Barnsley Metropolitan Borough Council

Air Quality Action Plan - 2010

Consultation Draft

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Air Quality Action Plan - 2010

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Executive Summary

This air quality action plan (AQAP) details actions (or measures) to be taken to improve the Borough's air quality, either generally or targeted at local pollution hotspots. This action plan has been written following further development of air quality as a local issue since publication of Barnsley MBC's first AQAP, published in 2004.

The overall aim of the Action Plan is to identify how Barnsley MBC will use its existing powers and also work in conjunction with other organisations in pursuit of the air quality objectives, thus working to minimise the effects of pollution on human health.

The objectives of Barnsley MBC's Action Plan are as follows;

Primary Objective

To improve air quality within the Boroughs' air quality management areas in order that the annual average objective for the polluting gas nitrogen dioxide is not breached.

Secondary Objective

To improve air quality generally within the entire Borough.

The plan also reports on the progress in the implementation of action plan measures since 2004.

Further air quality management areas (AQMAs) have been declared since 2004, all due to the impact of traffic emissions on local roads (specifically the polluting gas nitrogen dioxide). These are detailed in the table below, along with original Barnsley No. 1 AQMA:

No.	Adjacent roads / junctions	Year declared
1	M1 Motorway, 100 metres either side of the central reservation within the Barnsley Borough	2001
2A	A628 Dodworth Road	2005
2B	A628 Barnsley Road	2005
3	Junction of A61 Wakefield Road and Burton Road	2005
4	A61 Harborough Hill Road	2008
5	Junction of A633 Rotherham Road and Burton Road	2008

Where air quality issues are primarily transport issues, local authorities are required to integrate their AQAPs into the local transport plan (LTP). This plan has therefore considered those measures within the LTP which will improve air quality, these measures being either directly

devised to reduce air pollution, or indirectly benefit air quality, as a result of their implementation (e.g. LTP measures which improve congestion).

Since 2004, a number of air quality related studies have been undertaken which have assessed measures at a local or countywide level that are hoped to improve air quality. The measures contained within these reports are incorporated into this plan, and have been compared and evaluated against each other, in order to produce a list of measures which have been adequately assessed for their air quality improvement, cost and deliverability (including timescales). Added to this list are the existing measures from the original plan, which are still relevant and can be applied to the AQMAs declared after 2004.

Consideration has also been given to measures suggested by other stakeholders since 2004, including ideas made by local residents. These potential measures have been evaluated using the same criteria for the other above described measures, and, where appropriate, have been incorporated into the plan.

The list of measures proposed to be undertaken to improve the Borough's air quality are presented below:

No.	Measure	Implemented	Lead Organisation
1	Construction of Burton Road Quality Bus Corridor (AQMA No. 3)	Lifetime of LTP2 (by 2011)	Highways and Engineering / Planning and Transportation
2	Barnsley Statutory Quality Partnership Scheme (Bus Partnership)	Lifetime of LTP2 (by Summer 2010, subject to approval of agreement)	Planning and Transportation
3	Barnsley Intelligent Transport System	Lifetime of LTP2 (by 2011)	Highways and Engineering / Planning and Transportation
4	Care4Air	Ongoing	Regulatory Services / Planning and Transportation
5	Alteration of location of traffic lights (AQMA No. 5)	Feasibility study of junction engineering works - lifetime of LTP2 (by 2011)	Regulatory Services / Highways and Engineering
6	Implementation of cycling and walking routes adjacent or in AQMAs	Lifetime of LTP2 (by 2011), and then ongoing into LTP3	Planning and Transportation
7	Low Emission Strategy Package	Lifetime of LTP2 (by 2011)	Planning and Transportation
8	Park and Ride Schemes	Lifetime of LTP2 (by 2011)	Highways and Engineering / Planning and Transportation
9	Barnsley MBC Travel Plans (general)	Ongoing	Planning and Transportation
10	ECO Stars HDV Recognition Scheme	Lifetime of LTP2 (by 2011)	Planning and Transportation / Regulatory Services
11	Targeted Vehicle Emission Testing	Lifetime of LTP2 (by 2011)	Regulatory Services
12	BMBC will continue to ensure that air quality is considered with regards to new development, where appropriate, in line with PPG23. The Council will look for evidence that developers have taken appropriate steps to mitigate pollution impacts. Where appropriate, the Council will seek to air quality improvements using Section 106 agreements.	Ongoing – adopted from original action plan	Regulatory Services
13	BMBC will ensure that all major traffic schemes are assessed for air quality impacts against the NAQS objectives.	Ongoing – adopted from original action plan	Regulatory Services
14	BMBC will continue to provide comprehensive	Ongoing – adopted from original action plan	Regulatory Services

	control over emissions from Part B and A2 processes, and act as consultees to the Environment Agency for part A1 processes		
15	**BMBC will continue to work with developers and employers to improve sustainable transport links to new economic and residential developments**	**Ongoing – adopted from original action plan**	**Regulatory Services**
16	**BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to industrial smoke**	**Ongoing – adopted from original action plan**	**Regulatory Services**
17	**BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to domestic smoke control**	**Ongoing – adopted from original action plan**	**Regulatory Services**
18	**BMBC will continue to investigate complaints about nuisance, and take appropriate action to resolve the problem.**	**Ongoing – adopted from original action plan**	**Regulatory Services**
19	**BMBC will continue to provide the Smoky Diesel Hotline Service on telephone number 01226 772458**	**Ongoing – adopted from original action plan**	**Regulatory Services**
20	**Countywide Modelling and EDB**	**Lifetime of LTP2 (by 2011)**	**Regulatory Services**
21	**Countywide Monitoring**	**Ongoing**	**Regulatory Services**
22	**Encourage uptake of lower emission vehicles and alternative fuels by participating in the LTP funded South Yorkshire "Low carbon re-fuelling infrastructure" project**	**Lifetime of LTP2 (by 2011)**	**Planning and Transportation / Regulatory Services**

These measures require “buy-in” from organisations internal and external to the Council and lead organisations within the Council have been identified within this plan. The purpose of the lead organisation is to ensure that measures within the plan are implemented effectively and within the identified timescale.

This plan is now ready to be presented to stakeholders, and a formal consultation process will now be held. A full copy of this report is available from Barnsley MBC and comments are welcomed. Please contact:

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1. Introduction

This action plan details actions (or measures) to be taken to improve the Borough's air quality, either generally or targeted at local pollution hotspots. This action plan has been written following further development of air quality as a local issue since publication of Barnsley MBC's first AQAP, published in 2004.

The overall aim of the Action Plan is to identify how Barnsley MBC will use its existing powers and also work in conjunction with other organisations in pursuit of the Air Quality objectives, thus working to minimise the effects of pollution on human health.

The objectives of Barnsley MBC's Action Plan are as follows:

Primary Objective

To improve air quality within the Boroughs' air quality management areas in order that the annual average objective for the polluting gas nitrogen dioxide is not breached.

Secondary Objective

To improve air quality generally within the entire Borough.

The plan details future measures, and reports on the progress in measures implemented since 2004.

Some of the measures within this plan will have a significant beneficial impact on local air quality (particularly in those small areas identified as having relatively poor air quality). Other measures will have a very minor impact. The potential cumulative impact of a number of measures which individually do not improve air quality significantly may be greater when implemented together. This applies particularly to the smarter choices (car sharing schemes, cycling, walking, eco-driving etc) agenda. For this reason, these measures are given the same consideration in this plan, as those which have greater benefit.

This plan is "live", and measures which are developed and implemented in future years, but are not considered here will be added to future versions of this plan, as and when appropriate. This will be done by creating additional appendices which will detail and evaluate such measures.

The plan has been prepared by Regulatory Services officers, with ongoing consultation and input from Transportation officers and Highways and Engineering officers.

Assessment of the Borough's air quality in 2004 and 2007[1] revealed exceedence of the annual average objective for nitrogen dioxide (NO_2) at receptor (mainly domestic premises) close to several arterial roads and junctions near to Barnsley town centre. This objective is expressed as an annual average of 40 microgrammes per cubic metre.

This has resulted in declaration of air quality management areas (AQMAs) within the borough due to exceedence of the annual average objective for NO_2. These AQMAs are limited to the zone of exceedence of the objective and are associated with busy arterial roads and junctions close to Barnsley town centre. The zone of exceedence is defined as the geographical area, in which an air quality objective is breached or "exceeded". Outside the zone of exceedence pollution concentrations are below the objective.

[1] Barnsley MBC Air Quality Detailed Assessments, August 2004 and March 2007, available from the Barnsley MBC air quality website at www.barnsley.gov.uk.

With the exception of AQMA1, which is located along the M1 motorway (a trunk administered by the Highways Agency), these roads are the responsibility of the local authority, and the major local contributor to local pollutant concentrations are traffic emissions [3]. All Barnsley's AQMAs are summarised in the table below:

No.	Adjacent roads / junctions	Year declared	Estimated no. of domestic dwellings
1	M1 Motorway, 100 metres either side of the central reservation within the Barnsley Borough	2001	265
2A	A628 Dodworth Road*	2005	425
2B	A628 Barnsley Road	2005	
3	Junction of A61 Wakefield Road and Burton Road	2005	30
4	A61 Harborough Hill Road	2008	42
5	Junction of A633 Rotherham Road and Burton Road	2008	16

* It should be noted that a small section of the A628 within the Barnsley Borough is administered by the Highways Agency. However the section of the A628 incorporating the Barnsley 2A and 2B AQMAs is administered by Barnsley MBC, and the Highways Agency section of the A628 is sufficiently remote from these AQMAs as not to have significant impact on air quality in the AQMAs.

Copy maps and orders relating to the above AQMAs can be found in appendix one.

So far 227 local authorities have declared AQMAs, of which approximately 95 % have been declared due to exceedence of the annual average objective for NO_2. Barnsley's air quality issues are therefore not unique! Clearly, this is a national issue, with many other local authorities experiencing similar or poorer air quality than that occurring in Barnsley.

As a consequence, we believe that national measures, which are not considered here (such as continuing improvement in vehicle emission standards and the development of alternatively fuelled vehicles) have a very important part to play in improving air quality, as well as the more local measures considered within this plan.

This plan takes the opportunity to collate, detail and assess measures, taken at a local level, which have an impact on local air quality. These include measures which have been initiated since 2004, but do not appear in the original AQAP, and further measures to be implemented following publication of this document, along with those measures still active from 2004 plan.

The plan aligns itself in particular with the second South Yorkshire Local Transport Plan, as local authorities are now required to integrate their air quality action plans into their Local Transport Plan (LTP), where local road transport is a primary factor in the AQMAs.[2]

2. Why update the action plan?

Barnsley MBC's first air quality action plan (AQAP) was published in 2004, and was primarily involved in devising measures to tackle air pollution within the Barnsley MBC No. 1 AQMA [4]. This AQMA was declared in 2001 due also to exceedence of the annual average objective for NO_2, in this case along the M1 motorway. The M1 motorway, as a trunk road, is administered by

[2] DEFRA, Volume 1, March 2007, The Air Quality Strategy for England, Scotland, Wales and Northern Ireland

[3] Barnsley MBC Air Quality Detailed Assessments August 2004 and March 2007, available from the Barnsley MBC air quality website at www.barnsley.gov.uk.

4 Barnsley MBC AQAP

the Highways Agency. The original AQAP can be viewed at our air quality website, linked to the Barnsley Council website at www.barnsley.gov.uk.

Since 2004, particularly as a result of the integration of air quality as a shared priority into Local Transport Plans, the Council's local air quality management agenda has developed considerably. It is important therefore that this work is recorded within a single overarching document, so that the focus and direction of local air quality management is maintained.

Although the process of integration of action plan measures into the second South Yorkshire Local Transport Plan has been ongoing from 2005 onwards, no Barnsley based document exists from this period that reports on this process purely from an air quality perspective. This plan therefore fulfils this requirement.

Furthermore, declaration of new AQMAs requires consideration of further measures to tackle air pollution within these new areas.

Publication of the revised national Air Quality Strategy in 2007 is another external factor influencing this plan, along with the development of the links between controlling local air quality pollutants and greenhouse gas emissions.

This document will also inform local stakeholders of the work that has been carried out by the local authority and its partners, along with future work to specifically improve local air quality, and will hope to answer any questions that local people may have about this process.

3. Alignment with the Barnsley MBC Air Quality Strategy

Following the requirement from the Compulsory Performance Assessment regarding the production of air quality strategies, Barnsley MBC has drafted an air quality strategy document, which is available for consultation.

The opportunity has therefore arisen to incorporate the revised action plan within Barnsley's' air quality strategy. This will ensure that the plan and strategy are complimentary and between them, comprehensive.

4. Current situation

There are now six AQMAs within Barnsley, all declared due to exceedence of the annual average objective for nitrogen dioxide. In addition to the five AQMAs declared from 2005 onwards, Barnsley's first AQMA was declared in 2001, also due to exceedence of the annual average objective for NO_2. This AQMA (Barnsley No. 1) extends 100 metres either side of the central reservation of the M1 motorway.

The quality of Barnsley's outdoor air (the air we breathe) is affected by local, regional, national and on occasion continental sources of air pollution. It is the Council's and central governments' desire to do all that is reasonably possible in order to tackle air pollution. This desire aligns itself very closely with the Council's aspirations. This plan aligns itself with Regulatory Services' mission statement; "to contribute to the protection and improvement of the health, safety and well-being and environment of the people who live in, work in, trade in or visit the Borough", along with the Councils' aspiration to create a Clean, Green and Safe Borough.

In order to deal with these varying sources of air pollution, European and national legislation has been devised and implemented. This is detailed at length within the March 2007 update of the Air Quality Strategy for England, Scotland, Wales and Northern Ireland, produced by the Department for Environment, Food and Rural Affairs (Defra).

These measures are contributing to the improvement in air quality generally, both nationally and within the Borough. Nevertheless, air pollution "hotspots" remain, where pollution concentrations still exceed the national objectives.

National legislation provides the opportunity for local authorities to deal with these local problems. Local authorities, who have declared AQMAs, are required under Section 84(2) of the Environment Act 1995, to produce an Air Quality Action Plan. The purpose of the action plan is to set out the actions that the Council will take in pursuit of the air quality objective(s). This should also include relevant timescales for implementation of these measures. **Local authorities are not obliged to meet the objectives, but they must demonstrate that they are working towards them**.

Government Guidance note LAQM.PG (03) (Local Air Quality Management – Policy Guidance, Defra) says that an action plan should contain the following;

- ***quantification of the source contributions to the predicted exceedence of the objective, thus allowing the action plan measures to be effectively targeted;***
- ***evidence that all available options have been considered on the grounds of cost effectiveness and feasibility;***
- ***an explanation of how the local authority will use existing powers and liaise with other organisations, in pursuit of the air quality objectives;***
- ***timescales for implementation of the measures in the plan;***
- ***quantification of the expected impacts of the proposed measures, and if possible an indication as to whether they will be sufficient to meet the air quality objectives;***

an explanation of how the effectiveness of the plan will be monitored and evaluated.

The Environment Act 1995 does not specify a timescale for preparation of an Action Plan. However, the Government expects them to be completed within 12-18 months following the designation of an AQMA.

Most of these issues are dealt with in this plan, whilst the quantification of source contributions (source apportionment) will be dealt with in the next air quality further assessment report.. The further assessment will also take account of the Defra's comments relating to the 2008 progress report for our original action plan. Furthermore, quantification of the expected impacts of the proposed measures (including an indication whether they will be sufficient to meet the air quality objective) will also be dealt with in the further assessment.

5. Statement on gradient; and Primary NO_2 emissions

Each action plan requires an evaluation of the of the relative pollution source contributions to the predicted exceedence of the air quality objective(s). In the case of our action plan, this relates to the annual average objective for NO_2. This allows the action plan measures to be effectively targeted at the appropriate pollution sources.

The action plan also requires quantification of the expected impacts on air pollution concentrations of the proposed measures, and if possible an indication as to whether they will be sufficient to meet the air quality objectives.

Running parallel to this plan, the Council is undertaking a further assessment of air quality within its AQMAs, in order to answer the above points. The further assessment will confirm the major sources of pollution in our AQMAs (source apportionment), however, as our AQMAs are located next to roads, traffic emissions from these roads is the major contributor to increased air pollution in these AQMAs.

The source apportionment exercise will attempt to quantify emissions from the vehicle fleet in order to target measures. However, we feel that the measures contained within this plan will target all sectors of the vehicle fleet in Barnsley.

There are two issues which have recently come to light which make achieving the NO_2 annual average objective more challenging in the Borough; these being the impact of gradient on emissions and increasing primary NO_2 emissions.

The emergence of these issues in recent years is making in achieving the NO_2 annual average objective considerably more difficult in the Borough where these factors impact significantly on local air quality.

Gradient

Several roads within the Barnsley Borough are subject to significant gradient. Work undertaken in 2003 by Barnsley MBC Highways and Engineering officers highlighted several road links close to traffic signalisation where there is significant gradient, this information is detailed below:

Location	**Average gradient %**	**Within AQMA?**
	0 m – 20 m from stop line	
A61 Harborough Hill Road	8.2	AQMA No. 4
A61 Cutting Edge	8.63	n/a
A61 Sheffield Rd / A635 Doncaster Rd	7.98	n/a
Burton Rd / A633 Rotherham Road	7.67	AQMA No. 5
Carlton Rd / A633 Rotherham Rd	5.56	n/a
Cemetery Rd / A61 Sheffield Rd	5.77	Detailed Assessment required
Old Mill Lane / Eldon St North	6.8	n/a
Old Mill Lane / Huddersfield Road *	10.73	n/a

*Not measured from stop line (which has shallow gradient) but measured from steepest approach gradient where vehicles often queue.

The effect of gradient was clearly demonstrated within our 2007 detailed assessment and 2009 updating and screening assessment), which identified a significant impact of gradient on the A61 Harborough Hill Road (Barnsley MBC, Air Quality Updating and Screening Assessment, March 2007, Barnsley MBC, Air Quality Detailed Assessment, July 2009). Comparison of roadside diffusion tube data from the downhill and uphill carriageways shows as much as approximately 50% difference in pollutant concentrations. As traffic flows on these carriageways is broadly similar, it is considered that most of this difference is generally attributable to the impact of gradient.

This will obviously make meeting the air quality objective considerably more difficult than if these carriageways were on a more horizontal plane.

Primary NO_2 emissions

Our updating and screening assessment published in 2009 (available at www.barnsley.gov.uk) showed that roadside NO_2 concentrations generally in the Borough have not declined as previously expected, based on previous national projections of reduction in roadside NO_2 concentrations.

Emerging national evidence indicates that this situation is largely caused by increasing emissions of primary NO_2. Primary NO_2 is emitted directly from a vehicle tailpipe. Previously primary NO_2

was thought to account for 5% of tailpipe NOx emissions, but emerging evidence indicates that this proportion may be far higher. This has implications for reduction in NO_2 concentrations.

This issue has been discussed at length in the document "Trends in Primary Nitrogen Dioxide in the UK", published by the Air Quality Expert Group (AQEG) in 2007. AQEG are group of nationally recognised air quality experts, appointed by the Department for Environment, Food and Rural Affairs (Defra) to look into specific air quality issues.

The following text is taken directly from this report, in order to best explain the primary NO_2 issue. Primary NO_2 is usually referred to as f-NO_2.

"The origins of the increasing NO_2/NOx ratio have been analysed in some detail and various mechanisms have been invoked to explain the observed behaviour, including (i) increasing primary emissions of NO_2 from the increased market penetration of diesel cars and the retrofitting of pollution control devices, such as catalytically regenerative traps fitted to London buses and (ii) increasing background O_3. The increasing trend in the NO_2/NOx concentration ratio has become more marked in recent years, making it harder to meet the UK air quality objectives and EU limit values for NO_2."

The number of emissions measurements on different vehicle types is relatively limited. They indicate that the fraction of NOx emitted as NO_2 (f- NO_2) is considerably in excess of 5%, with values in the range 20 – 70% for Euro III diesel cars. ***Heavy duty vehicles and buses show a smaller f-NO_2, but the fitting of diesel particulate filters to buses substantially increases the fraction of NO_2 in vehicle exhaust gases****. In 2005, over 90% of Transport for London buses was operating with such traps.*

Increases in NO_2/NOx ratios could be due to increased penetration of Euro-III diesel vehicles fitted with oxidation catalysts or the fitting of catalytically regenerative particle traps to buses, particularly in London*"*

In 2007, the four South Yorkshire local authorities undertook a vehicle emission testing exercise in South Yorkshire, using equipment capable of remotely assessing exhaust emissions whilst the vehicle passes along the carriageway. Allied to this survey, automatic number plate recognition data was used, in order that the EURO engine specification and fuel used by vehicle could be ascertained. Several key arterial roads in South Yorkshire were surveyed using this technique, including Doncaster Road and Wakefield Road in Barnsley.

These data were aggregated together to produce an "average" fleet composition for South Yorkshire The table below indicates that the dominant vehicle (as expected) on South Yorkshire's roads is the car.

Vehicle Type ID - Total Tests	Number	%
Other	20	0.04%
Hackney Carriage	105	0.21%
L 2/3 Wheelers	166	0.32%
M1 Cars	43510	85.20%
M2 Mini Bus	244	0.48%
M3 Bus	560	1.10%
N1 Class I LGV	1601	3.13%
N1 Class II LGV	1097	0.37%
N1 Class III LGV	3441	6.70%
N2 HGV	189	0.37%
N3 HGV	129	0.25%

The “average” South Yorkshire fleet composition was then subdivided into respective EURO class engines, which showed that predominantly the main EURO class of vehicle on South Yorkshire roads in 2007 was EURO III. Average is defined here as the average of the counts on various routes around South Yorkshire, which were subject to the above vehicle emission testing and ANPR exercise undertaken in 2007.

Euro Class - Total Tests		
Euro Class	No.	%
Euro 0	2896	5.7
Euro 1	6853	13.4
Euro 2	7449	14.6
Euro 3	24955	48.9
Euro 4	8451	16.6
Unclassified	458	0.8

Of these EURO III engine vehicles in South Yorkshire, 40% were powered by diesel (heavy oil).

Euro 3	Gas/Biofuel	85	0.34%
	Heavy oil	9978	39.98%
	Petrol	14882	59.63%
	Hybrid Electric	10	0.04%

As approximately 85% of the South Yorkshire vehicle mix is cars, it can be therefore assumed that the vast majority of these EURO III diesel vehicles are cars. This confirms the AQEG conclusions stated earlier, which states that ***increases in NO_2/NOx ratios could be due to increased penetration of Euro-III diesel vehicles fitted with oxidation catalysts.***

Due to relatively high proportion of EURO III cars in the South Yorkshire fleet, it would appear that this region generally is prone to increased primary NO_2 emissions. This obviously has therefore further implications for meeting the NO_2 annual average objective.

6. Case studies

A good way of highlighting progress with implementation of air quality measures is the presentation of case studies. These are detailed within appendix three of this plan, and cover such issues as the success of the Dodworth by-pass in reducing nitrogen dioxide concentrations in the Barnsley 2B AQMA and Barnsley Green Fleet measures.

Other case studies are included in this appendix, including the air quality indicator adopted for the LTP8, and a summary of target 11 from the recent local public service agreement (LPSA2), which has implications for local air quality.

7. Summary of 2004 action plan

The original Action Plan has twenty-six measures - these are detailed within the table in appendix two, and contain specific measures to tackle air pollution along the M1, along with more generic measures to improve air quality throughout the Borough. Some of the measures contained within the 2004 plan have now been discontinued, some relate specifically to the 2004 plan, whilst others could be incorporated into this plan.

Since publication of the 2004 plan, progress of implementing these measures has been reported in subsequent annual progress reports. These have been submitted to Defra (Department for Environment, Food and Rural Affairs) and copies are available on the Council's air quality website. Explanations why some measures have been discontinued can be found within the annual action plan progress reports.

A review of the twenty six measures contained within the original plan has resulted in the relevant measures (taken from the 2004 plan) being incorporated into this plan.

8. Role of the Highways Agency

Declaration of the first AQMA in 2001 (M1 motorway throughout the Barnsley Borough) highlighted the need for the local authority to work with the Highways Agency in dealing with air quality problems close to this motorway. This AQMA was declared due to likely exceedence of the annual average objective for NO_2 within 100 metres either side of the central reservation of the motorway, as it passes through the Borough.

The motorway, as a trunk road is administered by the Highways Agency.

It was recognised in the original plan of the pivotal role the Agency has in improving air quality in this AQMA. The Agency was consulted throughout the drafting of the original plan, and consequently made comment on potential measures which would fall under the Agency's remit.

The main points contained within the Highways Agency response are summarised below:

The Agency has considered the measures contained within the plan which specifically involve them, these being:

Speed limit reductions

Road User Charging

Reduction in traffic volumes

Variable message signs / traffic management systems

In response to the original Plan, the Agency considered that under a "do minimum" scenario, with no further action undertaken by the Agency that the annual average objective for nitrogen dioxide would be achieved in 2007.

The Agency then considered speed limit reductions, and quote costs for the purchasing of speed cameras for a two kilometre stretch of motorway. The Agency estimated costs being greater than £1 million, and the cost of delay to travellers was estimated by the Agency of approximately £2 million per annum (assuming 100 000 AADT). Consequently, the Agency considered that "this is an expensive option and would not be cost effective in delivering the marginal improvements in health that would be expected at the few properties affected".

The Agency then stated that any road charging scheme is unlikely to be implemented before 2011.

The Agency then commented on reductions in traffic volumes, and stated that "achieving reductions in traffic volumes is always desirable but of course not easy. Measures that could help include travel plans for local traffic, improvements to rail services, promotion of public transport and national measures to encourage more efficient movement of freight". The Agency then offers their assistance with any specific projects.

Since 2005, Barnsley MBC and the Agency have been involved in a joint monitoring exercise, which shows marginal exceedence of the annual average objective within the M1 AQMA, with concentrations not showing the downward trend predicted in 2004 by the Agency.

There continues to be dialogue with Agency officers (particularly via regional air quality groups), and the Agency is aware of its responsibilities regarding air quality. Barnsley MBC will continue to work with the Agency in attempting to improve air quality within this AQMA, and just as importantly ensure that any measures implemented by the Agency do not have a negative impact on air quality adjacent to the local road network.

9. Review of LTP process

Air quality is now recognised as an important issue within the LTP, as its status has now been raised to one of the four "shared priorities", along with Accessibility, Congestion and Road Safety.

Barnsley MBC meets its' local transport plan (LTP) obligations by contributing to the development and implementation of the South Yorkshire LTP, along with the other three South Yorkshire local authorities and the South Yorkshire Passenger Transport Executive (SYPTE).

Following publication of Department of Transport (DfT, Full Guidance on LTPs; 2nd Edition, DfT, December 2004) and Defra guidance (LAQM PG (04) – Policy Guidance Addendum, Defra, November 2004), the four South Yorkshire local authorities have been active in incorporating action plans and their measures into the LTP. This involved the creation of an LTP and Air Quality Steering Group consisting of Air Quality and Transportation officers. This group meets on a monthly basis.

Specifically, DfT guidance states:

"*Where air quality issues are primarily transport issues, local Air Quality Action Plans should be integrated in to the LTP*".

In addition, LAQM.PGA(05) provides guidance to local authorities on integrating Air Quality Action Plans (AQAPs) into the LTP2. The following sections consider the relevant sections of the guidance and the proposed structure for integrating AQAPs into LTP2 in South Yorkshire.

The advice on integrating AQAP into the LTP2 suggests:

"*Local authorities responsible for local air quality management should integrate Air Quality Action Plans, where [local] transport is the primary factor, into the Local Transport Plan covering their area. The Government strongly recommends this approach, because this integration should enable air quality problems to be dealt with in a more corporate and multi-disciplinary way and will encourage transport planners to work more closely with environmental health departments and other colleagues in devising appropriate solutions.*"

The LAQM.PGA (05) states that plans are suitable for integration where AQMAs comply with the following criteria:

"*Local road transport is identified as a major source of local air pollution concentrations (aside from background concentrations) within the AQMA, or where local road traffic is the major source of predicted exceedences of the air quality objectives*".

All of the Barnsley town centre's AQMAs within the Borough are located on busy roads under the local transport authority's control. When the further assessment reports are published, the

contribution from road transport for each AQMA will be identified within the source apportionment study. Each new AQMA will be assessed to ensure it complies with the guidance quoted above.

For AQMAs, which have other significant sources in addition to transport sources:

*"They should report on any other **key** non-transport measures by attaching an annex to the LTP. This annex should summarise the options that were considered, including costs and impacts, and list the chosen measures for implementation*."

"*For all other AQMAs, which primarily relate to industrial processes, other transport sources, i.e. shipping, motorways / trunk roads, or where road transport sources only form a small part of the air quality concentrations within the AQMA, those local authorities should continue to produce a stand-alone AQAP in accordance with the requirements …in LAQM.PG (03),… and produce an LTP which addresses, as far as possible, air pollution originating from local road transport."*

The guidance identifies that there may be some local authorities who have stand-alone AQAPs which relate to non-transport and motorway/trunk road problems, and integrated AQAPs which relate to local transport problems. Within Barnsley, the Barnsley No. 1 AQMA relates to motorway/trunk road problems, all others relating to local road problems. Previous review and assessment work has not identified other major discrete sources of pollution in these areas, which would require additional non transport measures.

For authorities which have already prepared AQAPs to address local road transport AQMAs, they can either integrate the action plan into the LTP2, superseding the existing plan, or revise the AQAP to reflect the new measures identified in LTP2. For authorities with action plans that address non-transport or motorway/trunk road problems, they are expected to retain the existing stand-alone plan and continue to report their progress to Defra.

10. Developments since 2004

This section discusses developments with air quality measures since publication of the original AQAP in 2004.

In order to address integration of air quality into the local transport plan, the LTP partners (the four South Yorkshire local authorities and the SYPTE) published an LTP Air Quality Strategy document which detailed how the above agenda would be progressed.

This document was appended the second South Yorkshire LTP (LTP2), produced in 2006 (An Air Quality Strategy for LTP2, copies available from the South Yorkshire LTP website, www.southyorks.gov.uk).

Building on this initial work, a number of studies were then commissioned, either by Barnsley MBC, or by the countywide LTP partners, regarding the development of air quality measures. In particular, two studies have been completed which have an important bearing on the local air quality management process in Barnsley.

Subsequent to the publication of LTP2, the consultants, Faber Maunsell were asked by the LTP partners to devise a methodology in order to prioritise a series of air quality measures from South Yorkshire's LTP2 and then carry out an appraisal of the measures, based on Defra and DfT guidance.

They produced an output table of potential air quality measures, which had been scored against a number of criteria. This work was completed during the autumn of 2006.

Following this, TRL limited were commissioned by Barnsley MBC to progress two measures outstanding from the 2004 plan, relating to the encouraging of the uptake of alternative fuels within the Borough, and exploration of methods of encouraging the conversion of older vehicle types to clean alternatives (measures 25 and 26). This study was subsequently completed in May 2007. This report highlighted the need for national interventions to progress this agenda, but highlighted, when possible, more local measures for consideration.

The recommendations of these two reports can be taken forward and any further measures will be placed alongside and evaluated with other existing measures. The process and outcomes of these reports are discussed in more detail in appendix three.

Both of these studies have had due regard to the action planning guidance contained within LAQM.PG (03), and we are satisfied that these reports meet these requirements.

10.1 Further measures

Other measures have also been developed since 2004. These are varied and are discussed below.

10.1.1 Congestion Delivery Plan

It is recognised that the other LTP shared priority measures will have air quality impacts, and these can be qualitatively and quantitatively assessed regarding their impact. This situation applies particularly to the Congestion shared priority, as generally speaking, improvements in congestion could result in air quality improvements, depending on local circumstances.

In order to meet the aspirations of reducing congestion in South Yorkshire, the LTP partners developed the congestion delivery plan in 2007 (CDP). The impact of the CDP on air quality is discussed within appendix three, and within the Local Public Service Agreement case study in appendix seven.

10.1.2 Local Targeted Measures

Consideration has also been given to local measures which could be implemented within each of the AQMAs, which would benefit air quality at a more local level. These are also discussed within appendix three and have also been evaluated in accordance with Defra guidance LAQM.PG (03).

10.1.3. Other Measures

Measures which do no fit into the above categories are also dealt with in this plan, and are also discussed in more detail in appendix three.

11. Assessment of measures

The work detailed in the previous sections now needs to be assessed in accordance with Defra guidance LAQM.PG (03). In assessing these measures, they are evaluated together, in order to further prioritise the measures in order to identify those which offer most air quality benefit, and present less difficulty in implementing.

The measures have been evaluated as significant (**S**), minor (**M**), or negligible (**N**), depending on their potential air quality benefit. Where measures have been comprehensively assessed elsewhere (e.g. original AQAP, Faber Maunsell, TRL reports etc), this previous work has been accepted as the means of assessing and prioritising these measures. If a measure has therefore been previously assessed in accordance with local air quality management guidance, then the

outcome of this assessment has been incorporated into this plan, rather than undertake a re-assessment of the measure.

This process is discussed at length in appendices four and five. In addition, the supporting information in appendices three, four and five provides evidence that all available options have been considered on the grounds of cost effectiveness and feasibility.

Where a measure is judged to have a negligible impact on air quality, this does not mean that this measure should not proceed. These measures will have other benefits (congestion, accessibility, modal shift etc), may have funding in place and are either in the process of being implemented, or will be implemented. Technical advice and promotional support will be given to these measures, regardless of their significance of air quality benefits.

12. Assessment of feasibility of measures

As directed by Defra guidance LAQM.PG (03), a concise appraisal of the cost effectiveness and feasibility for the proposed direct actions for the AQMA has been carried out. The feasibility of each option has been considered with its likely social as well as economic impacts and ease of implementation within the borough.

The appraisal of cost effectiveness considered each of the options with regards to the cost versus the potential improvement in air quality. Where an option is already in place and funding is identified, it has been assumed to be both cost effective and feasible. A matrix (shown in appendix four) was developed, based upon the following descriptors.

Key to Matrix:

***	most positive
**	medium
*	less positive
0	not feasible

This process is discussed in detail in appendix four.

13. Evaluation of progress of measures

Following on from the ranking of the measures in appendix five; the table in **appendix six** details how progress with implementation of each of the measures will be monitored and evaluated. This information will be used to evaluate the effectiveness of actions and show whether the plan will be sufficient to achieve the air quality objective in the AQMAs. This will enable a more quantitative approach to be used when reporting progress.

There will be measures however, where it is unfeasible to quantify (in strict air quality terms) progress in moving towards attainment of the objective. In these circumstances, surrogate indicators are identified, so progress for these measures can be evaluated. Where applicable, these surrogate indicators are clearly identified within the table in appendix six.

Some of the measures require a relatively long term implementation time, so sub actions have been identified, to enable reporting an annual basis on progress with these measures within future Air Quality Action Plan progress reports.

The timescale for implementation of the measures is also included within the table in appendix six.

14. Measures to be taken forward

The outcome of the processes discussed in the sections above, and discussed in appendices three to six, are presented in the table below, which are intended to be implemented in the timescales shown.

This table lists the measures in terms of air quality benefit, although all of these measures have also been assessed against all other AQAP criteria as required by LAQM PG (03).

No.	Measure	Implemented
1	Construction of Burton Road Quality Bus Corridor (AQMA No. 3)	Lifetime of LTP2 (by 2011)
2	Barnsley Statutory Quality Partnership Scheme (Bus Partnership)	Lifetime of LTP2 (by Summer 2010, subject to approval agreement)
3	Barnsley Intelligent Transport System	Lifetime of LTP2 (by 2011)
4	Care4Air	Ongoing
5	Alteration of location of traffic lights (AQMA No. 5)	Feasibility study of junction engineering works - lifetime of LTP2 (by 2011)
6	Implementation of cycling and walking routes adjacent or in AQMAs	Lifetime of LTP2 (by 2011), and then ongoing into LTP3
7	Low Emission Strategy Package	Lifetime of LTP2 (by 2011)
8	Park and Ride Schemes	Lifetime of LTP2 (by 2011
9	Barnsley MBC Travel Plans (general)	Ongoing
10	ECO Stars HDV Recognition Scheme	Lifetime of LTP2 (by 2011)
11	Targeted Vehicle Emission Testing	Lifetime of LTP2 (by 2011)
12	BMBC will continue to ensure that air quality is considered with regards to new development, where appropriate, in line with PPG23. The Council will look for evidence that developers have taken appropriate steps to mitigate pollution impacts. Where appropriate, the Council will seek to air quality improvements using Section 106 agreements.	Ongoing – adopted from original action plan
13	BMBC will ensure that all major traffic schemes are assessed for air quality impacts against the NAQS objectives.	Ongoing – adopted from original action plan
14	BMBC will continue to provide comprehensive control over emissions from Part B and A2 processes, and act as consultees to the Environment Agency for part A1 processes	Ongoing – adopted from original action plan
15	BMBC will continue to work with developers and employers to improve sustainable transport links to new economic and residential developments	Ongoing – adopted from original action plan
16	BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to industrial smoke	Ongoing – adopted from original action plan

17	**BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to domestic smoke control**	**Ongoing – adopted from original action plan**
18	**BMBC will continue to investigate complaints about nuisance, and take appropriate action to resolve the problem.**	**Ongoing – adopted from original action plan**
19	**BMBC will continue to provide the Smoky Diesel Hotline Service on telephone number 01226 772458**	**Ongoing – adopted from original action plan**
20	**Countywide Modelling and EDB**	**Lifetime of LTP2 (by 2011)**
21	**Countywide Monitoring**	**Ongoing**
22	**Encourage uptake of lower emission vehicles and alternative fuels by participating in the LTP funded South Yorkshire "Low carbon re-fuelling infrastructure" project**	**Lifetime of LTP2 (by 2011)**

Measures 12 to 23 have been adopted for the original plan as these are still relevant to this plan. The below table gives and update on the progress with these measures

No.	**Measure**	**Progress**
12	BMBC will continue to ensure that air quality is considered with regards to new development, where appropriate, in line with PPG23. The Council will look for evidence that developers have taken appropriate steps to mitigate pollution impacts. Where appropriate, the Council will seek to air quality improvements using Section 106 agreements.	**Since 2004, where appropriate, planning applications have been assessed for their air quality impact. When needed, suitable mitigation has been required from the developers. It is important that this work continues.**
13	BMBC will ensure that all major traffic schemes are assessed for air quality impacts against the NAQS objectives.	**Since 2004, all major traffic schemes have been assessed for their air quality impacts. It is important that this work continues.**
14	BMBC will continue to provide comprehensive control over emissions from Part B and A2 processes, and act as consultees to the Environment Agency for part A1 processes	**Continuing regulation of PPC related process has minimised emissions to air from these processes. This has and will continue to have a positive impact on the quality of the air generally in the Borough.**
15	BMBC will continue to work with developers and employers to improve sustainable transport links to new economic and residential developments	**Over 95% of the Borough's schools now have school travel plans, whilst the number of voluntary and conditioned business related travel plans continues to grow. It is important that this work continues.**
16	BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to industrial smoke	**Continuing regulation of non PPC related process has minimised emissions to air from these processes. This has and will continue to have a positive impact on the quality of the air generally in the Borough.**
17	BMBC will continue to enforce the provisions	**Continuing regulation of domestic**

	of the Clean Air Act 1993 with regards to domestic smoke control	**emissions to air has and will continue to have a positive impact on the quality of the air generally in the Borough.**
18	BMBC will continue to investigate complaints about nuisance, and take appropriate action to resolve the problem.	**Resolving of nuisance issues will continue to have a positive impact on the quality of the air generally in the Borough.**
19	BMBC will continue to provide the Smoky Diesel Hotline Service on telephone number 01226 772458	**Since 2000, there have been 20 referrals to the smoky diesel hotline. This may not seem a significant number, but as this service is not resource intensive, this service will remain available**.

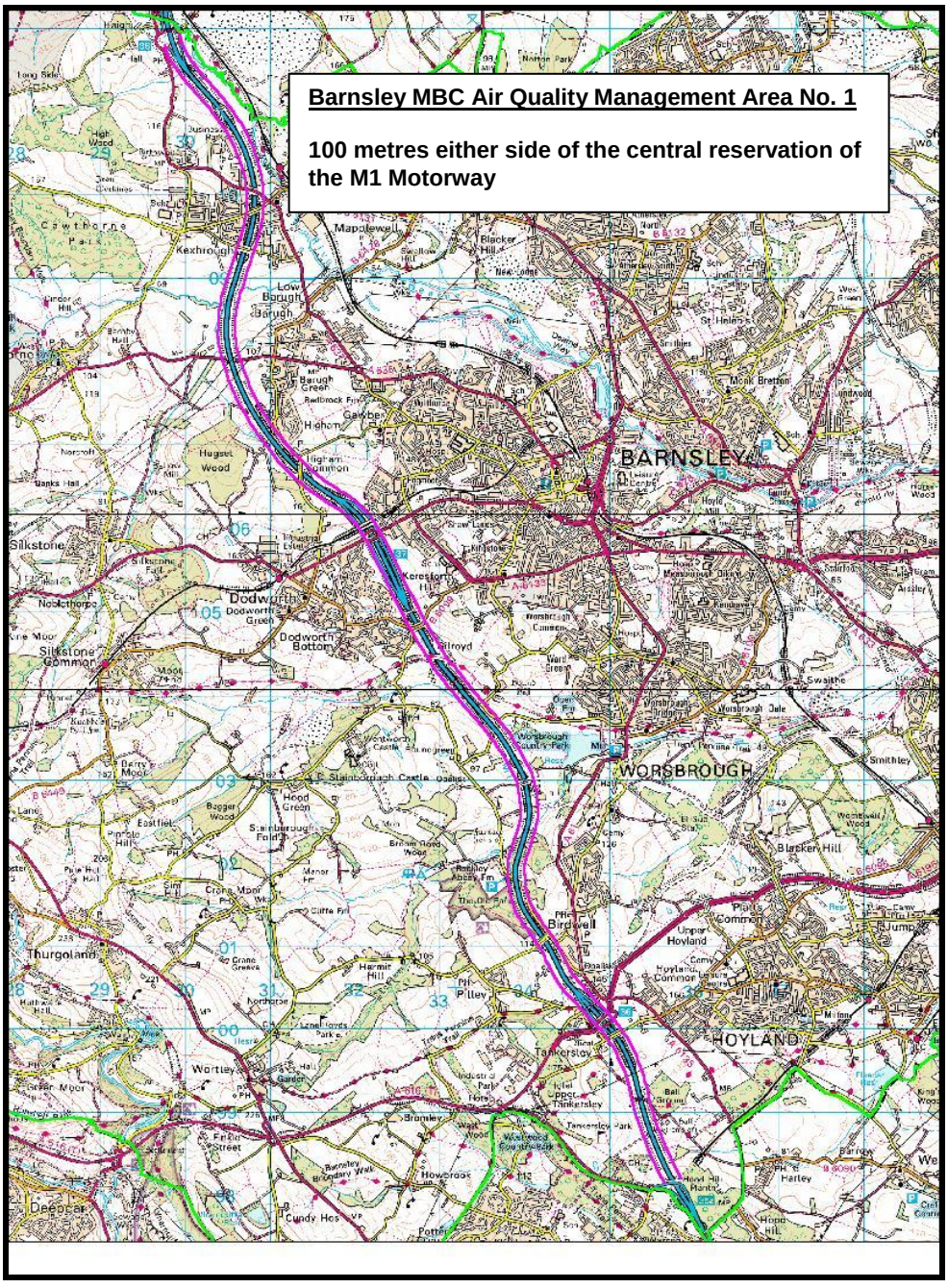
15. Conclusions

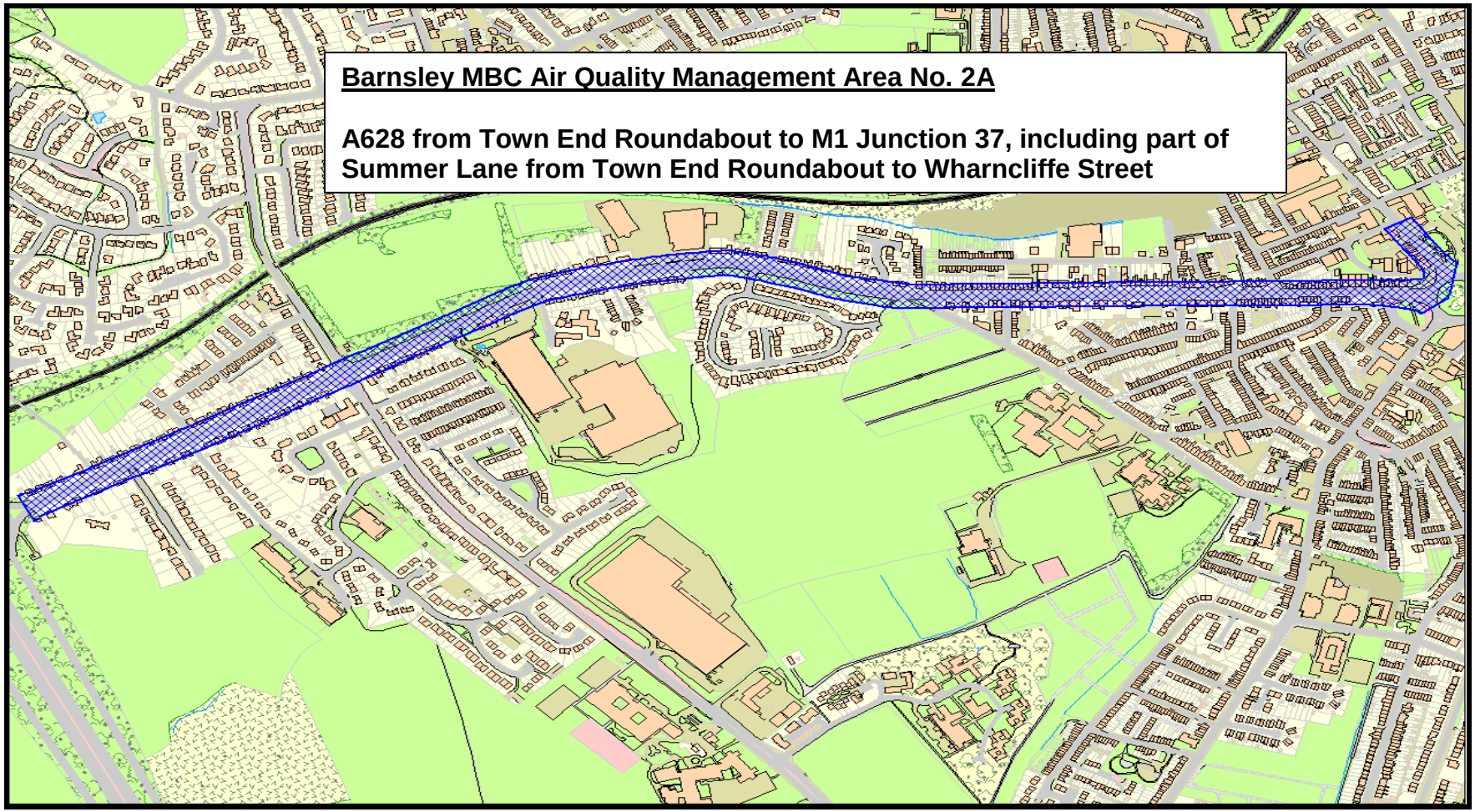
This plan considers all measures available to the Council and its partners to improve air quality locally within pollution hotspots (AQMAs) and generally within the Borough. By collating and evaluating all such measures, particularly from studies and projects undertaken since publication of the original AQAP, this plan now provides a comprehensive collection of measures which will improve air quality locally and throughout the Borough.

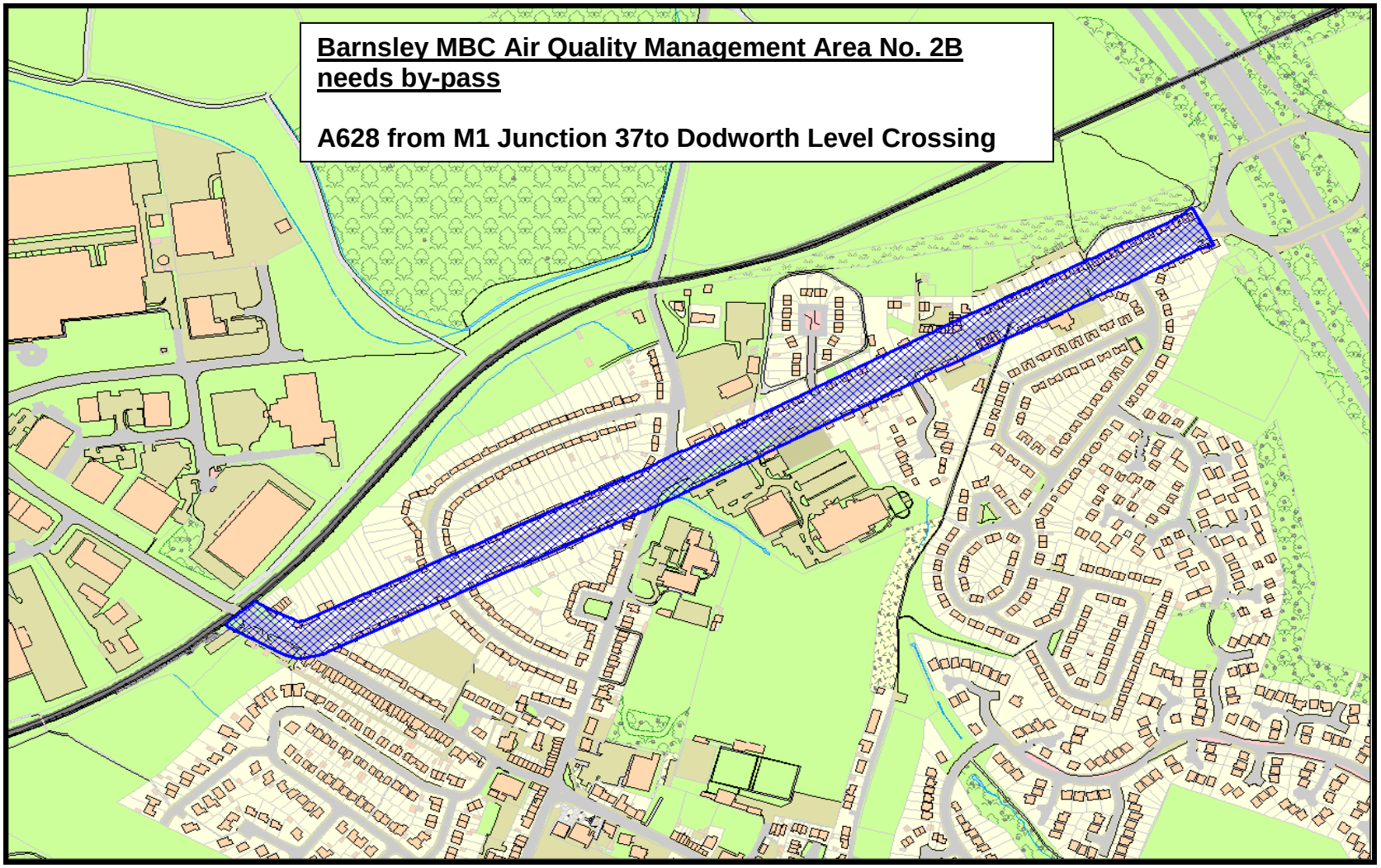
16. Glossary

AQMA – air quality management areas
AQAP – air quality action plan
BMBC – Barnsley Metropolitan Borough Council
CDP – congestion delivery plan
Defra – Department for Environment, Food and Rural Affairs
DfT – Department for Transport
ECO Stars – efficient and cleaner operation
EDB – emissions database
FQP – freight quality partnership
HGV – heavy goods vehicle
LAQM. TG (03) -
LAQM. PG (03) -
LAQM. PG (05) -
LTP – The second South Yorkshire Local Transport Plan
NAQS – national air quality strategy
NO_2 – nitrogen dioxide
SQP – statutory quality partnership
SYPTE – South Yorkshire Passenger Transport Executive
TRL – Transport Research Laboratory
Part B and A2

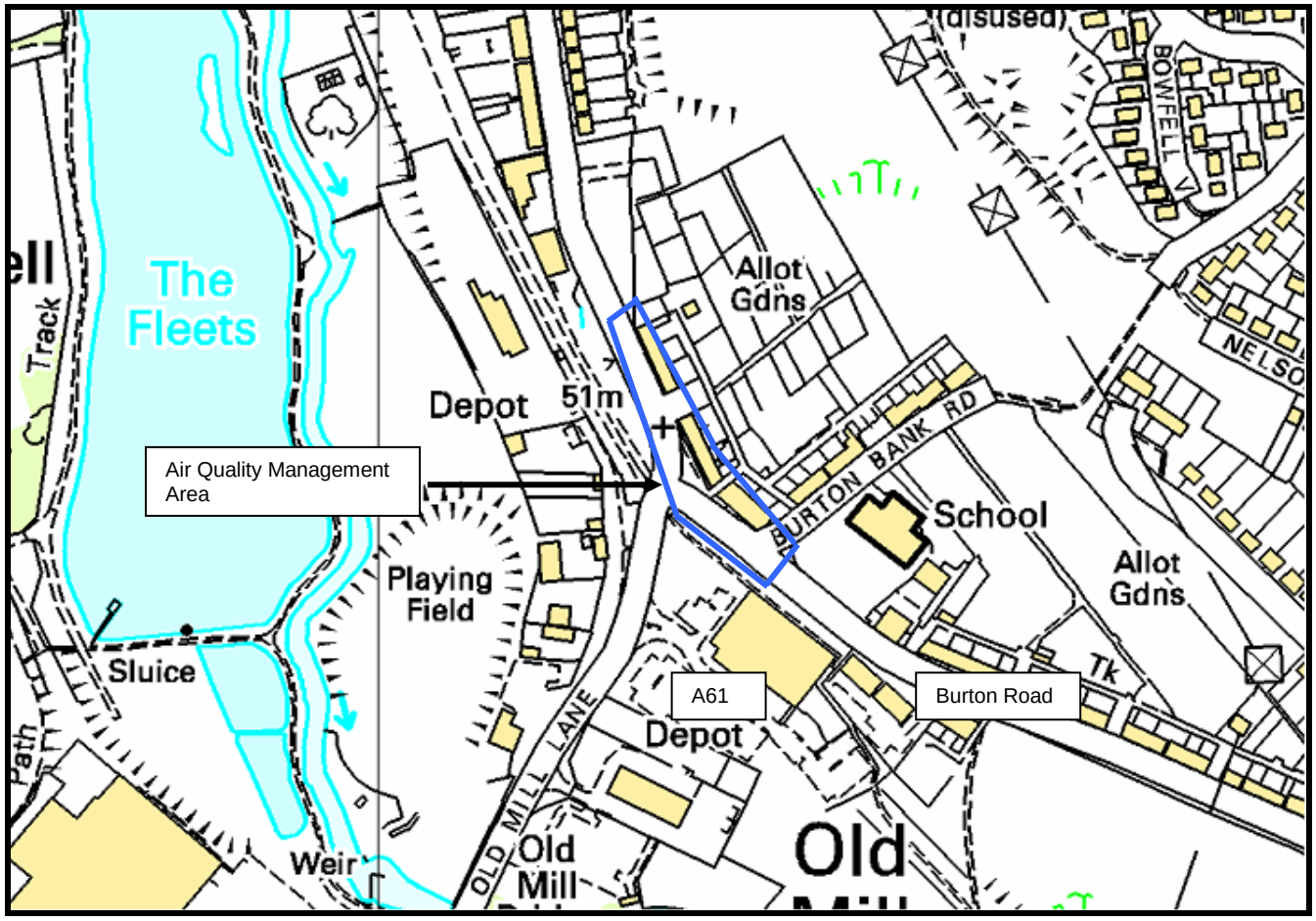
Appendix One
Air Quality Management Area Maps and Orders

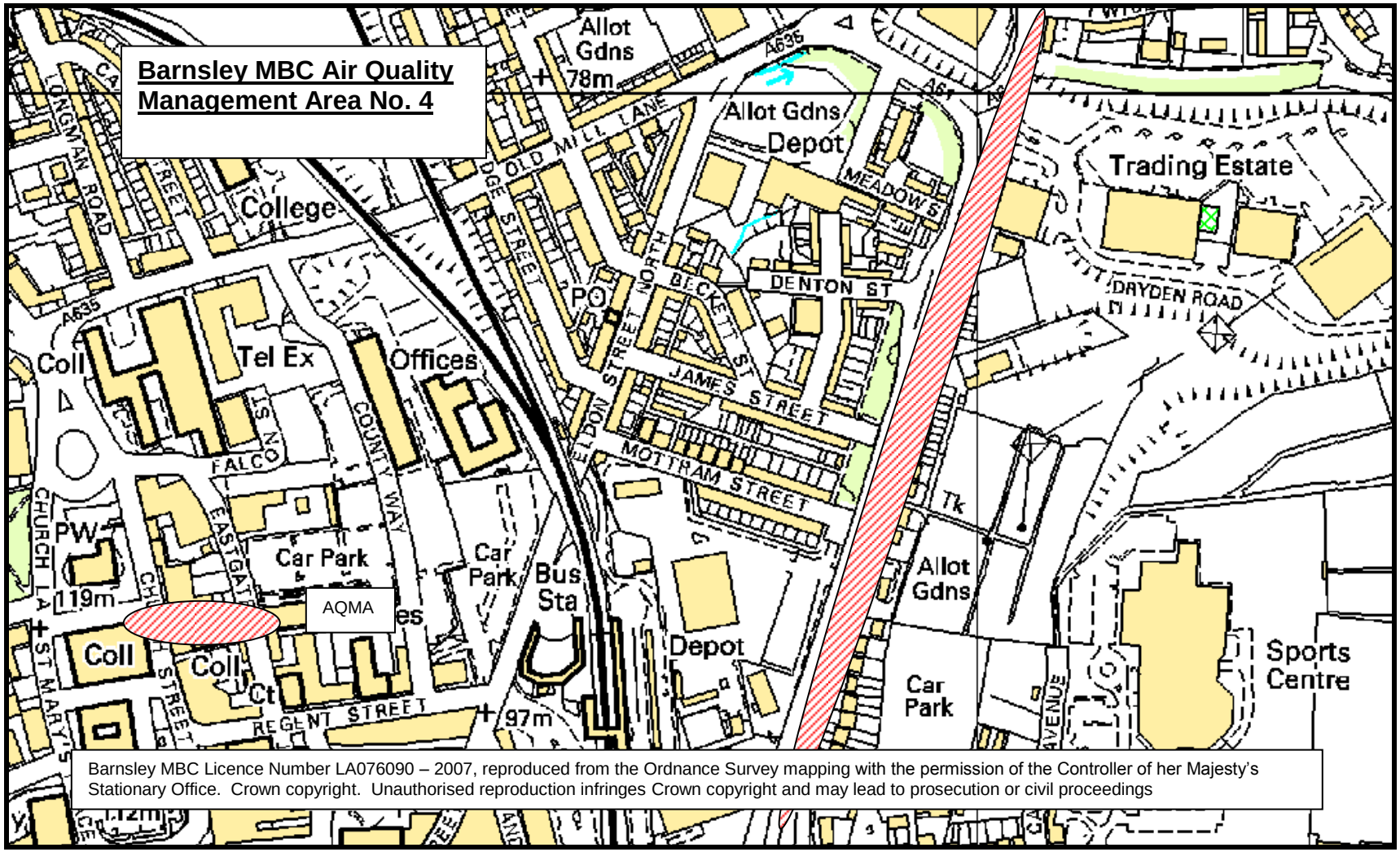






Air Quality Management Area No.3 Order 2005 - Junction of A61 Wakefield Road and Burton Road




Barnsley MBC Air Quality Management Area No. 4
Allot Gdns
78m
A635
Allot Gdns Depot
OLD MILL LANE
MEADOWS
Trading Estate
College
DENTON ST
DRYDEN ROAD
PO
BECKETT ST
JAMES STREET
MOTTRAM STREET
Coll
Tel Ex
Offices
FALCO
COUNTY WAY
Tk
PW
119m
Car Park
Car Park
Bus Sta
AQMA
Allot Gdns
Depot
Coll
Coll
Ct
REGENT STREET
97m
Car Park
Sports Centre
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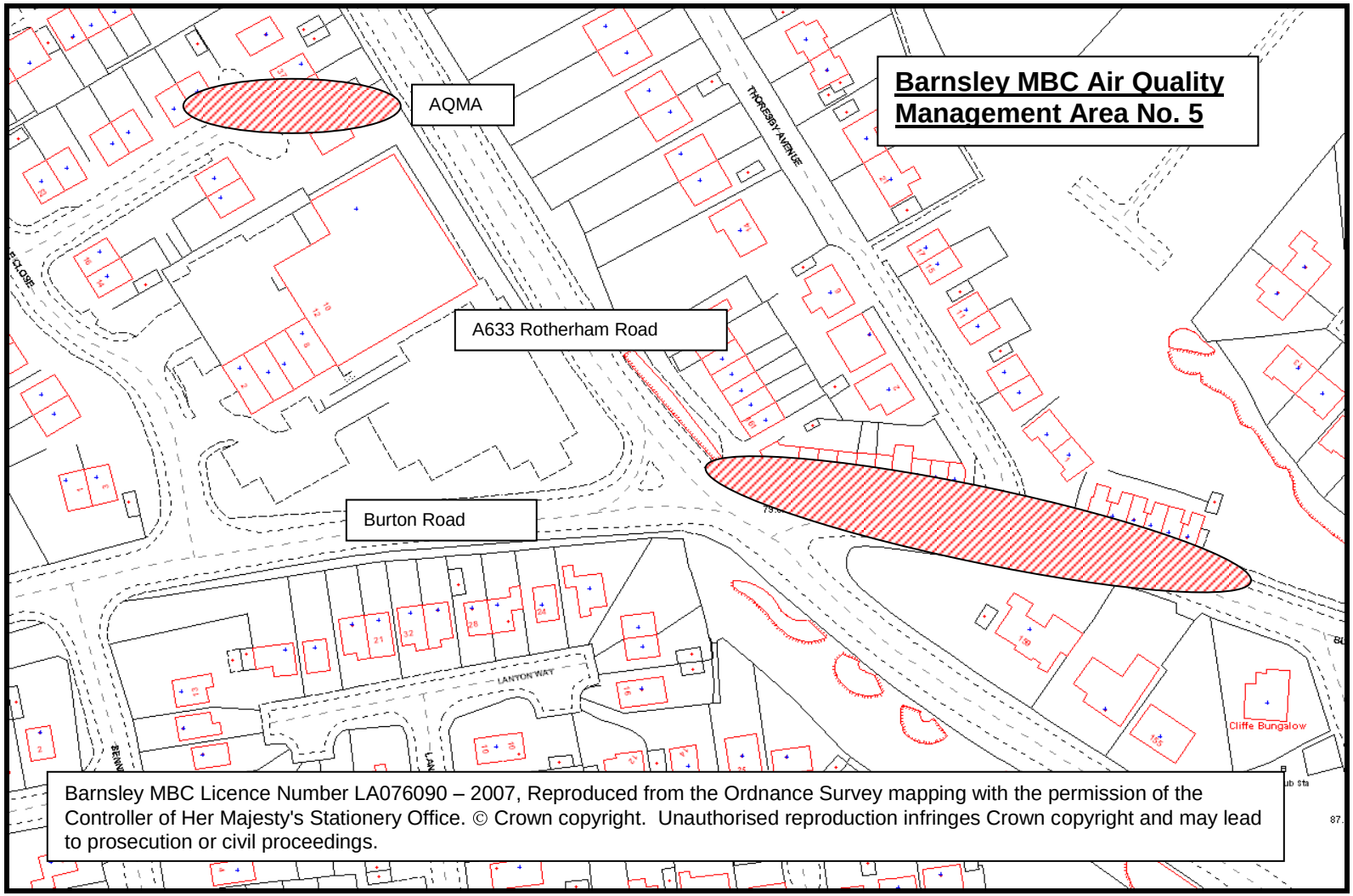
Barnsley MBC Air Quality Management Area No. 5
AQMA
A633 Rotherham Road
Burton Road
THORESBY AVENUE
LANTON WAY
Cliffe Bungalow
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Cabinet 26/9/01
Min No 216

BARNSLEY METROPOLITAN BOROUGH COUNCIL
ENVIRONMENT ACT 1995, SECTION 83
THE BARNSLEY METROPOLITAN BOROUGH AIR QUALITY
MANAGEMENT AREA NO. 1 ORDER 2001

Barnsley Metropolitan Borough Council, Town Hall, Church Street, Barnsley ("the Council") in exercise of the powers conferred upon it by the Environment Act 1995, Section 83 makes the following Order.

1. This Order may be cited as The Barnsley Metropolitan Borough Council Air Quality Management Area No. 1 Order 2001 and will come into operation on the 3rd day of October 2001.

2. The area which is coloured green on the Plan marked "Barnsley Metropolitan Borough Council Air Quality Management Area No. 1 Order 2001" prepared and sealed with the Common Seal of the Council is declared to be the Air Quality Management Area ("the designated area"). The Plans are deposited in the offices of the Council at the Department of the Environment and Development, Environmental Services, Central Offices, Barnsley. The area is described in the attached Schedule, with reference to the plans.

3. This Order may be varied or revoked by a subsequent Order.

GIVEN under the Common Seal of Barnsley Metropolitan Borough Council this 3rd day of October 2001.

THE COMMON SEAL of)
Barnsley Metropolitan Borough)
Council was hereunto affixed in)
the presence of:-)

~~Borough Secretary~~ / Authorised Signatory

No. 1578
IN REGISTER

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BARNSLEY METROPOLITAN BOROUGH COUNCIL
ENVIRONMENT ACT 1995, SECTION 83
THE BARNSLEY METROPOLITAN BOROUGH
AIR QUALITY MANAGEMENT AREA NO. 2A ORDER 2005

Barnsley Metropolitan Borough Council, Town Hall, Church Street, Barnsley ("the Council") in exercise of the powers conferred upon it by the Environment Act 1995, Section 83 makes the following Order.

1. This Order may be cited as The Barnsley Metropolitan Borough Council Air Quality Management Area No. 2A Order 2005 and will come into operation on the 16 day of June 2005.

2. The area which is outlined in blue on the attached plans marked "Barnsley MBC Air Quality Management Area No. 2A Order 2005" is declared to be the Air Quality Management Area ("the designated area"). The designated area incorporates the A628 from the M1 Junction 37 to Town End roundabout , including part of Summer Lane from Town End roundabout to Wharncliffe Street. The plans are deposited in the offices of the Council at the Department of Pollution Control, Regulatory Services, Environmental Services Directorate, Central Offices, Barnsley.

3. The designated area is designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations (England) 2000 (as amended by the Air Quality (England) (Amendment) Regulations 2002).

4. This Order may be varied or revoked by a subsequent Order.

GIVEN under the Common Seal of Barnsley Metropolitan Borough Council this 16 day of June 2005.

THE COMMON SEAL of)
Barnsley Metropolitan Borough)
Council was hereunto affixed in)
the presence of:-)

Borough Secretary/Authorised Signatory

No. 3431 IN REGISTER

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BARNSLEY METROPOLITAN BOROUGH COUNCIL
ENVIRONMENT ACT 1995, SECTION 83
THE BARNSLEY METROPOLITAN BOROUGH
AIR QUALITY MANAGEMENT AREA NO. 2B ORDER 2005

Barnsley Metropolitan Borough Council, Town Hall, Church Street, Barnsley ("the Council") in exercise of the powers conferred upon it by the Environment Act 1995, Section 83 makes the following Order.

1. This Order may be cited as The Barnsley Metropolitan Borough Council Air Quality Management Area No. 2B Order 2005 and will come into operation on the 16 day of June 2005.

2. The area which is outlined in blue on the attached plans marked "Barnsley MBC Air Quality Management Area No. 2B Order 2005" is declared to be the Air Quality Management Area ("the designated area"). The designated area incorporates the A628 from the M1 Junction 37 to Dodworth Level Crossing. The plans are deposited in the offices of the Council at the Department of Pollution Control, Regulatory Services, Environmental Services Directorate, Central Offices, Barnsley.

3. The designated area is designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations (England) 2000 (as amended by the Air Quality (England) (Amendment) Regulations 2002).

4. This Order may be varied or revoked by a subsequent Order.

GIVEN under the Common Seal of Barnsley Metropolitan Borough Council this 14 day of June 2005.

THE COMMON SEAL of)
Barnsley Metropolitan Borough)
Council was hereunto affixed in)
the presence of:-)

Borough Secretary/Authorised Signatory

No. 3432
IN REGISTER

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BARNSLEY METROPOLITAN BOROUGH COUNCIL
ENVIRONMENT ACT 1995, SECTION 83
THE BARNSLEY METROPOLITAN BOROUGH
AIR QUALITY MANAGEMENT AREA NO. 3 ORDER 2005

Barnsley Metropolitan Borough Council, Town Hall, Church Street, Barnsley ("the Council") in exercise of the powers conferred upon it by the Environment Act 1995, Section 83 makes the following Order.

1. This Order may be cited as The Barnsley Metropolitan Borough Council Air Quality Management Area No. 3 Order 2005 and will come into operation on the 16 day of June 2005.

2. The area which is outlined in blue on the attached plan marked "Barnsley MBC Air Quality Management Area No. 3 Order 2005" is declared to be the Air Quality Management Area ("the designated area"). The designated area incorporates the junction of Wakefield Road and Burton Road. The plan is deposited in the offices of the Council at the Department of Pollution Control, Regulatory Services, Environmental Services Directorate, Central Offices, Barnsley.

3. The designated area is designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations (England) 2000 (as amended by the Air Quality (England) (Amendment) Regulations 2002).

4. This Order may be varied or revoked by a subsequent Order.

GIVEN under the Common Seal of Barnsley Metropolitan Borough Council this 16 day of June 2005.

THE COMMON SEAL of)
Barnsley Metropolitan Borough)
Council was hereunto affixed in)
the presence of:-)

Borough Secretary / Authorised Signatory

No. 3433
IN REGISTER

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BARNSLEY METROPOLITAN BOROUGH COUNCIL
ENVIRONMENT ACT 1995, SECTION 83(1)
THE BARNSLEY METROPOLITAN BOROUGH
AIR QUALITY MANAGEMENT AREA NO. 4 ORDER 2008

Barnsley Metropolitan Borough Council, ("the Council") in exercise of the powers conferred upon it by Section 83(1) of the Environment Act 1995, hereby makes the following Order.

1. This Order may be cited as The Barnsley Metropolitan Borough Council Air Quality Management Area No. 4 Order 2008 and will come into operation on the 7 day of July 2008.

2. The area which is shown shaded brown on the attached plan marked "Barnsley MBC AQMA No. 4 Order 2008" is hereby declared to be an Air Quality Management Area ("the designated area"). The designated area incorporates the south bound carriageway of A61 Harborough Hill Road from The "PC World" gyratory to the south bound slip road of the A61 near to the slip road's junction with Queens Road. The plan is deposited at the Barnsley Connects Service Centre, Civic Hall, Eldon Street, Barnsley.

3. This area is designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations (England) 2000 (as amended by the Air Quality (England) (Amendment) Regulations 2002).

4. This Order may be varied or revoked by a subsequent Order.

GIVEN under the Common Seal of Barnsley Metropolitan Borough Council this 4th day of July 2008.

THE COMMON SEAL of)
Barnsley Metropolitan Borough)
Council was hereunto affixed in)
the presence of:-)

Borough Secretary/ Authorised Signatory
(Cab.21.5.2008/10)

No. 9185
IM. REGISTER

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BARNSLEY METROPOLITAN BOROUGH COUNCIL
ENVIRONMENT ACT 1995, SECTION 83(1)
THE BARNSLEY METROPOLITAN BOROUGH
AIR QUALITY MANAGEMENT AREA NO. 5 ORDER 2008

Barnsley Metropolitan Borough Council, ("the Council") in exercise of the powers conferred upon it by Section 83(1) of the Environment Act 1995, hereby makes the following Order.

1. This Order may be cited as The Barnsley Metropolitan Borough Council Air Quality Management Area No. 5 Order 2008 and will come into operation on the 7 day of July 2008.

2. The area which is shown shaded brown on the attached plan marked "Barnsley MBC AQMA No. 5 Order 2008" is hereby declared to be an Air Quality Management Area ("the designated area"). The designated area incorporates the junction of Rotherham Road and Burton Road. The plan is deposited at the Barnsley Connects Service Centre, Civic Hall, Eldon Street, Barnsley.

3. This area is designated in relation to a likely breach of the nitrogen dioxide (annual mean) objective as specified in the Air Quality Regulations (England) 2000 (as amended by the Air Quality (England) (Amendment) Regulations 2002).

4. This Order may be varied or revoked by a subsequent Order.

GIVEN under the Common Seal of Barnsley Metropolitan Borough Council this 4th day of July 2008.

THE COMMON SEAL of Barnsley Metropolitan Borough Council was hereunto affixed in the presence of:-

Borough Secretary / Authorised Signatory
(Cab.21.5.2008/10)

No. 9186 IN REGISTER

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Appendix Two
Measures contained within the 2004 Action Plan

Measure No.1: BMBC have produced revised policy on pollution, including air pollution, which has been published in the new deposit draft LDF during summer 2004 for consultation.

Measure No.2: BMBC will continue to attend and take an active part in the South Yorkshire Integrated Transport Group (Air Quality and Environment Sub-group) and its work.

Measure No.3: BMBC will ensure that this Action Plan is aligned with the LTP.

Measure No.4: BMBC will liaise with the Highways Agency and encourage their active consideration of measures to reduce emissions from the M1 motorway by the end of April 2005.

Measure No.5: BMBC will proceed with the Dodworth by-pass and associated junction 37 development scheme for completion by 2006/07

Measure No.6: BMBC will continue to work with developers and employers to improve sustainable transport links to new economic and residential developments.

Measure No.7: BMBC has taken part in the South Yorkshire Vehicle Emissions Testing Partnership in order to raise awareness of pollution from vehicles.

Measure No.8: As part of the SYVET project, BMBC have undertaken 3 days formal emissions testing and 3 days informal emissions testing within the borough. This work was completed during 2003.

Measure No.9: BMBC will continue to provide the Smoky Diesel Hotline Service on telephone number 01226 772458

Measure No.10: BMBC have undertaken further NO_2 diffusion tube monitoring, including co-location, within the AQMA and surrounding area, up to and beyond the end of April 2004. The data from this monitoring are reported in this Plan.

Measure No.11: BMBC have located a real time NO_2 monitor adjacent to the AQMA, and data from this monitoring are reported in this Plan.

Measure No.12: BMBC will continue to expand and update its air pollution modelling capability

Measure No.13: BMBC will produce a written monitoring strategy for the borough by the end of December 2005.

Measure No.14: BMBC will continue to provide comprehensive control over emissions from Part B and A2 processes, and act as consultees to the Environment Agency for part A1 processes.

Measure No.15: BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to industrial smoke.

Measure No.16: BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to domestic smoke control, and will implement a publicity campaign to raise awareness of the issue throughout the borough by the end of December 2005.

Measure No.17: BMBC will continue to investigate complaints about nuisance, and take appropriate action to resolve the problem.

Measure No.18: BMBC will continue to encourage composting of waste rather than burning, by publicity and the provision of discounted cost composting units.

Measure No.19: BMBC will investigate the feasibility of continuing with home insulation schemes, and will continue to work in partnership with the South Yorkshire Energy Efficiency Advice Centre.

Measure No.20: BMBC will continue to ensure that air quality is considered with regards to new development, where appropriate, in line with PPG23. The Council will look for evidence that developers have taken appropriate steps to mitigate pollution impacts.

Measure No.21: BMBC will produce Supplementary Planning Guidance for developers as to when an air quality assessment may be required, and what information may be needed, by the end of December 2004.

Measure No.22: BMBC will produce Supplementary Planning Guidance as to acceptable development within the AQMA, and requirements on developers by the end of December 2004.

Measure No.23: BMBC will ensure that all major traffic schemes are assessed for air quality impacts against the NAQS objectives.

Measure No.24: BMBC will produce a web site for the provision of air quality information, by the end of December 2004.

Measure no. 25 – BMBC will explore methods of encouraging the uptake of alternative fuels within the Borough by the end of April 2006.

Measure no. 26 – BMBC will explore methods of encouraging the conversion of older vehicle types to clean alternatives by the end of April 2006.

Appendix Three
Case Studies

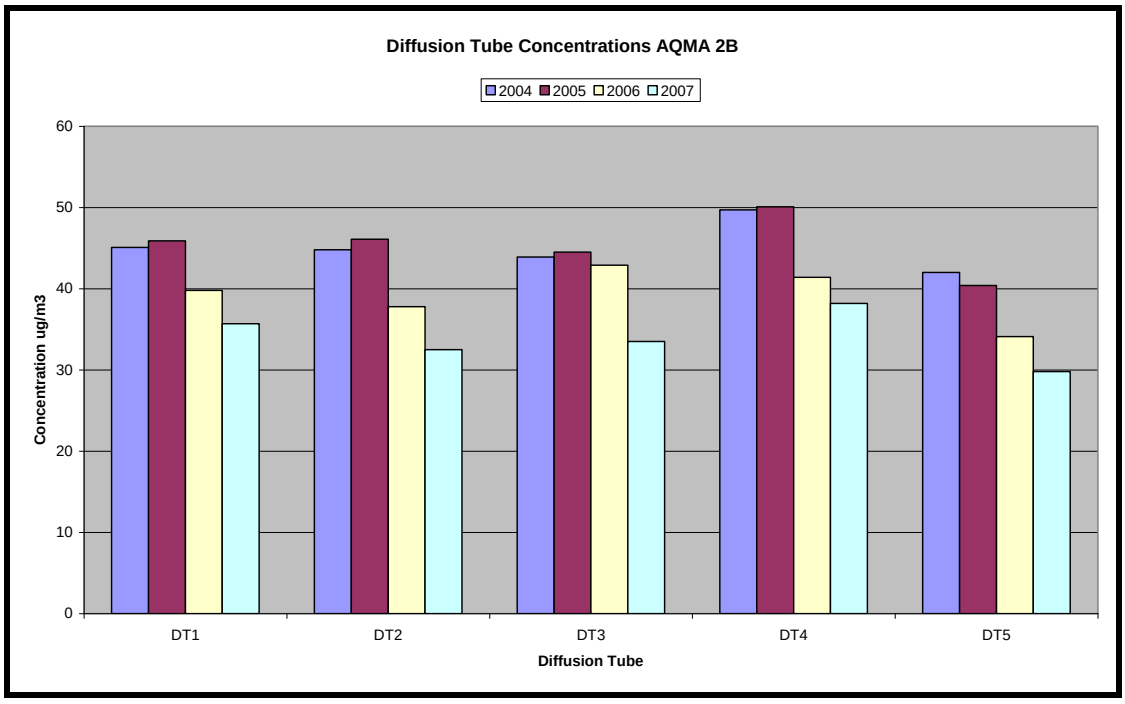
7.1. Case Study: Dodworth By-Pass

Measure No. 5 within the 2004 Plan related to development of the Dodworth by-pass. Specifically this measured stated that "BMBC will proceed with the Dodworth by-pass and associated junction 37 development scheme for completion by 2006-07."

Prior to undertaking of this scheme, the Barnsley 2B AQMA was declared in 2005, due to exceedence of annual average NO_2 objective along the A628 Barnsley Road in Dodworth (reference DA assessment 2004). Construction of the by-pass would remove traffic accessing Barnsley town centre and junction 37 of the M1 motorway, as this would be diverted along the by-pass.

Only traffic accessing Dodworth village centre would remain using the now truncated Barnsley Road. An air quality assessment submitted by the developer showed a reduction in annual average NO_2 concentrations as a consequence of introduction of the road scheme. Furthermore, the assessment demonstrated that no new receptors would be exposed to pollution concentrations above the annual average objective as a consequence of construction of by-pass.

NO_2 diffusion tube monitoring is undertaken at several locations along A628 Barnsley Road in the AQMA. These data enable a comparison to be made between pollution concentrations before and after completion of the construction of the by-pass. These data are shown below:



The data shows that concentrations were below the annual average objective for NO_2 (40 $\mu g/m^3$) for the 2007, the first full year of data after completion of the by-pass in autumn 2006. Should concentrations remain below the objective in future years, then the Council will seek revocation of the AQMA.

7.2. Case Study: Barnsley Metropolitan Borough Council's Green Fleet Measures

- The current fleet amounts to 450 vehicles and plant.
- It covers 4 million miles per year and uses 1.2 million litres of fuel.

VEHICLE PROCUREMENT

- Environmental considerations are now included in the authority's tender evaluation process. Apart from standard criteria such as cost and operational suitability, points are awarded for a vehicles' green credentials re emissions, recycled parts and type of paints used etc.
- A regular vehicle replacement programme means that advantage is taken of the latest cleanest technology as soon as possible. The EU brought in legislation to force manufacturers to produce cleaner engines. This has been done on a staged basis and has resulted in a significant reduction in Nitrous oxide and particulate emissions.
- The latest standard came into being in October 2006 for heavy commercial vehicles (e.g. waste collection vehicles, road sweepers). The newest authority vehicles meet the latest standard and come with an exhaust after treatment - selective catalytic reduction. This requires the introduction of a fine jet of water/urea into the exhaust gases to break down nitrogen oxide into nitrogen and water.

FUEL

- It is felt that diesel engines are still the best practical option at the present time. From mid-October 2005 the authority's vehicles have been running on a bio-diesel mix. The product used is UCOME which is 95% ultra low sulphur diesel and 5% bio. The bio component is a blend of processed rape seed oil and re-cycled cooking oil.
- Pure bio can be up to 40% less carbon intensive than ULSD, even a 5% mix could therefore reduce life cycle carbon emissions plus whatever emissions are reduced through better mpg (better lubricity of bio can reduce fuel consumption by 1%-2%). Bio can also achieve a substantial reduction of ultra-fine particulates believed to be the most harmful regarding respiratory diseases. Rape seed oil is also a renewable resource.
- It is hoped to increase the bio element in the future, 20% is used in some countries but the UK is currently limited to 5% due to manufacturer's warranties. However in effect the authority is already meeting the Government's 2010 target.
- The progress of electric hybrids and hydrogen fuel cells is being monitored but these are not available for use at the present time.

TYRES/PARTS

- The council operates a 4-life policy on tyres for heavy commercials, new, re-cut, re-tread and re-cut again. For light commercials new and remoulds are fitted. All replaced/worn tyres are collected by the contractor (who has an environmental policy which includes disposal).
- Used Parts are sorted to be disposed of safely or re-cycled where possible, e.g. batteries, oil filters, waste metal.

FLEET MANAGEMENT

- The Authority is currently fitting black boxes to vehicles to take advantage of the latest Telematics technology. Information from the vehicle can be related instantly back to base via satellite. This will help to improve routing/scheduling, vehicle utilisation, and driver awareness, which in turn will lead to reduction in fuel consumption and emissions.

FOOTNOTE

- TransportEnergy Best Practice programme also undertook a fleet health check of the council's fleet where it was found to be "managed in a very professional manner and paid close attention to environmental issues."

Report supplied by Barnsley MBC Fleet Manager

7.3. Case Study: LTP8 Air Quality Indicator

An air quality indicator was adopted for LTP2 (The LTP8 indicator), in order to assess progress of LTP measures in working towards improving air quality in Barnsley and South Yorkshire. The indicator adopted for the second South Yorkshire LTP is based upon a targeted reduction of **roadside** nitrogen dioxide (NO_2) concentrations, measured in microgrammes per cubic metre (ug/m^3) achieved throughout the lifetime of LTP2. The target and annual trajectory concentrations are presented as annual averages, and the annual averages are calculated on calendar years. In order to meet LTP2 timescales, the last reportable year's data for LTP2 is 2010. The LTP8 indicator has shown the following trend over the last 3 years (see Table 1):

Table 1

Nitrogen dioxide	**2005 Base**	**2006 Forecast**	**2006 Actual**	**2007 Forecast**	**2007 Actual**	**Ratio 2007/2005**
Annual mean ug/m^3	**49.2**	48.2	**46.6**	47.2	**51.5**	1.1

Data for all routes can be seen in Table 2.

Table 2

Site	**Grid Ref**	**2005 Base**	**2006 Actual**	**2007 Actual**
Barnsley AQMA2A A628	433910 406290	**54.0**	**52.9**	**55.6**
Barnsley AQMA2B B6449	431872 405736	**50.1**	**41.4**	**38.2**
Barnsley AQMA3 A61	435172 407506	**52.7**	**49.8**	**53**

The increase in roadside NO_2 concentrations at locations within Barnsley and South Yorkshire is subject to much debate. It is currently thought that this reflects the national situation due to increases in primary NO2 emissions at roadside. The welcome reduction in NO_2 concentrations within the Barnsley 2B AQMA is due to the introduction of the Dodworth by-pass (see earlier case study).

7.4. Case Study: How effective are acoustic screens or tree planting alongside busy roads in reducing pollution at adjacent residential areas?

This information was first reported within 2004 Air Quality Action Plan, following consultation with the Defra Air Quality Action Plan Helpdesk.

The Highways Agency has previously undertaken research into the effectiveness of tree planting on reducing pollution levels. The work primarily addressed the effects of trees, whilst additionally looking at the physical effects of a barrier. The work concluded that shelterbelt trees have an influence on pollution levels through altering the dispersion of emissions by changing air-flow patterns, wind speed and surface roughness. Any obstacle that result in an increase in surface roughness will also enhance turbulence and so encourage atmospheric mixing of pollutants. The study concluded that these elements were more important in influencing the levels of pollution that that of general uptake of pollution through absorption.

There are considered to be two main effects of a barrier on pollutant concentrations:

1)The barrier can increase the residence time of the pollution above the road and this effect is more noticeable if the road is already in a cutting. This containment effect allows vertical mixing to occur within the 'plume' diluting the pollutant with clean air from above the road.

2) There is also a vortex effect downwind of the barrier. If the wind is blowing from the road towards the barrier there will be an area downwind of the barrier where concentrations are lower as the polluted air from the road will tend not to reach this area. If the wind is blowing from the barrier towards the road, the vortex will form over the road and the polluted air will be partially contained over the road, which will aid vertical mixing. The horizontal length of the vortex will depend on the wind speed but it will normally extend 1.5 times the barrier height downwind (normally 5m – 10m). As well as this more marked decrease very close to the barrier a slight decrease in concentrations in the 20-50 m range was also shown.

The precise benefits of a barrier are therefore dependent upon the orientation of the barrier to the prevailing wind direction and the proximity of residential properties to the barrier in the downwind location. It is unlikely that barriers as stand-alone measure will lead to the achievement of air quality objectives within itself, although this is entirely dependent upon the extent of exceedence.

7.5. Case Study: Barnsley Local Public Service Agreement

In 2005, Barnsley MBC devised a congestion, road safety and air quality targets for the second round of local authority local public service agreements (LPSA2).

These were put together under one target (Target 11) within LPSA2, with the reduction in congestion target being the major driver for improving air quality. Typical congestion measures included junction improvements and the introduction of intelligent transport systems to smooth traffic flow.

A baseline data set for 2004 was calculated using roadside nitrogen dioxide (NO_2) concentrations, with a target developed for end of the agreement in December 2008.

Specifically, the air quality indicator assessed the impact of the LPSA congestion measures on air quality on arterial roads into Barnsley town centre.

The specified radial routes for assessment were:

A635 Redbrook to Old Mill Lane
A61North B6131 (Bar Lane) to Old Mill Lane
A628 East Cudworth Bridge to Eastern Relief Road
A635 East Stairfoot to Alhambra Roundabout
A61 South M1 Junction 36 to Alhambra Roundabout
A628 West Dodworth Business Park to Town End Roundabout

The A628 West and the A61 North pass through the Barnsley No. 2A, 2B and 3 AQMAs.

Following dialogue between Barnsley MBC officers, the Department of Transport (DfT) and Defra, the following target was devised, based upon roadside annual average NO_2 concentrations.

Without the LPSA congestion interventions, it was considered that annual average roadside NO_2 concentrations along these arterial routes would increase by 8% for the period 2004 to 2008.

With the LPSA congestion interventions, it was considered that annual average roadside NO_2 concentrations along these arterial routes **within AQMAs** would increase by 3% for the period 2004 to 2008, due to a combination of the LPSA congestion interventions, and other measures implemented to improve air quality in AQMAs.

For those arterial routes which **did not pass through AQMAs**, it was considered that annual average roadside NO_2 concentrations would increase by 3% for the period 2004 to 2008, due to the implementation of LPSA congestion interventions only.

For the air quality indicator therefore, there were two targets, one relating to those arterial routes within AQMAs, the other relating to those routes which did not pass through AQMAs

Performance in year ending 31/12/2008 Without LPSA	Performance in year ending 31/12/2008 With LPSA	Enhancement
8% increase in NO_2 levels in AQMAs and on radial routes	**3% increase in NO_2 levels in AQMAs and 5% on radial routes**	**5% reduction in NO_2 levels in AQMAs and 3% on radial routes**

Assessment

Fourteen roadside monitoring locations were selected, of which six where in AQMAs, with the remaining eight being located on those arterial routes which did not pass through AQMAs. These are detailed in the table below.

Current performance year ending 31.12.2004. Annual average 01.01.04-31.12.04	***Performance in year ending 31.12.2008 without PSA***	***Performance in year ending 31.12.2008 with PSA***	***Enhancement***
3(a) ***AQMA No. 2A*** *Grid Ref 1 = 51.9* *Grid Ref 2 = 66.9* *Grid Ref 3 = 58.8* ***AQMA No. 2B*** *Grid Ref 1 = 45.6* *Grid Ref 2 = 42.5* ***AQMA No. 3*** *Grid Ref 1 = 51.5* ***3(b)*** *Grid Ref 7*= **35.5** *Grid Ref 8* = **49.7** *Grid Ref 9* = **46.6** *Grid Ref 10* = **46.8** *Grid Ref 11* = **59.5** *Grid Ref 12* = **44.2** *Grid Ref 13* = **41.8** *Grid Ref 14* = **52.6**	***3(a) and (b)*** *8% increase in NO_2 levels in AQMAs and on radial routes*	***3(a)*** *3% increase in NO_2 levels in AQMAs* ***3(b)*** *5% increase in NO_2 levels in AQMAs*	***3(a)*** *5% reduction in NO_2 levels in AQMAs* ***3(b)*** *3% reduction in NO_2 levels in AQMAs*

Currently Barnsley MBC is evaluating the data from 2008 in to assess whether or not the target has been achieved. These data will also highlight on which routes further work is required in order improve air quality.

7.6. Case Study – ECO Stars HDV Recognition Scheme

Through Care4Air and the developing Barnsley Bus Partnership scheme, the local authority is engaging directly with bus companies and the car owner in encouraging these drivers to reduce their emissions.

There is one sector which has not been successfully engaged with, in order to reduce traffic emissions, and that is fleet operators, particularly operators of heavy duty vehicles (HDVs)

In order to engage more effectively with fleet operators, the LTP partners are implementing the South Yorkshire Care4Air ECO (**E**fficient and **C**leaner **O**peration) Stars Recognition Scheme, the purpose of the scheme being to recognise good environmental performance for South Yorkshire vehicle fleets, as a way of encouraging reductions in emissions from this sector.

- Key aims of the ECO Stars scheme:
    - Reductions in vehicle emissions, leading to improvements in local air quality
    - Reductions in fuel consumption, leading to reduced operating costs and improved operational efficiency
    - Creation of a set of 'standards' for cleaner and more efficient van, truck, bus and coach operations
    - Strengthen engagement with key stakeholders, key to the success of the LTP and other environmental initiatives, including providing them with guidance on ways to improve both operational and environmental performance

- To join and then to progress through the Scheme, operators of vans, trucks, buses and coaches are required to show implementation of key measures which directly affect both operational efficiency and environmental performance, comprising:
    - General fuel management
    - Driver skills development
    - Vehicle specification and maintenance
    - Use of IT and support systems
    - Monitoring and targeting performance

These key areas combine to form comprehensive and effective fuel management programmes which can lead to both financial and environmental savings for operators.

- According to the Freight Best Practice programme, HGV operators implementing even basic component measures within a fuel management programme (essentially those key aspects now promoted by the ECO Stars scheme, including control of fuel use, driver skills development, vehicle specification and maintenance, use of supporting technology and performance monitoring and targeting), could expect to reduce fuel consumption by at least 5% per annum (assuming operations remain comparable etc).

- 5% savings per vehicle can be significant, particularly if we consider the illustrative example below (again sourced from Freight Best Practice) –
    - A typical 44T articulated vehicle would cover approximately 80,000 miles per annum
    - This vehicle could be expected to return approximately 8 miles per gallon
    - That equates to 10,000 gallons of diesel fuel used per annum

- That equates to 45,400 litres of diesel fuel used per annum
- A 5% reduction in fuel used would be 2,270 saved
- At £0.90 per litre (estimate figure) that equates to a financial saving of **£2,043 per vehicle**
- At 2.68 kgs CO_2 per litre of diesel, that equates to 6,084kgs CO_2 (**6.08 Tonnes** CO_2) saved per vehicle

- If these individual savings per vehicle are then used to calculate whole fleet figures, total financial and environmental savings can be very significant, all derived from implementing sound, 'common sense' operational efficiency measures, designed to reduce fuel consumption, under an effective fuel management programme – a core principle promoted by the ECO Stars scheme.

Both the Barnsley MBC fleet services and Barnsley Primary Care Trust have signed up to the scheme, amongst a countywide mixture of both private and public fleet operators.

7.7. Case Study – Care4Air

Care4Air is the South Yorkshire wide campaign, aimed at raising awareness of air quality issues in the region. Through encouraging both businesses and individuals to consider reducing unnecessary vehicle use, becoming energy efficient and reducing emissions through the use of new technology the campaign will ensure that everyone in South Yorkshire is aware of the benefits of improving air quality for all residents.

Care4Air is part of the Air Quality Action Plans developed by Barnsley MBC

The campaign was launched in March 2004 and aims to engage all communities, including local businesses, throughout South Yorkshire.

Care4Air will highlight the work which the local authorities and South Yorkshire Passenger Transport Executive are doing to improve air quality across the region. The campaign will also communicate the message that everyone can contribute to improving air quality, for example through reducing their car use and being more aware of the environmental impact of their actions.

Local people will be informed of the benefits of improving air quality and links will be made to health improvement (through improved air quality and increased exercise), and the fact that improving the environment positively impacts on regeneration.

Areas that suffer from social deprivation in South Yorkshire generally tend to have poor air quality. Therefore, improving air quality across the region aims to reduce the adverse impact of poor air quality on socially disadvantaged groups which will in turn contribute to the regeneration of the region.

The Campaign

Utilising a high profile publicity campaign, the regional media, local events and a campaign website, local people are encouraged to raise their awareness of air quality issues and how they can play a part in improving air quality for all.

The Care4Air campaign aims to:

- Promote the idea that clean air is everyone's business
- Encourage non-public transport users to use buses, trams and trains for their journeys within the South Yorkshire region
- Inform the residents of South Yorkshire of the air quality work that is currently being carried out across the County by the four South Yorkshire Local Authorities, including Barnsley MBC.

Through the **Care4Air Awards scheme**, individuals, organisations and companies are recognised across the region for their contribution towards improving air quality in a number of areas, such as schools and businesses.

More information on the award winning scheme can be obtained from www.care4air.org.

7.8. Case Study – Emissions Profiling Exercise – Barnsley 2A AQMA

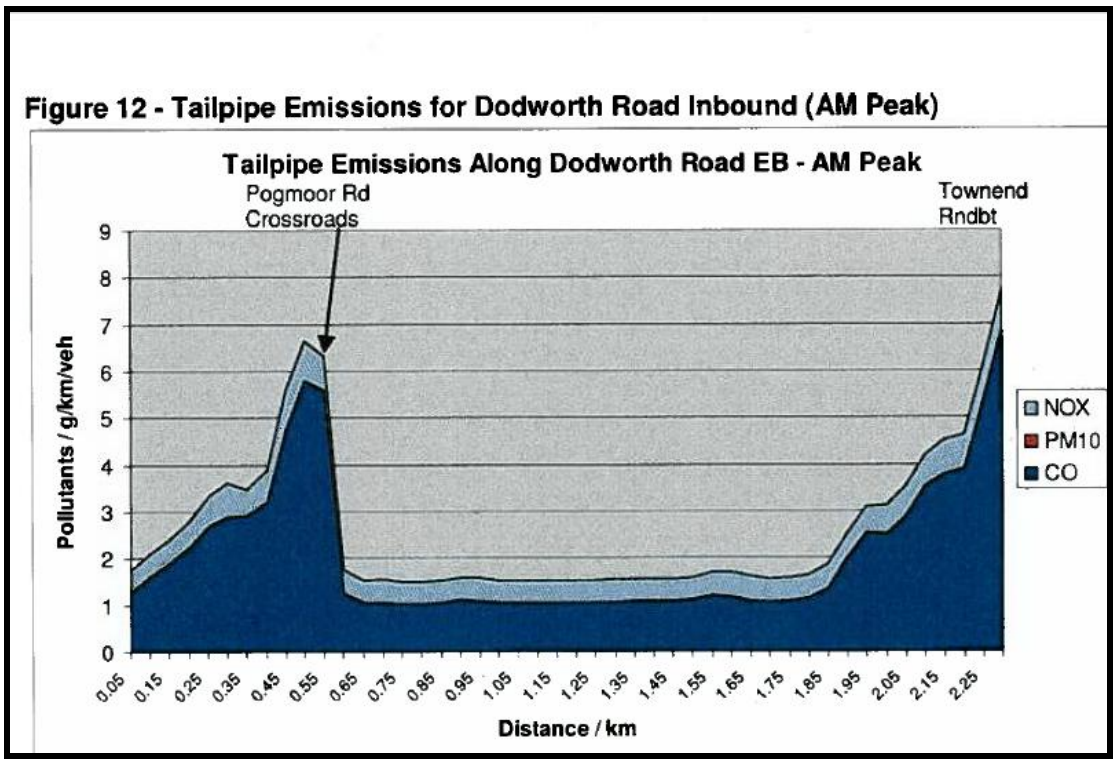
In 2007, a feasibility study was undertaken on behalf of the Council by the consultants Faber Maunsell regarding the introduction of Intelligent Transport Systems (ITS) along the A628 Dodworth Road, between Junction 37 of the M1 motorway and Town End roundabout, in Barnsley town centre. This link is within the Barnsley 2A AQMA.

As part of this study, an assessment was made of the emissions of vehicles as a profile along this route. This work was undertaken by the consultants using the emissions tool within the VISSIM model and is reproduced below:

"Additional Base Model Results – Air Quality

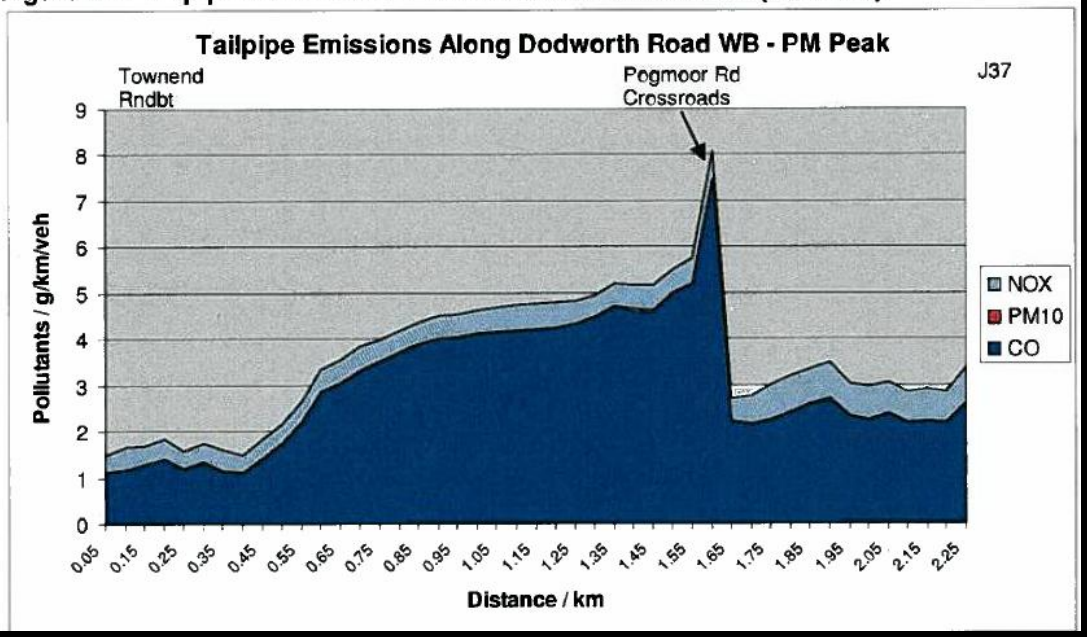
VISSIM, in conjunction with an emissions spreadsheet developed by TRL can be used to produce detailed tailpipe emissions data for any designated link on the network. As an example, tailpipe emissions have been calculated for Dodworth Road. Figures 12 and 13 below, show traces of nitrogen oxides, carbon monoxide and particulates for Dodworth Road, inbound in the morning and outbound in the evening.

Figure 12 - Tailpipe Emissions for Dodworth Road Inbound (AM Peak)



As can be seen the quantity of tailpipe emissions builds from Junction 37 towards the crossroads at Pogmoor Road. This is due to the number of queuing vehicles at this point. The level of emissions is them much lower on the next relatively free flow section of Dodworth Road. The tailpipe emissions then build again at the queue into Town End Roundabout.

Figure 13 - Tailpipe Emissions for Dodworth Road Outbound (PM Peak)



In the evening peak, as expected, the tailpipe emissions start to build significantly as the queue builds to the crossroads at Pogmoor Road. Beyond the crossroads, the emissions level is lower but still significant as the queue into the Junction 37 circulatory moves more quickly.

Appendix Four
Discussion of Measures

This appendix details work which underpins the development of the plan's measures. Several air quality studies have been completed since 2004, which contribute to the development of air quality actions. These studies and their conclusions are discussed below in chronological order.

Contents

4.6.1 Freight

4.6.2 Barnsley Statutory Quality Partnership Scheme

4.6.3 South Yorkshire Low Carbon Re-fuelling Infrastructure Project

4.1 Faber Maunsell Report, 2006

Faber Maunsell was asked to devise a methodology in order to appraise a series of air quality measures from South Yorkshires' LTP2 and then carry out a prioritisation programme. This report is available on request.

In order to carry out these tasks the following project stages were devised:

Consultation with stakeholders
Develop and agree prioritisation framework
Develop the appraisal programme and detail the measures that comprise it
Prioritisation and assessment of measures
Reporting and recommendations

An appraisal weighting system was then devised, containing the following variables:

Effectiveness (how each scheme performed against air quality criteria)
Costs, benefits and fundability
Manageability and maintainability
Local policy objectives
Regional policy objectives

This methodology therefore meets the requirements of LAQM.PG (03) for the development of air quality action plan measures.

Based on the above criteria, the top twenty schemes were ranked in order of their suitability. These schemes were either countywide or local schemes. A weighting score of 80 per scheme was considered to represent a scheme with some air quality merit.

The air quality assessment methodology and criteria are reproduced in appendix eight, and confirms the qualitative and quantitative nature of this assessment.

Those schemes with relevance to Barnsley are listed in the below prioritisation table. The final column details how these schemes will be pursued, following consideration on how to implement Faber Maunsell's recommendations.

Rank	Scheme	Weighted Score	Description	How will this be taken forward
1	Countywide Quality Bus Programme	90	A programme to improve the quality of buses in South Yorkshire, which includes a stipulation on emission standards	ECO Stars Recognition Scheme. Liaison with local bus operators. BMBC are in discussions with bus operators and SYPTE regarding the introduction of a Bus Statutory Quality Partnership Scheme (SQPS) scheme covering key routes, the Interchange and the Town Centre. This will allow minimum standards to be specified for individual elements of bus services, (such as emissions standards, driver

				training, punctuality, reliability, vehicle cleanliness etc) in return for allowing the operators to use new or recently upgraded infrastructure. This is discussed further section 4.6.2 A Bus Partnership Scheme (BPS) covering the whole of the Borough is also being discussed with the leading bus operator in the Borough and SYPTE and a major scheme bid may submitted to Regional Transport Advisory Board to fund the associated infrastructure works in due course. It is considered that a local BPS will be the best mechanism to secure further improvements in bus emissions in AQMAs and the Borough as a whole.
4	Barnsley ITS	84	Intelligent Transport Systems – the introduction of SCOOT and MOVA based traffic control system into Barnsley Barnsley traffic model	Currently being pursued via LTP2 with funding obtained. Dialogue with the UTC operators regarding air quality aspect of congestion and queue reduction.
6	Care4Air (Awareness raising)	84	Analysis of the impact of South Yorkshires' Care4Air programme, which is multi faceted awareness raising and public information service that promotes low pollution good practice in South Yorkshire	Funding obtained via the LTP to continue this for the lifetime of LTP2. Go to www.care4air.org for the latest developments within this campaign
10	Targeted Vehicle Emission Testing	83	Analysis of the impact of targeted emissions testing using real time ANPR (automatic number plate recognition) and emissions testing equipment. This enables large volumes of traffic to be photographed at the same time as their emissions are tested remotely. These data could be used for advisory / enforcement purposes.	Remote emission testing of vehicles on the South Yorkshire network (including Barnsley) was undertaken during the autumns of 2007 of 2008. This work indicates that a large proportion of the local vehicle fleet consists of EURO III vehicles. There are policy issues to be addressed before these data can be used for advisory / enforcement purposes. Funding bids to the LTP have

				also to be made, should this project proceed. Informal discussions already being held with VOSA regarding using a local VOSA weighbridge facility to assist with a local campaign
12	Cycling and walking	82	Analysis of the potential impact of the local authorities LTP2 plans for cycling and walking	Cycle routes to be aligned with AQMAs. No 2A, No. 3 and No. 4. Work ongoing through the lifetime of LTP2 and then onto LTP3, subject to approval for funding for each individual scheme.
17	Park and Ride	81	Introduction of 250 space park and ride scheme at M1 Junction 37 and using the A628 corridor to access Barnsley town centre Currently, the Junction 37 Park and Ride scheme has no timescale and no budget. The site is owned by Barnsley MBC and the South Yorkshire Passenger Transport Executive (SYPTE) has an ambition for a strategic park and ride at this location. More work needs to be undertaken whether this proposal is fit for purpose	Park and Rides were also evaluated within the TRL report. A 300 space park & ride site is being constructed as part of the Tesco development on Wombwell Lane at Stairfoot. Work is anticipated to commence in the lifetime of LTP2, and it is hoped that this facility can be operational within the timescale of LTP2 No date has yet been set for construction of the Junction 37 site. However, should this proceed this would impact on the Barnsley No.2A AQMA The introduction of Park and Ride schemes would be more effective if combined with the use of lower emissions buses serving these Park and Ride schemes.
20	Barnsley Travel Plans	80	Appraisal of the overall impact of the travel planning programme in Barnsley. This includes workplace, local authority and school travel plans	There are 19 active workplace travel plans in the Borough, with work ongoing to require additional plans. In addition, the Council will work with the Highways Agency to develop an area wide travel plan at Wentworth Park, Junction 36; and Capitol Park, Junction 37. These area wide travel plans will impact on the Barnsley Nos. 1, 2A and 2B AQMAs in

				particular. These have been very recently drafted by the Highways Agency, but have yet to be implemented.

Faber Maunsell's report also identified funding mechanisms for implementation of these measures.

In addition to these measures, small scale engineering works (bus stop re-location, parking prohibition, introduction of yellow box markings at junctions), undertaken by a neighbouring South Yorkshire local authority, were also assessed for their air quality benefit and consequently scored highly (82 to 84 within this prioritisation table). This shows the value of such small scale measures, and therefore similar air quality conclusions may be drawn from the implementation of similar schemes within Barnsley, particularly relating to those undertaken as part of the Barnsley's second Local Public Service Agreement (LPSA2) relating to congestion and air quality (see case study within appendix three).

4.2 TRL Report, 2007

Following consultation on the original action plan, Defra recommended that the below two measures be added to the plan.

- **Encourage uptake of alternative fuels within the Borough**

- **Exploration of methods of encouraging the conversion of older vehicle types to clean alternatives**

These issues therefore relate to measures 25 and 26 of the original AQAP.

TRL consultants were subsequently commissioned to undertake a scoping study to investigate viable options associated with delivering these policies. In completing this brief, TRL undertook:

- A review of alternative fuels and cleaner vehicle types along with fiscal incentives and Government initiatives aimed at encouraging their uptake.

- An investigation into the availability of alternative fuels across the Yorkshire area was carried out, which indicated that Barnsley MBC is not particularly well serviced by biodiesel, LPG and natural gas refuelling outlets.

- Consultation with local businesses to indicate the uptake of alternative fuels and cleaner vehicle technologies and to assess the barriers to future growth.

The report looked examined three time periods, in which air quality measures could be implemented in the Borough, these being;

Short Term: 2006 – 2010 (lifetime of LTP2)
Medium Term: 2010 – 2020
Long Term: 2020 – 2050

The medium and long term scenarios looked mainly at technological solutions (e.g. introduction and penetration of electric and hydrogen fuel cell vehicles into the marketplace etc.). The success of these measures is very much dependent on the implementation of national incentives and measures, rather than local work.

In all, thirty eight potential options were investigated, against a set of criteria contained within a policy options matrix (excel spreadsheet). These are detailed in the table in appendix nine.

Having developed the matrix, three potential local polices were then selected which were believed to be viable in terms of meeting the original brief of the project (based on the two air quality measures from the 2004 plan), and which can be investigated further:

The three policy options are:

- **Accelerated removal of older vehicles, and illegal vehicles, from the vehicle stock. Illegal vehicles tend to be poorly maintained when compared against the rest of fleet, whilst older vehicles are more prone to producing higher emissions.**

- **Park and Ride (including low emission buses / high EURO specification buses serving Park and Ride sites)**

- **Parking Controls (Car Parking / resident Parking for A-B, slightly higher costs for categories C-G). The variation of charges associated with the resident's parking permits and public car parks depending on the vehicle excise duty band for each.**

These three measures have subsequently been evaluated against all other measures in the plan, although as no funding mechanism has yet been identified for these measures, further work is required before these can be considered viable measures.

Barnsley MBC is currently developing a Parking Strategy. This work is in its early stages and it is intended that the Strategy will be in place by the completion of LTP2.

Some other local authorities now offer parking incentive to low emission vehicles (LEV's) as part of their parking strategies, and this will be considered within the emerging Barnsley MBC Parking Strategy, but further work will need to be done to fully evaluate the benefits of such initiatives. Therefore, at this moment in time (December 2009), this preferential treatment for LEV's can not go forward as a potential air quality measure as the necessary evaluation work has not yet been undertaken. Updates on progress with this potential air quality intervention will therefore be contained within future air quality progress reports

The requirement for, and subsequent impact of any proposed local vehicle scrappage scheme (accelerated removal of older more polluting vehicles) may have been superseded by the Government's vehicle scrappage scheme in 2009, in order to stimulate activity in the motor trade market.

4.3 South Yorkshire Congestion Delivery Plan, 2007

As previously stated, air quality is a shared priority within the LTP, along with Congestion, Accessibility and Road Safety. The LTP process allows an assessment to be undertaken of the air quality and other environmental benefits of the other shared priorities.

It is recognised that the other shared priority measures will have air quality impacts, and these can be qualitatively and quantitatively assessed regarding their impact. This situation applies particularly to the Congestion shared priority, as generally speaking, improvements in congestion could result in air quality improvements, depending on local circumstances. In order to meet the aspirations of improving congestion in South Yorkshire, the LTP partners developed the congestion delivery plan (CDP), copies of which are available from the South Yorkshire LTP website.

The CDP describes how the South Yorkshire local authorities will address congestion throughout South Yorkshire during the LTP2 time span (up to 2011). Although the wider causes of congestion will be covered, the Plan focuses on 18 identified "target" routes in South Yorkshire and how improvements and interventions along these routes can combine to enable the South Yorkshire local target for congestion to be met. As such, the document should be seen as a living document and one that will continually change with the progress of these interventions following Department of Transport (DfT) guidance.

Due to economic regeneration of the South Yorkshire region, there has been a resulting increase in car ownership in South Yorkshire. Within Barnsley this has seen a 4.7% increase between 1999 and 2004, which has been allied with downward bus patronage for the period 2001 to 2006. This will result in an increase in journey time and number of trips along these key routes. More recent data – see PF.

The Barnsley key routes identified within the CDP are:

A628 West Dodworth Road
A61South Sheffield Road
A61North Wakefield Road
A635 Doncaster Road
A628 East Pontefract Road

Of these the A628 (west) route passes through the Barnsley 2A and 2B AQMAs, whilst the A61 (North) route passes through the Barnsley 3 AQMA.

The CDP proposes a "toolkit" approach for congestion management, a key element being improvement in public transport (especially bus services), so the CDP, therefore overlaps with the LTP bus strategy. The toolkit also identifies three broad categories:

- Smarter choices – including promoting bus travel
- Demand Management Initiatives
- Making the best of the existing highway network

For each, the CDP identifies interventions, funding, timescales, measurement of progress and risks (most of the benefits being for the bus fleet). These interventions link well with the local air quality management agenda.

In summary, the CDP identifies the problem of increasing traffic due to economic regeneration, and hopes this can be mitigated. Incorporation of the CDP into this plan recognises the impact of managing congestion on air quality, and identifies the CDP as an important mechanism for controlling transport based emissions.

4.4 Directly Funded LTP Air Quality Measures

The LTP prioritisation exercise in 2006 identified measures which would impact directly or indirectly on local air quality. Of these, LTP funding has been obtained for a number of direct measures, and these are currently being implemented and will continue do so within the lifetime of the second South Yorkshire LTP. These measures include the continuation of the award winning **Care4Air campaign**. This campaign is discussed more closely in appendix seven (Case Studies).

Furthermore, LTP funding has been obtained to undertake and enhance **existing countywide air quality modelling and monitoring work**. The monitoring and modelling work will enable quantification of the success of the implementation of measures.

Finally, LTP funding has been obtained for the **ECO stars HDV recognition scheme**. This discussed within the section relating to freight, further along in this appendix, along with a case study description in appendix seven.

4.5 Local Targeted Measures

Consideration has also been given to local measures which could be implemented within each of the AQMAs, which would benefit air quality at a more local level. Construction of the Dodworth by-pass has shown that diversion of traffic away from habited to non-habited areas can have significant impact. A case study of this scheme is discussed within appendix seven.

The following schemes are therefore considered to have impact within each of the AQMAs. Maps of the individual AQMAs are contained within appendix one.

4.5.1. Barnsley AQMA No. 2A

Introduction of South Yorkshire Intelligent Transport (SYITS interventions) will be targeted along the A628 which passes through this AQMA, particularly the link between Junction 37 of the M1 motorway and Pogmoor Crossroads.

The South Yorkshire Intelligent Transport System (SYITS) is an £11m EC funded initiative aimed at enhancing Intelligent Transport System (ITS) capabilities across the county and providing a solid base for future expansion. It will provide central facilities for collecting, processing and accessing real-time traveller information throughout South Yorkshire.

In Barnsley, SYITS has funded:

- part of the Barnsley strategic transport modelling upgrade
- installation of a network of permanent Automatic Number Plate Recognition (ANPR) cameras to monitor journey times on key routes
- development by BMBC of a portable ANPR camera system to assist us in collecting and analysing data on traffic movements
- upgrades to Barnsley's Urban Traffic Control (UTC) system which will enable the future installation of variable message and car park guidance signing systems
- installation of bus priority equipment at traffic signals
- improvements to a number of traffic signal junctions identified in an ITS consultancy report. This includes the links within the Barnsley 2A AQMA along the A628
- work to optimise the operation of Barnsley's traffic signal installations. This includes the links within the Barnsley 2A AQMA along the A628
- a consultancy report on the future development of ITS systems in Barnsley

A case study detailing the emissions profile between Junction 37 of the M1 motorway and Pogmoor Crossroads is presented within appendix three.

4.5.2. Barnsley AQMA No. 2B

The major intervention here has been the introduction of the Dodworth by-pass, which is documented in appendix three as a case study.

4.5.3. Barnsley AQMA No. 3

The introduction of the Burton Road quality bus corridor (QBC) will help reduce NO_2 concentrations within this AQMA, by smoothing the flow of traffic, due to re-location of traffic signals currently located at the junction of Burton Road and Wakefield Road. Whilst not having a significant impact on traffic flows through this AQMA, an improvement in the "stop – start" nature

of traffic flow through the AQMA will impact positively on NO_2 concentrations at this location. It should be noted that houses are located adjacent to the current junction traffic signalisation resulting in "stop – start" traffic close to these receptors. As a consequence of the scheme, traffic will be freer flowing near to these receptors.

This scheme has been subject to an air quality assessment allied to the scheme's planning application. The assessment concluded that there should be some reduction in annual average nitrogen dioxide concentrations at receptors in this AQMA.

4.5.4. Barnsley AQMA No. 4

Following local residents concerns in this area regarding air pollution and health, informal consultation has already been undertaken with these residents and local ward members. A number of potential measures have been raised as a consequence of these discussions.

This AQMA is located near a complex roundabout, where three major town centre arterial routes converge. In addition, there has been development of three retail parks, these being the Peel Centre, PC World and ASDA.

A major contribution to traffic emissions in the area is the uphill gradient of Harborough Hill Road from PC World gyratory towards the slip roads off Alhambra roundabout. Indeed, it is the combination of traffic emissions on this road, and additional emissions due to vehicles proceeding up a significant uphill gradient, which caused declaration along the uphill section of this road only, involving the properties fronting on to the uphill section of this road.

This situation is discussed at length within our 2007 air quality detailed assessment, available from our air quality website at www.barnsley.gov.uk.

Local measures have to attempt to deal with this complex situation. These measures are discussed below, and due to the generic nature of these measures, the conclusions of the assessments and arguments discussed below can be applied to our other AQMAs.

4.5.4.1 Smoothing Traffic Flows around the PC World Gyratory

This gyratory moves traffic around one of the most heavily trafficked locations in the Borough. This traffic, accesses the town centre and local retail parks, and uses this gyratory in order to do so. The gyratory is signalised, and flow is congested around the gyratory for periods of the working day. Congestion increases traffic emissions, when compared to the same volume of traffic flowing freely.

In order to reduce congestion as far as is practicable, the Council are looking to introduce Intelligent Transport Systems (ITS) at this gyratory. This involves monitoring traffic flow around the gyratory in real time, and signalisation responding to lengthening queuing, rather than having traffic signals with a fixed "green light" time.

This process uses traffic responsive signals, these being SCOOT (Split, Cycle and Offset Optimisation Technique). This type of signal system uses sensors to monitor traffic flow, and then adjust signal timings to reduce unnecessary delays and improve traffic flow. The latest local air quality management policy guidance (PG 09) states that introduction of these technologies "can also lead to a reduction in emissions from standing traffic, which in turn will improve air quality".

A similar scheme has been implemented within the Barnsley 2A, particularly at the junction of the A628 Dodworth Road, Pogmoor Road and Broadway

4.5.4.2 Low Emission Strategy Package

Several of our AQMAs are located close to areas of commercial activity, such as out of town supermarkets, trading centres and large stores. These facilities generate a significant amount of traffic in order to undertake their business. In order for these businesses to operate successfully, they need deliveries of goods and materials and attract customers in order to purchase their goods.

As these centres were constructed prior to air quality issues being discovered, there are no conditions imposed by the Council requiring these businesses to take measures to reduce the air quality impact of their operations.

There is opportunity for the Council, via its Planning and Transportation Service, to engage with these businesses in order to participate in voluntary measures to reduce the air quality impact of their operations.

It is proposed to develop a voluntary scheme where such business centres within or close to AQMAs can participate. This scheme will have three elements, and each participating business will have the opportunity to implement all three elements. The three elements are:

- Participation in the ECO Stars scheme for these businesses, or their contractors who supply goods to their premises.
- Provide permission and appropriate space for a voluntary vehicle emission testing day / days at their site, using suitable car parking space, assuming such facilities are readily available.
- Develop voluntary business travel plans in order to reduce employee dependency on the car, and hence reduce emissions in the area where the business is located.

Ideally, the Council would like to see all businesses in the Borough participating in these schemes. However, limited resources available to the Council to facilitate these proposals mean that resources need to be targeted initially at those businesses located close to or within our existing AQMAs, as these will have greatest impact on air quality within these AQMAs.

Discussion with the Council's Transportation officers has identified several locations within the Borough where this programme could be rolled out. These have been "tied-in" with those AQMAs which will benefit most from these interventions.

The following areas have been identified where the Council could reach out and work with local businesses.

AQMA 2B and 2A – Capitol Park, Businesses on Broadway
AQMA 3, 4, 5 – Peel Centre, and other nearby businesses

<u>Implementation of these Interventions</u>

ECO Stars HDV Fleet Recognition Scheme

Already, the voluntary ECO Stars scheme has developed well in South Yorkshire. It is therefore proposed to utilise this existing mechanism within ECO Stars to reach out to these business and attempt to achieve voluntary "buy-in" to the scheme. This extra work will have to be programmed into the existing ECO Stars work schedule and will require additional funding to that already obtained for ECO Stars up to the end of LTP 2 (March 2011). On this basis therefore, submission of additional funding bids will have to be made during either the last year of LTP2 (2010-2011), or

within LTP3. It must be noted that these bids have yet to be submitted, so future progress with this scheme will subject to these bids.

This work will involve pro-active communication with all businesses located at the identified sites. In order to achieve maximum take up of the scheme with stakeholders, the benefits to them (reduced fuel costs to them and their hauliers, promoting of the company's green credentials) will have to emphasised, along with local air quality benefits. This approach is entirely consistent with the current approach of the ECO Stars scheme. There is the added benefit that due to take up of ECO Stars within these areas, there will also be an improvement in air quality generally in Barnsley and South Yorkshire as these vehicles move around the Borough and the county.

Voluntary Vehicle Emission Testing

Barnsley has experience of the requirements in undertaking voluntary vehicle emission testing. In the past, the South Yorkshire Vehicle Emission Testing (SYVET) programme was able to undertake voluntary vehicle emission testing at local businesses.

Funding would have to be obtained in order to undertake this work. This would be subject to a separate bid from LTP2 funds in order to undertake this work. This may form part of a larger countywide bid for vehicle emission testing, as experiences gained from the SYVET project show that this work is best undertaken by a third party, competent in undertaking such testing up to VOSA standards. Furthermore, this testing will only be undertaken for voluntary purposes only; with no enforcement action under the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002, being proposed.

Voluntary Business Travel Plans

The third strand of this proposal is for the Council to work on further promoting voluntary travel plans. This would have to be accommodated into the existing work programmes of Barnsley MBC Transportation officers, who deal with development of travel plans.

The third stand of this proposal is for the Council to work on further promoting voluntary travel plans. This would have to be accommodated into the existing work programmes of Barnsley MBC Transportation officers, who can offer advice and assistance to businesses who wish to develop travel plans.

Business travel plans allow the organisation to assess its travel needs, set targets and work towards reducing reliance on single occupant car trips, by encouraging the uptake of more sustainable modes of travel. A business travel plan can include measures such as:

- Assessing current travel modes to set a baseline and setting targets for the plan to achieve
- Promoting cycling by providing infrastructure such as secure cycle parking, lockers, showers, bike maintenance facilities etc. Offering incentives to purchase a cycle via a salary sacrifice scheme. Cycle mileage allowance for business use
- Promoting walking, by making information available on safe walking routes, providing showers, lockers
- Promoting public transport by making available route and timetable information and possibly offering ticketing incentives / discounts to staff, perhaps via a salary sacrifice scheme
- Promoting car sharing, perhaps guaranteeing a ride home to car sharers
- Actively managing car parks, perhaps offering guaranteed spaces to car sharers
- Promoting the use of low emission vehicles
- Pool vehicles (cycles, cars)

Publicity

To ensure optimum uptake of these proposed schemes a suitable publicity campaign will be undertaken, and this will be incorporated into the funding bids alluded to above.

Cost benefit and AQ Improvements

Assessment of cost benefits and air quality improvements of travel plans and vehicle emission testing has already been undertaken as part of the original Faber Maunsell work reported elsewhere in this plan. In future months also, an assessment of cost benefits and air quality improvements of the ECO Stars HDV Fleet Recognition Scheme, will also feed into Barnsley MBC's forthcoming air quality assessment.

In addition, the following measures have been suggested to the Council to improve air quality in the Harborough Hill Road area.

4.5.4.3 Closure of Harborough Hill Road

Closure of this road would have significant air quality benefits, reducing traffic based emissions to such an extent that it is likely that the annual average NO_2 concentration in the area would meet the Governments' air quality standard. Other benefits would include a significant reduction in other pollutants associated with traffic emissions (including carbon dioxide), along with an equally substantial reduction in traffic related noise in the area.

Closure would have significant non environmental impacts however. Closure of a major route into the town centre would have major implications for residents, shoppers and business accessing the town centre using this existing route. This may make use of the town centre less desirable for shoppers and business, resulting in a potentially major negative economic impact for the town centre.

Other routes would have to be found to accommodate the displaced traffic from Harborough Hill Road. This would result in moving the congestion and associated environmental impacts elsewhere onto the road network, making the situation worse in other areas.

Without undertaking detailed traffic and air pollution modelling to assess the impacts of this proposal, the exact impact can not be quantified. However, it is entirely feasible that the effects of this proposal would result in the introduction of worse congestion and environmental conditions elsewhere in the network due to the additional loading from the re-routing of the Harborough Hill Road traffic to areas of the network which are also experiencing heavy traffic flow.

Closure of Harborough Hill Road would also affect the ability of Harborough Hill Road residents themselves to also access the town centre and other facilities.

Access to facilities close to the gyratory would also be severely compromised (Peel Centre and ASDA), again with knock-in impact on congestion and pollution elsewhere in the network as traffic would have to be re-routed elsewhere in order to access these facilities, as well as impacting on the economic viability of these facilities.

Emissions of greenhouse gases throughout the Borough would also increase as vehicles would have to make lengthier journeys as a result of closure of the road.

Whilst acknowledging the significant air quality and noise benefits within this AQMA of this proposal, the negative impact on reducing accessibility to and from the town centre and the concern of displacing the environmental impacts elsewhere outweigh the positive environmental

impact of closing the road at Harborough Hill Road, and therefore make this proposal unworkable.

4.5.4.4 Demolition of Properties Affected by Poor Air Quality

Demolition of those properties affected by nitrogen dioxide concentrations greater than the air quality objective has been suggested.

This action would remove human exposure away from the area of poor air quality. If this proposal was undertaken for all affected properties within the AQMA, this could then result in revocation of the AQMA, as no-one would be residing in the area of poor air quality.

As part of the demolition option, assistance would have to be offered to those residents in order for them to re-locate to other suitable accommodation in the Borough. This assistance would be either in the form of provision of alternative housing from the Councils' own stock, or purchase of the existing property(ies) at market price by the Council, thus allowing the residents to seek out alternative accommodation for them.

Demolition had been considered as a potential air quality solution within the action plan for those properties within the M1 motorway AQMA. Compulsory purchase was identified as a mechanism to achieve this proposal. This proposal was rejected as "wholesale compulsory purchase and demolition of all properties within an AQMA would be excessively costly and would not be feasible". The original plan further reported that "this option goes against the spirit of the legislation in that it removes public exposure, rather than tackling the problem", and that "the public would be unwilling to move from their current location. There may be a perception of blight on properties just outside the area. Compulsory purchase could be resented and cause long legal arguments".

There are estimated to be 780 residential properties within the Boroughs' AQMAs where NO_2 concentrations are exceeding the annual average objective. Consideration would have to be given to the residents of all additional properties as well, should the residents in these areas retrospectively desire this option also.

Indicative costs for this course of action have been obtained from the Councils' Property and Procurement Service based upon the fact there are approximately 780 dwellings in all of our AQMAs, and that in order for this measures to be equitable, it has to be offered to all potential residences.

An investigation of property websites in December 2009 considered that the average house price in Barnsley being £137,873. This is based on the average of all types of houses in Barnsley (terrace, detached, flat etc) and also takes into account the differing number of bedrooms per property. In reality the value of some types of property would be greater than the value quoted above, whilst other types of property would be less.

Furthermore, the below calculations are not be based on a specific property, and therefore should be treated with caution. However, the below calculations do give an indication of potential costs and liability to the Council in adopting such a scheme.

In addition, the below calculations do not take account of the costs Barnsley MBC officer time (including legal costs) in promoting the CPO, through to confirmation. There are also other potential officer costs, should a public inquiry be required. These additional costs could therefore add several tens of thousands of pounds to the proposal.

Item	**~ Cost (£)**
Approximate current market price of a residential property in Barnsley	137873[(a)]
Council liability for surveyors and legal costs (per property)[(b)]	2000

Basic loss payment (7.5% of market value) – per property[(b)]	10340[(a)]
Occupier loss payment (2.5% of market) – per property[(b)]	3447[(a)]
Home loss per property (set payment) [(b)]	4400[(a)]
Disturbance compensation payments	1000
Total per property	**159060[(a)]**
Nominal 5 properties in any AQMA (5 x £159060)	**~ 795 000[(a)]**
Total for all properties in AQMA No. 4 (42 properties x £159060)	**~ 6.68 million[(c)]**
Total for all properties in all AQMA (780 properties x £159060)	**~ 124 million**

(a) Calculations based upon current assumed average market price (December 2009) in the Borough – in reality the cost of each individual property would be different.

(b) It should be noted that not every property would be eligible for all of these payments under a compulsory purchase order (CPO). These payments are dependent for instance on the nature and length of occupation of a specific property. These payments have however been applied universally to these calculations to highlight all potential costs

(c) Assuming that properties in AQMA No. 4 are representative of typical market value for the Borough

Demolition of those properties where residents may express a desire to be re-located would be difficult to justify on cost-effectiveness grounds, as the indicative costs detailed above show. No funding mechanism has been identified for such a measure, and it is very unlikely that external funding would be available for such a measure, as there are currently in excess of 200 local authorities with AQMAs due to exceedence of the annual average for nitrogen dioxide. Some of these AQMAs contain ALL residential properties in the urban area.

It is therefore considered that this proposal is also unworkable.

4.5.4.5 Erection of Barrier between the Road and Residential Properties

This was viewed as having a beneficial impact on soiling of properties from dust lift-off / mud splash from roads, noise, as well as air quality.

This issue was originally raised as part of the formal consultation process for the original action plan. Advice was sought from the Governments' action plan helpline, whose response is given as a case study in appendix three. From previous studies undertaken by the Highways Agency it appears difficult to quantify the air pollution reduction for individual schemes.

As the effectiveness of any barrier therefore appears to be dependent on local circumstances, this Service applied for Defra funding to undertake a small scale survey to assess local NO_2 concentrations, following erection of such a barrier within this AQMA. Unfortunately this bid was unsuccessful, and no other funding streams for such a project have been identified.

Installation of a barrier could only be undertaken adjacent to some of the properties within this AQMA.

4.5.4.6 Payment of Compensation for Residents affected by Poor Air Quality

This issue has also been suggested as a mechanism to be considered. Payment of compensation would not result in improvement of air quality at those affected properties. Furthermore, no mechanism is known to exist under air quality legislation (Environment Act 1995) which would require payment of compensation in these circumstances. This suggestion therefore falls outside the remit of this plan.

4.5.4.7 Removal of Peel Centre Traffic Lights

In 2004, additional traffic lights were added to the PC World gyratory, in order to improve access for those vehicles leaving the Peel Centre trading estate. Previously, all vehicles movements required a left turn up Harborough Hill Road only. Introduction of these traffic lights now allow access directly onto PC World gyratory, rather than all vehicles having to make the left turn up Harborough Hill Road. Whilst improving access from the Peel Centre, this has also resulted in the introduction of more standing traffic adjacent to the northern part of the AQMA..

In order to minimise this situation, traffic heading along the southerly (uphill) carriageway of Harborough Hill Road is given preferential flow, in order to prevent excessive queuing at both sets of traffic lights at bottom of Harborough Hill Road and subsequent excessive build-up of emissions. The "green" time for traffic using the uphill carriageway has however not to cause undue queuing on the downhill carriageway of Harborough Hill Road as it approaches PC World gyratory for road safety reasons.

Removal of the traffic lights would improve flow of traffic up Harborough Hill Road, and through this AQMA. This would have a positive impact on air quality on the lower part of the Harborough Hill Road AQMA, as well as potentially reducing noise here. However, due to removal of the Peel Centre traffic lights, this would result in all traffic existing the Peel Centre trading estate (commercial and shoppers) having to proceed along the uphill carriageway of Harborough Hill Road and onto the Alhambra Roundabout approximately 900 metres to the south. This flow of traffic would also include traffic whose destination is in a northerly or easterly direction.

Removal of the Peel Centre traffic lights would require these traffic to advance to and then enter the Alhambra Roundabout with a view to descending Harborough Hill Road (on the downhill carriageway), in order to then enter the PC World Gyratory and then move onto the vehicles northern or eastern direction.

Removal of the Peel Centre traffic lights would therefore increase emissions in the southern portion of AQMA No. 4), due to greater volumes of traffic using the uphill carriageway of Harborough Hill Road, due to the loss of the option of traffic leaving the Peel Centre being able to enter PC World Gyratory directly.

4.5.4.8 Oxides of Nitrogen (NOx Reducing Paint)

Barnsley MBC is aware of studies undertaken at several local authorities into the impact of reducing NO_2 concentrations using "NOx reducing" paint. In particular, early trials undertaken by Cheshire East Council in Congleton have indicated an approximate 28% decrease in NO_2 levels pre and post intervention at the study site.

The active component within the paint is titanium dioxide (TiO_2), which reacts with atmospheric NO_2 in the presence of sunlight, thus lowering its ambient concentrations.

The NOx reducing paint was applied to a number of residential properties up to first floor façade (following obtaining of suitable permissions from residents) and street furniture including a number of street lamps and road signs in the study area, along with approximately 200m^2 of paving (communication, East Cheshire Council).

Recent research has however suggested that removal of NO_2 from the air was accompanied by a substantial production of gaseous nitrous acid (HONO) (Royal Society of Chemistry, August 2009). Gaseous nitrous acid is known to be a gaseous respiratory irritant.

Prior to the emerging evidence regarding gaseous nitrous acid, this local authority was considering undertaking its own trial applications of TiO_2 paint within AQMA No. 4 (Harborough Hill). This proposal has now been shelved in light of this recent development.

4.5.4.9 Control of HGVs on Arterial Roads

Sections 1, 6 and 9 of the Road Traffic Regulations Act 1984 give authorities extensive powers to make traffic regulation orders. These can prohibit, restrict or regulate traffic or particular types of vehicle. They can apply to part of a road, a whole road or a number of roads, and can be in force all the time or for specified periods. Traffic authorities may also exempt some classes of vehicle or permit holders. Under paragraph 36 of Schedule 22 to the Environment Act 1995, traffic authorities can include the pursuit of Air Quality Objectives made under Part IV of the Environment Act 1995 in traffic regulation orders.

The Road Traffic Regulation Act 1984 draws a distinction between the powers for making traffic regulation orders on roads inside and outside Greater London. Schedule 22 to the Environment Act 1995 also adds the national Air Quality Strategy to the list of items in section 122 of the Road Traffic Regulation Act 1984 that authorities must take explicit account of when using their traffic regulatory powers.

Consideration was given to the control of heavy goods vehicles in the Faber Maunsell report (discussed earlier), specifically the prevention of freight access onto the A628 between the Pogmoor Road junction and Barnsley town centre. This proposal was appraised on the grounds of effectiveness (how each scheme performed against air quality criteria); costs, benefits and fundability; manageability and maintainability; and local and regional policy objectives. The proposal subsequently scored poorly compared to other measures and was not put forward as measure.

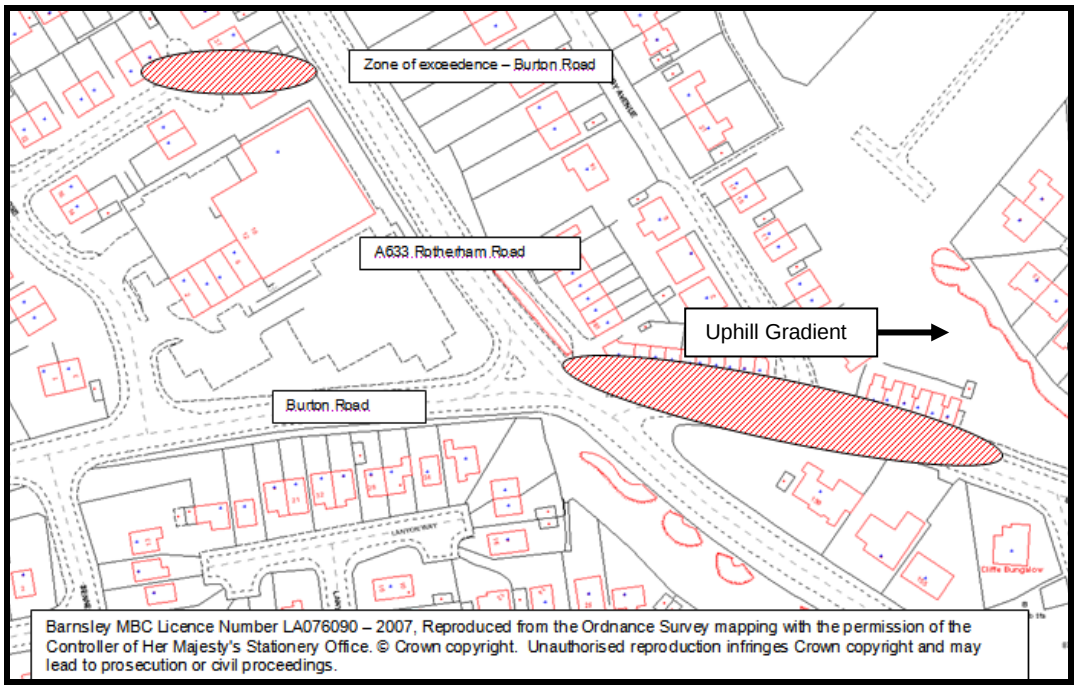
It is considered that this measure for AQMA No.4 would prove just as unworkable, particularly as the area is populated by a number of trading estates / out-of-town supermarkets which require frequent goods deliveries, these goods being brought in by HGVs.

4.5.5. Barnsley AQMA No. 5

The impact of gradient on traffic related emissions has been highlighted elsewhere in this report. This is considered to be a significant issue for our AQMA No.5, located near to the junction of Burton Road and Rotherham Road.

The effect of gradient was clearly demonstrated within our 2007 detailed assessment and 2009 updating and screening assessment, which identified a significant impact of gradient on the NO_2 concentrations in this AQMA (Barnsley MBC, Air Quality Updating and Screening Assessment, March 2007, Barnsley MBC, Air Quality Detailed Assessment, July 2009).

This AQMA consists of a small number of properties located on the uphill gradient of Burton Road (see attached map below).



The junction is signalised, as the photograph below shows:

This AQMA is therefore prone to increased emissions due to vehicles heading in a westerly direction from the junction and signals along the uphill gradient of Burton Road. These emissions are considered to be exacerbated by an additional increase in emissions as vehicles move away from the junction from a standing start.

In addition, a bus stop is located at the junction of Burton Road and Thoresby Avenue within the AQMA. The stopping and starting of buses (with associated queuing traffic) will also further impact on emissions at this location.

Pollution concentrations at roadside on the downhill carriageway are considered to be significantly lower than on the uphill carriageway, and there are no receptors located sufficiently close to the roadside adjacent to the downhill carriageway.

Further work needs to be undertaken to ascertain whether re-location of the bus stop and signals or alteration of timing of these signals will reduce emissions within this AQMA. Specifically, re-location of the signals in a westerly direction along Burton Road may assist in a lowering of emissions within the AQMA as vehicles move from this altered stop line. A greater proportion of the vehicles' acceleration profile will therefore have taken place prior to the vehicles moving into the AQMA.

Altering the signal configuration at this junction will also allow a greater proportion of vehicles to move in an easterly (uphill) direction through the AQMA without having to decelerate and accelerate at the junction due to being halted by the traffic signalisation.

Re-location of the bus stop will also improve flow (and hence emissions) within this AQMA.

These potential interventions have yet to be fully assessed. It is therefore this Services' intention to commission a study of the above described interventions, which will investigate pollutant reduction, feasibility, deliverability, cost and cost-benefits. This work will be undertaken within the final year of the South Yorkshire Local Transport Plan (2010 – 2011), with a view to implementing these interventions within LTP3 should these interventions prove sufficiently feasible and cost effective.

4.6. Other Measures

4.6.1. Freight

During the consultation process for the 2004 plan, Defra made comment that further consideration should be made of working with such organisations as Freight Quality Partnerships. During the lifetime of LTP2, this work will be taken forward through the Yorkshire and Humber Regional Freight Group and its daughter organisation the South Yorkshire Freight Group. These groups consist of local transportation officers, along with representatives of the freight community.

This has further prompted the development of the ECO (Efficient and Clean Operation) Stars Fleet Recognition Scheme. This scheme is designed to provide recognition and support to operators implementing operational best practice measures to improve efficiency, reduce fuel consumption and reduce fleet emissions – all helping to improve local air quality.

The scheme is also intended to raise awareness among commercial vehicle operators of the important role they can play in helping to improve local air quality, through improved fleet environmental performance.

It also provides the opportunity to profile best practice examples adopted and implemented by leading fleets to a wider audience, including peers, customers and the general public.

Initially, the scheme will run until March 2011 (conclusion of LTP2), but if the scheme proves successful, there is a desire to continue with the scheme for the lifetime of LTP2, if progress at

the end of March 2011 warrants continuation of the scheme. Further information can be obtained from the Care4Air website (www.care4air.org), and a case study is presented in appendix three.

Building on the initial success of the ECO Stars HGV fleet recognition scheme, the LTP partners are now developing a Freight Quality Partnership (FQP). This is in the early stages and it is intended that the FQP will be in implemented well before the end of the LTP2 period, if funding is made available.

The logistics and operational aspects of the FQP are in the process of being developed and it is envisaged that the impact of Air Quality will be encompassed in the finalised FQP protocols. The FQP will continue to work closely with the Air Quality group to ensure both the group's aims are reached.

4.6.2 Barnsley Statutory Quality Bus Partnership Scheme

Proposal and Justification

The proposed scheme includes the Barnsley Interchange, bus stops within the Town Centre and on the A61 Wakefield Road Quality Bus Corridor (QBC). Essentially this means most of the routes accessing the town centre have to meet the below emission standards.

The specific aims of the Scheme are to increase bus usage by improving the quality, reliability, accessibility and journey times of bus services. The SQPS aims to ensure that bus services support economic regeneration, reduce social exclusion, improve the overall image of bus travel and improve the attitude of staff towards customers. The Scheme will also assist BMBC meet air quality targets in its 6 Air Quality Management Areas (AQMA's) including the A61 at Burton Road and Harborough Hill Road within close proximity to the town centre

The Scheme will ensure that buses on the services which it covers will have the following features:

- Low floor buses to improve accessibility and social inclusion
- Euro III low emission buses on all services operating at frequencies of 30 minutes or better and Euro II emission on lower frequency services.
- CCTV to improve safety and security
- Well presented buses
- Improved cleanliness and requirement for periodic refurbishment of seats and coverings
- Driver training to NVQ II standard for improved customer care

Any operator wishing to use the enhanced infrastructure covered by the SQPS will be required to provide a written undertaking to the Traffic Commissioner that they will comply with the specified Standard of Services. The Traffic Commissioner can enforce compliance standards with bus operators and enact penalties against them for non-compliance.

Specifically, the scheme addresses air quality in the following way:

"The Scheme Makers are satisfied that the provision of the Facilities and the operation of Local Services which are compliant with exhaust emission standards between Euro II and Euro IV will assist with the Council's Air Quality Action Plan to improve air quality reduce pollutants particularly nitrogen dioxide in the six urban Air Quality Management Areas including one along the A61 at its junction with Burton Road and another at the foot of Harborough Hills where traffic pollution is identified as the primary contributor. The key summary points in the Council's Local Transport and Air Quality Action Plans include public transport actions to progress Quality Bus Corridors to encourage modal shift, roll out Variable Message Signing (VMS) to direct drivers to their destinations away from traffic congestion, tighter exhaust standards for Council vehicles, buses, taxis, delivery and refuse vehicles. Buses conditioned to comply with exhaust emission

standards using facilities in the Scheme Area also operate throughout the Barnsley Borough and therefore can be considered to have an effect in reducing air pollution."

Standard	Ref No.	Standard of Services	Justifications and Priority Actions in the Bus Strategy
Emissions	2.2	(i) To comply with Euro III emission standards on Core and Core 2 Local Services or Service Groups in accordance with the timescales for each local service listed in Schedule 2 unless having any exclusion listed in Schedule 8. (ii) To comply with Euro II emission standards on Complimentary Services in accordance with the timescales for each local service listed in Schedule 2 unless having any exclusion listed in Schedule 8.	**Linked into LTP2 emissions standards contributing to Barnsley Council's development of Air Quality Management Areas**

4.6.3 South Yorkshire Low Carbon Re-fuelling Infrastructure Project

LTP funding has been obtained for a project to run until the end of LTP2, this being the South Yorkshire low carbon re-fuelling infrastructure project. The purpose of the project is to help develop and deliver a strategy for the provision of alternative fuel (low carbon vehicle) infrastructure in South Yorkshire.

The project will be delivered by the four South Yorkshire local authorities and the South Yorkshire Passenger Transport Executive.

The growth of carbon emissions in the transport sector has focussed on a number of local authorities and other organisations to show leadership and innovation in tackling carbon emissions within their towns and cities.

£300K has been made available through the South Yorkshire Local Transport Plant (SYLTP) central pot to help develop an integrated low carbon vehicles refuelling infrastructure across South Yorkshire and, help stimulate uptake of low carbon vehicles. This is intended to be achieved by developing a low carbon vehicle infrastructure and establishing a critical mass of low and zero emission vehicles. In addition the provision of alternative fuel infrastructure and anticipated increase in the number of associated vehicles will contribute to the region achieving its air quality improvement and carbon reduction targets.

By definition (and for the purposes of this project), low carbon fuelled vehicles include vehicles using biomethane, compressed natural gas (CNG), electricity and others as fuels. These vehicles have significantly reduced emissions of local air quality pollutants such as PM_{10} and NOx, so there are therefore important benefits for the local air quality management agenda, as well as for carbon reduction.

This work is fully compatible with the action plan measures 25 and 26 taken from the original Barnsley MBC air quality action plan, these being:

Measure No. 25 Barnsley MBC will explore methods of encouraging uptake of alternative fuels within the Borough by the end of April 2006

Measure No. 25 Barnsley MBC will explore methods of encouraging the conversion of older vehicle types to clean alternatives within the Borough by the end of April 2006

As a consequence of this project, the above tow measures or actions will be replaced with:

By participating in the South Yorkshire low carbon re-fuelling infrastructure project, Barnsley MBC will develop opportunities for the uptake of alternative fuels and cleaner vehicles by the end of LTP2.

The expected outcome of the project is the provision of an integrated infrastructure to support the wider take-up by the private, business and public sectors of low carbon / alternative fuel vehicles across South Yorkshire and the development of a robust regional low carbon fuel economy.

Funding of up to £50 000 has been obtained for the first of two proposed phases of the project.

Phase 1: The production of a business case to seek support from the LTP in order to formulate a strategy for a “delivery Plan” through the delivery a sustainable transport system (DaSTS) agenda for LTP3. This work will be commissioned and completed by end of March 2010. Incorporated within this work will be the development of strategic links with other concurrent projects that are producing such fuel sources.

Phase 2: To implement the delivery plan as and when funding is available, although £250 000 has been provisionally made available from the LTP for this second phase.

Completion of phase 1 will assess the cost effectiveness, feasibility and deliverability of the scheme, as well potential pollutant reduction. Progress with this scheme will therefore be reported to Defra using via the annual air quality action plan report.

Appendix Five
Scoring of Measures

All measures taken from the 2004 AQAP; the TRL and Faber Maunsell reports; and the Congestion Delivery Plan have been previously fully assessed, in line with statutory guidance for their cost effectiveness and feasibility.

Key to Matrix:

*** most positive
** medium
* less positive
0 not feasible

Measure	Cost Effectiveness	Lead Organisation	Positive Effect on People in AQMA	Positive Effect on People in the Borough	AQ improvement	Other positive impacts	Total
Original AQAP Measure No.2: BMBC will continue to attend and take an active part in the South Yorkshire Integrated Transport Group (Air Quality and Environment Sub-group) and its work.	***	BMBC Regulatory Services BMBC Planning and Transportation	*	*	*	*	7
Original AQAP Measure No.3: BMBC will ensure that this Action Plan is aligned with the LTP.	***	BMBC Regulatory Services BMBC Planning and Transportation	*	*	*	*	7
Original AQAP Measure No.6: BMBC will continue to work with developers and employers to improve sustainable transport links to new economic and residential developments	***	BMBC Regulatory Services BMBC Planning and Transportation	*	*	*	*	7
Original AQAP Measure No.9: BMBC will continue to provide the Smoky Diesel Hotline Service on telephone number 01226 772458	***	BMBC Regulatory Services	*	*	*	*	7
Original AQAP Measure No.13: BMBC will	***	BMBC Regulatory	*	*	*	*	7

produce a written monitoring strategy for the borough by the end of December 2005		Services					
Original AQAP Measure No.14: BMBC will continue to provide comprehensive control over emissions from Part B and A2 processes, and act as consultees to the Environment Agency for part A1 processes	***	BMBC Regulatory Services	*	**	*	*	8
Original AQAP Measure No.15: BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to industrial smoke.	***	BMBC Regulatory Services	*	**	*	*	8
Original AQAP Measure No.16: BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to domestic smoke control, and will implement a publicity campaign to raise awareness of the issue throughout the borough by the end of December 2005.	***	BMBC Regulatory Services	*	**	*	*	8
Original AQAP Measure No.17: BMBC will continue to investigate complaints about nuisance, and take appropriate action to resolve the problem.	***	BMBC Regulatory Services	*	*	*	*	7
Original AQAP Measure No.20: BMBC will continue to ensure that air quality is considered with regards to new development, where appropriate, in line with PPG23. The Council will look for evidence that developers have taken appropriate steps to mitigate pollution impacts.	***	BMBC Regulatory Services	*	**	*	*	8
Original AQAP Measure No.23: BMBC will ensure that all major traffic schemes are assessed for air quality impacts against the NAQS objectives.	***	BMBC Regulatory Services	*	**	*	*	8

Measure	Cost Effectiveness	Lead Organisation	Positive Effect on People in AQMA	Positive Effect on People in the Borough	AQ improvement	Other positive impacts	Total
Park and Ride	**	BMBC Planning and Transportation BMBC Highways and Engineering	*	*	*	* Localised reduction in congestion, lower CO_2 emissions	6
Parking Schemes. Barnsley's future car parking strategy will inform this process.	*	BMBC Planning and Transportation BMBC Highways and Engineering	*	*	*	*	5
Vehicle Scrappage	*	BMBC Planning and Transportation BMBC Highways and Engineering BMBC Regulatory Services	*	*	*	* Removal of non complaint private vehicles. Reduction in abandoned vehicles	5
Statutory Quality Partnership Scheme(Barnsley Bus Partnership Scheme)	***	BMBC Planning and Transportation SYPTE Bus Operators	**	**	**	** Newer quieter buses, lower CO_2 emissions	11
Barnsley ITS	***	BMBC Highways and Engineering	**	*	**	** lower CO_2 emissions, less congestion within AQMA	10
Care4Air (Awareness raising)	***	BMBC Regulatory Services BMBC Planning	*	*	*	*** Award winning scheme for disseminatin	9

		and Transportation				g air quality and environmental best practice to public, businesses etc	
Measure	**Cost Effectiveness**	**Lead Organisation**	**Positive Effect on People in AQMA**	**Positive Effect on People in the Borough**	**AQ improvement**	**Other positive impacts**	**Total**
Targeted Vehicle Emission Testing	**	BMBC Regulatory Services	*	*	*	** lower CO_2 emissions. Further benefits if accompanied by Publicity campaign	7
Cycling and walking	***	BMBC Planning and Transportation	**	**	*	** lower CO_2 emissions, less congestion within AQMA, Links to Barnsley "Fit for Future" health campaign	10
Barnsley Travel Plans	***	BMBC Planning and Transportation	*	*	*	** lower CO_2 emissions, Links to Barnsley "Fit for Future" health	8

						campaign	
Burton Road QBC (No 3 AQMA)	***	BMBC Planning and Transportation	***	*	**	** less congestion within AQMA	11
Smoothing Flow Around PC World Gyratory (SYITS) (No 4 AQMA)	***	BMBC Highways and Engineering	**	*	**	** lower CO_2 emissions, less congestion within AQMA, slight reduction in noise	10
Measure	**Cost Effectiveness**	**Lead Organisation**	**Positive Effect on People in AQMA**	**Positive Effect on People in the Borough**	**AQ improvement**	**Other positive impacts**	**Total**
Low Emission Strategy Package (No 4 AQMA and others)	**	BMBC Planning and Transportation	**	*	*	** lower CO_2 emissions, less congestion within AQMA,	8
Closure of A61 Harborough Hill Road (No 4 AQMA)	0	BMBC Planning and Transportation					not feasible (see section 4.5.4.3)
Demolition of Properties Affected by Poor Air Quality (No 4 AQMA)	0	BMBC Estates BMBC Highways and Engineering					not feasible (see section 4.5.4.4)
Erection of Barrier between the Road and Residential Properties (No 4 AQMA)	*, no funding yet identified	BMBC Highways and Engineering	** (only benefits a few properties in the AQMA)	*	**	* Reduction in noise levels offset	7 (subject to identifying

						by loss of light entering affected properties	suitable funding)
Barnsley 4 AQMA – Removal of Peel Centre traffic lights	0 – not feasible	BMBC Highways and Engineering					not feasible (see section 4.5.4.7)
Barnsley 5 AQMA – Alteration of Traffic Light Signalisation	*, no funding yet identified	BMBC Highways and Engineering?	**	*	**	** lower CO_2 emissions, and lower noise within AQMA	8
Measure	**Cost Effectiveness**	**Lead Organisation**	**Positive Effect on People in AQMA**	**Positive Effect on People in the Borough**	**AQ improvement**	**Other positive impacts**	**Total**
ECO Stars Fleet Recognition Scheme	***	BMBC Planning and Transportation	*	*	*	*	7
Countywide Modelling and EDB	***	BMBC Regulatory Services	*	*	*	*	7, but essential in assessing impact of measures
Countywide Monitoring	***	BMBC Regulatory Services	*	*	*	*	7, but essential in assessing impact of measures

Appendix Six
Feasibility of Measures

The measures have been evaluated as significant (**S**), minor (**M**), or negligible (**N**). Where measures have been comprehensively assessed elsewhere (e.g. original AQAP, Faber Maunsell, TRL reports etc), this is accepted as the means of assessing and prioritising these measures. If a measure has therefore been previously assessed in accordance with local air quality management guidance, then the outcome of this assessment has been incorporated into this plan, rather than undertake a re-assessment of the measure.

Measure	**Feasibility (including cost effectiveness)**	**Cost and timescale**	**NO_2 reduction (also climate change and noise impact were appropriate)**
Measures from Original 2004 AQAP			
Measure No.2: BMBC will continue to attend and take an active part in the South Yorkshire Integrated Transport Group (Air Quality and Environment Sub-group) and its work.	Feasible and cost effective	Revised timescale – to continue to conclusion of LTP2 (March 2011). Cost to be met within existing operational budgets	**Air Quality - N** Other environmental indices assessed by this group
Measure No.3: BMBC will ensure that this Action Plan is aligned with the LTP.	Feasible and cost effective	Revised timescale – to continue to conclusion of LTP2 (March 2011). Cost to be met within existing operational budgets	**Air Quality - N**
Measure No.6: BMBC will continue to work with developers and employers to improve sustainable transport links to new economic and residential developments	Feasible and cost effective	Revised timescale – to continue to conclusion of LTP2 (March 2011). Cost to be met within existing operational and LTP budgets	**Air Quality – N,** but potential to be M or S at more local level. This feeds into park and ride strategies
Measure No.9: BMBC will continue to provide the Smoky Diesel Hotline Service on telephone number 01226 772458	Feasible and cost effective	Revised timescale – to continue to conclusion of LTP2 (March 2011). Cost to be met within existing operational and LTP budgets	**Air Quality – N**, but potential to be allied with other measures (ECO Stars recognition scheme, Care4Air "Eco driving" campaign).
Measure No.13: BMBC will produce a written monitoring strategy for the	This work has yet to be undertaken; however the monitoring regime is	Revised timescale – to continue to conclusion of LTP2 (March 2011).	**Air Quality – N,** but essential in assessing progress of other

borough by the end of December 2005	under constant review. Feasible and cost effective	Cost to be met within existing operational budgets	interventions / measures
Measure No.14: BMBC will continue to provide comprehensive control over emissions from Part B and A2 processes, and act as consultees to the Environment Agency for part A1 processes	Feasible and cost effective Cost neutral, ongoing work	Ongoing, driven by separate Environmental Permitting legislation and regulation Costs met by implementation of fees and charges under Environmental Permitting regime	**Air Quality – M**, but potential for more significant impact at locations closer to these regulated processes. Currently, none of these processes have a significant impact on air quality within existing AQMAs however.
Measure No.15: BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to industrial smoke.	Feasible and cost effective	Ongoing, driven by separate Clean Air Act legislation and regulation. Cost to be met within existing operational budgets	**Air Quality – M**
Measure No.16: BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to domestic smoke control, and will implement a publicity campaign to raise awareness of the issue throughout the borough by the end of December 2005.	Feasible and cost effective	Ongoing, driven by separate Clean Air Act legislation and regulation. Cost to be met within existing operational budgets	**Air Quality – N,** incidences of domestic smoke now uncommon
Measure No.17: BMBC will continue to investigate complaints about nuisance, and take appropriate action to resolve the problem.	Feasible and cost effective	Ongoing, driven by separate Clean Air Act legislation and regulation. Cost to be met within existing operational budgets	**Air Quality – N**
Measure No.20: BMBC will continue to ensure that air quality is considered with regards to new development, where appropriate, in line with PPG23. The Council will look for evidence that developers have taken appropriate steps to mitigate pollution impacts.	Feasible and cost effective	Cost to be met within existing operational budgets	**Air Quality – M**, but **S** in vicinity of the proposed development, particularly in AQMAs / areas of poor air quality. Mitigation / refusal where appropriate.
Measure No.23: BMBC will ensure that all major traffic schemes are assessed for	Feasible and cost effective	Cost to be met within existing operational budgets	**Air Quality – M** , but potential to be **S** where schemes and receptors

air quality impacts against the NAQS objectives.			are located
Measure no. 25 – BMBC will explore methods of encouraging the uptake of alternative fuels within the Borough by the end of April 2006.	See TRL Measures below	See TRL Measures below	See TRL Measures below
Measure no. 26 – BMBC will explore methods of encouraging the conversion of older vehicle types to clean alternatives by the end of April 2006.	See TRL Measures below	See TRL Measures below	See TRL Measures below
Measures from TRL Report			
Measure	**Feasibility (including cost effectiveness)**	**Cost and timescale**	**NO_2 reduction (also climate change and noise impact were appropriate)**
Park and Ride	Currently, the Junction 37 Park and Ride scheme has no timescale and no budget. The site is owned by Barnsley MBC and the South Yorkshire Passenger Transport Executive (SYPTE) has an ambition for a strategic park and ride at this location. More work needs to be undertaken whether this proposal is fit for purpose	The TESCO Park and Ride scheme at Wombwell Lane, Stairfoot is complete, but is not yet operational	TRL quote the likely environmental benefits as (Parkhurst {1999}): 0.02 g/KWh for particulates (~0.05 g/km) 2 g/KWh for NOx (~4 g/km) There would also be a greenhouse gas reduction. If park and ride schemes are located close to AQMAs, then this the NO_2 reduction could be **Air Quality – M See earlier txt**
Parking Schemes	TRL propose a revenue neutral approach, involving a reduction in charges for vehicles in bands A and B to be matched by increases in bands C-G. This could be extended to a similar residences scheme. The feasibility of these proposals has yet to be considered by the relevant Council	TRL propose that this measure be cost neutral, so that the local authority is not seen to be "profiteering". Initial publicity and information costs will be required, but these could be costed into the programme. The timescale has yet to be decided, but could be within the lifetime of LTP2	TRL quote emission benefits for this proposed measure (pages 56–57 of report), however these are dependent on good uptake of these measures, therefore this has been scored as **Air Quality – N**

	departments, before they can be progressed. This assessment needs to take account of other Council aspirations which may influence the progressing of this measure		
Vehicle Scrappage	(Accelerated removal of older more polluting vehicles from the fleet). This would involve removal of illegal vehicles (no MOT certificate, not registered with DVLA etc)., by offering free emission tests, a vehicle amnesty followed by enforcement action – the campaign to be supported by an ongoing publicity campaign. The feasibility of these proposals have yet to be considered by the relevant Council departments (and outside agencies such as the Police and VOSA), before they can be progressed. This assessment needs to take account of other Council aspirations which may influence the progressing of this measure, however there is scope for this project to be aligned with those Council departments / practices which deal with the consequences of abandoned vehicles	TRL consider that the costs of running such a project would be approximately £25000, for hire of staff and car parks, emission testing, and publicity and promotion. The timescale has yet to be decided, but could be within the lifetime of LTP2	TRL could not provide an exact calculation of benefits, so it is assumed that **Air Quality – N,** but there is scope that **Air Quality – M** if such a scheme was targeted on areas within or close to AQMAs. Potentially however, this would not represent a significant number of the vehicle fleet.
Measures from Faber Maunsell Report			
Measure	**Feasibility (including cost effectiveness)**	**Cost and timescale**	**NO_2 reduction (also climate change and noise impact were appropriate)**
Countywide Quality Bus Programme (Barnsley Bus Partnership Scheme)	A phased programme to improve the quality of buses in South Yorkshire, which includes a stipulation on	Cost and implementation to be met through the LTP2 Bus Quality Partnership work. Most of the bus	Ranked 1st of all Countywide measures by FM. Ranking assessment included air quality

	emission standards. To be achieved by creation of Statutory Quality Bus Partnerships. Cost effectiveness and feasibility assessed mainly via the CDP	routes in Barnsley MBC are provided by one company, Stagecoach	ranking **Air Quality – M,** but there is scope that **Air Quality – S** if such a scheme was targeted on areas within or close to AQMAs
Barnsley ITS	Intelligent Transport Systems – the introduction of Scoot based traffic control system into Barnsley. Cost effectiveness and feasibility assessed mainly via the CDP	Currently being pursued via LTP2 with funding obtained. Dialogue with the UTC operators regarding air quality aspect of congestion and queue reduction. Feasibility of taking output from automatic air quality monitors as a variable to control UTC being explored within problematic junctions / gyratories within Barnsley 2A and 4 AQMAs	Ranked 4th of all Countywide measures by FM. Ranking assessment included air quality ranking **Air Quality – M,** but there is scope that **Air Quality – S** if such a scheme was targeted on areas within or close to AQMAs
Care4Air (Awareness raising)	Analysis of the impact of South Yorkshires' Care4Air programme, which is multi faceted awareness raising and public information service that promotes low pollution good practice in South Yorkshire. The cost effectiveness of this is measured via the number of hits to the website and awards won.	Funding obtained via the LTP to continue this for the lifetime of LTP2, amounting to £40k per annum. Go to www.care4air.org for the latest developments within this campaign	Ranked 6th of all Countywide measures by FM. Ranking assessment included air quality ranking **Air Quality – M,** but the Care4Air campaign is an award winning mechanism for promoting and facilitating over air quality related measures
Targeted Vehicle Emission Testing	Analysis of the impact of targeted emissions testing using real time ANPR (automatic number plate recognition) and emissions testing equipment. This enables large volumes of traffic to be photographed at the same time as their emissions are tested remotely. These	This work was undertaken during the autumn of 2007. This work indicates that nearly 50% of the local vehicle fleet consists of EURO III vehicles.	Ranked 10th of all Countywide measures by FM. Ranking assessment included air quality ranking **Air Quality – N,** but this scheme publicised via the Care4Air

	data can be used for enforcement purposes.		campaign may facilitate changes in driver behaviour. This measure potentially also forms part of measures (e.g. vehicle scrappage)
Cycling and walking	Analysis of the potential impact of the local authorities LTP2 plans for cycling and walking Cost effectiveness and feasibility assessed mainly via the LTP2 Cycling and Walking Strategies	Cycle routes to be aligned with AQMAs. No. 3 and No. 4, with consideration being given to a cycle route adjacent to AQMA 2A. See earlier text and map that RG will supply Cost and implementation to be met through the LTP2	Ranked 12th of all Countywide measures by FM. Ranking assessment included air quality ranking **Air Quality – N,** but the Care4Air campaign is an award winning mechanism for promoting and facilitating over air quality related measures
Park and Ride	Introduction of 250 space park and ride scheme at M1 Junction 37 and using the A628 corridor to access Barnsley town centre Currently, the Junction 37 Park and Ride scheme has no timescale and no budget. The site is owned by Barnsley MBC and the South Yorkshire Passenger Transport Executive (SYPTE) has an ambition for a strategic park and ride at this location. More work needs to be undertaken whether this proposal is fit for purpose	Park and Rides were also evaluated within the TRL report. Cost and implementation to be met through the LTP2 See earlier comments	Ranked 17th of all Countywide measures by FM. Ranking assessment included air quality ranking **Air Quality – N,** but there is scope that **Air Quality – M** if such a scheme was targeted on areas within or close to AQMAs. This proposed scheme is located adjacent to the Barnsley 2A and 2B AQMAs
Barnsley Travel Plans	Appraisal of the overall impact of the travel planning programme in Barnsley. This includes workplace, local authority and school travel plans	Cost and implementation to be met through the LTP2 See earlier txt	Ranked 20th of all Countywide measures by FM. Ranking assessment included air quality ranking

			Air Quality – N, but there is scope that **Air Quality – M** if such a scheme was targeted on areas within or close to AQMAs. This also feeds into feasibility work involving the Council and Highways Agency regarding the possible development of area travel plans for organisations located next to Junctions 36 and 37 of the M1 motorway. Should these schemes be eventually implemented, this will have positive impact within the Barnsley No. 1, 2A and 2B AQMAs in particular.
Local Targeted Measures			
Measure	**Feasibility (including cost effectiveness)**	**Cost and timescale**	**NO_2 reduction (also climate change and noise impact were appropriate)**
Barnsley 2A AQMA - SYITS	Discussed above (Faber Maunsell section)		
Barnsley 2B AQMA – Dodworth by-pass	See Case Study earlier in this plan		
Barnsley 3 AQMA - Burton Road QBC.	Funding obtained from the LTP	To be completed within the lifetime of LTP2	**Air Quality – S** Whilst not having a significant impact on traffic flows through this AQMA, an improvement in the "stop – start" nature of traffic flow through the AQMA will impact positively on NO_2 concentrations at this location
Barnsley 4 AQMA – Smoothing Traffic	Introduction of SYITS at this junction,	Ongoing – now installed	**Air Quality – M**

Flows around PC World Gyratory	working with the contractor Siemens. Feasible and cost effective. Work now ongoing.		The air quality benefits of this need to be assessed – local monitoring data will provide this information over time
Barnsley 4 AQMA – Low Emission Strategy Package	Dependent on resourcing issues, but based on existing work	Costs not yet identified, but can be undertaken in within the lifetime of LTP2	**Air Quality – N,** but there is scope that **Air Quality – M** if such a scheme was targeted on areas within or close to AQMAs, these business are located adjacent to this AQMA, with traffic involved with them feeding directly onto the PC World Gyratory
Barnsley 4 AQMA – Closure of A61 Harborough Hill Road	Assessed within this plan. This proposal is not feasible or cost effective (see appendix four).	Due to proposal being not cost effective or feasible, no cost or timescale has been attributed to this scheme	**Air Quality – S**. This would also result in substantial noise improvements
Barnsley 4 AQMA – Demolition of Properties Affected by Poor Air Quality	Assessed within this plan. This proposal is not feasible or cost effective (see appendix four).	Due to proposal being not cost effective or feasible, no cost or timescale has been attributed to this scheme	Not a conventional measure designed to improve air quality, rather to remove exposure to poor air quality **Air Quality – S**. This would also result in substantial noise improvements
Barnsley 4 AQMA – Erection of Barrier between the Road and Residential Properties	Assessed within this original plan AQAP (see case study in appendix seven). Air quality improvements dependent a number of factors, but some air quality benefit is feasible	Regulatory Services made a bid for funding from Defra for a pilot scheme, in order to test the suitability of this measure at local level	**Air Quality – S?** Should this measure be adopted, then the air quality benefits of this measure need to be assessed – local monitoring data could provide this information over time

			This would also result in substantial noise improvements
Barnsley 4 AQMA – Payment of Compensation for Residents Affected by Poor Air Quality	Assessed within this plan. This proposal is not feasible or cost effective (see page**).	Due to proposal being not cost effective or feasible, no cost or timescale has been attributed to this scheme	Not a measure designed to improve air quality or remove exposure. This therefore falls outside the remit of this report.
Barnsley 4 AQMA – Removal of Peel Centre traffic lights	Assessed within this plan. This proposal is not feasible or cost effective (see appendix four).	Due to proposal being not cost effective or feasible, no cost or timescale has been attributed to this scheme	**Air Quality – S**, however whilst resulting in a positive impact in one part of the AQMA, this measure would result in a detrimental impact on air quality in another part of the AQMA
Barnsley 5 AQMA – Alteration of Traffic Light Signalisation and other small scale civil works	To be assessed within the proposed feasibility study	To be assessed within the proposed feasibility study	**Air Quality – M to S**, although this has to be assessed under the proposed feasibility study Small scale measures (Rotherham / Faber Maunsell example)
Directly Funded LTP Air Quality Measures			
Measure	**Feasibility (including cost effectiveness)**	**Cost and timescale**	**NO_2 reduction (also climate change and noise impact were appropriate)**
ECO Stars Fleet Recognition Scheme	LTP funding for the lifetime of LTP2, along with additional Defra air quality grant funding	£25k LTP timescale – lifetime of LTP2	Initially **Air Quality – N**, but as more operators and vehicles join the scheme, then the air quality and carbon reduction impact will increase. The impact of this scheme can be further enhanced by aligning the scheme with other Council controlled agendas such as Highways Development Control

			and Procurement. In 2010, an assessment of the air quality and carbon reduction impact will be undertaken
Countywide Modelling and EDB	£70K initially, plus other funding (e.g. Defra air quality grant) over lifetime of LTP	Lifetime of LTP2	N, but will allow better scenario modelling
Countywide Monitoring	Funding of £20k per annum via the LTP	Lifetime of LTP2	N, but essential in evaluating air quality measures contained within this plan

Appendix Seven
Implementation and Evaluation of Measures

Measure	Rank	Lead Organisation Explanation of how the local authority will use existing powers and liaise with other organisations, in pursuit of the air quality objectives	Timescales for implementation of the measures in the plan	Explanation of how the effectiveness of the plan will be monitored and evaluated
Burton Road QBC (No 3 AQMA)	1	BMBC Planning and Transportation	Lifetime of LTP2 (by 2011)	Air quality monitoring data before and after implementation of this scheme. If congestion data (i.e. improvement in queue length / times etc) can be applied to existing traffic count data, then an estimation of the change in emissions / concentrations will be undertaken. The baseline (prior to implementation of the scheme) will be reported in the Further Assessment with future quantitative assessment reported in future Progress Reports.
Barnsley Statutory Quality Partnership Scheme (Barnsley Bus Partnership	2	BMBC Planning and Transportation Signing of SQPS may the local authority and bus operators	Lifetime of LTP2 (by Summer 2010, subject to approval of agreement	Changes in bus fleet composition within AQMAs and the Borough generally, with particular reference to EURO specification (if data available). The baseline (prior to implementation of the scheme) will be reported in the Further Assessment, with future quantitative assessment reported in future Progress Reports.
Barnsley ITS, including smoothing traffic flow around the PC World gyratory and Dodworth Road.	3	BMBC Planning and Transportation BMBC Highways and Engineering	Ongoing, lifetime of LTP2	Air quality monitoring data before and after implementation of this scheme. Changes in congestion levels (if data available). The baseline (prior to implementation of the scheme) will be reported in the Further Assessment, with future quantitative assessment reported in

				future Progress Reports.
Care4Air (awareness raising campaign	4	BMBC Regulatory Services BMBC Planning and Transportation	Ongoing	Number of hits to website Number of local air quality stories within local media Number of local Care4Air awards
Barnsley 5 AQMA – alteration of traffic signalisation etc – feasibility study	5	BMBC Regulatory Services BMBC Highways and Engineering	Feasibility study to be completed by the end of LTP2	Subject to the scheme going ahead, air quality monitoring data before and after implementation of this scheme. The baseline (prior to implementation of the scheme) will be reported in the Further Assessment, with future quantitative assessment reported in future Progress Reports.
Implementation of cycling and walking routes near and adjacent to AQMAs, along with promotion of these schemes	6	BMBC Planning and Transportation	Action plan being implemented. First phase of the plan is likely to be delivered within 2009-10	Number of schemes completed Patronage and modal shift data (if available)
Low Emission Strategy package, adjacent and within AQMAs	7	BMBC Planning and Transportation	Lifetime of LTP2 (subject to implementation of the scheme)	Number of travel plans introduced at these locations. Number of voluntary vehicle emission days undertaken Number of new members of the ECO Stars HDV fleet recognition scheme
Park and Ride Schemes,	8	BMBC Planning and Transportation	Lifetime of LTP2 (by 2011)	Implementation of schemes Patronage (if data available) Air quality monitoring data before and after implementation of this scheme. The baseline (prior to implementation of the scheme) will be reported in the Further Assessment, with future quantitative assessment reported in future Progress Reports.
Barnsley Travel Plans (generally)	9	BMBC Planning and Transportation	Ongoing (Lifetime of LTP2 (by 2011)	Implementation and number of schemes Patronage
ECO Stars Recognition Scheme	10	BMBC Planning and Transportation BMBC Regulatory Services	Lifetime of LTP2 (by 2011)	Number of operators signed up to the scheme Number of vehicles entered into the scheme

Targeted Vehicle Emission Testing	11	BMBC Regulatory Services BMBC Planning and Transportation Services	Ongoing	Production of report into 2007 and 2008 testing Test Results
BMBC will continue to ensure that air quality is considered with regards to new development, where appropriate, in line with PPG23. The Council will look for evidence that developers have taken appropriate steps to mitigate pollution impacts. Where appropriate, the Council will seek to air quality improvements using Section 106 agreements.	12	BMBC Regulatory Services	Ongoing	Number of planning applications requiring and air quality assessment Number of planning applications requiring air quality mitigation Number of planning applications refused
BMBC will ensure that all major traffic schemes are assessed for air quality impacts against the NAQS objectives.	13	BMBC Regulatory Services	Ongoing	Number of schemes assessed Number of schemes resulting in an improvement in air quality (at nearby receptors) Number of schemes resulting in a deterioration in air quality (at nearby receptors)
BMBC will continue to provide comprehensive control over emissions from Part B and A2 processes, and act as consultees to the Environment Agency for part A1 processes	14	BMBC Regulatory Services	Ongoing	Defra returns
BMBC will continue to work with developers and employers to improve sustainable transport links to new economic and residential developments	15	BMBC Regulatory Services BMBC Transportation Services Included in this work are the cycling and walking strategies, along with development of school and business travel plans, liftshare scheme (car sharing), and Regulatory Services' remote working initiative. Cycling and Walking initiatives (rank 6) and development of	Liftshare – ongoing Development of mobile working agenda - ongoing	Number of employees signed up to Liftshare Number of employees signed up to Councils mobile working agenda

		travel plans (rank 7 and 9) are already included.		
BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to industrial smoke	16	BMBC Regulatory Services	Ongoing	Number of complaints received
BMBC will continue to enforce the provisions of the Clean Air Act 1993 with regards to domestic smoke control	17	BMBC Regulatory Services	Ongoing	Number of complaints received
BMBC will continue to investigate complaints about nuisance, and take appropriate action to resolve the problem.	18	BMBC Regulatory Services	Ongoing	Number of complaints received
BMBC will continue to provide the Smoky Diesel Hotline Service on telephone number 01226 772458	19	BMBC Regulatory Services	Ongoing	Number of complaints received
Countywide Modelling and EDB	20	BMBC Regulatory Services	Lifetime of LTP2 (by 2011)	Completion of Countywide EDB and use with LTP and local air quality management work
Countywide Monitoring	21	BMBC Regulatory Services	Ongoing	
BMBC will continue to attend and take an active part in the South Yorkshire Integrated Transport Group (Air Quality and Environment Sub-group) and its work.	Not ranked	In order to progress the above measures, this work is ongoing, and as such, is no longer classed as a measure in its own right	n/a	n/a
BMBC will ensure that this Action Plan is aligned with the LTP.	Not ranked	In order to progress the above measures, this work is ongoing, and as such, is no longer classed as a measure in its own right	n/a	n/a
BMBC will produce a written monitoring strategy for the borough by the end of December 2005	Not ranked	Effectively completed within Barnsley MBC Air Quality Strategy	n/a	n/a
Closure of A61 Harborough Hill	Not	Not feasible (see earlier tables and	n/a	n/a

Road (No 4 AQMA)	ranked	sections)		
Demolition of Properties Affected by Poor Air Quality (No 4 AQMA)	Not ranked	Not feasible (see earlier tables and sections)	n/a	n/a
Erection of Barrier between the Road and Residential Properties (No 4 AQMA)	Not ranked	Funding not identified, also proposal does not cover all of the properties within the AQMA	n/a	n/a
Barnsley 4 AQMA – Removal of Peel Centre traffic lights	Not ranked	Not feasible (see earlier tables and sections)	n/a	n/a