2013 Lutterworth Air Quality Management Area Action Plan Framework for Harborough District Council

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date April 2013

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Executive Summary

The Government has adopted a National Air Quality Strategy which focuses on certain air pollutants.

In 2001 Harborough District Council declared the Lutterworth Air Quality Management Area (AQMAs) because the area would not achieve the annual mean objective set out in the National Air Quality Strategy for the nitrogen dioxide

Objective:

40 μgm^{-3} NO_2 when expressed as annual mean, to be achieved by 31st December 2005.

After a Detailed Assessment it was concluded that as there was no other significant source of nitrogen dioxide in the area, road traffic was the major source of nitrogen dioxide.

The previous action plan included many community based interventions, which have had a negligible impact on air quality, and relied primarily on a major road building scheme, to improve air quality, which has since been found to be unfeasible. It is recognised that in the current economic climate it is unlikely that funding for major road building schemes will be available.

This action planning framework sets out a methodology for the assessment of traffic management and road layout modification schemes for which funding may be attainable

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1 Introduction

This is the revised Air Quality Action Plan for Harborough District Council (the “Council”) that will help to improve air quality and work towards the achievement of the Government's air quality objectives in the designated Air Quality Management Area across the District. The Air Quality Action Plan includes details of existing initiatives as well as proposed measures and their implementation.

The Air Quality Action Plan is a statutory requirement and part of the Council’s continuing Local Air Quality Management responsibilities under Part IV of the Environment Act 1995. The Council is seeking to produce the Action Plan in partnership with other stakeholder organisations and for that purpose is working closely with other agencies. The purpose of the Action Plan, as required by section 84 of the Environment Act, is to outline measures “in pursuit of the achievement of air quality standards and objectives in the designated area, of any powers exercisable by the authority”.

This Air Quality Action Plan has been developed in recognition of these legal requirements. It summarises the air quality review and assessments that have been undertaken in Lutterworth to date, focussing on exceedences of the Air Quality Standards, and outlining the mechanisms and the targeted measures proposed by Harborough District Council that aim to improve local air quality. The plan focuses on air quality within Lutterworth, where an Air Quality Management Area (AQMA) came into force in 2001 as a result of elevated concentrations of nitrogen dioxide (NO_2).

1.1 Description of Local Authority Area

Harborough District Council is a diverse, largely rural authority covering approximately 590 Km^2 (230 mi^2) of Southern Leicestershire, as shown in Figure. 1. Geographically it is the largest of the Leicestershire districts. Approximately 85,382 people (Census 2011 by The Office for National Statistics [38]) live within the District.

The two major population centres are the market towns of Market Harborough and Lutterworth, providing the main shopping and business services. These two towns, together with the villages of Thurnby, Bushby and Scraptoft adjoining Leicester City, and the villages of Broughton Astley, Great Glen, Kibworth and Fleckney accommodate 67% of the district population. The remaining residents live in villages varying from populations of several hundreds to hamlets comprising of a handful of dwellings.

The District borders on to the suburbs of Leicester to the north, Rutland to the east, Warwickshire to the west and Northamptonshire to the south.

Located at the heart of England, Harborough District has excellent transport links. The M1, M6 “Catthorpe” interchange connects Harborough District to Felixstowe, Birmingham, London and Edinburgh. The M1 and M6 and A14 are all identified on the Trans-European Network. The A5, A6, A5199 and A47 also run through the district which are a major part of the East Midlands road network and consequently are heavily used.

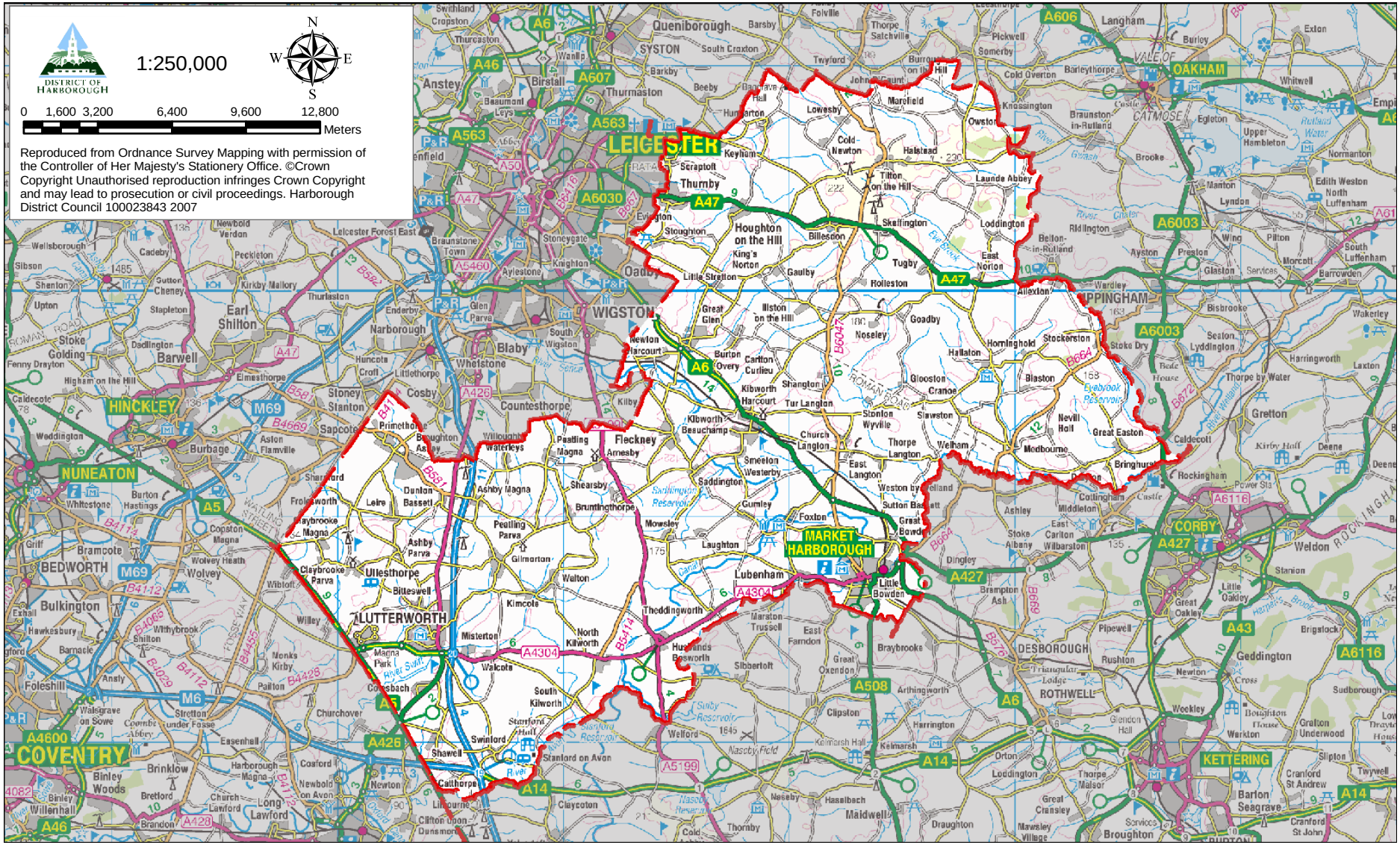
The Midland Main Line railway runs through the district and Market Harborough has an Inter-City station with direct links to London St. Pancras.

These good transport links have encouraged a number of industrial estates to develop, containing medium sized businesses carrying out a range of coating and spraying activities, moulding, and timber processes. In the south west of the District there is a cluster of mineral activities including sand and gravel extraction, cement batching plants and other associated products.

Although agriculture still plays an important role in the local economy, manufacturing and distribution are of ever increasing importance. At the extreme western side of the District is Magna Park, which is a major warehousing and distribution site, covering approximately 2.3Km^2 (0.9 square miles). A number of the major manufacturers within the UK are located on this site and the 24-hour operation results in a great deal of

traffic as most of the products are transported by road. Magna Park is located between the M1 and the A5, therefore a majority of the traffic is directed onto these major roads; however the nearby town of Lutterworth is affected by the increase in road traffic.

Figure. 1. Map of the Local Authority Area



1.2 Purpose of the Action Plan

To update the actions being taken by Harborough District Council and Leicestershire County Council, as the Highway Authority, to Improve the air quality in Lutterworth.

1.3 Report Contents and Structure

Policy Guidance LAQM.PG (09) was published by DEFRA in 2009 and provides statutory guidance on the development of air quality action plans. As a minimum, the AQAP is expected to include the following:

- Quantification of the source contributions to the predicted exceedences of the objectives; this will allow the action plan measures to be effectively targeted;
- Methods to ensure that options are considered on the grounds of cost effectiveness and feasibility;
- How the local authority will use its powers and also work in conjunction with other organisations in pursuit of the air quality objectives;
- Clear timescales in which the authority and other organisations and agencies propose to implement the measures within its plan;
- How the local authority intends to monitor and evaluate the effectiveness of the plan.

1.4 Air Quality Standards (AQS)

The air quality objectives applicable to Local Air Quality Management (LAQM) in England are set out in:

- the Air Quality (England) Regulations 2000 (SI2000/No.0928)[2],
- the Air Quality (England) (Amendment) Regulations 2002 (SI2002/No.3043)[3],
- The Air Quality Standards Regulations 2007 (SI2007/No.0064)[4], and
- The Air Quality Standards Regulations 2010 (SI2010/No.1001)[5].

They are shown in Table 1 which includes the number of permitted exceedences in any given year (where applicable).

Table 1. Air Quality Standards (AQS) included in Regulations for the purpose of Local Air Quality Management in England.			
Pollutant	**Concentration**	**Measured as**	**Date to be achieved**
Benzene	16.25 μgm^{-3}	Running annual mean	2003
	5.00 μgm^{-3}	Running annual mean	2010
1,3-Butadiene	2.25 μgm^{-3}	Running annual mean	2003
Carbon monoxide	10.0 mgm^{-3}	Running 8-hour mean	2003
Lead	0.5 μgm^{-3}	Annual mean	2004
	0.25 μgm^{-3}	Annual mean	2008
Nitrogen dioxide	200 μgm^{-3} not to be exceeded more than 18 times a year	1-hour mean	2005
	40 μgm^{-3}	Annual mean	2005
Particles (PM_{10}) (gravimetric)	50 μgm^{-3}, not to be exceeded more than 35 times a year	24-hour mean	2004
	40 μgm^{-3}	Annual mean	2004
Sulphur dioxide	350 μgm^{-3}, not to be exceeded more than 24 times a year	1-hour mean	2004
	125 μgm^{-3}, not to be exceeded more than 3 times a year	24-hour mean	2004
	266 μgm^{-3}, not to be exceeded more than 35 times a year	15-minute mean	2005

1.5 Summary of Previous Review and Assessments

The Review and Assessment of the local air quality takes place over a number of stages. The First Stage Review and Assessment [27] carried out in Harborough district concluded that further investigation would be required for Carbon Monoxide, Lead, Particulates and Nitrogen Dioxide. The Second and Third Stage review [26] concluded that with the exception of Nitrogen Dioxide all of the National Air Quality Standards would be met within the appropriate time frame. As it was anticipated that the national objective for Nitrogen Dioxide was unlikely to be met in Lutterworth Town Centre, an Air Quality Management Area (AQMA) was declared in July 2001.[6] See Figure. 2 for a map of the AQMA.

Following the declaration of the Air Quality Management Area a Stage 4 assessment [22] was required to give the council the opportunity to supplement any information already gathered in earlier review and assessment work.

The findings of the Stage 4 assessment confirmed that the annual average National Air Quality Objective for Nitrogen Dioxide was unlikely to be achieved. New Monitoring Data confirmed the source of the problem was traffic related, and an Action Plan [23] was developed which was incorporated into the second Leicestershire County Council Local Transport Plan which ran from 2006 to 2011.

In 2009 the Council undertook an update and screening assessment [17] which found that generally the air quality in Harborough district is very good; however the air quality in Lutterworth remains high and exceeds the national air quality objective. During 2008 it became apparent that the diffusion tubes in the area were showing a potential exceedence of the objective levels outside of the existing Air Quality Management Area (AQMA). It was necessary to relocate some of the diffusion tubes to confirm the initial findings, and was recommended that a detailed assessment of Lutterworth High Street would be required to confirm whether the existing AQMA needed to be extended.

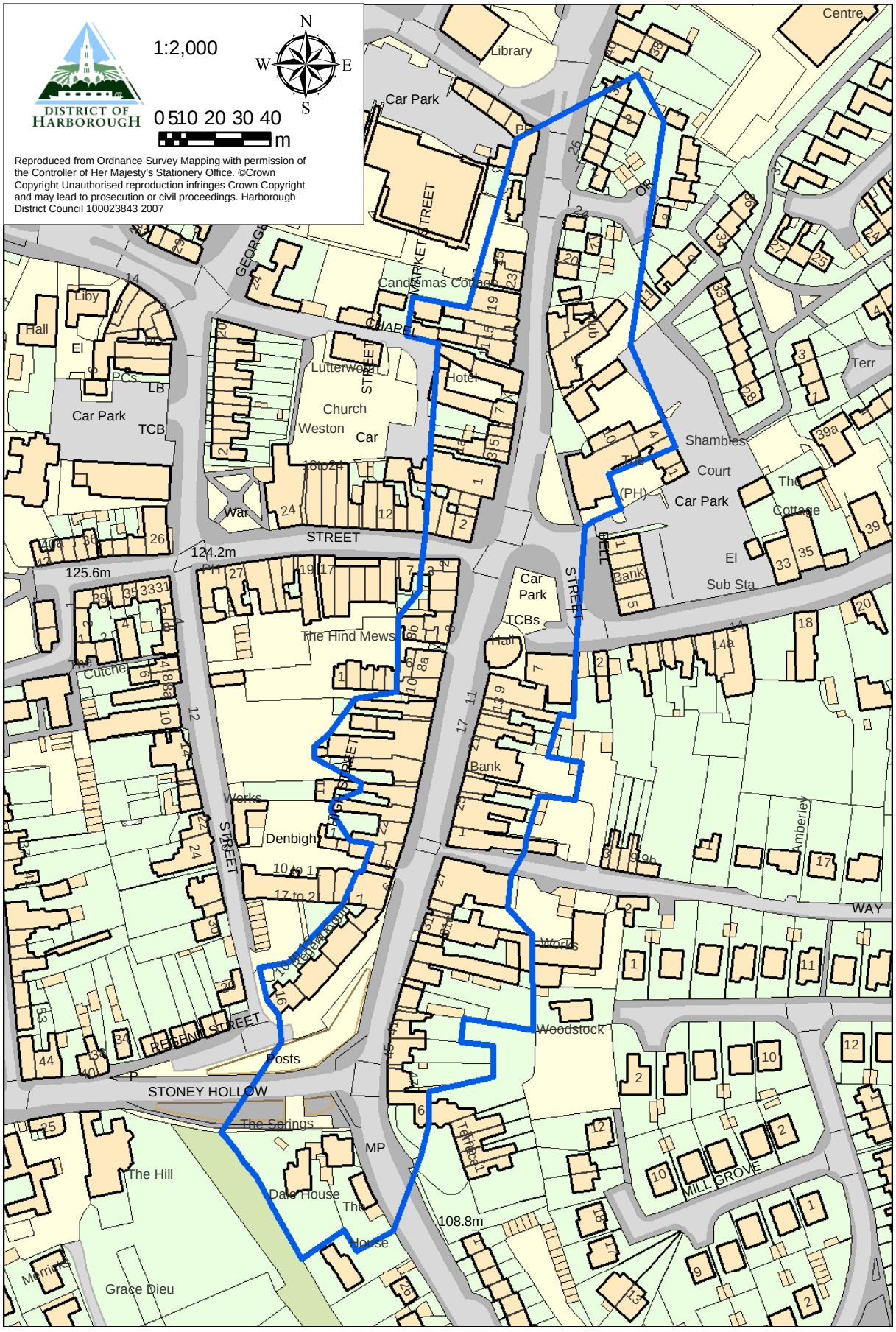
A detailed assessment of Lutterworth was conducted in 2010 [12]. The assessment found that the AQMA did not require extension to the north of the currently declared area but that the air quality standard was being exceeded to the south of the currently declared area. In order to improve the data for the further assessment of the proposed extension to the AQMA it was necessary for several NO_2 diffusion tubes to be relocated.

A Further Assessment was undertaken in 2012. The Further Assessment assessed the area to the south of the AQMA as amended following the Detailed Assessment and also looked at source apportionment. The assessment found that the area south of the Amended AQMA is exceeding the Annual Mean Air Quality Standard for NO2 and requires

amendment. It also found that (based on Annual Average Daily Traffic Flow (AADT) data):

- There are ~15000 vehicle movements through the AQMA on a daily basis.
- Approximately 85% of these movements are made by cars, 6% are made by Heavy Goods Vehicles (HGVs), and 8% are made by Light Goods Vehicles (LGVs). The remainder of movements are made by buses and motorcycles.

Figure. 2. Map of AQMA Boundary



1.6 European and National Policies to Reduce Pollution

There are a number of European and National policies that are expected to contribute to improving air quality. These include tighter emission standards for new vehicles and additional controls over certain industrial processes. Some of the relevant policies are summarised below.

Table 2. European and national policies to reduce pollution

Policy	Summary
Air Quality Framework and Daughter Directives	The Framework Directive establishes the principle that the European Union can set limit values for specified pollutants. The Daughter Directives set out what those limit values are.
Auto Oil programme	All new vehicles must comply with stringent emission standards. There are also controls over fuel quality, which also reduce emissions.
Acidification strategy	This is a strategy which aims to reduce areas at risk of acid rain by reducing emissions of SO_2, NO_x, and ammonia. It consists of a directive which limits the sulphur content of liquid fuels and emission limits for new large combustion plant and a national limit for total SO_2 emissions from existing plant.
EC Solvents Directive	This aims to reduce emissions of volatile organic compounds from certain industrial installations.
Integrated Pollution Prevention and Control Directive	This limits emissions from certain industrial installations, requiring them to take steps to ensure that EC objectives are met. Many of these processes are already controlled under national legislation (Environmental Protection Act 1990, Environmental Permitting Regulations 2010).
UNECE convention on long range transboundary air pollution	This aims to reduce the impact of transboundary pollution from one country to another by requiring emission reductions. It covers heavy metals, including cadmium, lead and mercury as well as some of the pollutants with objectives in the national air quality strategy.
Planning framework	The land use planning system and the transport framework are expected to have regard to the national air quality strategy.

Although air quality is expected to improve as a result of these initiatives, local action will also be necessary to reduce pollution in Harborough District to meet the levels set in the Governments air quality objectives.

1.7 Links to other Plans and Strategies

The Air Quality Action Plan is clearly linked to other important areas of work including the Local Transport Plan, development planning, energy

conservation, community plans and environmental. Some of the key strategies and policies are given below:

1.7.1 Local Transport Plan 3

Air Quality forms a key issue in 2 sections of the Local Transport Plan 3 (LTP3)

- Chapter 6: Encouraging active and sustainable travel
- Chapter 10 Managing the impact of our transport system on quality of life

LTP3 states it will be important to develop a better and more robust understanding of how the transport system impacts on air quality. In doing so, the Leicester County Council (as the Highway Authority) will continue to work with the district councils, who are responsible for monitoring air quality, and use modelling tools to examine future scenarios. This will enable the Highway Authority to take a more evidenced-based approach to identifying potential solutions that are likely to lead to improvements in air quality within Air Quality Management Areas (AQMA's) across the county

1.7.2 Local Development Framework

Harborough District Council adopted its core strategy in November 2011. The Core strategy is a strategic document setting out the vision and spatial planning framework for the District. It contains core strategic policies that provide for the development needs of the District.

Air quality forms a key policy within the Core strategy

Policy	Indicator	Target
Policy CS14: Lutterworth	Improvements to air quality within the Lutterworth town centre Air Quality Monitoring Area	Working towards achieving the National Air Quality objectives

Improvement in Air Quality within Lutterworth forms part of the monitoring framework as Objective 9 To reduce the environmental impacts of road traffic, both private and commercial, and lessen the need for car use by encouraging alternative modes of transport including cycling and walking.

2 Current state of the Lutterworth AQMA

Exceedences of the Annual Mean Air Quality Standard for NO_2 have occurred within the AQMA every year for the last 9 years (see Table 3)

As Discussed in section 1.5 Annual Average Daily Traffic (AADT) is ~15,000 vehicle movements, there is a correlation between the total number of hourly vehicle movements and the hourly average NO_2 Concentration; and

Source Apportionment found that HGV's make up ~6% of AADT and contribute 40-45% of Nitrogen Dioxide (NO_2); and cars make up ~85% of AADT and contribute 45-50% of NO_2;

2.1 What is nitrogen dioxide?

Nitrogen dioxide is a brown gas, with the chemical formula NO_2 . It is released into the atmosphere when fuels are burned (for example, petrol or diesel in a car engine or natural gas in a domestic central heating boiler or power station). NO_2 can affect our health. There is evidence that high levels of it can inflame the airways in our lungs although such levels have not been measured; sensitive receptors such as people with asthma are particularly affected. Over a long period of time it can affect how well our lungs work.

Table 3. Overview of Diffusion Tube Data

location			Bias adjusted yearly arithmetic Mean								
		Year	2003	2004	2005	2006	2007	2008	2009	2010	2011
		BAF	1.01	0.83	0.81	0.87	0.9	0.83	1.02	1.06	1.06
01n	Service Shop market street Lutterworth		45.70	43.76	48.24	55.13	55.20	50.03	58.65	58.04	49.47
05n	Regent Rd/ stony hollow/ high St crossroads Lutterworth		51.01	59.43	55.96	51.69	60.03	54.25	75.86	60.25	
06n	Monitoring Station market St Lutterworth				49.59	46.55	56.54	41.43	57.40	58.17	
08n	Lilac Dr Lutterworth				26.19	27.99	27.15	30.09	27.29	27.94	
09n	Maxwell Way Lutterworth				24.38	26.39	27.98	27.74	31.99	32.24	25.53
10n	Central Park				36.99	38.12	40.05	33.75			
11n	Day Nursery Leicester Rd Lutterworth				43.84	47.68	44.40	48.62	36.04	47.79	40.55
18n	Jazz Hair High St Lutterworth				41.72	44.54	51.68	48.90	52.95	52.33	45.16
23n	6 The Terrace Rugby Rd Lutterworth									40.75	37.49
24n	4-9 Regent Court Lutterworth									29.17	26.62
25n	26 Market St Lutterworth									42.91	35.83
26n	24 Rugby Rd Lutterworth									47.54	49.53
27n	17 Rugby Rd Lutterworth									42.83	36.78

	annualised mean (see box 3.2 of LAQM.TG(09))
	no monitoring data
XXXX	Value exceeds Annual Mean Air Quality Standard
XXXX	Value exceeds 36µgm^{-3}

3 Review of previous Action Plan

The last action plan included several ‘community’ schemes that were completed however due to the limited area of the AQMA these schemes have little or no measurable impact on nitrogen dioxide levels.

The action plan relied primarily on a major road scheme that proposed a Western Relief Road around Lutterworth and weight restrictions within the AQMA. This scheme was found to be unfeasible by Leicestershire County Council following its Lutterworth Traffic Study of 2008 and its 2010/2011 South west Leicestershire Traffic Study. There was also a large amount of local opposition to the scheme. An overview of the action plan and the progress against those actions is included in Table 4

Once the provision of the Western Relief Road was found to be unfeasible, the delivery of the first Air Quality Action Plan for Lutterworth was unlikely to be successful in improving levels of AQ in the town centre.

The Leicestershire County Council 2010/2011 South west Leicestershire Traffic Study also looked at other possible schemes that would have an impact on traffic in Lutterworth. However, all of the schemes were found to be unfeasible. An overview of the schemes and the reason they were found to be unfeasible is presented in Table 5.

Table 4. Progress against previous action plan objectives

No.	Measure	Lead authority	Target annual emission reduction in the AQMA	Progress to date	Status
1	Completion of Lutterworth Western Relief Road to divert traffic from the town centre	County Council	>2 μgm^{-3}	During Winter 2007/08 a traffic study of Lutterworth was completed to look at the cost and feasibility of providing a bypass to remove traffic, in particular HGVs, from the town centre. Three options were considered – a Western Relief Road, a new Western Bypass and an Eastern Bypass incorporating a split junction on the M1 Motorway. The study included an analysis of traffic patterns and this, combined with initial consultation, suggest that completing the Western Relief Road will not solve the problem of reducing HGV nuisance in Lutterworth, but would move it to another part of the town and would effectively constrain Lutterworth within a triangle of roads all with a high proportion of HGVs using them. The new Western route would also be unattractive due to the length of diversions that would be necessary. The Eastern option would provide the best overall traffic benefit to the town and received the most support during the initial consultation. However, this is a very expensive option and it will be difficult, if not impossible, to secure funding. This is therefore not considered a realistic long-term option. The Lutterworth Traffic Study showed that a bypass of Sharnford could potentially reduce the number of HGV movements in Lutterworth Town Centre but it would increase the distance travelled and journey time for lorries. Further studies have therefore been undertaken into the provision of a possible bypass in nearby Sharnford (given air quality, safety and congestion issues in the village) and the environmental impacts of HGV movements in general in south-west Leicestershire, However, both of these studies concluded that, given the current lack of public funding available, no road building scheme could currently be delivered to provide a satisfactory solution to the problems of HGV movements in the south-west of the county. The County Council's 3rd Local Transport Plan states that should financial circumstances improve (and that is a big 'should'), any new road building schemes would have to be sufficiently high priority in terms of delivering the strategic outcomes in LTP3.	deemed inappropriate as a result of local concerns

No.	Measure	Lead authority	Target annual emission reduction in the AQMA	Progress to date	Status
2	7.5 tonne weight limit to divert lorries from A426 through the town centre.	County Council	>2 μgm^{-3}	Diverting lorries away from the town centre would depend on providing an alternative route. The traffic study work outlined in Action 1 suggests that providing an alternative route would be unfeasible (see update on Action 1).	Subject to action No.1
3	Lower emissions from district and it's contractor vehicle fleets	Harborough District	<0.2 μgm^{-3}	It is a condition of all new contract renewals that vehicles use Euro 4 standard engines. pest control, dog warden and refuse contracts have recently been renewed	Completed 2008
4	Cleaner vehicles in town centre with Low Emission Zone	County Council	>2 μgm^{-3}	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.	ongoing 2016
5	Planning Controls to reduce traffic impact of new development on AQMA	Harborough District	<0.2 μgm^{-3}	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. See also action 12.	completed 2008 Measures ongoing

No.	Measure	Lead authority	Target annual emission reduction in the AQMA	Progress to date	Status
6	Road side emission testing of goods vehicles	VOSA	1 – 0.2 μgm^{-3}	Roadside emission testing has been raised with the Vehicle and Operating Services Agency (VOSA) and further consideration will be given to the inclusion of the A426 in their programme of roadside emission testing. The District Council undertook a VOSA 'dirty diesel' advertising campaign to get people to report polluting vehicles in 2008.	2008
7	Work with bus companies to reduce bus emissions	County Council	1 – 0.2 μgm^{-3}	Although the major cause of air quality problems in Lutterworth has been identified as HGV lorries, reductions in bus emissions will help to improve the overall position. Bus operators either have or are developing strategies that include initiatives to improve fuel efficiency and are designing training to reduce fuel consumption by better driving styles to help reduce emissions. An example of this is information on timetables for drivers to turn off engines if they will be at bus stops for longer than 2 minutes. The City Council are letting a study to investigate the use of alternative, fuel efficient vehicles for the new Park & Ride Site at Enderby which is being jointly delivered by the City and County Councils. As work develops to improve engine efficiency the Quality Bus Partnership provides the mechanism for local operators to share and develop best practice / experience. Bus operators are working to modernise their fleets. By working in partnership over a number of areas Arriva invested £9.6m in 54 new vehicles in 2006/07 which has significantly reduced the average age of their vehicle fleet. Older vehicles have been replaced with new vehicles containing lower emission Euro 4 engines.	Implemented 2008 Measures ongoing
8	Network management for road works, incidents and planned events	County Council	<0.2 μgm^{-3}	Network management is not a major issue for Lutterworth as there are no large venues and it is a relatively small market town. As part of the Network Management Duty Leicestershire county council highways co-ordinate streetworks, manage planned events, and have procedures for dealing with incidents. Leicestershire county council highways roadworks protocol aims to provide improved roadworks information to the public and greater involvement for the public in their approach to delivering roadworks.	2008

No.	Measure	Lead authority	Target annual emission reduction in the AQMA	Progress to date	Status
9	School travel planning with investment in walking and cycle routes	County Council	<0.2 μgm^{-3}	**School travel planning** Concerted efforts continue to increase the number of schools with travel plans across the County. The County Council works closely with schools to encourage and support them in the development of plans. To further encourage them to do so the County Council's capital investment programme for safer routes to school is focused on those who have travel plans or are developing them. 68% of schools in Harborough had travel plans in place at the end of 2009, which is an increase from 61% in July 2008. **Cycling** A key plank of Leicestershire county council highways strategy to tackle congestion is to encourage much greater levels of cycling across the County by improving the cycling facilities available. A Cycling Network Plan which shows existing cycle routes and identifies other possible layouts for routes in Lutterworth has been developed by the Lutterworth Cycling Network Working Group as part of the Lutterworth Improvement Partnership. The group will continue to work with the County Council, District Council and SUSTRANS to identify funding sources for the implementation of the plan. A cycle park has been installed at the Lutterworth One-Stop-Shop to encourage cycle use in the town and Harborough District Council took part in 'Bike to Work Week'. Harborough have also introduced 'Cyclescheme' to allow employees to purchase tax free bikes. The intention is to roll this scheme out to local businesses. Data on cycling levels in Harborough is limited but based on figures to the end of 2008, there has been a 15% increase in cycling at counting sites in the County since 2000-03 (LTP2 base). However, this increase should be considered in the context of the inclusion of additional count sites as LTP2 has developed, significant growth that has been achieved at a couple of sites and the relatively small number of trips involved at certain sites (leading to big % changes). Further work is ongoing to identify the impact of these factors on the overall figure but these increases represent a significant achievement following a period of static growth in levels of cycling across the County during LTP1 (2001-2006).	2008

No.	Measure	Lead authority	Target annual emission reduction in the AQMA	Progress to date	Status
10	Smarter Choices and promotion building on working travel plans	County Council	<0.2 μgm^{-3}	Leicestershire County Council highways, transportation and development guide for developers requires a travel plan for new developments over a certain area or number of dwellings. Furthermore, national planning guidance (PPG13) specifies that even smaller developments will require travel plans where they might generate significant amounts of traffic in, or near to, air quality management areas. Work continues to encourage major employers across the County to put workplace travel plans in place to reduce congestion. We are working closely with District Councils where planning applications are involved. Nearly 50% of major employers (>250 employees) across the County had travel plans in place at the end of the L:TP2 Period (end 2010/11).	Implemented 2008 Measures ongoing
11	Better vehicle use of roadspace for less disruption to free flowing traffic	County Council	<0.2 μgm^{-3}	**CPE** Civil Parking Enforcement (CPE) was introduced in Leicestershire from July 2007. This has seen the enforcement of parking regulations pass from the Police to the County and District Councils. The County Council are undertaking a data gathering exercise to allow them to monitor the effectiveness of CPE. They will need at least two years worth of data before we can start identify trends and whether CPE is achieving a change in behaviour. The increased number of traffic wardens in the district will result in fewer obstructions and less disruption to the free flow from illegally parked vehicles Reduction in congestion and improved air quality, with efficient junction designs and smarter electronic controls making best use of a junction's capacity and increasing the throughput of traffic. **Junction improvements** The County Council's ongoing transport improvement programme includes schemes which are aimed at improving traffic flows through improvements to traffic signal and Intelligent Transport Systems, and major and minor junctions.	Implemented 2008 measures ongoing
12	Land use planning for no unnecessary additional traffic through town centre.	Harborough District	1–0.2 μgm^{-3}	Within Local Development Frameworks it is necessary for any major development, residential or commercial, to carryout a Sustainability Appraisal as part of the planning application process. This will further reduce the impact any new major development will have on the air quality within the Air Quality Management Areas.	ongoing 2011

Table 5. Major road schemes reviewed in Leicestershire County Council's 2010/2011 South west Leicestershire Traffic Study

Option	Positives of option	Negatives of option	Reason (s) for not being viable
Improvements to the existing western route, as considered in the Lutterworth traffic study	• Potential to reduce annual mean concentrations of pollutants within the AQMA by diverting traffic from Market Street to the exiting western alignment. • Would remove through traffic from Lutterworth town centre	• Doesn't provide overall transport benefits to the town • Could potentially increase the number of HGVs in surrounding areas • Would provide a longer HGV • route to the existing route • Would not improve the overall area environmental situation • Has low value for money	• Only provides localised benefits (i.e. to Lutterworth town centre), rather than benefits to the wider area • Could potentially increase the number of HGVs using surrounding settlements as through routes • Would increase journey times • Is unaffordable at the present time • Unlikely that a sufficiently strong case could be made for public funding.
Construction of a new western route in Lutterworth, as considered in the Lutterworth traffic study	• Would remove through traffic from Lutterworth town centre • Could remove traffic from other parts of Lutterworth	• Unlikely to reduce annual mean concentrations of pollutants within the AQMA (NO2 and PM10) • Could potentially increase the number of HGVs in surrounding areas • Doesn't provide overall transport benefits to the town • Would provide a longer HGV • route to the existing route • Would not improve the overall area environmental situation • Has a high scheme cost	• Only provides localised benefits (i.e. to Lutterworth town centre) rather than benefits to the wider area • Could potentially increase the number of HGVs using surrounding settlements as through routes • Would increase journey times • Unlikely that a case could be made for it to be a public funding priority, even in improved financial circumstances.
Construction of a new eastern route in Lutterworth, as considered in the Lutterworth traffic study	• Would remove HGV traffic from the town centre • Potentially would improve air quality within Lutterworth town centre • Might be the best of the options, in terms of supporting the economic growth of Lutterworth (improved access to junction 20)	• Has a high scheme cost • Would be difficult to implement due to modifications required to the motorway junction	• Only provides localised benefits (i.e. to Lutterworth town centre), rather than benefits to the wider area • Could potentially increase the number of HGVs using surrounding settlements as through routes • Unlikely that a case could be made for it to be a public funding priority, even in improved financial circumstances.

Option	Positives of option	Negatives of option	Reason (s) for not being viable
Southern bypass of Sharnford, as considered in the Sharnford bypass study	• Could potentially improve the number of HGVs travelling from Croft Quarry through Broughton Astley and Lutterworth • Remove HGVs from the centre of Sharnford • Potentially would improve air quality within Lutterworth town centre	• Has a high scheme cost	• Is unaffordable at the present time • Unlikely that a case could be made for it to be a public funding priority, even in improved financial circumstances.
Construction of south-facing slip roads on Junction 2 of the M69 and a Sapcote bypass	• Could potentially reduce the impact of HGVs on other settlements (i.e. Lutterworth and Sharnford) • May have benefit in removing some traffic from M1 junction 21	• Would be difficult to implement due to modifications required to the motorway junction • Has a high scheme cost	• Is the most expensive option • Is unaffordable at the present time

Reproduced from Table 1 pg 15 -16 of the Leicestershire County Council 2010/2011 South west Leicestershire Traffic Study

4 Creation of Schemes

4.1 Parties involved with creation and assessment of possible modification schemes

In order to ensure that only schemes that are acceptable and likely to result in an improvement in air quality the following people will need to be involved in the creation and assessment of schemes

- From Harborough District Council
    - Environmental Protection Officer (air quality)
- From Leicestershire County Council Highways Department
    - Traffic and Safety Group Manager
    - Road Safety Team Manager
    - Traffic Management Team Manager

4.2 Method

4.2.1 Initial scheme creation

Initially a brainstorming session will be held involving the parties involved in section 4.1 to create several outline schemes which are deemed suitable for further investigation.

4.2.2 Schemes suggested by interested third parties

In order to get community support for schemes it will be necessary to consult relevant third parties such as Lutterworth Town Council, members of the public, or local community groups, on created schemes (this is discussed further in section 6) third parties may have ideas of other possible schemes in addition to those thought up by the parties listed in section 4.1. If a third party wishes to suggest a possible scheme details of the scheme should be emailed to airquality@harborough.gov.uk.

In order to ensure best use of resources, schemes suggested by third parties will be submitted to the parties outlined in section 4.1 for an initial assessment, based on professional knowledge and experience, to establish the suitability of schemes for further investigation and modelling. This will ensure resources are not used modelling schemes which are unlikely to be acceptable.

If a scheme is found to be unacceptable at this early stage the third party who suggested it will be informed of the reasons for the scheme being rejected for further assessment.

If a scheme is found to warrant further investigation the third party who suggested it will be informed that the scheme is being put forward for further investigation and modelling. Once the final decision as to the appropriateness of the scheme has been made the third party will be informed of the outcome.

4.3 Technical drawing of scheme

Once it has been decided that an outline scheme warrants further investigation and modelling full technical drawings of the scheme will be required for the modelling to be carried out.

4.4 Traffic Modelling

Once technical drawings have been drawn up for the scheme it will be necessary to model the current situation and the proposed changes.

In order to assess the impact that any traffic management measures proposed may have on improving the free flow of traffic, a route-based Paramics model would be required. This model would allow assessment of the route through the town as a whole, including the impact that the existing pedestrian crossings have on traffic movement. Assessment of the route as a whole would not be possible using traditional modelling assessment techniques (e.g. Linsig for signalised junctions, Arcady for roundabouts) because these only allow for the assessment of individual junctions.

Once traffic modelling has been completed a further look at the acceptability of the scheme on highways grounds should be conducted (see section 5.1 for further details)

4.5 Air Quality Modelling

Once a scheme has been found acceptable on highway grounds, and detailed traffic data is available, it will be necessary to assess the air quality impact of the scheme. This will involve modelling the current situation and creating a correction factor by comparing the current situation modelling data with data from monitoring locations. The correction factor can then be applied to the proposed scheme modelling data. The use of the correction factor will reduce the margin of any potential over/under estimate of nitrogen dioxide levels.

By comparing the current situation modelling data with proposed scheme modelling data, an estimate of the impact of the scheme can be made.

5 Detailed Evaluation of schemes

In accordance with the government guidance, the measures short-listed for inclusion within the action plan will be assessed against a wide range of criteria in order to assess their suitability for inclusion within the plan and enable suitable measures to be prioritised. At this stage a number of measures are still in development, and it is likely that as these measures are further defined their contribution to the plan will require to be assessed in further detail. The criteria against which options are to be assessed:

- Suitability of schemes on highways grounds
- Potential air quality impact;
- Implementation costs;
- Cost-effectiveness;
- Potential co-environmental benefits, risk factors, social and economic impacts;
- Feasibility and Acceptability.

The following paragraphs outline how the assessment will be undertaken.

5.1 Suitability of schemes on highways grounds

All traffic management interventions will be a assess against the aims and objectives of the Local Transport Plan 3 (LTP3). The aims that relate directly to action planning are listed below, along with the specific areas relating to them that will be considered when assessing requests for traffic management work:

1. Improve Road Safety
    - Seek to deliver a safer road environment for all road users;
    - Seek to manage vehicle speeds;
    - Improve road safety for vulnerable road users, including motorcyclists, pedestrians and cyclists
2. To support the Economy and Population Growth
    - Improve the management of the network to secure effective and reliable traffic movement;
    - Support the efficient and safe movement of freight;

- Support the economies of our market towns and rural areas;
- Work with others to limit the potential transportation impacts of population growth on the efficient and reliable operation of our transportation system;
- Work to support economic development and tourism in Leicestershire.

3. To manage the impact of our transport system on health and quality of life of the community
   - Seek to ensure that the existing transport system operates as efficiently as possible;
   - Seek to reduce traffic noise;
   - Seek to concentrate goods vehicles on the most suitable routes available;
   - Seek to reduce the impact of traffic on communities;
   - Work with planning authorities to improve town centres where possible.

5.1.1 Work Programme

A work programme will be set up in advance of each financial year, reflecting the priorities of the requests accepted and the budget available for that year. The work programme will also take due regard of the physical location of the proposed works, in order to optimise deployment of resources when the measures are implemented.

5.2 Potential Air Quality Impact

This is a key assessment in that the AQAP must focus on prioritising options that improve air quality most effectively. The assessment is complex in that the detailed assessment of any given option could normally be subject to a study of its own requiring significant resources. A semi-quantitative assessment relying on a level of judgement has been adopted. The method used is outlined below:

1. The description of the option and the proposed change to be brought about by the option is used alongside the source apportionment

analysis (See Lutterworth Further Assessment 2012) to define what proportion of road transport emissions would potentially be affected by the option.

2. A view is then expressed on how much of the traffic would actually be changed by the option.
3. The proportion of emissions potentially affected by the option and the view on how far they could be changed by the option are combined to express a view on how much transport emissions may be reduced in the AQMA due to the option.
4. A view is then expressed on how significant this change in emissions would be in terms of making progress towards the air quality standard in the AQMA.

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

- **Zero** local AQ benefit if the realistic intervention is 0% or worse;
- **Small** local AQ benefit if the realistic intervention is 1%;
- **Medium** local AQ benefit if the realistic intervention is 2-5%;
- **Large** local AQ benefit if the realistic intervention is >5%.

5.3 Implementation Costs

The potential implementation costs of each option are assessed as follows:

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

5.4 Cost-Effectiveness

The effectiveness of each measure in improving air quality is compared to the implementation costs in the matrix presented in Table 6.

Table 6. Cost benefit analysis matrix

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

In this table the assessed implementation costs and potential air quality impacts have been given a weighted score. The product of the weighted scores for each option is calculated. The results can be interpreted as follows:

- If the product is **high** (10 or more) then the measure is more cost-effective (significant impacts for the cost involved) and perhaps favourably cost-effective;
- If the product is **medium** (between 5-9) then the measure is in the **medium** range of cost-effectiveness;
- If the product is **low** (4 or less) then the measure is less cost-effective (small impacts for the cost involved) and perhaps unacceptably poor in cost-effectiveness terms.

This method only estimates the *relative* cost-effectiveness of options rather than their *absolute* values. The method is useful during discussions of the relative priority of different options. The final cost-effectiveness value is sensitive to changes in the assumptions of how effective a measure might be in reducing emissions and how costly it is.

5.5 Potential Co-environmental Benefits

In the assessment other environmental benefits will be highlighted.

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

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

5.6 Potential Risk Factors

The assessment will highlight risk factors. These may be looked at more closely within a Strategic Environmental Assessment of any measure implemented. At this stage it will simply highlight whether or not it is likely that the measure would:

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

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

5.7 Potential Social Impacts

The assessment will highlight potential social impacts. These may need to be examined more closely when developing the options further. At this stage it is simply highlighting whether or not it is likely that the option would potentially:

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

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

5.8 Potential Economic Impacts

The assessment will highlight potential economic impacts. These may need to be examined more closely when developing the options further. At this stage it will simply highlight whether or not it is likely that the option would potentially:

- Influence sustainable development or accessibility in Lutterworth;
- Reduce or increase overall travel time;
- Place additional requirements on operators.
- Reduce or increase tourism/trade in the town

5.9 Feasibility and Acceptability

Each option will be assessed for its feasibility against three simple criteria. These are whether the authority has:

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

Table 7 sets out the criteria adopted for defining the option as being feasible over the short, medium or long term, or as being unfeasible. Each option is assessed against each criterion. The final feasibility timeframe is defined according to which of the three assessments results in the longest of the four possible terms (short, medium, long or unfeasible). For example, an option for which powers are clear and for which impacts are well characterised but for which funding will be difficult to obtain would be assessed as feasible over the long term.

Table 7. Feasibility matrix

Feasible in the:	Authority has the powers	Funding secured	Potential positive and negative impacts are well characterised
Short term (1-2 years)	Yes, clearly defined and already exercised	Yes potentially straightforward	Yes
Medium term (3-6 years)	Yes but novel or with an element of uncertainty	Yes with forward planning	Not without further study
Long term (>6 years)	Highly uncertain	No or extremely difficult	Not without further study
Unfeasible	No	Will never attract funding	Hard to characterise and with high risks

In relation to the acceptability, a preliminary judgement is expressed on how acceptable each option might be to stakeholders according to the following criteria:

- The option is considered potentially acceptable if: the option is unlikely to compel people to change behaviour or increase their costs significantly or at least some level of behaviour change or personal costs are required but the scheme is overall consistent with community policies;
- The option is considered potentially unacceptable if: unacceptably intrusive changes in behaviour or large personal costs would be incurred.

Final judgements on acceptability will necessarily rest with the elected Council members.

6 Consultation

The council is required by the Local Air Quality Management Policy Guidance (LAQM.PG.(09)) to consult stakeholders on how it will address the air quality issue.

In order to gather the opinions of appropriate stakeholders the following organisations will be directly consulted both on this document on proposed schemes

- Lutterworth Town Council

- Daventry District Council
- Kettering Borough Council
- Corby Borough Council
- Rugby Borough Council
- Hinckley and Bosworth Borough Council
- Melton Borough Council
- Blaby District Council
- Charnwood Borough Council
- Oadby and Wigston Borough Council
- Leicester City Council
- Rutland County Council
- Environment Agency

It will also be necessary to get the views of businesses and residents located within the AQMA and businesses and residents from the local area who utilise the road traffic network. Due to the number of people and organisations within this group it will not be possible to consult each individually. The consultation documents will be placed on the councils website and paper copies will be placed with the town council and the library. Notices will be placed within the AQMA to inform the public and local businesses that a consultation is open.

7 Funding Options

The most appropriate funding sources will be addressed on a scheme by scheme basis but will include the following

7.1 Leicestershire County Council Highways Road Maintenance/improvement Budget

Some low cost minor schemes such as alteration of traffic lights / crossings etc, may be suitable for funding through Highway maintenance or improvement budget

7.2 Section 106 agreements (S106)

This is money that developers of larger sites pay to the council to reduce the impact of the development. Developers sign a S106 agreement as part of their planning permission. This is a legal document that specifies what the money is spent on and where. If larger developments are found to impact on air quality by their Environmental Impact Assessments it will be possible to require the developer to fund schemes found suitable.

7.3 Community Infrastructure Levy

The Community Infrastructure Levy (CIL) is a new levy that local authorities can choose to charge on new developments in their area. The money can be used to support development by funding infrastructure that the council, local community and neighbourhoods want.

7.4 Local Sustainable Transport Fund

Local Sustainable Transport Fund (“the Fund”) to help build strong local economies and address the urgent challenges of climate change. It reflects the Government’s core objectives of supporting economic growth by improving the links that move goods and people and meeting its commitment to reducing greenhouse gas emissions.

8 Time Frame for implementation

In order that the aims highlighted above can be met, it is necessary to have realistic objectives set. Where relevant, target dates for each of the objectives will be set. The completion and publication of the Action Plan Framework is a significant milestone and the review process incorporated in the strategy will ensure that the strategy remains effective in achieving these aims.

Table 8 sets out the actions required in order that the inspection of the land in Harborough district is carried out in accordance with the published aims and objectives.

Table 8. Initial Implementation timescale

Task	Target Date
Initial meeting to outline schemes for further assessment	November 2013
Draw up full technical drawings of outline schemes	November 2014
Modelling of outline schemes	November 2014
Decision on feasibility of modelled schemes	February 2015
Define most appropriate funding methods and estimate timeframe for implementation of schemes found to be feasible	April 2015

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