new timetable was implemented in 2007 in an attempt to improve usage on the services. Unfortunately there are no priority bus routes on services into Lyndhurst, therefore, the buses are often held up in congestion around the town. As a result the service becomes unreliable and unattractive for use as an alternative means of transport for the public.

Therefore, although it is unlikely that bus services will be extended in the near future, the public bus service for Lyndhurst and throughout the New Forest needs to be maintained and improved wherever possible through a regular review of the service.

#### **Tourist Bus Service**

Through Hampshire County Council, in partnership with Solent Blue Line bus company, New Forest District Council and recently New Forest National Park, operate 2 open top tourist buses from May to September. This service has operated since 2004, although on a smaller scale, and is being expanded currently on an annual basis.

The tourist bus runs a route visiting the major towns and villages within the New Forest. Passengers pay a set fare and can hop on and off the service at any stop, with a bus visiting each stop every hour. The buses also have facilities to take bicycles.

The aim of the tourist buses is to encourage visitors to the area to enjoy the New Forest without the worry of getting lost or using their car. A Day Out Guide is available to encourage visitors using the tour to get off the bus to visit towns and walk and cycle in the Forest. This service has proved popular in its short history, with passenger numbers increasing by 80% from 2005 to 2006. Hampshire County Council has further aims for the scheme in 2007 and hope to increase passenger numbers further.

Whilst it is acknowledged that some passengers may have to drive into the centre of Lyndhurst (and therefore through the Air Quality Management Area) to catch the tourist bus, the bus can be picked up at any pre set stop. With tourists using the bus service, the overall number of tourist journeys using cars throughout the New Forest is reduced which has a positive impact on overall air quality.

The tourist buses have recently been upgraded to newer vehicles which are less polluting than those originally used on this scheme. The buses also do not enter Lyndhurst through the Air Quality Management Area, but via the west bound A35 and enter the car park off Gosport Lane.

### **Option Summary**

- (i) to continue to review public bus services and rural links throughout the New Forest***
- (ii) to continue the use of the tourist bus service.***

### **Target**

*to increase the number of people using public transport.*

### **Performance Indicator**

*to undertake traffic surveys, using data from bus companies, the tourist bus and questionnaire surveys annually to monitor number of people using public transport and to establish whether the choice of using public transport rather than driving was made.*

## 5.12 Option 12

### Review of cycle routes

The New Forest contains many recreational cycle routes which run across the forest and link forest towns. Such routes are popular with visitors to the area, however it is unlikely that recreational cycling will have an impact on air quality in Lyndhurst as most recreational cycling routes run across the forest rather than into Lyndhurst.

However a new cycle route will start to be constructed in 2007 between Ashurst and Lyndhurst. This will complete a route from Totton / Southampton through Ashurst to Lyndhurst, encouraging cyclists to leave their vehicles at home and cycle into Lyndhurst. With a number of New Forest District Council employees living in the Totton / Southampton / Ashurst area, employees may be encouraged to cycle into the Authority's Lyndhurst office.

It is acknowledged that this new cycle route will reduce vehicles entering Lyndhurst on the west bound A35, and is thus unlikely to reduce vehicles entering the Air Quality Management Area with the highest exceedances of the nitrogen dioxide annual mean. However any route that encourages a reduction in vehicle use is a positive outcome with regards to improvements in air quality.

### Option Summary

- (i) ***to continue to review and improve both recreational and non recreational cycle links and tracks.***

### Target

*to increase the number of cyclists cycling into Lyndhurst village.*

### Performance Indicator

*to undertake traffic surveys and questionnaire surveys annually to monitor number of cyclists in Lyndhurst and to establish whether the choice of cycling rather than driving was made.*

### **5.13 Option 13**

#### **Review car parking in Lyndhurst**

Following on from Option 6 (Enforcing parking restrictions in the High Street) the main parking facility for visitors (including those arriving in coaches) and residents using the village is the car park off the High Street. Therefore, many using this facility do so by driving through the Air Quality Management Area.

This car park, which is located in the centre of Lyndhurst, is council owned and is currently subject to the following parking charges i.e a 1 hour stay is 50p and a 2 hour stay is £1.10. Short term parking clocks can also be purchased annually for a small cost which allows a vehicle to effectively park free of charge. These parking clocks are normally purchased by local residents who would frequently utilise council owned car parks. The clocks are not limited to one vehicle and effectively one clock can be used by an unlimited number of vehicles within one household.

Whilst there have been numerous local political debates concerning the introduction of car parking charges, their imposition may result in drivers considering if their journeys are necessary and possibly selecting an alternative means of transport. In the case of Lyndhurst this may reduce the number of unnecessary vehicle journeys into the centre of the town and through the Air Quality Management Area.

A further impact of the car parking charges is that more vehicles are parking outside of the village centre in Forestry Commission car parks which are free. Whilst this might be considered an undesirable consequence of the car parking charging scheme, it does reduce the number of vehicles driving into the central village car park, and thus through the Air Quality Management Area. Therefore as a side effect there is a positive impact on air quality within the Air Quality Management Area due to drivers attempting to avoid any charge associated with parking in the main village car park.

The further consideration of this option will involve a parking survey to assess how many car park users are local residents or visitors and the acceptability of the location of the current village centre car park.

**Option Summary**

- (i) to review car parking in Lyndhurst**
- (ii) continue car parking charges in Lyndhurst car park**

## **5.14 Option 14**

### **Review of New Forest District Council's fleet management**

New Forest District Council is a large Authority covering 290 sq miles and with a population of 171,000. The Authority has to provide numerous services throughout the district, for example refuse collections, and operates a fleet of 160 vehicles ranging from vans to refuse lorries.

Some of the Authority's fleet vehicles would run through the Air Quality Management Area in Lyndhurst, and other communities in the district. Therefore it is important that these vehicles are operated correctly and maintained regularly to ensure emissions are kept to a minimum.

The Authority has already a number of measures in place to ensure the vehicle fleet is managed correctly. These include;

- As noted in Chapter 4, New Forest District Council is currently undertaking a Green Audit to address environmental issues within the district. Part of this audit is to initially undertake a review of the Authority's own fleet vehicles by the Energy Saving Trust which will then look at business mileage generally.
- Ensuring the Authority's transport fleet and employees lease cars are regularly upgraded. The Authority's fleet vehicles are either Euro III or IV classes which are replaced every 5-7 years. The employee's lease cars are all Euro IV and are replaced every 4 years. This scheme is currently undertaken by the Authority's transport fleet manager.
- The use of alternative fuels for the transport fleet is regularly reviewed by the transport fleet manager. The fleet currently runs on diesel fuel and whilst alternative fuels have been considered it is unlikely that other fuel types such as electric or liquid petroleum gas (LPG) would be used in the near future due to their unreliability. However the diesel used by the Authority is already a 95:5 mix Bio diesel.
- The Authority may consider running driver schemes for fleet vehicles to promote driving in an environmentally friendly manner (ecodriving). These basic techniques will reduce fuel consumption and vehicle emissions.

All these schemes would have a positive impact on air quality in Lyndhurst by ensuring Authority owned and operated vehicles are as fuel efficient as possible and that they are driven and routes planned as environmentally efficiently as possible. In order to progress some of the schemes listed there is a requirement for approval by both Council Members and employees.

This option is to work with colleagues within the Authority to ensure the management of the fleet is regularly reviewed and improved where necessary.

**Option Summary**

- (i) for New Forest District Council to regularly review its fleet and lease car vehicles with regards to fuel type and engine size.***
- (ii) for New Forest District Council to consider ecodriving courses for drivers of fleet vehicles.***

## **5.15 Option 15**

### **Vehicle emission testing**

New Forest District Council will consider undertaking vehicle emissions testing on vehicles travelling through the Air Quality Management Area in Lyndhurst. Neighbouring Authorities have worked with the Vehicle and Operator Services Agency (VOSA) to check the emissions and safety systems on vehicles.

This procedure has proved successful in Authorities already using the services of the VOSA in particular to publicise air quality issues. Vehicles found failing the emissions or safety checks can be prevented from being driven away or served an order to undertake the necessary repairs within 14 days.

Whilst an Authority with an Air Quality Management Area can apply to the Secretary of State for Transport for the power to undertake emission testing and issue fixed penalties under the Road Traffic Regulations 2002, New Forest District Council will communicate directly with the VOSA in the first instance to undertake the work of emission testing. This should reduce expense to the Authority by not having to adopt the necessary powers and speed up the whole process.

Emission testing in Lyndhurst would raise the profile of air quality and encourage motorists to have their vehicles properly maintained.

### **Option Summary**

- (i) New Forest District Council to consider roadside emission testing of vehicles in Lyndhurst.***



## **5.16 Option 16**

### **Investigate the use of NOx absorbing paving surface**

A recent development pioneered by the Japanese is the production of paving slabs which absorb oxides of nitrogen (NOx). Such a material may be suitable for use in Lyndhurst High Street.

The paving slabs contain titanium oxide (TiO<sub>2</sub>) which uses sunlight (UV) to absorb the NOx onto its surface. The NOx is then degraded and washed off the paving slab by rainwater.

This technology is relatively new and has only been tested outside the laboratory at a few locations such as in Italy and Japan. However, a trial is just being completed in Camden Council in London and the results are due out imminently. Initial results are favourable in that nitrogen dioxide concentrations have decreased, however at this stage it is prudent to wait for the trial to be completed and reports written.

If the trials are favourable, the use of the paving slabs should be considered for Lyndhurst. In particular in the Air Quality Management Area within the canyon effect of the High Street, i.e. the location just before the junction with the A337.

At this location the pavement is narrow, therefore it would need to be determined if the surface area of the paving slabs is sufficient for the effective absorption of NOx. The paving slabs also have an associated cost and a limited life. All these factors would need to be considered before implementing this option.

#### **Option Summary**

- (i) New Forest District Council to investigate the use of NOx absorbing paving slabs following trial in Camden Council.***

## **5.17 Option 17**

### **Increase public awareness of air quality issues**

Whilst the Environmental Protection department within New Forest District Council has continued to fulfil its duty to review and assess air quality within its district, the Authority needs to ensure the public, council employees and council members are kept informed with regards to these issues.

Currently air quality information and continuous analyser results are available through the Authority's website; [www.newforest.gov.uk](http://www.newforest.gov.uk) and the necessary council committees and parish council are informed on progress with regards to air quality issues. For example, officers regularly report to the Waterside Liaison Committee, a group made up from the authorised industrial processes within the district, local members, Natural England and the Environment Agency.

However, further work expanding the theme of air quality, for example press releases and articles concerning alternative or public transportation within the New Forest needs to be implemented on a regular basis to ensure the public are more aware of air quality issues.

In order to achieve this, Environmental Protection officers will have to work closely with other departments within the Authority, officers in Hampshire County Council and local members.

#### **Option Summary**

- (i) for New Forest District Council to ensure information on air quality and other related topics is regularly reported and readily available to the public.***

## **5.18 Option 18**

### **Review air quality monitoring within the New Forest**

Whilst New Forest District Council assesses air quality throughout its whole district following Government guidance<sup>7</sup>, the monitoring of pollutants is undertaken at numerous sites which could potentially have exceedances of an air quality objective. This monitoring includes the use of nitrogen dioxide diffusion tubes at 47 sites throughout the district, oxides of nitrogen continuous analysers at Lyndhurst and Totton, sulphur dioxide continuous analysers at Holbury and Fawley and particulate continuous analysers at Totton and Holbury.

It is important however to regularly review, for example on an annual basis, the air quality monitoring programme to ensure monitoring is being undertaken at the most appropriate locations and using the correct monitoring method. For example, it may be more appropriate to model a potential hot spot area or hire monitors on a short term contract before considering either moving existing monitoring equipment or purchasing new equipment.

#### **Option Summary**

- (i) for New Forest District Council to regularly review its air quality monitoring strategy.***

## **5.19 Option 19**

### **Do nothing**

Due to Central Government's initiatives in particular with regard to improvement in vehicle engines, it is predicted that nitrogen dioxide concentrations will decrease over time. This decrease is already being monitored to a certain extent however the percentage reduction of nitrogen dioxide has not been as great as initially predicted. One reason behind these observations is the fitting of particulate traps on heavy duty vehicles and an increase in the number of diesel vehicles on the roads.

Even so, one option would be to allow the nitrogen dioxide concentrations to decrease naturally as predicted over time.

However this is not a viable option. The Environment Act 1995 places a duty on Local Authorities to assess air quality. If an exceedance of an air quality objective is likely, the Local Authority has a duty to declare an Air Quality Management Area. Once the declaration has been made, the Local Authority has to produce an Action Plan containing options which attempt to improve local air quality so pollutant concentrations are within the prescribed objectives.

The do nothing option is not considered to be an acceptable route in the case of the Lyndhurst Air Quality Management Area.

## **6.0 COST / BENEFIT ANALYSIS**

In order to assess the options outlined in Chapter 5 a basic cost benefit analysis is required. Whilst the overall aim is to reduce nitrogen dioxide concentrations within the Air Quality Management Area, the cost of the scheme, the timescale to implement and other non air quality impacts need to be taken into account.

Therefore, a simple matrix has been determined, the aim being to rank each option taking account of all basic considerations. This matrix is shown in Table 4.

There are a number of points to note with regards to the matrix;

- unless there has been modelling or monitoring work undertaken the impact of each option on nitrogen dioxide concentrations and other environmental parameters has been estimated.
- the cost implications and timescale for the implementation of each option has been estimated with the assistance of Hampshire County Council transport planners.
- the impact score for nitrogen dioxide is ranked from 1 to 5 with a score of 5 having the greatest impact on this pollutant. The cost score is similarly ranked but in this instance a score of 5 would relate to the lowest cost.
- each option is scored by multiplying the impact score on nitrogen dioxide with the cost score to give an overall option score. This is (one of) the methods detailed in Part IV of the Environment Act 1995 Local Air Quality Management Policy Guidance: Addendum LAQM.PGA(05).
- other non air quality option impacts are noted within the matrix.

**Table 4****Table Showing Options Matrix.**

<b>Option</b> (in the order discussed in the Action Plan)	<b>Impact on nitrogen dioxide</b> <b>(A)</b>	<b>Cost</b> <b>(B)</b>	<b>Cost Effectiveness</b> <b>(A*B)</b>	<b>Timescale</b>	<b>Non Nitrogen Dioxide Impacts</b>	<b>Rank</b>
<b>1. Bypass</b>	3	1	<b>3</b>	Even if feasible long term to go through planning process, then long term to construct.	Very long process to obtain the necessary planning permission. Impact on flora and fauna within a National Park. Increase in noise and other pollutants for residents close to the bypass route. Possible increase in traffic.	<b>16</b>
<b>2. Improvement of A337 / A35 junction</b>	3	2	<b>6</b>	Commission feasibility study by July '08. Medium term to implement.	Possible health and safety issue to ensure HGV's can access turn from High Street into northbound A337. Disruption to property due to junction improvement.	<b>7</b>
<b>3. Additional signalised junction on A35 / Shrubbs Hill Road</b>	4	2	<b>8</b>	Feasibility study undertaken, traffic modelling to be completed by Jan '08. Implementation subject to HCC consultation.	Increase in noise and pollutants for Shrubbs Hill Road and Bournemouth Road residents. Forces some residents onto the one way system in order to exit Lyndhurst, with consequent inconvenience.	<b>4</b>

Option	Impact on nitrogen dioxide (A)	Cost (B)	Cost Effectiveness (A*B)	Timescale	Non Nitrogen Dioxide Impacts	Rank
4. Enforcement of HGV restriction.	2	5	10	Implement enforcement scheme by December '07.	Relies on the availability of police officers to enforce. Restriction already in place. Decreases impact on High Street from HGV's.	1
5. Installation of variable messaging system.	2	4	8	Feasibility study undertaken. Implementation subject to consultation '07 / '08.	Relies on officers to operate the system. Continuing commitment. Increases traffic and noise through Ashurst.	6
6. Enforcement of parking restrictions.	2	4	8	Feasibility study by December '08	Relies on officers to enforce. Continuing commitment.	5
7. Review signage in Lyndhurst.	2	5	10	Review during financial year '08 / '09.		2
8. Development of NFDC Travel Plan.	2	5	10	Already started, updated by April '08.	Relies on officer commitment. Continuous process.	3

Option	Impact on nitrogen dioxide (A)	Cost (B)	Cost Effectiveness (A*B)	Timescale	Non Nitrogen Dioxide Impacts	Rank
9. Development of school travel plan	1	4	4	Already started.	Relies on officer commitment. Continuous process.	13
10. Planned developments.	1	5	5	Already started.	Relies on officer commitment. May restrict further development of local area.	11
11. Review bus routes.	1	4	4	Tourist bus already started. Update progress annually. Review of bus service completed.	May increase pollution and vehicle noise outside of the AQMA.	15
12. Review cycle routes.	1	1	1	Already started.	Improved fitness of cyclist. Reduces other pollutant emissions.	17
13. Review car parking.	1	5	5	Feasibility study by April '08.	May have a negative impact on local businesses.	12
14. Council fleet management.	1	4	4	Already started.	Improving CO <sub>2</sub> emissions may increase nitrogen dioxide. Relies on officer and fleet driver's commitment.	14



Option	Impact on nitrogen dioxide (A)	Cost (B)	Cost Effectiveness (A*B)	Timescale	Non Nitrogen Dioxide Impacts	Rank
15. Vehicle emissions testing.	1	5	5	Testing to start by April '08.	Increases public awareness of air quality issues. Relies on officer commitment. Improves vehicle safety.	8
16. Investigate use of absorbing paving surface	?	5	No result	Investigate potential by December '07.	Slabs have a limited life. No impact on congestion issues.	
17. Increase public awareness of air quality.	1	5	5	By December '07.	Increases public awareness of air quality issues. Relies on officer commitment.	9
18. Review air quality monitoring.	1	5	5	Annually starting December '07.	Increases public awareness of air quality issues. Relies on officer commitment.	10

**Notes;**

**Costs**

<b>5</b>	<£10,000
<b>4</b>	£10,000 - £50,000
<b>3</b>	£50,000 - £100,000
<b>2</b>	£100,000 - £500,000
<b>1</b>	>£500,000

**Impact on nitrogen dioxide**

<b>5</b>	>5µgm <sup>-3</sup>
<b>4</b>	2 - 4µgm <sup>-3</sup>
<b>3</b>	1 - 2µgm <sup>-3</sup>
<b>2</b>	0.2 - 1µgm <sup>-3</sup>
<b>1</b>	<0.2µgm <sup>-3</sup>

**Timescales**

<b>Short term</b>	< 1 year
<b>Medium term</b>	1 –5 years
<b>Long term</b>	> 5 years

The matrix is a very simple, yet effective method of analysing each option. Once each option is scored, it is ranked, with the highest score resulting in the highest ranking. Where the scores were equal, the non nitrogen dioxide impacts were taken into consideration in order to attempt to rank the options. It should be noted that the scoring method used means that an option which is cheap to implement yet may have a small air quality impact may rank higher than a more costly option which may have a greater impact on air quality.

For example, the option to enforce the current heavy goods vehicles restriction in the High Street of Lyndhurst is the highest ranked option. However, the one which should have the greatest impact on nitrogen dioxide concentrations in the High Street is the new road scheme at Shrubbs Hill Road and the A35 which is ranked fourth due to the greater cost implications.

Therefore in summary, the options could be presented in the ranked order shown in Table 5.

It should be noted that the investigation into the use of the NO<sub>x</sub> absorbing paving slabs has not been ranked at this stage due to the uncertainties and effectiveness of their use at reducing nitrogen dioxide concentrations. As a result this option has not been included in Table 5.

**Table 5****Table Showing Options in Ranked Order.**

<b>Option</b>	<b>Impact</b>	<b>Lead Role</b>	<b>Rank</b>
<b>Enforcement of HGV restriction.</b>	Reduce number of HGV's cutting through the centre of Lyndhurst.	Police	<b>1</b>
<b>Review signage in Lyndhurst.</b>	Improvements to signs directing visitors into Lyndhurst town centre car park.	HCC	<b>2</b>
<b>Development of NFDC Travel Plans.</b>	Reduction in vehicles being driven through Lyndhurst. Reduction in congestion in Lyndhurst.	NFDC	<b>3</b>
<b>New road schemes on A35 / Shrubbs Hill Road junction.</b>	Reduce congestion in High Street through highest levels of NO <sub>2</sub> .	HCC	<b>4</b>
<b>Enforcement of parking restrictions.</b>	Improve traffic flow through AQMA.	NFDC	<b>5</b>
<b>Installation of variable messaging system.</b>	Diverting traffic from M27 into Lyndhurst via A35 (Ashurst).	HCC	<b>6</b>
<b>Improvement of A337 / A35 junction</b>	Improve flow of traffic on A35 and A337. Reduce congestion in Lyndhurst.	HCC	<b>7</b>
<b>Vehicle emissions testing</b>	To enforce powers to emission test vehicles which travel through AQMA.	NFDC	<b>8</b>

<b>Option</b>	<b>Impact</b>	<b>Lead Role</b>	<b>Rank</b>
<b>Increase public awareness of air quality.</b>	Publicise air quality and related issues throughout the District.	NFDC	<b>9</b>
<b>Review air quality monitoring.</b>	Ensure the correct monitoring of air quality is being undertaken.	NFDC	<b>10</b>
<b>Planned developments.</b>	Assess impact of development on air quality.	NFDC National Park Authority	<b>11</b>
<b>Review car parking.</b>	Continue charging to park in Lyndhurst village centre car park.	NFDC	<b>12</b>
<b>Development of school travel plans.</b>	Reduction in vehicles being driven through Lyndhurst. Reduction in congestion in Lyndhurst.	HCC St. Michaels school	<b>13</b>
<b>New Forest District Council fleet management</b>	Review council fleet and lease cars. Promote ecodriving.	NFDC	<b>14</b>
<b>Review bus routes.</b>	Reduce congestion in Lyndhurst. Reduce tourist journeys throughout New Forest.	HCC Solent Blue Line Wilts and Dorset	<b>15</b>

Option	Impact	Lead Role	Rank
<b>Bypass</b>	This remains as an option within the Plan but following the recent HCC Scrutiny Review this option will not be pursued in the foreseeable future.		<b>16</b>
<b>Review cycle routes.</b>	Encourage cycling as an alternative to car use into Lyndhurst. Reduce congestion in Lyndhurst.	HCC	<b>17</b>

## **Concluding Comment**

At this stage of the process to improve air quality it is the opinion of the Authority that the above noted options would all contribute to reduce nitrogen dioxide concentrations within the Air Quality Management Area.

The required reduction in nitrogen dioxide is considerable (~18% reduction of oxides of nitrogen) but the air quality modelling undertaken by netcen for option 3 has indicated that such a reduction to achieve a level below the annual mean objective is possible. However, the effect in air quality terms on areas outside the Air Quality Management Area would need to be assessed by further modelling.

Such transport related options rely on the support of Hampshire County Council transport planners with regards to transport feasibility and costs.

Non-transport related options are unlikely on their own to result in the required reduction of nitrogen dioxide. However such options would have a minor impact on nitrogen dioxide concentrations in Lyndhurst, address the wider implications of vehicle pollution and possibly influence the decisions individuals make with regards to their transport choices.

Therefore with careful selection of a number of options, the combined impact when implemented should result in the required reduction in nitrogen dioxide to below the air quality objective within the designated Air Quality Management Area.

## **7.0 CONSULTATION**

### **7.1 Consultation**

The draft Action Plan was put out for consultation for a period of 12 weeks commencing on the 14<sup>th</sup> May 2007 and closing on the 6<sup>th</sup> August 2007. The consultees were as follows;

Defra  
Environment Agency  
Hampshire County Council  
New Forest National Park Authority  
Natural England  
New Forest Verderers  
Forestry Commission  
Hampshire Constabulary  
St. Michaels and All Angels Infant School, Lyndhurst  
New Forest Business Partnership  
Southampton City Council  
Test Valley Borough Council  
Salisbury City Council  
East Dorset District Council  
Lyndhurst Parish Council  
Brockenhurst Parish Council  
Minstead Parish Council  
Ashurst and Colbury Parish Council  
Copythorne Parish Council  
Denny Lodge Parish Council  
Lyndhurst Residents Association  
New Forest District Council ; planning department  
transport department



In addition the Authority presented the draft Action Plan to the Parish Council and at a public meeting in Lyndhurst. A consultation leaflet was also delivered to local residents in Lyndhurst, which briefly outlined the aims of the Action Plan and the options under consideration. A return section on the leaflet allowed the public to list their favoured options and forward their views.

The draft Action Plan was also made available via the Authority's website, with copies available for viewing at the Authority's office at Appletree Court, Lyndhurst, Hampshire SO43 7PA.

## **7.2 Consultation Results**

As a result of the consultation, comments were received from the following;

Defra  
Hampshire County Council  
Southampton City Council  
Natural England  
New Forest Verderers  
St. Michaels and All Angels Infant School, Lyndhurst  
Lyndhurst Parish Council  
New Forest Business Partnership  
Lyndhurst Residents Association  
Members of the public

On the whole the draft Action Plan for Lyndhurst was welcomed.

Comments from Defra were not received until February 2008, which was well outside the consultation period and as a result has delayed the formal adoption of the Action Plan for Lyndhurst. The comments from Defra are shown in full in Appendix 4 however in summary points were raised concerning;

- Identification of targets and key performance indicators should be included for each option if possible.
- The inclusion of clear statements concerning the implementation timetable, integration within the Local Transport Plan and whether the Air Quality Action Plan will be sufficient to achieve the air quality objectives within the Air Quality Management Area.
- The inclusion of air quality emission reductions for the adopted options should be calculated where appropriate.

These comments have been noted and the Air Quality Action Plan has been amended accordingly.

Therefore, where appropriate each option includes a target and performance indicator in the option summary. Further statements have also been included concerning the Local Transport Plan and concluding remarks regarding the impact of the Air Quality Action Plan on the air quality objectives within the Air Quality Management Area.

At this time, only option 3 includes calculated emission reductions within the text, however options which are progressed will include air quality emission calculations as part of the feasibility study.

With regards to implementation timetables for options, the options matrix table on page 72 includes some indication of timescales for each option. These timescales will be improved upon once options are progressed and reported on within the annual progress report for the Action Plan.

With regards to further comments received, Lyndhurst Parish Council welcomed option 4, (enforcement of the vehicle restriction) option 5, (the variable messaging system) option 7, (the signage review) and option 10, (planned development). However option 3, (signalisation of Shrubbs Hill Road and A35) and option 2, (improvement to A337 / A35) are not supported and are viewed as options which will not improve air quality in Lyndhurst.

Lyndhurst Parish Council supports a bypass route as a viable and sensible option and states that money should not be spent on minor schemes which they consider will move the air quality problems elsewhere.

Natural England listed options 2, 3, 4, 5, 7, 8, 9, 10, 14, 15 and 17 as those are not likely to significantly effect the New Forest Special Areas of Conservation (SAC) / Special Protection Areas (SPA) / Ramsar or Site of Special Scientific Interest (SSSI) and therefore raised no concerns over them.

Options which are potential for concern and would require further environmental scrutiny are option 6, (enforcement of parking restrictions) option 11, (bus routes) option 12, (cycle routes) option 13, (review car parking charges) and option 16 (NOx absorbing pavement).

However, Natural England is very concerned with option 1, (bypass route) as in their opinion it would significantly effect the environmental classifications noted above. Therefore a bypass route would require an appropriate assessment in accordance with regulation 48 of the Conservation (Natural Habitats &c) Regulations 1994.

Natural England also commented that the Council should be looking at the wider sustainable transport issues in the New Forest National Park as a whole and that the Air Quality Action Plan should not be viewed in isolation.

In addition the New Forest Business Partnership also commented on the draft Air Quality Action Plan. Comments were forwarded on all the listed options. Options 2, 4, 5, 7, 9, 11, 12, 14, 15, 18 and 19 were agreed with and options 16 and 17 were noted. Furthermore, New Forest Business Partnership stated that in their opinion option 1, (the bypass) was the only long term practical solution however option 3, (signalised Shrubbs Hill Road / A35 junction) was felt to have merit and should be pursued further.

Whilst the New Forest Business Partnership agreed with option 6, (the enforcement of parking restrictions) they also commented that restricted hours for unloading goods to commercial premises should be considered for premises on the High Street and where rear accesses exist these should be utilised in preference to deliveries made from the High Street. This suggestion has been forwarded to the Lyndhurst Traffic Management Steering Group.

New Forest Business Partnership also strongly supported option 8, (New Forest District Council's transport plan). In particular, because the Authority could set a good example to the community with a green transport plan for its employees.

Option 13 raised concerns if the car parking charges were to increase and suggested residential parking permits to reduce visitors parking in residential streets. Finally, the New Forest Business Partnership also made additional points for consideration such as inner ring roads, reassessing the existing one way system and pedestrianisation of the High Street.

Comments were also received from St. Michael and All Angels Infant School. The school's main concerns are with regards to the safety of children walking to and from the school along narrow pavements. In fact a survey of parents undertaken by the school noted 5 specific comments concerning pollution issues out of 300+ responses. The safety issues form part of the schools transport plan with numerous schemes noted.

However, the school has strong reservations about option 3, (the signalisation of Shrubbs Hill Road / A35 junction), due to the possible increases in traffic speed of vehicles passing down the High Street outside the school. However these reservations may be reduced with the additional introduction of speed control measures and pavement improvements.

As part of the consultation process New Forest District Council also consulted with the public.

Approximately 1200 consultation leaflets were delivered to properties in Lyndhurst and 192 responses were received (~16% of those consulted). The results of the public consultation are shown in Appendix 5.

In summary the favoured option was option 1 (bypass route) [82.8%] followed by option 4 (enforcement of the HGV restriction) [69.8%]. These two options were the clear favourites with option 5, (variable messaging system) in third place [27.1%]. All the other options had a percentage vote of less than 20%. It should be noted that every respondent was given up to three votes for their favoured options, which is why the overall percentages do not add up to 100%.

Respondents to the public consultation could also list any options they did not agree with. Option 13, (review of the car parking charges) was the least favoured [28.1%] followed by option 3, (signalised junction of A35 and Shrubbs Hill Road) [14.1%]. All other options had a percentage vote of less than 10%.

It is worth noting that 7.3% of respondents did not agree with option 1, (bypass scheme) and therefore almost 10% of respondents did not commit an opinion either way with regards to the bypass option.

In addition further comments concerning the Action Plan were noted, which included;

- Reducing speed limits
- Reviewing the existing one way system
- Pedestrianisation of the High Street
- Congestion charging
- Additional routing schemes for Lyndhurst

A number of the comments forwarded by residents have been discussed with Hampshire County Council, some of which have already been included in work being undertaken by the transport planners concerning Lyndhurst. These areas of work will be included in the Action Plan Progress Report which is submitted annually following formal adoption of the Action Plan.

### **7.3 Hampshire County Council - Lyndhurst Bypass Scrutiny Review**<sup>8</sup>

During the consultation period for the draft Air Quality Action Plan for Lyndhurst, Hampshire County Council Environment and Transportation Select Committee initiated a scrutiny review, the purpose of which was to arrive at a view about whether to recommend to Hampshire County Council Cabinet that a bypass for Lyndhurst should be included as a major road scheme submission for funding to the south east Regional Transport Board in 2008.

The review group set its objectives through posing the following three questions:

- What are the current traffic problems and highway issues in Lyndhurst?
- What are the possible solutions to these problems?
- Of the range of possible solutions, would a bypass be a viable and deliverable option?

The Lyndhurst Bypass scrutiny review was launched in September 2007, with a variety of communications to the public and a request for written evidence from stakeholders by early October 2007. New Forest District Council provided evidence including information on air quality and the Air Quality Management Area. After considering the written submissions a 'select committee' style session was held in November 2007 for the purpose of hearing and questioning the evidence supplied by stakeholders.

The review group finalised its report which, together with a validation document produced by Mott MacDonald 'Lyndhurst Transport Study Report – Peer Review', was presented to the Cabinet on the 31<sup>st</sup> March 2008. The conclusions reached by the group included:

- The traffic and highways issues encountered in Lyndhurst are in many ways intrinsically linked to those of the neighbouring villages and to those of the New Forest as a whole
- Air quality must be given equal weight to that of congestion.
- There are many possible and varied solutions, some aimed specifically at air quality and / or congestion.

- Regional and national transport policy requires that additional highway capacity should only be promoted when all other options have been exhausted and it was apparent from the evidence gathered that non bypass solutions were available and therefore should be pursued
- Environmental constraints are considerable for a bypass
- The Review group cannot support additional road development, and stated that *' . . . the Review group could not recommend to Hampshire County Council Cabinet that a by-pass solution be prioritised as a major scheme bid to the Regional South East Transport Board in 2008. The Review group did not believe that at this point in time it is possible to demonstrate that the stringent criteria relating to planning, the environment and legislation could be met . . .'*

Having given careful consideration to all the points of view expressed, the Cabinet resolved the following in respect of traffic management solutions for Lyndhurst. In coming to their conclusion they accepted the recommendations of the Lyndhurst Bypass Scrutiny Review, with the exception of that relating to the further exploration of two inner route proposals (east and west) as it had been made clear from deputations received that these were not acceptable to many people in Lyndhurst.

- Hampshire County Council should exercise whatever influence it can, either in its own right, or in partnership with other County Councils, to ensure that manufacturers of satellite navigation systems include road restriction information.
- Given current information from Lyndhurst traffic surveys that a large percentage of vehicles are local as opposed to through traffic, the review group would wish to see exploratory work on the potential for smarter travel choices in Lyndhurst reducing the need to travel by private car.
- As a short term measure, Hampshire County Council should seek the cooperation of the Highways Agency to make the signage on the M27 and at Cadnam directed at Heavy Goods Vehicles more explicit regarding restrictions on accessing Lyndhurst, except for lorries making local deliveries.
- Hampshire County Council should use its influence, together with partners, to support a review of the level of penalty fine for HGVs contravening the lorry restrictions to enhance its effect, and to ensure greater efforts are made by the police to enforce the restrictions.



- Hampshire County Council should put in place a communication plan which would make it clear to people what information they can expect to receive at different stages of the work to resolve Lyndhurst's traffic problems, and how they can contribute to and inform this process.
- Outcomes from the planned Hampshire County Council led local engagement, and the further consideration of options identified in the 2007 Study Report should be communicated to the Environment and Transportation Select Committee in summer 2008 as part of the scrutiny monitoring work of the committee.
- The review group recommends further trialling of the use of variable message signs on the M27 to direct drivers away from congestion hot spots in the New Forest such as Lyndhurst and routing tourists to park and ride pick up points for the New Forest open top tourist bus.
- Hampshire County Council should prioritise New Forest wide approaches to traffic management with a view to known hot-spots such as Lyndhurst benefiting from such measures.
- In the light of viability and deliverability issues examined, the review group could not support the prioritisation of either a Lyndhurst focused bypass or a New Forest wide bypass at the present time. Concerns are those connected with the costs over benefits, as well as those relating to environmental impacts, given the stringent tests associated with an Appropriate Assessment under the Habitat Regulations, the potential adverse effects identified and the range of alternative measures that would be likely to have lesser environmental effect than a bypass, and have yet to be tested.
- The Cabinet does not support the further exploration of the two package options, namely east and west inner routes, but does support the lower cost option of demand management measures, such as junction improvements, one way system revisions etc. in the village, as identified by Hampshire County Council/Mott Gifford.

Therefore whilst New Forest District Council has decided to include a by-pass route as a possible option (Option 1) it is concluded that in the absence of the support of Hampshire County Council a by-pass route is not a feasible option at this time. Full details of the Scrutiny Review can be found on <http://www3.hants.gov.uk/scrutiny/scrutiny-committees/environment-transportation/cx-policyunitlyndhurstbypass.htm>

Following the Review, Hampshire County Council is currently considering other transport schemes for Lyndhurst which will be integrated into subsequent Action Plan Progress Reports. In order to progress the matter and improve the traffic issues in Lyndhurst a working group has been set up which amongst others, includes Lyndhurst Parish Council and representatives from this Authority. This is expanded upon in section 7.4.

## **7.4 Action Plan Progression**

Following the consultation period the Authority has amended the draft Action Plan as necessary and the Action Plan for Lyndhurst will be implemented following formal adoption by the Authority. The Action Plan will continue to be led by the Environmental Protection department at New Forest District Council, however there will be considerable input from other authorities, for example Hampshire County Council.

The implementation of the Action Plan will mean that County and District officers and Council Members will determine which options should be pursued.

Following the findings of the scrutiny review panel, as noted in section 7.3, a working group (Lyndhurst Traffic Management Steering Group) has been established by Hampshire County Council to review transport including air quality issues in Lyndhurst. This group has already started work on reviewing and assessing possible transport issues within Lyndhurst. It consists of representatives from Hampshire County Council, New Forest District Council, Lyndhurst Parish Council, New Forest National Park, other local parish councils, local businesses and other interested parties, for example New Forest Verderers. This group will feed into or possibly form the basis of the Action Plan working group.

A number of stages will be followed during the implementation of the Action Plan. In summary these are;

### ***(i) Modelling / Feasibility Studies***

Whilst a number of the options listed have already been modelled in terms of air quality impacts and / or feasibility studies undertaken to determine if a particular option could work, a number of other options have not progressed past the initial concept stage.

Therefore, in order to progress the Action Plan further modelling work or feasibility studies may need to be undertaken. This will be with particular reference to the more direct traffic related options, for example Option 2. Other studies, for example bus use or car parking surveys, are also likely.

The results of these studies may impact significantly on a particular option. For example an option may not be feasible and therefore may be dismissed completely.

### ***(ii) Monitoring of Impact of Options***

Once options are implemented the impact on nitrogen dioxide and in particular the annual mean objective will continue to be monitored using passive diffusion tubes located around Lyndhurst, both inside and outside of the Air Quality Management Area, and the real time continuous analyser located within the Air Quality Management Area. If an option is likely to increase nitrogen dioxide concentrations outside the Air Quality Management Area, then monitoring will be extended to cover such a location.

Given the monitoring of nitrogen dioxide that has been undertaken in Lyndhurst using diffusion tubes since 1995, there is a wealth of data which should assist officers in determining likely impact on nitrogen dioxide and possible trends in pollution concentrations.

In addition, traffic surveys will continue to be undertaken on the access roads into Lyndhurst. These are carried out by Hampshire County Council on the four access routes into the town. By assessing the traffic counts the impact of the options on congestion into Lyndhurst can also be monitored.

Traffic surveys can also be utilised to assess the effectiveness of implemented options. For example by undertaking the following;

- (i) traffic counts of queuing traffic waiting at the signalised junction.
- (ii) regular traffic surveys to assess if vehicles are using rat-runs to effectively bypass Lyndhurst.
- (iii) traffic surveys to determine the number of restricted vehicles passing through Lyndhurst.
- (iv) surveys on use of local public transport and cycle routes.

Traffic surveys will have to be undertaken at regular intervals and with the assistance of Hampshire County Council. The progress of monitoring nitrogen dioxide concentrations and traffic surveys would be reported in the annually produced progress reports of the Action Plan for Lyndhurst.

***(iii) Reporting on the Progress of the Action Plan***

Local Authorities have a duty under the Environment Act 1995 to keep their Action Plans up to date which may include its revision. Therefore Local Authorities have to submit an annual Progress Report with regards to each Action Plan.

It is likely that following each Action Plan Progress Report there will be a report made to Hampshire County Council, New Forest District Council and Lyndhurst Parish Council for consultation and comment. The Action Plan and subsequent Progress Reports will be available via the Authority's website.

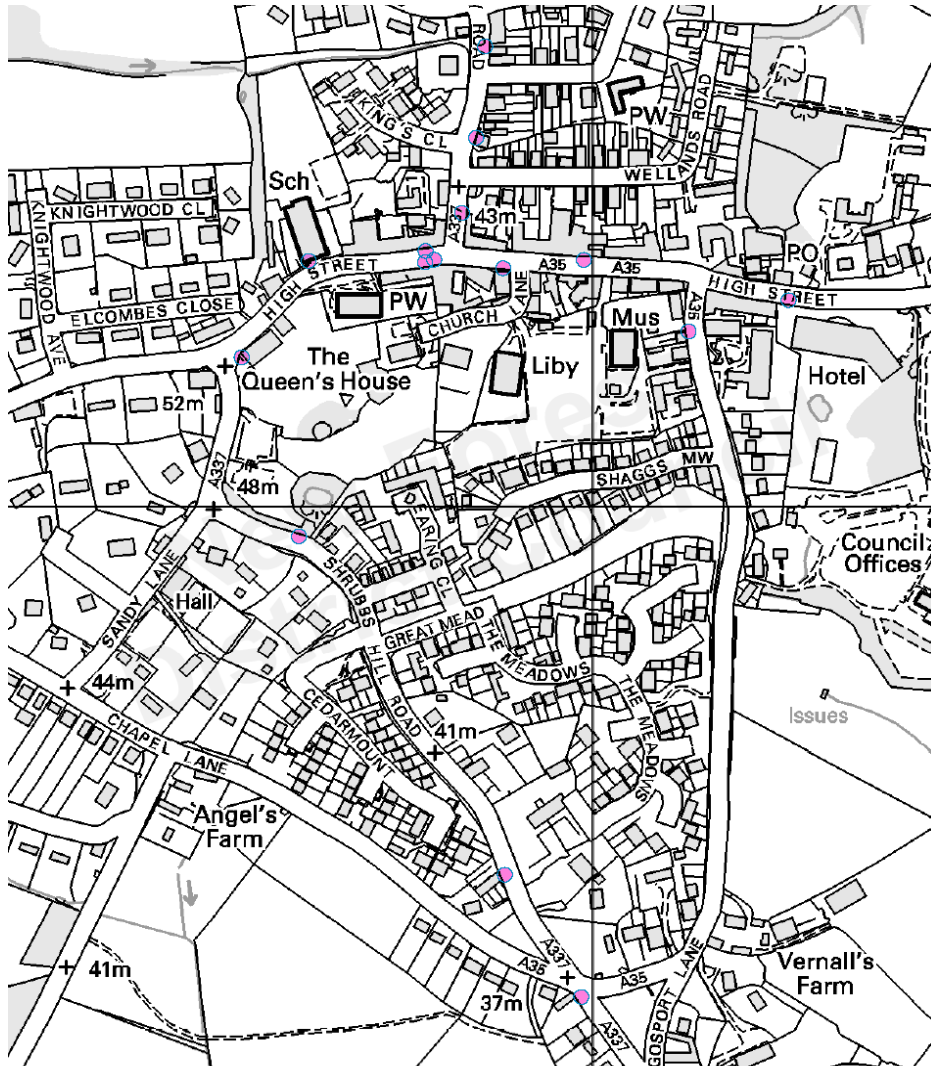
In addition, throughout the implementation of the Action Plan for Lyndhurst and assessment of air quality the Authority will continue to work with, consult (where necessary) and inform all interested parties.



## **REFERENCES**

1. Expert Panel on Air Quality Standards – Nitrogen Dioxide. **Department of the Environment. 1996.**
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3. [www.airquality.co.uk/archive/laqm/tool.php](http://www.airquality.co.uk/archive/laqm/tool.php)
4. Air Quality Modelling Assessment – A Report Produced for New Forest District Council. **netcen. October 2006.**
5. Hampshire County Council Local Transport Plan 2006 – 2011. **Hampshire County Council.**
6. Adopted Local Plan, First Alteration. **August 2005. New Forest District Council.**
7. Local Air Quality Management. Technical Guidance LAQM.TG(03). **Defra**
8. <http://www3.hants.gov.uk/scrutiny/scrutiny-committees/environment-transportation/cx-policyunitlyndhurstbypass.htm>

**APPENDICES**

**Location of Diffusion Tubes in Lyndhurst**

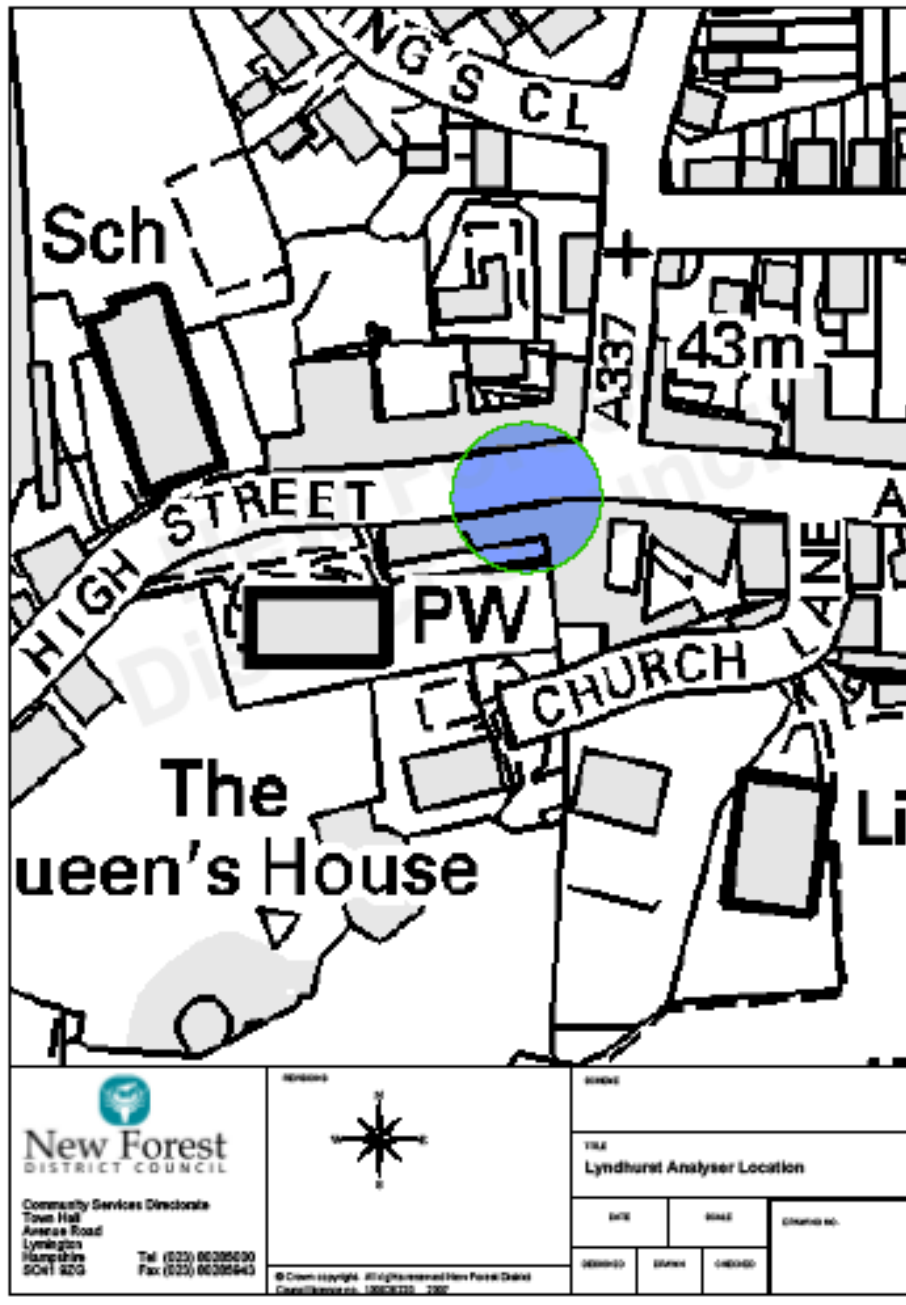


 <b>New Forest</b> DISTRICT COUNCIL  Community Services Directorate Town Hall Avenue Road Lymington Hampshire SO41 9ZG Tel (023) 80285000 Fax (023) 80285943	REVISIONS	SCHEME
		TITLE <b>Appendix 1</b>
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DESIGNED	DRAWN	CHECKED
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Location of Real Time Analyser in Lyndhurst



AEAT/ENV/R/2317

## Executive Summary

Following the outcome of their Detailed Assessment of December 2004, New Forest District Council have commissioned **netcen** to undertake an Air Quality Modelling Assessment for nitrogen dioxide (NO<sub>2</sub>) for the following seven streets in Lyndhurst:

- A35 Bournemouth Road
- A35 High Street
- A35 Chapel Lane
- A35 Gosport Lane
- A337 Shrubbs Hill Road
- A337 Romsey Road
- Sandy Lane

The Detailed Assessment, completed in 2004, estimated the NO<sub>2</sub> concentrations within Lyndhurst for 2005. The report found that the 12-month monitoring studies using passive diffusion tubes at Lyndhurst indicated likely exceedances of the annual mean objective for Nitrogen Dioxide. Therefore, New Forest District Council declared an Air Quality Management Area in Lyndhurst with regards to the Nitrogen Dioxide 2005 Annual Mean objective. This is an area extending 25m either side of both kerbs in the High Street, Lyndhurst between Lyndhurst Infant School and Forest Cottage, 97 High Street.

The objective of this Air Quality Modelling Assessment was to test out two traffic-planning scenarios and assess the likely impact they may have on pollutant concentrations in future years, and therefore their likely effectiveness.

The present report therefore constitutes an Air Quality Modelling Assessment for New Forest District Council. Only the impacts of nitrogen dioxide emissions are considered in this report. This report investigates current and potential future nitrogen dioxide levels through an examination of the location and size of principal traffic emission sources, emissions modelling exercises and by reference to monitored air quality data.

### Nitrogen Dioxide

It is recommended that New Forest District Council maintain the current AQMA boundary.

- Exceedances are predicted at roadside locations along Lyndhurst High Street for the existing 2005 situation.
- From the modelling results of the proposed traffic measures, it is predicted that both option 1 and 2 will have positive effects on air quality.
- The contribution of HDVs to emissions is still high in the base case, even though a HDV ban is in place along Lyndhurst High Street. It is recommended that this is re-enforced and perhaps extended.
- Although no exceedances are predicted for the proposed traffic measures, the options both result in increased flows and queuing, more so in option 2, along Shrubbs Hill Road. This could subsequently result in moving the current air quality problem away from Lyndhurst High Street and the higher proportion of relevant receptors to Shrubbs Hill Road. Further monitoring will be needed at the fewer relevant receptors along the north end of Shrubbs Hill Road if either option is chosen.

### Re: “Draft Air Quality Action Plan Consultation – Lyndhurst” New Forest District Council 2007 (AMENDED)

#### **The air quality issue(s):**

The report contains a summary of the review and assessment work and the need for an action plan in New Forest. In terms of air quality management the key conclusions are:

#### Lyndhurst

- Congestion in Lyndhurst High Street is such that the annual mean NO<sub>2</sub> objective is exceeded and an AQMA has been declared as a result.
- A reduction in NO<sub>x</sub> of at least 20% is required to achieve the objective in areas of concern.
- Although heavy duty vehicles are a small minority of total flow in the AQMA they are estimated to contribute 33% towards local NO<sub>x</sub> concentration. Light duty vehicles are estimated to contribute 46% with background contributing the remainder.

#### **The proposed AQAP:**

The draft action plan report is largely consistent with Defra’s guidance on Action Plans. The existing plans and policies in the District that have a bearing on air quality are summarised in a clear way.

It is noted that the implementation of some options is still conditional on factors such as the results of feasibility studies or the source of funding.

The options currently in the plan are described very clearly in terms of their scope and aims. A clear summary statement of each option is provided which is recognised as an example of good practice. New Forest is encouraged to include targets or other performance indicators in these summaries.

Cost-effectiveness assessments have been completed mainly on the basis of professional judgement and estimation and the results appear well-founded in the comments provided for each option. Overall this is a clear assessment but there does not appear to be an assessment of the wider impacts of options other than the comments provided for each option.

#### Lyndhurst:

18 measures are considered all focussed on road transport. The measures are considered comprehensive and correctly focussed on the traffic emission issues. Both direct (fixed and variable signage) and indirect actions (e.g. travel planning) are prioritised to re-route or reduce journeys and to restrict HDVs access in the High Street. There is no information to suggest how far these actions may bring about the required 20% reduction in local NO<sub>x</sub> concentration.

Plans for stakeholder consultation include a comprehensive list of stakeholders who will be consulted including residents. Review and Assessment information will be made available to all consultees.

It is proposed that measures will undergo further feasibility study in some cases before they are implemented. Assessment of the air quality benefits of measures would be assessed in detail during these studies. In addition monitoring and traffic surveys are envisaged to monitor progress with the plan. The plans do not state whether they will be fully integrated into the County LTP, but the significant input of the County transport planners is acknowledged.

Consideration of the following is advised in the completion of the Action Plan.

1. The air quality emission reductions for the adopted actions should be calculated where appropriate. For example, for feasibility studies on traffic management options, inclusion of the quantification of the likely emission reduction, along with an implementation plan, should be made.
2. Targets and key performance indicators for each action should be identified if possible. This will clearly focus action and performance success towards meeting the aims of the Action Plan. Where this is not practicable now, a commitment to identifying such should be made.
3. Clear statements should be included on the implementation timetable, whether the plan is to be fully integrated with a Local Transport Plan and whether the final plan will be sufficient to achieve the air quality objective in the AQMAs.

### **Conclusions**

This draft report is extremely clear and well-structured and are largely consistent with Defra's guidance on air quality Action Plans. The introduction of targets and key performance indicators for each action will be beneficial to New Forest District Council in demonstrating their progress on implementation of this Action Plan.

### **Contact Details for further enquiries**

Issues can be followed up through the Air Quality Action Plan helpdesk as follows:

Action Planning Helpdesk telephone: 0870 190 6050

Action Planning Helpdesk email: [lasupport@aeat.co.uk](mailto:lasupport@aeat.co.uk)

Action Planning Web-site: [www.airquality.co.uk/archive/actionplan.php](http://www.airquality.co.uk/archive/actionplan.php)

**Public Consultation Results**

<b>Option</b>	<b>Number of Respondents Agreeing with option</b>	<b>%</b>	<b>Number of Respondents Disagreeing with option</b>	<b>%</b>
By-pass	<b>159</b>	<b>82.8</b>	<b>14</b>	<b>7.3</b>
Improvement of A337 / A35 junction	<b>37</b>	<b>19.3</b>	<b>17</b>	<b>8.8</b>
Signalised junction A35 / Shrubbs Hill Road	<b>37</b>	<b>19.3</b>	<b>27</b>	<b>14.1</b>
Enforcement of HGV restriction	<b>134</b>	<b>69.8</b>	<b>5</b>	<b>2.6</b>
Variable messaging system	<b>52</b>	<b>27.1</b>	<b>15</b>	<b>7.8</b>
Enforcement of parking restrictions	<b>27</b>	<b>14.1</b>	<b>17</b>	<b>8.8</b>
Review signage	<b>8</b>	<b>4.2</b>	<b>8</b>	<b>4.2</b>
Development of NFDC travel plan	<b>9</b>	<b>4.7</b>	<b>6</b>	<b>3.1</b>
Development of school travel plan	<b>17</b>	<b>8.8</b>	<b>8</b>	<b>4.2</b>
Planned developments	<b>5</b>	<b>2.6</b>	<b>10</b>	<b>5.2</b>
Review bus routes	<b>10</b>	<b>5.2</b>	<b>11</b>	<b>5.8</b>
Review car parking charges	<b>3</b>	<b>1.6</b>	<b>54</b>	<b>28.1</b>
NFDC fleet management	<b>0</b>	<b>0</b>	<b>11</b>	<b>5.8</b>
Vehicles emission testing	<b>10</b>	<b>5.2</b>	<b>15</b>	<b>7.8</b>
Increase public awareness of air quality	<b>6</b>	<b>3.1</b>	<b>11</b>	<b>5.8</b>
Review air quality monitoring	<b>7</b>	<b>3.6</b>	<b>7</b>	<b>3.6</b>

**Based on 192 public responses (~ 16% of residents surveyed)**