

## CHAPTER 7

# Improving air quality

## Introduction

7.1 This chapter describes our strategy to deliver the LTP objective of:

**Improving air quality** in the traffic-related AQMAs in each district through action plans and robust monitoring of nitrogen dioxide concentrations against national target levels.

7.2 It includes:

- An overview of our strategy
- A summary of the national context
- How we have worked with our partners through the Leicester and Leicestershire Air Quality Forum
- A brief outline of the development of Air Quality Management Areas (AQMAs) in Leicestershire
- How we will tackle the three AQMAs where nitrogen dioxide (NO<sub>2</sub>) levels currently exceed the national objective
- The current situation with AQMAs close to the M1 motorway
- How we are dealing with those AQMAs where measured NO<sub>2</sub> levels are currently below the national objective, two recently declared AQMAs and potential emerging air quality problems
- A summary of the contribution of our air quality strategy to the other LTP objectives and quality of life issues.

## Overview of our Air Quality Strategy

7.3 Clean air is an essential ingredient of a good quality of life and air pollution can have a serious effect on people's health. One of the main sources of air pollution is road traffic, particularly in congested urban areas.

7.4 Our strategy to improve air quality is set in the context of the national strategy "Working Together for Clean Air". Whilst recent reports from Defra show how air quality is predicted to improve generally, the strategy highlighted the role local authorities can play in tackling local pollution hot spots known as Air Quality Management Areas (AQMAs). Our congestion strategy will help the general improvement in air quality and our air quality strategy therefore focuses on those few areas where the Government's air quality objectives are not met due, at least in part, to road traffic. The problem in each case is the level of NO<sub>2</sub>.

7.5 We have carried out extensive work with the district councils both individually and through our Air Quality Forum to ensure that our air quality work is focussed on those areas most in need of improvement and that our proposed actions are challenging but at the same time realistic as to what can be achieved by the range of measures proposed. This realism is necessary because if these actions are not sufficient on their own we will need to investigate more major interventions.

7.6 Our strategy sets out:

- How we have reduced from over 20 AQMAs to only three where we now believe NO<sub>2</sub> objective levels are currently exceeded. These are in Loughborough, Lutterworth and Kegworth
- Our LTP Air Quality Action Plans (AQAPs) for these areas and our district councils' support for them
- How we propose to deal with the remaining six non-motorway original AQMAs which have not been revoked, but where current measurements show NO<sub>2</sub> already below the objective level.

7.7 We show how we have worked with our partners through the Air Quality Forum, and how we aim to achieve best value from our action plans by carrying out the most cost-effective measures. We explain how we will monitor and manage our performance through a combination of key outcome indicators for NO<sub>2</sub> and intermediate outcome indicators for traffic growth to assess progress towards NO<sub>2</sub> targets. We show how we currently expect two AQMAs, in Loughborough and Lutterworth, to be above the NO<sub>2</sub> objective level by 2010. We then demonstrate how our air quality strategy will contribute to the achievement of our other LTP objectives and will help improve other aspects of quality of life.

7.8 Throughout the development of our strategy, action plans and monitoring arrangements, we have worked closely with all the district councils as the statutory environmental health authorities. We have also been supported by Air Quality Consultants Ltd and engaged closely with Defra. This has enabled us to be confident that we can focus our efforts in from over twenty original AQMAs to the three where it is clear that NO<sub>2</sub> objective values are currently exceeded. These three AQMAs are all on A class roads and the action plans reflect the difficulty of seeking significant traffic growth reduction on these strategic routes: we therefore seek improvements across a large range of measures.

7.9 Our work has also been closely integrated with the Strategic Environmental Assessment and our approach to air quality accords with the findings in the environmental report. In particular, we recognise that AQMAs currently without exceedence will need ongoing monitoring, and that further LTP AQAPs may need to be introduced with the first or subsequent LTP2 progress reports.

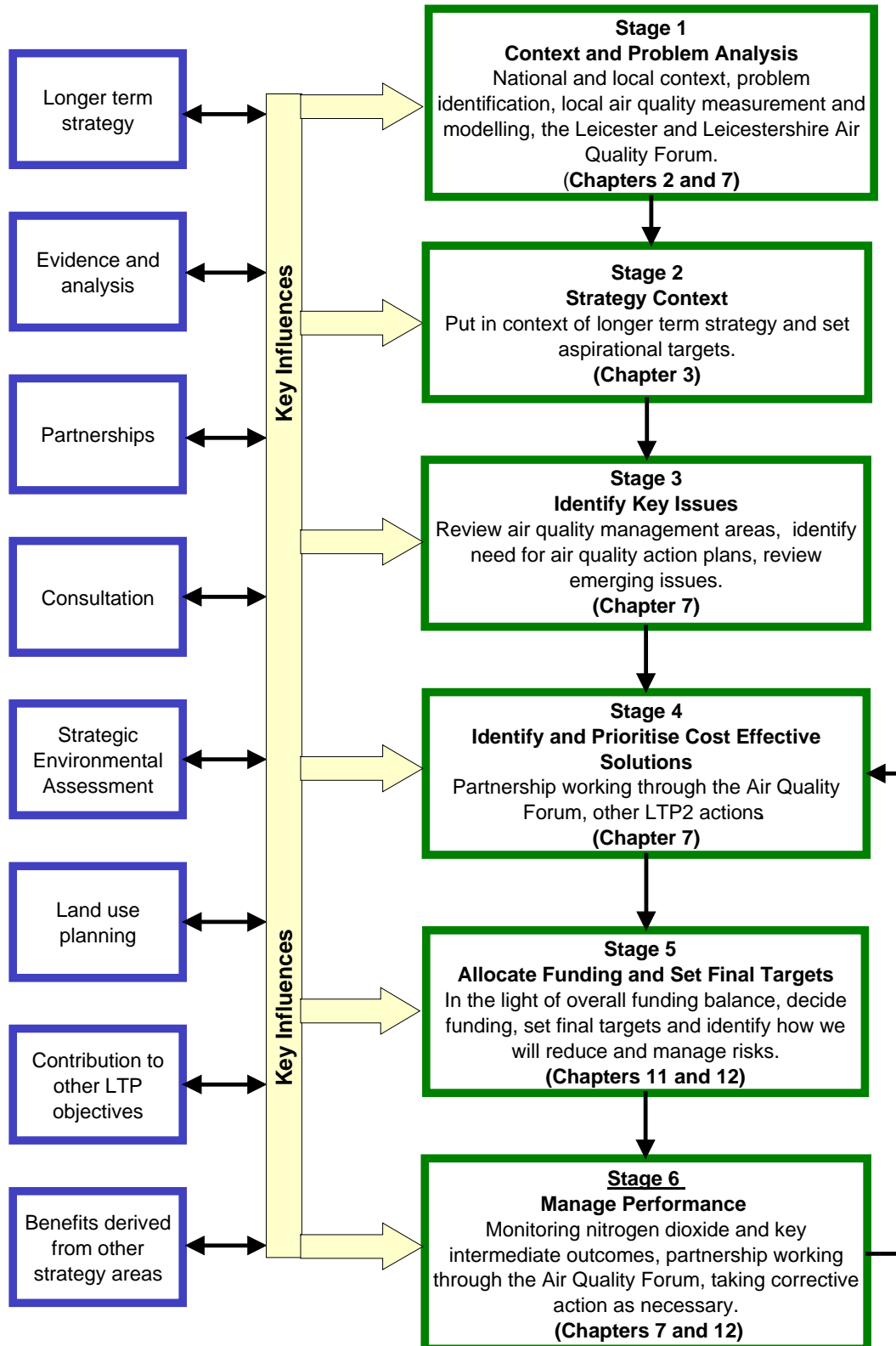
7.10 The process for delivering and implementing our strategy for improving air quality is shown in Figure 7.1.

### National context

7.11 In 2000 the Government published its Air Quality Strategy “Working Together For Clean Air” setting out its policy and how a range of measures at international, national and local level would help to deliver cleaner air in the medium term. This strategy sees a major role for local authorities, and in particular the role local air quality management can play in tackling local pollution hotspots which are caused by road transport.

7.12 The strategy sets out objectives for what should be achieved with respect to eight air pollutants and, in two tier authorities, district councils are required to review and assess local air quality against seven of them. Where the objectives for the pollutants are unlikely to be met by the due date, they must declare AQMAs and prepare action plans setting out proposals to tackle the problem. With respect to transport, the two main pollutants are nitrogen dioxide and particles (PM<sub>10</sub>). For nitrogen dioxide the most critical objective is to achieve annual mean concentrations below 40 µg/m<sup>3</sup>.

Figure 7.1 Development and delivery of the improving air quality strategy



7.13 In 2005 Defra issued guidance recommending that local authorities integrate AQAPs into LTPs where road transport is a major source of pollution, and gave guidance on how this should be done.

### National trends in air quality

7.14 Two recent reports for Defra show how air quality is predicted to improve in the United Kingdom. The first, by the Defra Air Quality Expert Group, examines nitrogen dioxide, which is a traffic related pollutant and which is responsible for the largest number of AQMAs in the UK. The limit value of 40 µg/m<sup>3</sup> was the national objective for 2005 and is set for 2010 in the European Union. New, cleaner vehicles cause road traffic to become less polluting each year, despite annual traffic growth. The predictions for the UK are given in Table 7.1 and show the very significant fall already achieved, and forecast for the period to 2010:

**Table 7.1 UK predictions of nitrogen dioxide levels**

Area of UK	Major road lengths where nitrogen dioxide exceeds 40 µg/m <sup>3</sup>		
	2001	2005	2010
Scotland	17%	8%	2%
Wales	5%	2%	0%
Northern Ireland	5%	3%	0%
London	90%	65%	23%
Rest of England	33%	18%	5%

7.15 This report also presented evidence on the fall in measured nitrogen dioxide concentrations over quite short distances from the edge of roads. Its conclusion was that models should be able to reproduce this, and that further measurement studies are needed, together with comparisons with model results. Most models do not yet allow for this reduction, and can therefore exaggerate concentrations where areas of relevant exposure are significantly set back from the road edge. This highlights the need for local monitoring data, both for local concentration data and for verifying modelling studies.

7.16 The second report, by AEA Technology Environment, examines the effectiveness of the national air quality strategy and demonstrates the major improvements in recent years and how the problems are predicted to reduce by 2010. The health benefits are dominated by the dramatic reduction in PM<sub>10</sub> particle emissions, which have been the major traffic-related cause of respiratory problems in the most affected urban areas with high population densities. The report predicts that nitrogen dioxide exceeding the 40 µg/m<sup>3</sup> limit value will affect 360,000 people in the UK in 2010. Because most of the problems, and so much of the population, are in London and the major city centres, relatively few people outside these areas should be affected.

7.17 Whilst the above reports anticipate much reduced air quality problems by 2010, recent monitoring has shown that reductions in roadside nitrogen dioxide have been less than previously forecast, and national predictions for 2010 are expected to be revisited by the Defra Air Quality Expert Group.

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## The air quality forum

7.18 Since the air quality legislation came into effect in 1995 there has been effective joint working between the seven district councils in Leicestershire, Leicester City Council, the Highways Agency and the County Council. This has operated through the Air Quality Forum, which has ensured best practice and a common approach to air quality matters over the last 10 years during which there have been various changes in requirements and regulations. In all districts there have been extensive investigations and assessments during the period and a considerable level of experience and expertise has been developed.

7.19 We have prepared this section of LTP2 over a number of regular meetings of the Air Quality Forum and there has been wide consensus regarding the use of 2004 measurements for establishing the 2004 baselines for air quality targets. In some cases, nitrogen dioxide concentrations have been measured near the edge of the road rather than at residential facades and there has been thorough scrutiny of the method of adjustment used for LTP2 and described below.

## AQMAs in Leicestershire

7.20 Since the introduction of the Environment Act 1995, over 20 non-motorway AQMAs have been declared in Leicestershire, relating to levels of nitrogen dioxide above the EU threshold. Many of these were declared on the basis of modelling work which, as stated earlier, can exaggerate concentrations where areas of relevant exposure are significantly back from the road edge. It became apparent therefore that the growing evidence base from the monitoring of air quality in the AQMAs could be used to review the original declarations and this was done through the Air Quality Forum.

7.21 Nitrogen dioxide concentrations are measured or predicted as annual average levels over the 24 hour day for all days in the year, and this is the basis for the national 40  $\mu\text{g}/\text{m}^3$  objective. The health concern is for people with longer-term exposure to concentrations above the objective. To represent this effect, areas of relevant exposure are taken as being residential façades, which may or may not be close to the edge of the road.

7.22 Some of the air quality monitoring in Leicestershire uses diffusion tubes mounted on street lamp columns very close to the kerbline, at some distance from residential facades, and the measured values of nitrogen dioxide do not quantify relevant exposure. For the LTP2 preparation work, the values in these cases have been adjusted for residential façades using a relationship defined by an equation in Volume 11 of the Design Manual Road and Bridges (DMRB Air Quality para 2.36). This equation defines a pollution reduction curve with increasing distance from the centreline of the road.

7.23 Using this reduction curve for nitrogen dioxide concentrations is consistent with the recent evidence of the Defra Air Quality Expert Group which contains a similar curve using nitrogen dioxide measurements near the M25, and also a London street. These both show a steeper rate of decline with distance from the road edge, compared with the DMRB method adopted for LTP2. Where necessary the DMRB equation has been used in a spreadsheet to calculate façade factors. These have been applied to the measured concentrations, having first deducted the background level of nitrogen dioxide given by the nationally issued 2004 mapped values for the relevant location.

Figure 7.2  
AIR QUALITY MANAGEMENT AREAS

7.24 Following this work, and earlier reviews, we now have a much more evidence-based approach to improving air quality which we can use to ensure our efforts are concentrated at the most critical locations. The position in Leicestershire is shown in Figure 7.2 and is summarised below:

- Three AQMAs in Loughborough, Lutterworth and Kegworth for which LTP action plans have been developed
- Three AQMAs near to the M1 motorway for which the Highways Agency is currently completing assessment work prior to consultation on its M1 widening proposals
- Two AQMAs in Narborough Road South (Blaby District) and Melton Road, Syston (Charnwood Borough) where baseline measurement is currently below  $40 \mu\text{g}/\text{m}^3$ , and where further monitoring is proposed, but no LTP action plans are currently proposed
- Four AQMAs in Oadby and Wigston Borough where baseline measurements are well below the national objective, and where further monitoring is expected to lead to revocation early in the LTP period
- Two recently declared AQMAs in Blaby District and emerging potential problems elsewhere which will require further consideration when air quality measurements are available.

7.25 The following sections provide further details of all of these, starting with the three AQAPs.

## Our three air quality action plans

### Action plan for Loughborough

7.26 Our AQAP for Loughborough builds on the air quality assessment work done by and for Charnwood Borough Council, and in particular the following documents:

- October 2004 Stage 4 assessment report which can be viewed on the Borough's website (see <http://www.charnwood.gov.uk/uploads/1418122423f4b4558317168.pdf>)
- January 2005 Draft Air Quality Action Plan commissioned from Casella Stanger (see <http://www.charnwood.gov.uk/uploads/14208d43866315220855041.doc>).

7.27 Our action plan does not aim to repeat the information given in these documents, except insofar as is needed to meet the Government's LTP AQAP requirements. The second of these documents has been subject to extensive consultation by Charnwood Borough.

### Current position

7.28 The AQMA for Loughborough covers a number of roads near the centre of the urban area, but the worst problems occur on the A6 former trunk road through the middle of the town centre. All the monitoring has been on the façades of buildings and the results for these two worst locations are shown in Table 7.2.

**Table 7.2 Nitrogen dioxide monitoring results along A6 Loughborough**

Nitrogen dioxide $\mu\text{g}/\text{m}^3$ measured concentrations	2001	2002	2003	2004	Façade 2004
A6 High Street	53.7	58.4	74.7	67.7	67.7
A6 Derby Road	41.2	42.6	48.8	43.7	43.7

**Sources of nitrogen dioxide**

7.29 The contributions from different types of vehicle to overall nitrogen dioxide (NO<sub>2</sub>) levels were given in the October 2004 Stage 4 report and repeated in the January 2005 draft AQAP for Charnwood Borough Council. The details are shown in Table 7.3.

**Table 7.3 Nitrogen dioxide levels by vehicle type in Loughborough**

Selected locations	Background NO <sub>2</sub>	2005 vehicle NO <sub>2</sub> contributions			
		cars and taxis	light goods vehicles	buses and HGVs	total vehicles
166 Leicester Road	32.9%	15.5%	5.5%	46.1%	67.1%
114 Derby Road	34.3%	22.9%	6.2%	36.6%	65.7%
5 Leicester Road	35.0%	16.0%	5.2%	43.8%	65.0%
3 Brisco Avenue	42.9%	16.8%	4.8%	35.5%	57.1%
1 Haydon Road	47.6%	16.5%	5.3%	30.6%	52.4%
1 Shearers Court	49.1%	17.7%	5.1%	28.1%	50.9%
74 Ratcliffe Road	54.8%	14.7%	3.5%	27.0%	45.2%
70 Ashby Road	59.5%	18.3%	2.9%	19.3%	40.5%

7.30 The absolute background concentration of NO<sub>2</sub> is generally the same at each location, therefore the sites with the lowest percentage of NO<sub>2</sub> from the background and the highest percentage from vehicles are the sites with the highest overall concentration of NO<sub>2</sub> from all sources. The three most critical sites are those on Leicester Road and Derby Road which lie on the A6 either side of High Street. The average of these three locations shows cars and taxis contributing less than 20% of NO<sub>2</sub>, and buses and goods vehicles contributing nearly 50%. Of the total vehicle contributions, cars and taxis therefore account for less than a third of the vehicle NO<sub>2</sub> emissions, although they comprise about 85% of the traffic.



7.31 Because most of the problem is due to buses and lorries, effective action on the A6 through the town centre must inevitably focus on ways of reducing pollution from this minority of vehicles. It also follows that the main benefit from any modest reductions in car traffic would be lessening of the congestion which causes traffic to move slowly, and thereby makes buses and lorries more polluting.

## LTP2 influence on air quality

7.32 Most of the LTP proposals for tackling congestion will contribute to meeting the air quality key outcome targets in Loughborough. Whilst marginal benefits will come from reducing traffic growth, the most important influence is the concentration of vehicles in the AQMA. When congestion sets in, the number of vehicles present in a length of road can increase by a factor of around five, compared with free-flowing conditions. The result is a dramatic increase in total emissions, particularly from slow moving buses and goods vehicles. Of crucial importance is the number of hours in the day that are congested. Where a road is congested for most of the day, and there are significant numbers of buses or goods vehicles, air quality will be at its worst.

7.33 Our proposals for tackling congestion are described in Chapter 4. Of particular importance in Loughborough will be our proposals for:

- **Land-use planning** to ensure that new developments do not add unnecessarily to traffic passing through the town centre
- **Network management** dealing with all road works, planned events, and unforeseen incidents, together with improved traffic control systems and driver information
- **Increasing travel by train** to Loughborough, connecting with frequent bus services from the station interchange to the town centre, university and other key destinations
- **Increasing bus travel** into Loughborough on the main corridors from Leicester and Shepshed, and other improved and more punctual services, through the work of the Loughborough Quality Bus Partnership
- **School travel planning**, with capital investment in walking and cycling routes to school, together with the many arrangements for travel to school by bus
- **Significant investment in cycling** to provide a complete cycle network reaching all parts of the Loughborough built up area, and offering an attractive alternative to short local journeys by car
- **Smarter choices** with a strong focus on workplace travel plans with increasing use of the cycle network and travel by bus to destinations outside the town centre and new developments
- **Better vehicle use of roadspace** through closer attention to the operation of junctions, and the thorough enforcement of parking and loading restrictions with the new decriminalised arrangements to prevent disruption to free-flowing traffic.

## Specific options for the AQMA

7.34 Apart from the above LTP2 proposals, a total of 12 potential more specific measures were evaluated in the January 2005 draft AQAP prepared by Casella Stanger for Charnwood Borough Council. These are all included in Table 7.4. Some of the descriptions have been enhanced, and options 13 and 14 have been added for completeness. Where a potential measure is not realistically feasible, it has been given no ranking. The table is then completed by inclusion of the eight more general LTP2 congestion tackling measures described above. Values of air quality reduction impact levels and cost ranges have been ascribed as indicated above the table.

**Table 7.4 Potential options evaluated for the Loughborough Air Quality Action Plan**

Level 4: >2µg/m<sup>3</sup>    Level 3: 1-2µg/m<sup>3</sup>    Level 2 is 0.2-1µg/m<sup>3</sup>    Level 1: <0.2 µg/m<sup>3</sup>  
 Cost 1: >£1m    Cost 2: £500K - £1m    Cost 3: £100K - £500K    Cost 4: <100K

Option description	Lead authority	AQ impact	Non-air quality impact	AQ Rank
		Timescale Cost		
1. Loughborough Inner Relief Road to divert traffic away from A6 in town centre	County Council	Level 4 2 to 5 yrs Cost 1	Regeneration of town centre with fewer road casualties	4x1=4
2. Signing or town centre restrictions to divert traffic from A6 onto Epinal Way	County Council	Level 3 - -	<u>Not feasible</u> on its own. (effectively now part of LTP major scheme)	-
3. Town centre vehicle restrictions to pedestrianise A6 and other streets	County Council	Level 1 - -	<u>Not feasible</u> on its own. (effectively now part of LTP major scheme)	-
4. Fewer parking spaces or higher charges to restrain car access to work or shops	Charnwood Borough	Level 2 2 to 5 yrs Cost 3	Possible negative effect on town centre regeneration	2x3=6
5. Network of pedestrian and cycle routes to reduce car use	County Council	Level 2 2 to 5 yrs Cost 2	Less traffic growth and congestion. (main LTP proposal for cycling)	2x2=4
6. Stronger Quality Bus Partnership to improve bus services and facilities	County Council	Level 2 0 to 2 yrs Cost 3	Less traffic growth and congestion. (main LTP proposal)	2x3=6
7. Improved interchange at railway station as part of station yard redevelopment	Charnwood Borough	level 2 2 to 5 yrs cost 4	Regeneration of area around railway station	2x4=8
8. Continuing requirement for workplace travel plans with new developments	Charnwood Borough	Level 2 0 to 2 yrs Cost 4	Less traffic growth and congestion. (main LTP proposal)	2x4=8
9. Development of a park and ride scheme for Loughborough	County Council	Level 2 - -	<u>Not feasible</u> – included for comparison purposes only	-
10. Reduce vehicle access to town centre by congestion charging (hypothetical)	County Council	Level 1 - -	<u>Not feasible</u> – included for comparison purposes only	-
11. Cleaner vehicles in central area with a Low Emission Zone	County Council	Level 1 5 to 10 yrs cost 2	None subject to completion of Option 1	1x2=2
12. New link road through railway station yard to divert traffic from Ratcliffe Road	Charnwood Borough	Level 4 2 to 5 yrs Cost 1	Regeneration of area around railway station and better environment	4x1=4
13. Work through Quality Bus Partnership to reduce bus emissions	County Council	Level 4 0 to 2 yrs Cost 4	Newer buses attracting more patronage, less noise from engine idling	4x4=16
14. 7.5 tonne weight limit to divert lorries away from A6 through town centre	County Council	Level 3 0 to 2 yrs Cost 4	Negative impact on diversionary routes and increased distances	3x4=12
15. Land-use planning for no unnecessary additional traffic through town centre	Charnwood Borough	Level 2 2 to 5 yrs Cost 4	Less traffic/congestion and health benefits of walking and cycling	2x4=8

Option description (continued)	Lead authority	AQ impact	Non-air quality impact	AQ Rank
		Timescale		
		Cost		
16. Network management for road works, incidents and planned events	County Council	Level 1	Less congestion and improved environment and economy	1x3=3
		0 to 5 yrs		
		Cost 4		
17. Increasing travel by train with bus connections to town centre and key destinations	County Council	Level 1	Less traffic/congestion and improved viability of public transport network	1x4=4
		0 to 5 yrs		
		Cost 4		
18. Increasing bus travel through work of Quality Bus Partnership	County Council	Level 1	Less traffic/congestion and improved viability of public transport network	1x4=4
		0 to 5 yrs		
		Cost 4		
19. School travel planning with investment in walking and cycle routes	County Council	Level 1	Less traffic/congestion and health benefits of walking and cycling	1x4=4
		0 to 5 yrs		
		Cost 4		
20. Investment in cycle route network to reach all parts of Loughborough	County Council	Level 2	Less traffic/congestion and health benefits of increased cycling	2x2=4
		0 to 5 yrs		
		Cost 2		
21. Smarter Choices and promotion building on workplace travel plans	County Council	Level 1	Less traffic/congestion and health benefits of walking and cycling	1x4=4
		0 to 5 yrs		
		Cost 4		
22. Better vehicle use of roadspace for less disruption to free-flowing traffic	County Council	Level 1	Less congestion and improved environment and economy	1x4=4
		0 to 5 yrs		
		Cost 4		

7.35 Options 15 to 22 are LTP2 proposals for tackling congestion and will all go forward as described in Chapter 4. This explains how we will be focussing our initial efforts on workplace travel plans with major employers in Loughborough, and on new developments through the development control process, both of which will help tackle emissions in the AQMA. The specific air quality options 5, 6, and 8 are incorporated within the LTP2 proposals for tackling congestion and will all therefore be implemented with vigour. Options 1, 2, and 3 are proposed with the LTP2 major scheme, described in Chapter 11, and are subject to separate approval by DfT. Part of the justification for the major scheme is the removal of traffic from the A6 High Street in the town centre where nitrogen dioxide levels will otherwise be above the limit value beyond 2010. Options 7 and 12 are high priority for Charnwood Borough and are expected to go ahead when the procedures relating to railway land can be completed. However, these two options do not address the air quality problems in the town centre.

7.36 For the 6 remaining options in the table the position is as follows:

- **Option 4** – Restraining car access to work or shops would have to be applied with care if we are to avoid a detrimental effect on the vitality of the town centre. However, car park charges have already been increased to £5.50 per day which is much more than elsewhere in the county and a number of residents' parking schemes have been introduced, which have reduced the availability of free on-street parking close to the town centre. Further schemes will be introduced following the introduction of parking decriminalisation in 2007
- **Options 9 and 10** – Park and ride and congestion charging are not considered feasible except beyond the LTP2 period (see Chapter 4 paragraphs 4.12 and 4.14). Because of the scale of the town centre in terms of employment and shopping, no park and ride option would be capable of attracting enough users to support a sufficiently attractive bus service in the next few years. Congestion charging could only be considered in the longer term as part of a scheme covering a wider area

- **Option 11** – A Low Emission Zone would only allow access to the town centre by vehicles which meet the most recent emission standards. This would have severe implications for the goods vehicles and buses which currently provide for the essential needs of the town. Such a proposal would only be feasible in the longer term when vehicles will generally be less polluting. However, we will be taking steps to improve the emissions from both buses and goods vehicles under options 13 and 14 below
- **Option 13** – Work through the Quality Bus Partnership is aimed at the worst producers of NO<sub>2</sub>, is the most cost effective of all the options, capable of producing relatively early improvements in conditions, and will be given a high priority. We have carried out video surveys in Loughborough town centre on the A6 to determine the number of buses, their age and the time spent at timing points in High Street. Whilst about 25% of the buses are relatively new, and would be expected to comply with Euro3 standards, there are significant numbers of buses that pre-date the Euro 2 standard. Whilst noting the powers possibly available to us through the Traffic Commissioners, there would appear to be significant potential for working with the bus companies through the Quality Bus Partnership to tackle air quality through improved emissions and better control of waiting times
- **Option 14** – Diverting goods vehicles is not considered feasible because of the detrimental effect on alternative routes. Many of the goods vehicles are involved in collection and delivery for shops and local businesses, and diversion away from the A6 would have a significant impact on nearby streets. However, we have approached the Vehicle and Operator Services Agency with a view to it carrying out roadside checks of HGV emissions as part of its DfT funded programme. It could do this in combination with a full “construction and use” check and will consider doing so as part of its 2006 programme, and thereafter depending on the outcome of the first checks.

### Comments of Charnwood Borough Council

7.37 Charnwood Borough Council generally welcomes the LTP air quality action plan, and makes the following comments:

*“ The LTP is by far the most important means of delivering local air quality which meets national and European objectives. Many of the transport related actions identified in Charnwood’s Draft Air Quality Action Plan have either been included in the draft LTP or at least given due consideration and discounted on cost / benefit grounds. Achieving the objectives, particularly in hot spots of poor air quality, will be immensely challenging given the relatively modest improvements in air quality that modelling suggests can be made even with dramatic reductions in traffic volumes. ”*

*“ The Loughborough Inner Relief Road will certainly address the air quality problems in central Loughborough. The concern that the problem does not simply shift on to other roads has been raised and so the design of the proposed new link is critical. ”*

### Performance management

7.38 To measure and manage our performance we will monitor the implementation of the AQAP, and have set targets for NO<sub>2</sub> in 2010 at the two most critical locations on the A6. Because it is difficult to set robust trajectories for NO<sub>2</sub> concentration, due to external influences such as the weather, we have set a target with a trajectory for traffic growth which is an intermediate outcome indicator and was used in modelling the NO<sub>2</sub> target. How traffic flows change against this trajectory will therefore give an indication of likely progress towards the NO<sub>2</sub> target. Should this give cause for concern during LTP2, we will look again at the progress being made with the AQAP to see whether further steps could be taken to offset any higher than expected growth in traffic. Details of all our targets, trajectories towards those targets and our performance regime are given in Chapter 12.

7.39 Without the major scheme for Loughborough, the concentration of nitrogen dioxide is targeted to fall from 67.7 µg/m<sup>3</sup> in 2004 to 52.2 µg/m<sup>3</sup> in 2010 at the worst location, the A6 Loughborough High Street, but will fail to meet the 2010 limit value of 40 µg/m<sup>3</sup>. At the second worst location, A6 Derby Road, the concentration is predicted to fall from 43.7 µg/m<sup>3</sup> in 2004 to 35.0 µg/m<sup>3</sup> in 2010, with the target set at <40 µg/m<sup>3</sup>. This means that the whole of the Loughborough AQMA will be below the 2010 limit value, with the single exception of A6 High Street.

7.40 In order to meet the 2010 limit value throughout the AQMA we need to gain DfT approval for implementing the major Loughborough town centre scheme. Whilst the full appraisal of the scheme has yet to be completed, we are confident that the 2010 limit value for nitrogen dioxide would be easily met on High Street and that the limit would not be exceeded along the new route.

7.41 Should the major scheme not proceed as planned, we would have no realistic and acceptable means of meeting the 2010 limit value. As part of our air quality modelling, we have calculated that a traffic reduction of 40% below 2004 levels would be needed to reduce nitrogen dioxide to below 40 µg/m<sup>3</sup> in 2010. There is clearly no realistic way of achieving this without the major scheme. As previously described, we have also considered options for congestion charging, a Low Emission Zone and goods vehicle restrictions, and have given our reasons for not going ahead with them by 2010. We regard neither these options, nor a 40% traffic reduction, as being feasible, and therefore conclude that in implementing the action plan, and pursuing the Loughborough town centre major scheme, we will be doing everything we can towards meeting the 2010 limit value for nitrogen dioxide.

### Action plan for Lutterworth

7.42 Our AQAP for Lutterworth builds on the air quality assessment work done by Harborough District Council, and in particular the following documents:

- June 2004 Stage 4 Review and Assessment which can be viewed on the District's website:  
(see <http://www.harborough.gov.uk/dotGov/attachmentViewings/07HDC-Imported%20Service%20ID%201-99HDC04240151152.pdf>)
- June 2004 Draft Air Quality Action Plan:  
(see <http://www.harborough.gov.uk/dotGov/attachmentViewings/07HDC-Imported%20Service%20ID%201-99HDC04252153711.pdf>).

7.43 Our action plan does not aim to repeat the information given in these documents, except insofar as is needed to meet the Government's LTP AQAP requirements. The second of these documents has been subject to extensive consultation by Harborough District.

### Current position

7.44 The one AQMA in Harborough District was declared in July 2001 and is on the A426 lorry route through Lutterworth town centre. The worst conditions occur on the uphill section of road approaching the town centre from the south. The highest nitrogen dioxide concentrations have been measured at this location with results shown in Table 7.5.

**Table 7.5 Nitrogen dioxide monitoring results in Lutterworth**

Nitrogen dioxide $\mu\text{g}/\text{m}^3$ measured concentration	2001	2002	2003	2004	Façade 2004
Regent Court	57.1	49.9	50.4	57.8	57.8

7.45 The monitoring location is a roadside lamp column. However, a particular area of relevant exposure is a group of nearby terraced houses on the opposite side of the road but with façades at the back of the footway, about 2m behind the kerbline. Additional monitoring on the façade of these houses was started in 2005 and will assist the assessment of the problem in future years. In the meantime no façade factor has been used at the monitoring location.

### Sources of nitrogen dioxide

7.46 The contributions from different types of vehicle to overall nitrogen dioxide ( $\text{NO}_2$ ) levels were given in the June 2004 air quality Stage 4 report and shown in Table 7.6.

**Table 7.6 Nitrogen dioxide levels by vehicle type in Lutterworth**

Background level of $\text{NO}_2$	2005 vehicle $\text{NO}_2$ contributions				
	petrol cars	diesel cars	rigid HGVs	artic HGVs	buses
55.7%	1.0%	0.5%	9.3%	18.5%%	15.0%

7.47 The above figures indicate that little  $\text{NO}_2$  pollution in Lutterworth is caused by cars, whether diesel or petrol powered. Because the problem is largely caused by lorries and buses, any effective action would have to involve fewer lorries, less polluting lorries or less polluting buses.

### LTP2 influence on air quality

7.48 Some LTP2 proposals for tackling congestion will help to achieve the air quality key outcome target in Lutterworth. Whilst marginal benefits will come from reducing traffic growth, the most important factor is the concentration of vehicles in the AQMA due to low speeds caused by the gradient on the A426, and interruptions to free flowing traffic.

7.49 Many of the proposals for tackling congestion are described in Chapter 4 for LTP2. Of most significance in Lutterworth will be the following:

- **Network management** dealing with all road works, planned events, and unforeseen incidents, together with improved driver information
- **School travel planning**, with capital investment in walking and cycling routes to school, together with the many arrangements for travel to school by bus
- **Smarter choices** with a strong focus on workplace travel plans to encourage the alternatives to single occupancy car commuting
- **Better vehicle use of roadspace** with decriminalised enforcement of parking and loading restrictions to prevent disruption to free flowing traffic.
- **Land-use Planning** to ensure that new developments do not add unnecessarily to traffic passing through the town centre.

### Specific options for the AQMA

7.50 Apart from the above LTP2 proposals, a total of 12 potential options are evaluated in the June 2004 draft AQAP prepared by Harborough District Council. The 6 identified actions that would directly reduce emissions from local traffic are included as Options 1 to 6 in the Table 7.7, and Option 7 has been added for completeness. The draft AQAP does quantify the NO<sub>2</sub> impacts, and these have been estimated for LTP2 purposes. The table is then completed by inclusion of the five LTP2 congestion tackling proposals described above. Values of air quality reduction impact levels and cost ranges have been ascribed as indicated above the table.

**Table 7.7 Potential options evaluated for the Lutterworth Air Quality Action Plan**

Level 4: >2µg/m<sup>3</sup>    Level 3: 1-2µg/m<sup>3</sup>    Level 2 is 0.2-1µg/m<sup>3</sup>    Level 1: <0.2 µg/m<sup>3</sup>  
 Cost 1: >£1m    Cost 2: £500K - £1m    Cost 3: £100K - £500K    Cost 4: <100K

Option description	Lead authority	AQ impact	Non-air quality impact	AQ Rank
		Timescale		
		Cost		
1. Completion of Lutterworth Western Relief Road to divert traffic from the town centre	County Council	Level 4 5 to 10 yrs cost 1	Improved town centre for everyone with fewer road casualties	4x1=4
2. 7.5 tonne weight limit to divert lorries from A426 through town centre	County Council	Level 4 <2yrs cost4	Improved town centre but negative impact on diversionary routes	4x4=16
3. Lower emissions from district and its contractor vehicle fleets	Harborough District	Level 1 2 to 5 yrs cost 3	None in Lutterworth, but newer fleets could be more efficient	1x3=3
4. Cleaner vehicles in town centre with a Low Emission Zone	County Council	Level 4 5 to 10 yrs cost 2	Improved town centre but negative impact on diversionary routes	4x2=8
5. Planning controls to reduce traffic impact of new development on AQMA	Harborough District	Level 1 0 to 2 yrs cost 4	Safeguarding of town centre environment	1x4=4
6. Roadside emission testing of goods vehicles	VOSA	Level 2 0 to 2 yrs cost 3	Possible negative effect on relations with local businesses	2x3=6
7. Work with bus operators to reduce bus emissions	County Council	Level 2 0 to 2 yrs Cost 4	Newer buses attracting more patronage	3x4=12
8. Network management for road works, incidents and planned events	County Council	Level 1 0 to 2 yrs Cost 4	Less congestion and improved environment and economy	1x4=4
9. School travel planning with investment in walking and cycle routes	County Council	Level 1 0 to 2 yrs Cost 4	Less traffic/congestion and health benefits of walking and cycling	1x4=4
10. Smarter Choices and promotion building on workplace travel plans	County Council	Level 1 0 to 2 yrs Cost 4	Less traffic/congestion and health benefits of walking and cycling	1x4=4
11. Better vehicle use of roadspace for less disruption to free-flowing traffic	County Council	Level 1 0 to 2 yrs Cost 4	Less congestion and improved environment and economy	1x4=4
12. Land-use planning for no unnecessary additional traffic through town centre	Harborough District	Level 2 2 to 5 yrs Cost 4	Less traffic/congestion and health benefits of walking and cycling	2x4=8

7.51 Options 8 to 12 are LTP2 proposals for tackling congestion and will go forward as described in Chapter 4. Options 3 and 7 will also go ahead, although the relatively low frequency of bus services limits the degree of impact.

7.52 For the remaining 5 options in the table the position is as follows:

- **Option 1** – Given the potential cost of the scheme, which could be in excess of £3m, and the time it would take to go through the necessary statutory procedures, it is not feasible to complete the Western Relief Road during LTP2. However, we will undertake preliminary investigations for its completion, and it will be considered for construction beyond the LTP period. Lorries would then be diverted away from the town centre onto this route
- **Option 2** – Diverting lorries away from the town centre would depend on using the current sections of the Western Relief Road and existing roads where the new section as in Option 1 has yet to be completed. This route currently has a 7.5 tonne weight restriction, which would have to be removed. The existing central section of road is currently unsuitable to be used as a lorry route and this option would meet with strong opposition without completion of the relief road and is not therefore considered feasible
- **Option 4** – A Low Emission Zone would only allow access to the town centre by vehicles which meet the most recent emission standards. This would have severe implications for the goods vehicles and buses which currently provide for the essential needs of the town. Such a proposal would only be feasible in the longer term when vehicles become less polluting
- **Option 5** – Planning controls to reduce traffic impact from new development have been used successfully in the past through the application of lorry route agreements for new developments at the nearby Magna Park, which all exclude the use of the A426 through the town centre. Similar agreements will be imposed on future new developments of this type
- **Option 6** – Roadside emission testing has been raised with the Vehicle and Operating Services Agency and, as with Loughborough, further consideration will be given to the inclusion of the A426 in their programme of emission testing.

### Comments of Harborough District Council

7.53 Harborough District Council supports the LTP air quality action plan, and makes the following comments:

*“ In connection with the air quality action plan for Lutterworth whilst there is support for the revised action plan within the LTP, due to the anticipated timescale for the development of Option 1, i.e. not within the scope of this LTP, it is felt that the remaining proposed actions would result in minimum impact on the local air quality and local residents will be exposed to levels of Nitrogen Dioxide in excess of the National Air Quality Objectives ”*

*“ Harborough District Council recommends that intermediate actions are included in the plan which would have a positive impact on air quality for example diverting lorries away from the town centre, even if the weight limit was installed for one direction only ”*

7.54 We do not believe diverting lorries away is achievable in the medium term, for the reasons described above under Option 2.

## Performance management

7.55 As with the Loughborough AQAP, we will measure and manage our performance by monitoring the implementation of the AQAP, setting a 2010 outcome target for NO<sub>2</sub> and assessing progress towards that target through an intermediate outcome indicator for traffic growth. Details of all our targets, trajectories towards those targets and our performance management regime are given in Chapter 12. At Regent's Court, the concentration of nitrogen dioxide is targeted to fall from 57.8 µg/m<sup>3</sup> in 2004 to 44.1 µg/m<sup>3</sup> in 2010, and will therefore fail to meet the 2010 limit value of 40 µg/m<sup>3</sup>.

7.56 As part of our air quality modelling, we have calculated that traffic would have to be at not more than 2004 levels in order for nitrogen dioxide to be at or below 40 µg/m<sup>3</sup> in 2010. The A426 is a strategic and essentially rural route and we know of no precedent for being able to stop traffic growth on such routes completely. All practicable steps have already been taken to limit the use of the A426, with the developer funded construction of Phases 1 and 2 of the Western Relief Road and associated lorry route agreements. As previously described, we have also considered options for the completion of the Western Relief Road, a Low Emission Zone and goods vehicle restrictions, and given our reasons for not going ahead with them by 2010. We regard neither these options, nor preventing traffic growth, as being feasible, and therefore conclude that in implementing the action plan, including preliminary investigations for the completion of Western Relief Road, we will be doing everything we can towards meeting the 2010 limit value for nitrogen dioxide.

## Action plan for Kegworth

7.57 Our AQAP for Kegworth builds on the air quality assessment work done by North West Leicestershire District Council, and in particular the following documents:

- December 2003 Stage 4 Review and Assessment available on the District's website: (see [www.nwleics.gov.uk/environmental\\_protection/documents/Final\\_Stage\\_4\\_Report.pdf](http://www.nwleics.gov.uk/environmental_protection/documents/Final_Stage_4_Report.pdf)).
- December 2005 Air Quality Action Plan for North West Leicestershire District

7.58 Our LTP2 action plan does not aim to repeat the information given in these documents, except insofar as is needed to meet the Government's LTP AQAP requirements. The second of the documents has been subject to extensive consultation by North West Leicestershire District.

## Current position

7.59 The A6 through Kegworth is a former trunk road providing an important connection to the M1 motorway at Junction 24. Many goods vehicles use the route, and the worst air quality occurs where vehicle speeds are low in the middle of the village. Monitoring has taken place at a single location at the same distance from the road as the residential façades, with the results shown in Table 7.8.

**Table 7.8 Nitrogen dioxide monitoring results in Kegworth**

Nitrogen Dioxide µg/m <sup>3</sup> measured concentration	2001	2002	2003	2004	Façade 2004
A6 Village centre	30.1	37.4	43.6	41.6	41.6

### Sources of nitrogen dioxide

7.60 The contributions from local traffic were divided between 88% from cars and light goods vehicles, and the other 12% coming from lorries and buses. In contrast with Loughborough and Lutterworth, the major proportion of the emissions is from cars, and it is on this group of vehicles that the AQAP will need to be focussed.

### LTP2 influence on air quality

7.61 Many of the LTP2 proposals for tackling congestion will help to achieve the air quality key outcome target for Kegworth. Whilst marginal benefits will come from reducing traffic growth, the important factor is the concentration of vehicles in Kegworth due to the low speed alignment of the A6 through the village, and interruptions to free flowing traffic.

7.62 Our proposals for tackling congestion are described in Chapter 4 for the LTP as a whole. Of most significance in Kegworth will be the following:

- **Network management** dealing with all road works, planned events, and unforeseen incidents, together with improved driver information
- **School travel planning**, with capital investment in walking and cycling routes to school, together with the many arrangements for travel to school by bus
- **Smarter choices** with a strong focus on workplace travel plans to encourage the alternatives to single occupancy car commuting
- **Better vehicle use of roadspace** with decriminalised enforcement of parking and loading restrictions to prevent disruption to free flowing traffic.

### Specific options for the AQMA

7.63 Apart from the above LTP2 proposals, many options are evaluated in the December 2005 AQAP prepared by North West Leicestershire District Council. These include options for the AQMA on the M1 motorway. Three of the options most relevant to Kegworth have been directly included in Table 7.9. The table is then completed by inclusion of the four LTP2 congestion tackling proposals described above. Several further options in the district action plan are effectively covered by the four LTP2 proposals for tackling congestion, and have been excluded from the table to avoid duplication. Values of air quality reduction impact levels and cost ranges have been ascribed as indicated above the table.

**Table 7.9 Potential options evaluated for the Kegworth Air Quality Action Plan**

Level 4: >2µg/m<sup>3</sup>    Level 3: 1-2µg/m<sup>3</sup>    Level 2 is 0.2-1µg/m<sup>3</sup>    Level 1: <0.2 µg/m<sup>3</sup>  
 Cost 1: >£1m    Cost 2: £500K - £1m    Cost 3: £100K - £500K    Cost 4: <100K

Option description	Lead authority	AQ impact	Non-air quality impact	AQ Rank
		Timescale		
		Cost		
1. A6 Kegworth Bypass to divert traffic away from the village centre	Highways Agency	Level 4	Improved environment in the village centre and fewer road casualties	4x1=4
		5 to 10 yrs		
		Cost 1		
2. Lower emissions from district vehicle fleet	NW Leics District	Level 1	None in Kegworth, but newer fleets could be more efficient	1x3=3
		Ongoing		
		Cost 3		
3. Consideration of air quality in respect of land-use and planning applications	NW Leics District	Level 1	Less traffic/congestion and health benefits of walking and cycling	1x4=4
		Ongoing		
		Cost 4		
4. Network management for road works, incidents and planned events	County Council	Level 1	Less congestion and improved environment and economy	1x4=4
		Ongoing		
		Cost 4		
5. School travel planning with investment in walking and cycle routes	County Council	Level 1	Less traffic/congestion and health benefits of walking and cycling	1x4=4
		Ongoing		
		Cost 4		
6. Smarter Choices and promotion building on workplace travel plans	County Council	Level 1	Less traffic/congestion and health benefits of walking and cycling	1x4=4
		Ongoing		
		Cost 4		
7. Better vehicle use of roadspace for less disruption to free-flowing traffic	County Council	Level 1	Less congestion and improved environment and economy	1x4=4
		Ongoing		
		Cost 4		

7.64 Options 4 to 7 are LTP2 proposals for tackling congestion and will go forward as described in Chapter 4. Options 2 and 3 will be taken forward by North West Leicestershire District Council. Option 1, the A6 Kegworth bypass, is due to be completed during the third LTP period from 2011 to 2016, and will be implemented by the Highways Agency at the same time as major improvements to the M1 motorway and its junctions.

#### Comments of North West Leicestershire District Council

7.65 North West Leicestershire District Council, in their letter of support for the LTP air quality action plan, make the following comment:

*“ The option proposed by the Local Transport Plan of a bypass for Kegworth to divert traffic away from the village centre should lead to improvements in air quality for the local residents, ultimately resulting in the revocation of the Air Quality Management Area. Therefore the proposals are supported ”*

## Performance management

7.66 As with the Loughborough AQAP, we will measure and manage our performance by monitoring the implementation of the AQAP, setting a 2010 outcome target for NO<sub>2</sub> and assessing progress towards that target through an intermediate outcome indicator for traffic growth. Details of all our targets, trajectories towards those targets and our performance management regime are given in Chapter 12. In the village centre on the A6, the concentration is predicted to fall from 41.6 µg/m<sup>3</sup> in 2004 to 34.2 µg/m<sup>3</sup> in 2010, with the target set at <40 µg/m<sup>3</sup>. This means that nitrogen dioxide in the AQMA should fall below the threshold level by the first year or two of the LTP2 period.

## Motorways and trunk roads

7.67 All three traffic related AQMAs in this category are on the M1 motorway. Two of these are in Blaby district, with one to the south of Junction 21, and the other to the north of this junction. The third M1 AQMA is a small group of houses in North West Leicestershire district, which are also affected by nitrogen dioxide emission from aircraft taking off and landing at Nottingham East Midlands Airport. All three of these AQMAs depend on future conditions on the motorway as determined by the Highways Agency, and actions to address the problems are not required to form part of LTPs.

7.68 We have met regularly with the Highways Agency in the Air Quality Forum. We are also liaising with them over the M1 widening scheme and attend the air quality sub-group meetings at which the local authorities in the M1 corridor are invited to contribute towards the air quality appraisal and modelling processes. Free-flowing traffic on the M1 following the proposed widening, albeit in higher volumes, may bring air quality benefits because of reduced congestion. Whilst this will affect two of the AQMAs, the M1 south of Junction 21 is not due to be widened, and there will be no potential benefits for the AQMA on this section of the motorway.

7.69 The air quality appraisal of the M1 widening has yet to be completed, and therefore it is not yet known whether the reduced congestion will be sufficient to address the air quality problems. The detailed assessment work is being carried out by consultants Ove Arup on behalf of the Highways Agency and results are expected to become available with the start of consultation on the M1 proposals in spring 2006.

7.70 Both Blaby District Council and North West Leicestershire District Council have prepared air quality action plans in liaison with the Highways Agency. These plans include various options, such as speed limits, to improve air quality, but no specific options have been chosen by the Highways Agency for implementation in the short term. However, the Highways Agency, as well as preparing the major widening scheme, is taking several actions relating to air quality as follows:

- Introduction of traffic officers to manage traffic incidents on the M1 and other trunk roads, tackling congestion and thereby improving air quality
- Additional air quality monitoring along the M1, expected to include four new locations in Blaby district and two in North West Leicestershire district
- A workplace travel planning proposal for the Grove Park major employment area near M1 Junction 21, aimed at tackling congestion and air quality on the motorway.

7.71 From the information currently available, it is not known whether nitrogen dioxide levels at residential facades alongside the M1 will exceed the limit value in 2010, but the major M1 scheme will in any case not have been completed by then.

## Other AQMAS and emerging problems

### Blaby District Council

7.72 There are three original AQMAS in Blaby District of which two are on the M1 motorway and described above. The local traffic AQMA is on the A5640 Narborough Road South between the City boundary and the Fosse Park shopping centre near the Leicester outer ring road. The AQMA was declared in December 1999 on the basis of nitrogen dioxide exceeding the defined limit. Narborough Road South is a dual two lane carriageway with service roads on either side, and so the residential façades are remote from the main carriageways. Monitoring by Blaby district has been by diffusion tube at a lamp column near the service road kerbline. The nearby residential façades are set back about 8 m from this kerbline, a total distance of nearly 18 m from the main carriageway kerblines.

7.73 Based on all the available monitoring, we have assessed the position as shown in Table 7.10.

**Table 7.10 Nitrogen dioxide monitoring results along Narborough Road South**

<b>Nitrogen Dioxide <math>\mu\text{g}/\text{m}^3</math> measured concentration</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004 estimate</b>	<b>Façade 2004</b>
Jordans Garage	46.0	35.0	39.3	37.9	33.9

7.74 Monitoring results are unavailable for 2004, and the figure has been estimated from the three previous years using standard year to year nitrogen dioxide adjustment factors.

7.75 The façade adjusted value shows that nitrogen dioxide concentration in 2004 was well below  $40 \mu\text{g}/\text{m}^3$ . However we have set a target to keep levels below this, as explained in Chapter 12.

7.76 We will carry out further monitoring of this section of road before we consider the future of the AQMA, making use of a continuous analyser set back from the edge of the road by the same distance as the nearby houses. If the full analyser results for 2006 show evidence that nitrogen dioxide is exceeding the threshold value, we will integrate an air quality action plan into the first LTP2 progress report in July 2008. In the meantime, our measures for tackling congestion, in conjunction with the City Council, will be beneficial to air quality. In particular, our preliminary modelling work suggests that the Leicester Park and Ride scheme could reduce peak hour traffic flows by up to 10% on Narborough Road South.

7.77 As well as the three original AQMAS, Blaby District Council declared two further AQMAS in October 2005, and extended the boundary of two of the existing AQMAS. The extension of the motorway AQMA north of M1 Junction 21 now includes lengths of the A47 local road either side of the M1. The Narborough Road South local traffic AQMA now includes recently built houses previously outside the defined area.

7.78 The first of the new AQMAS is in two parts and includes groups of houses near the B582 Enderby Road junctions with the B4114 and also with the A426. The second new AQMA is for a group of houses near the A46 trunk road close to its junction with the A50. The extensions to existing AQMAS and the two new AQMAS have been declared on the basis of air quality modelling alone and without any measurements at residential façades. The modelling has not yet been verified with respect to recent nitrogen dioxide measurements in Blaby District.

7.79 The next stage in the process will be further assessment, before the need for air quality action plans is identified. Before addressing the new local traffic AQMA through LTP2, and introducing more air quality indicators and targets, it is considered essential to measure nitrogen dioxide levels directly at the most critical residential façades. If these measured results show levels over the threshold, we will integrate air quality action plans into the first LTP2 progress report in July 2008.

### Charnwood Borough Council

7.80 Following the revocation of the AQMA on the A6 at Birstall, there are two local traffic related AQMAs in Charnwood Borough which remain from the original round of declarations in June 2001. The first AQMA is in Loughborough and is described earlier in this chapter. The second AQMA is on the Melton Road through Syston. Monitoring has been on the façades of buildings and the results are shown in Table 7.11.

**Table 7.11 Nitrogen dioxide monitoring results in Syston**

<b>Nitrogen Dioxide <math>\mu\text{g}/\text{m}^3</math> measured concentrations</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>Façade 2004</b>
Melton Road at Barkby Road	31.5	32.4	40.6	30.7	30.7

7.81 These results show that the nitrogen dioxide concentration in 2004 was well below 40  $\mu\text{g}/\text{m}^3$ . However we have set a target to keep levels below this, as explained in Chapter 12. We will carry out further monitoring of this section of road, aided by the installation of a continuous analyser funded by Defra, before we consider the future of the AQMA. If the analyser results show evidence of nitrogen dioxide above the threshold level, we will integrate an air quality action plan into the first LTP2 progress report in July 2008.

7.82 The air quality action plan prepared by Charnwood Borough proposes two specific options for improving air quality. One of these is the major improvement of the A46/A607 Hobbyhorse trunk road junction due to be completed in spring 2006. This is expected to bring significant traffic relief to Melton Road through Syston and will reduce further the likelihood of exceeding 40  $\mu\text{g}/\text{m}^3$  in the future. The position should be further improved by our measures for tackling congestion in Central Leicestershire, in conjunction with the City Council.

7.83 Recent monitoring of nitrogen dioxide shows a potential air quality problem in Shepshed. The full results for 2005 were still being compiled at the time of completing LTP2, and it is too soon to predict whether further attention will be required in this area.

### Harborough District Council

7.84 The one AQMA in Harborough District, declared in July 2001, is in Lutterworth and is described earlier in this chapter.

### Hinckley & Bosworth Borough Council

7.85 Two AQMAs were introduced in May 2001, in Hinckley town centre and the M1 at Ratby. Subsequent monitoring and air quality modelling showed that nitrogen dioxide would not exceed 40  $\mu\text{g}/\text{m}^3$  by the end of 2005. Both AQMAs were revoked in July 2004 and subsequent monitoring, as evidenced by the annual air quality monitoring report, has shown nitrogen dioxide well below the threshold level.

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### Melton Borough Council

7.86 An AQMA was declared in Melton Mowbray in March 2001 for a very small number of houses alongside the inner ring road around the town centre. This was revoked in May 2005 following detailed nitrogen dioxide monitoring.

### North West Leicestershire District Council

7.87 A total of six AQMAs were declared in March 2001, four of which have since been revoked. The AQMA on the M1 is described above under the motorway and trunk road heading. The one local traffic AQMA is on the A6 through Kegworth and this is also described earlier in this chapter.

7.88 Recent monitoring of nitrogen dioxide shows potential air quality problems at a number of locations, including Coalville, Castle Donington and Copt Oak. The full results for 2005 were still being compiled at the time of completing LTP2, and it is too soon to predict whether further attention will be required in these areas.

### Oadby and Wigston Borough Council

7.89 Four AQMAs were declared in March 2002 and detailed monitoring at a large number of sites was started in autumn 2003. The full year results for 2004, when adjusted for residential façade setbacks, showed nitrogen dioxide concentrations well below  $40 \mu\text{g}/\text{m}^3$ . Monitoring is continuing at these locations in consultation with Defra, but it is expected that these AQMAs will be revoked early in the LTP period. In the meantime we have set targets to keep levels below  $40 \mu\text{g}/\text{m}^3$ , as fully explained in Chapter 12. The position will be further improved by our measures for tackling congestion in Central Leicestershire in conjunction with the City Council.

7.90 Recent monitoring of nitrogen dioxide shows potential air quality problem on the B582 Blaby Road in South Wigston. The full results for 2005 were still being compiled at the time of completing LTP2 and it is too soon to predict whether further attention will be required in this area.

## Performance management

7.91 The key performance indicator is of course the level of nitrogen dioxide measured within each existing and potential AQMA. We will take steps, including investing in equipment, to ensure that our measurement in partnership with the district councils is effective and rigorous. To provide a further check on progress we will use intermediate outcome indicators for traffic growth within the three main AQMAs as well as using an overall indicator of total vehicle kilometres countywide to act as a calibration check.

7.92 Within this overall framework, we will be investing substantially in other LTP measures, particularly those to tackle congestion, and these will be monitored and evaluated separately. Full details of our targets, our trajectories towards those targets and our performance management regime, are given in Chapter 12.

## Contribution to other LTP and quality of life objectives

7.93 Whilst our air quality strategy has been developed specifically to achieve its stated objectives, it will also contribute to other LTP and quality of life objectives. The contribution it can make has been borne in mind in the development of the strategy. Table 7.12 summarises these contributions.

**Table 7.12 Air quality strategy contribution to other LTP and quality of life objectives**

Objective	Contribution of our air quality strategy	
Tackling congestion.	✓✓	The air quality strategy and Air Quality Action Plans have measures aimed at tackling congestion.
Improving access to facilities	✓✓	Improving walking and cycling facilities as part of the air quality strategy will encourage more people to use their private car less for shorter journeys.
Reducing road casualties	-	Limited contribution.
Reducing the impact of traffic	✓✓✓	The air quality strategy will improve conditions in local communities.
Managing transport assets.	-	Limited contribution
Quality of public spaces and better streetscapes	✓	Poor air quality makes using outdoor public spaces less appealing. Better air quality will improve the quality of outdoor public spaces leading to greater use and encouraging a healthier community with an increased sense of place.
Landscape and biodiversity	✓	Better air quality will help to support biodiversity.
Community safety, personal security and crime	✓✓	Improving air quality will encourage people to use outdoor areas more, creating a greater sense of community safety and personal security.
Healthy communities	✓✓✓	Improving air quality will lead to a direct improvement in people's health.
Sustainable and prosperous communities	✓	Poor air quality can make local communities unattractive places to live and work. By improving air quality it will be easier to create and support sustainable and prosperous communities.
Noise	✓	Areas with poor air quality caused by road traffic are often areas where traffic noise is also a problem. Measures to improve air quality and tackle congestion will improve traffic flows and will help to reduce noise levels.
Climate change and greenhouse gases	✓	Many of our actions to improve air quality by reducing NO <sub>2</sub> will also reduce other exhaust emissions including CO <sub>2</sub> .

✓ = Modest contribution

✓✓ = Moderate contribution

✓✓✓ = Significant contribution