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## 1.0 Introduction

The concept of Local Air Quality Management (LAQM) was introduced in Part IV of the Environment Act 1995. Under section 82 of this Act local authorities are required to review air quality and assess whether the air quality standards and objectives are being achieved.

The first outcome of the Act was the publication of the National Air Quality Strategy (NAQS) that laid down a number of proposed air quality standards and objectives. In 2000 the strategy was revised and an addendum issued in 2003, this revision set air quality standards and objectives for eight key air pollutants to be achieved between 2003 and 2008.

The Air Quality Regulations 1997 formalised the air quality objectives, following public consultation in 2001 an addendum was issued introducing tighter objectives for particles, benzene and carbon monoxide. A new objective was introduced for polycyclic aromatic hydrocarbons. Any area not meeting the objective level is subject to an order declaring it as an Air Quality Management Area (AQMA), under section 83 of the Environment Act.

The first round of the air quality review and assessment for Doncaster Council was completed on schedule by the end of 2002 and was the culmination of a process that began in 1997. The conclusions of the first round was that the nitrogen dioxide annual average concentration was unlikely to be met at four separate locations, each area being declared as AQMAs between 2001 and 2003.

Section 84 of the Environment Act 1995 states that after the declaration of an AQMA is made an action plan should be produced. The final air quality action plan was published in April 2003. Progress on the action plan has been reported through the LAQM reporting mechanism. In 2006 many of the measures were combined into the Local Transport Plan (LTP) as per policy guidance addendum, LAQM.PGA(05). A small number of measures were not suitable to be integrated into the LTP and will be commented on within this report.

Phase 2 of the review and assessment process required production of Updating and Screening Assessments (USA) and Progress reports for Doncaster Council. Two USAs were produced in 2003 and 2006 and progress reports for 2004, 2005 and 2007. The findings of these assessments confirmed that the AQMAs were still relevant; no other breaches of the objective levels were expected.

## 2.0 Carbon Monoxide

### 2.1 Introduction

The Government and the Devolved Administrations have adopted an 8hour running mean concentration of 11.6 mg/m<sup>3</sup> as the air quality standard for carbon monoxide. The new objective has been set at a slightly tighter level of 10 mg/m<sup>3</sup> as a maximum daily running 8hour mean concentration to be achieved by the end of 2003, concurring with the second Air Quality Daughter Directive limit value.

### 2.2 Conclusions of previous assessments

The conclusions of the previous assessments were that carbon monoxide emissions within the Borough posed negligible risk of causing an exceedence of the Air Quality Objective.

### 2.3 Monitoring data

This authority has one continuous carbon monoxide monitor in the Borough, located near a busy gyratory close to the town centre (St Mary's Gyratory). Location map in Appendix 2.

**Table: 1 Carbon Monoxide Maximum Daily 8hr Running Mean.**

Year	Maximum Daily 8hr Running Mean (mg/m <sup>3</sup> )	Data Capture Rate
2003 (3 months data only)	0.64	77% (3 months)
2004	2	94%
2005	2	99%
2006	2.9	97%
2007	6.5	96%

### 2.4 Conclusions

The maximum figure recorded is elevated above 2006 levels however this one occasion was not repeated and is still well within the objective level. This progress report supports the conclusions of previous review and assessments. There is negligible risk of exceedence of the carbon monoxide objectives across the Borough. No further assessment is required.

## 3.0 Benzene

### 3.1 Introduction

The Government and the Devolved Administrations have adopted an annual mean concentration of  $5\mu\text{g}/\text{m}^3$  in 2010 adopted in England and Wales by the Air Quality (Amendment) regulations 2002. This represents a tighter objective than that set for 2003.

### 3.2 Conclusions of previous assessments

The conclusions of the previous assessments were that benzene emissions within the Borough posed negligible risk of causing an exceedence of the Air Quality Objective.

### 3.3 Monitoring data

In January 2005 due to recurring analyser malfunctions and budget constraints the Benzene analyser was de-commissioned. Table 2 shows the monitoring data collated in the 2005 Progress Report, although the data below did not represent a full year it was felt that due to the very low concentrations found at all monitoring locations the possibility of exceedence of the objective is unlikely.

**Table: 2 Monitoring Data For Benzene.**

Location	Data Capture Rate	2001*	2002*	2003*	2004*	2010**
North Bridge Roundabout (Within AQMA1)	81%	1.65	N/A	N/A	N/A	1.07
Trafford Way (Non AQMA location)	94%(2002) 93%(2003)	N/A	0.98	0.52	N/A	0.34
A6023 Denaby (Non AQMA location)	74.1 % (2003) 83% (2004)	N/A	N/A	0.065	0.26	0.042

N. B. All units are in  $\mu\text{g}/\text{m}^3$

\*running annual mean

\*\* projected annual mean

### 3.4 Conclusions

No further assessment required as no changes within the Borough have been identified as causing a risk of exceedence to the objective for benzene.

## 4.0 1,3 Butadiene

### 4.1 Introduction

The Government and the Devolved Administrations have adopted a maximum running annual mean concentration of  $2.25\mu\text{g}/\text{m}^3$  to be achieved by the end of 2003.

### 4.2 Conclusions of previous assessments

The conclusions of the previous assessments were that 1,3 butadiene emissions within the Borough posed negligible risk of causing an exceedence of the Air Quality Objective.

### 4.3 Monitoring data

In January 2005 due to recurring analyser malfunctions and budget constraints the 1,3 butadiene analyser was de-commissioned. Table 3 shows the monitoring data collated in the 2005 Progress Report, although the data below did not represent a full year it was felt that due to the very low concentrations found at all monitoring locations the possibility of exceedence of the objective is unlikely.

**Table: 3 Monitoring Data for 1, 3 butadiene.**

Location	Data Capture Rate	2001	2002	2003	2004
North Bridge Roundabout (Within AQMA1)	81%	0.15	N/A	N/A	N/A
Trafford Way (Non AQMA location)	93%(2002) 69%(2003)	N/A	0.10	0.07	N/A
A6023 Denaby (Non AQMA location)	74% (2003) 83% (2004)	N/A	N/A	>0.02	0.09

N. B. All units are in  $\mu\text{g}/\text{m}^3$

### 4.4 Conclusions

No further assessment required as no changes within the Borough have been identified as causing a risk to the objective for 1,3 butadiene.

## **5.0 Lead**

### **5.1 Introduction**

The Government and the Devolved Administrations have adopted an objective of  $0.5 \mu\text{g}/\text{m}^3$  as an annual mean concentration to be achieved by the end of 2004. Additionally a lower air quality objective of  $0.25 \mu\text{g}/\text{m}^3$  has been adopted to be achieved by the end of 2008.

### **5.2 Conclusions of previous assessments**

The conclusions of the previous assessments were that lead emissions within the Borough posed negligible risk of causing an exceedence of the Air Quality Objective.

### **5.3 Monitoring data**

No monitoring data has been carried out in the Borough because previous assessment has not indicated a potential exceedence.

### **5.4 Conclusions**

No further assessment required as no changes within the Borough have been identified as causing a risk to the objective for lead.



## 6.0 Nitrogen Dioxide

### 6.1 Introduction

The Government and the Devolved Administrations have adopted two Air Quality Objectives for nitrogen dioxide; an annual mean concentration of 40  $\mu\text{g}/\text{m}^3$  and a 1 hour mean concentration of 200  $\mu\text{g}/\text{m}^3$  both to be achieved by the end of 2005.

### 6.2 Conclusions of previous assessments

In the first round of review and assessment four areas were found to be in exceedence of the annual mean objective and declaration of four Air Quality Management Areas (AQMAs) was made.

### 6.3 Monitoring data

#### 6.3.1 Data collected outside of AQMAs

**Table: 4 Nitrogen Dioxide Annual Average at locations outside of AQMAs.**

Location	Data Capture 2007 (%)	Nitrogen Dioxide Annual Average in $\mu\text{g}/\text{m}^3$				
		2007	2006	2005	2004	2003
A18/A630	92	35.3	36.1	36	N/a	N/a
St Mary's Gyratory	99	39.7	36.7	30	34.9	43.1

At the A18/A630 location there has been a decrease in levels in 2007. The possibility of exceedence in this location is considered negligible. St Mary's Gyratory is a busy route into the town centre; the trend in this location is one of increases however levels are still below the objective. Roadwork's along routes surrounding this location are likely to be impacting on the levels, these works will be ongoing into 2009 and on completion a new QBC will become operational.

**Table: 5 Nitrogen Dioxide Diffusion Tube Data, Quality Bus Corridor (QBC)Monitoring.**

Tube No.	Location	Grid Ref.	Data Capture 2007 (%)	Annual Mean ( $\mu\text{g}/\text{m}^3$ )				Classification
				2007	2006	2005	2004	
1	North Bridge (North)	456946 403763	83	33	38	35	34	Kerbside
2	North Bridge (South)	457308 403458	100	47	40	42	53	Kerbside
3	Regent Sq. South Parade	457952 403123	83	34	39	39	50	Roadside
4	South Parade	457917 403168	100	44	54	54	52	Kerbside
5	Bennethorpe Rd.	459113 402842	100	41	48	46	49	Kerbside

6	<b>Carr House Road</b>	459217 402821	75	34	39	38	54	Roadside
7	<b>Sheep Bridge Lane</b>	462956 399492	92	36	38	36	40	Kerbside
8	<b>Hayfield Lane</b>	463023 399428	92	26	36	38	37	Kerbside
9	<b>Hurst Lane</b>	464058 399725	100	30	34	36	34	Kerbside
10	<b>Hayfield Lane/Hurst Lane</b>	464873 399725	58	26	28	31	27	Roadside
11	<b>Gattison Lane</b>	461787 397537	92	23	29	28	37	Kerbside
12	<b>West End Lane</b>	461344 398420	92	28	32	32	40	Kerbside
13	<b>Bawtry Road</b>	462242 400134	92	44	52	56	55	Kerbside
14	<b>Stoops Lane</b>	461338 400771	100	24	27	30	29	Roadside
15	<b>Dunniwood Avenue</b>	461875 400396	100	23	28	28	28	Roadside
16	<b>Burnham Close</b>	459945 401212	100	25	27	31	32	Kerbside
17	<b>Lindrick Close</b>	450546 400728	83	27	31	32	33	Kerbside
18	<b>Cantley Lane</b>	460337 402177	100	30	35	37	51	Roadside
19	<b>Gwilice Way (Dome Side)</b>	459777 402642	100	40	41	47	51	Kerbside
20	<b>Gwilice Way (Town Side)</b>	459652 402682	100	38	45	44	52	Kerbside
21	<b>Hall flat Junction</b>	456164 401227	100	50	62	n/a	n/a	Kerbside
22	<b>Warde Avenue</b>	455679 401000	92	50	51	n/a	n/a	Roadside
23	<b>Norbreck Road</b>	454194 400257	100	28	34	n/a	n/a	Roadside
24	<b>Low Road</b>	451457 398659	92	36	43	n/a	n/a	Roadside
25	<b>Clifton Hill Junction</b>	451419 398540	83	37	44	n/a	n/a	Roadside
26	<b>Mill Lane</b>	454308 400463	92	28	37	n/a	n/a	Roadside
27	<b>Waverley Avenue</b>	455635 401002	75	34	42	n/a	n/a	Roadside
28	<b>High Road</b>	456130 401258	75	38	47	n/a	n/a	Roadside
29	<b>Belmont Avenue</b>	457010 402056	100	40	47	n/a	n/a	Roadside
30	<b>Mansfield Road</b>	457022 402141	83	48	59	n/a	n/a	Roadside

The overall trend in this data set is downward since 2004. All sites, except one have showed a decrease on 2006 data and generally the results in Table 5 are below those in 2004, where data exists.

Site 2, North Bridge (South), is affected by a heavily trafficked bus route influenced by the transport interchange. Congestion is high in the area due to large pedestrianised areas and associated crossing points nearby, however

the site is within AQMA1 and as such confirms the status of the AQMA declaration.

Currently those sites above  $40\mu\text{g}/\text{m}^3$  are either located within Doncaster's current AQMAs or are not in an area of relevant exposure.

**Table: 6 Nitrogen Dioxide Diffusion Tube Results, Airport Monitoring.**

Location	Grid Reference	Data Capture 2007 (%)	Annual Mean ( $\mu\text{g}/\text{m}^3$ )			Classification
			2007	2006	2005	
Hayfield Lane	464978 399693	100	18	21	21	Roadside
Gate House Lane	465722 400134	100	20	23	25	Roadside
Mosham Road	466383 400375	100	19	21	23	Roadside
Rose Cottage	467174 400372	100	22	24	30	Roadside
Hatfield Moors	468342 404566	100	14	17	18	Background
Hatfield Woodhouse	467755 408643	100	25	28	28	Roadside
Hollinbridge Lane	468916 408341	100 (7 months)	15	18	17	Background

The tubes located around the airport are there for the purpose of monitoring any impact in the local area from the increase in traffic due to the opening of the airport. The results continue to show a general downward trend.

**Table: 7 Nitrogen Dioxide Diffusion Tube Results, Miscellaneous Surveys.**

Location	Grid Reference	Data Capture 2007 (%)	Annual Mean ( $\mu\text{g}/\text{m}^3$ )				Classification
			2007	2006	2005	2004	
Herald Road	461174 406053	-	-	31	31	n/a	Roadside
West Moor Link	461308 406026	-	-	36	32	n/a	Roadside
A18 Thorne Road	461212 406087	-	-	42	39	n/a	Roadside
Stainforth	463990 411804	100	20	22	23	20	Urban Background
Clark Avenue	458328 402605	100 (8 months)	44	-	-	-	Roadside
Palmer Street	458121 402519	100 (8 months)	34	-	-	-	Urban Centre
KS Marsden Close	461047 407864	83	24	-	-	-	Suburban
KS Sandall Lane	461193 407781	100	27	-	-	-	Roadside
KS West Green Drive	461190 407918	58	22	-	-	-	Suburban
KS Horton View	461199 408132	92	16	-	-	-	Suburban

The first three results in the above table were located to obtain current levels in the area where a Park and Ride scheme has been given permission. In general the levels in 2006 are elevated above those in 2005. Further monitoring will resume once the site is operational.

The 2007 studies indicate no further areas of exceedence; the site named Clark Avenue is within AQMA3.

The urban background site after showing a rise in 2005 and 2006 has returned to 2004 levels.

### 6.3.2 Data collected within AQMAs

**Table: 8 Real Time Monitoring and Diffusion Tubes within AQMAs.**

Location	Data Capture 2007 (%)	Nitrogen Dioxide Annual Average in $\mu\text{g}/\text{m}^3$					Classification
		2007	2006	2005	2004	2003	
<b>AQMA 1 – Market Place</b>	91	34.6	37.4	33	42.1	37	Urban Centre
<b>Market Diffusion Tube</b>	100	40	44	39	36	41	Roadside
<b>Church Way Diffusion Tube</b>	100	44	53	50	42	47	Roadside
<b>AQMA 2 – A1/A630</b>	98	47.8	59.2	40	44.6	48.3	Roadside
<b>AQMA 3 – Carr House Road</b>	No data	No data	Invalid result.	38	38.6	44.2	Roadside
<b>AQMA 4 – A638 Bawtry Road<sup>1</sup></b>	92	34.6	Invalid result.	44	N/a	N/a	Roadside
<b>Bawtry Road Diffusion Tube</b>	92	44	52	56	55	N/a	Kerbside

**Figure 1: Nitrogen Dioxide Annual Average – Automatic Stations.**

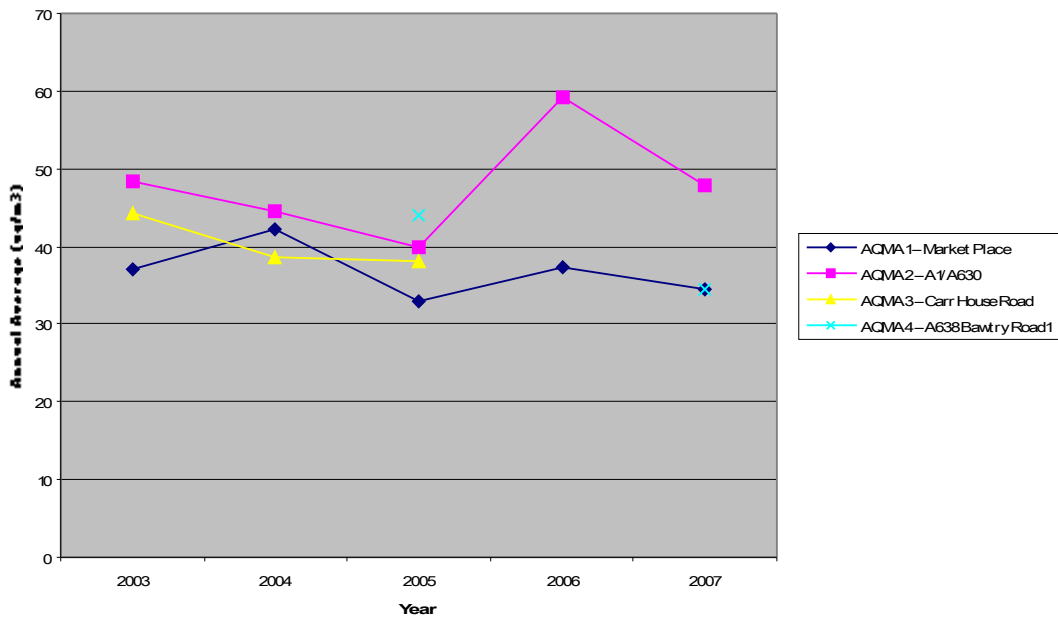


Table 8 and Figure 1 shows a downward trend in all AQMAs from 2006, however note should be made that 2006 levels appeared generally elevated on the previous results. Levels on the whole for 2007 are lower than results obtained from the first year of monitoring in those locations.

**Figure 2: Nitrogen Dioxide Annual Averages – AQMA1.**

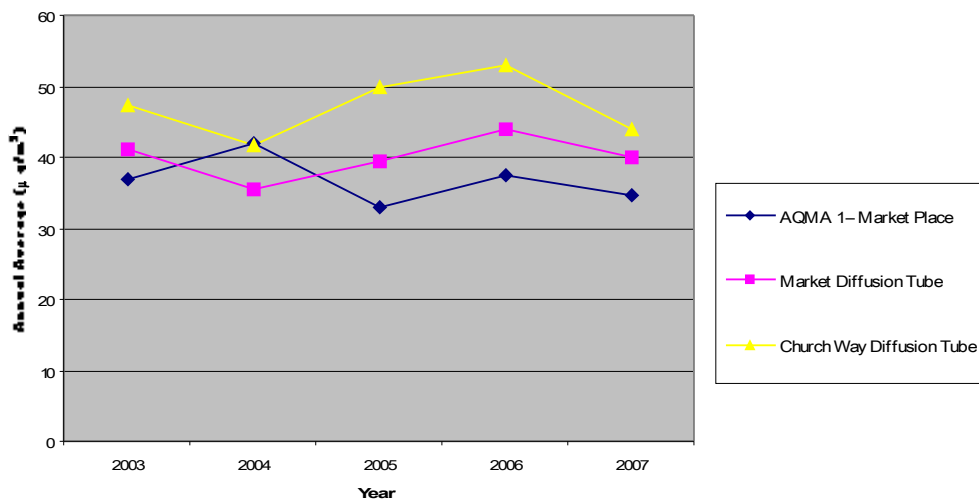
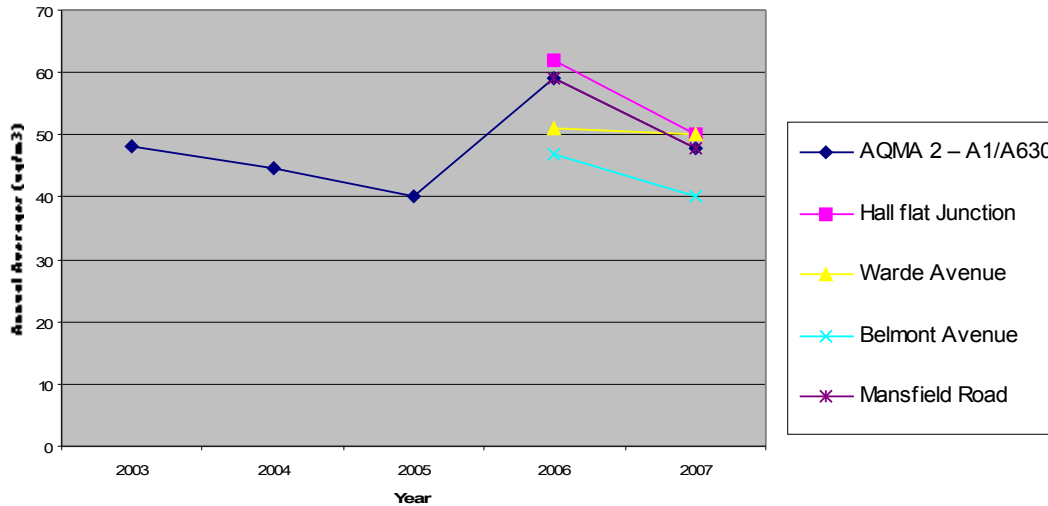


Figure 2, AQMA1 saw a fall in figures in all 3 measured sites, all having reduced below 2003 levels. Roadside sites still exceed the objective level, therefore the AQMA status remains valid. The uneven trend shown by the graph may be attributable to the major projects that have been ongoing in the

vicinity. Construction has been continuing during the whole period, a lull in works may be noted by the 2004 result.

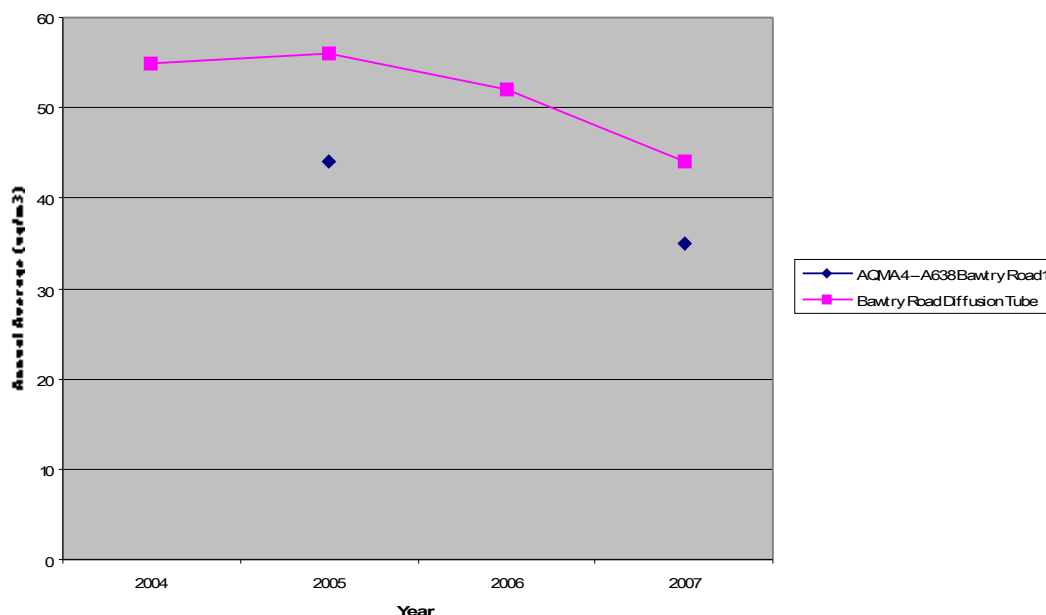
**Figure 3: Nitrogen Dioxide Annual Averages – AQMA 2.**



AQMA2 results, Figure 3, show a downward trend until 2006. However in 2007 these have fallen to around 2003 levels. Table 5, tubes 21, 22, 33 are located within this AQMA and along with real-time data shows that the declaration is valid, and displays the same reduction in levels compared with 2006.

The automatic monitor in AQMA3 is still in the process of being replaced. Table 7 shows Clark Avenue and Palmer Street, located in AQMA3. The roadside site is above the objective level and is representative of housing along the main road. Therefore the AQMA status is valid.

**Figure 4: Nitrogen Dioxide Annual Averages – AQMA 4.**



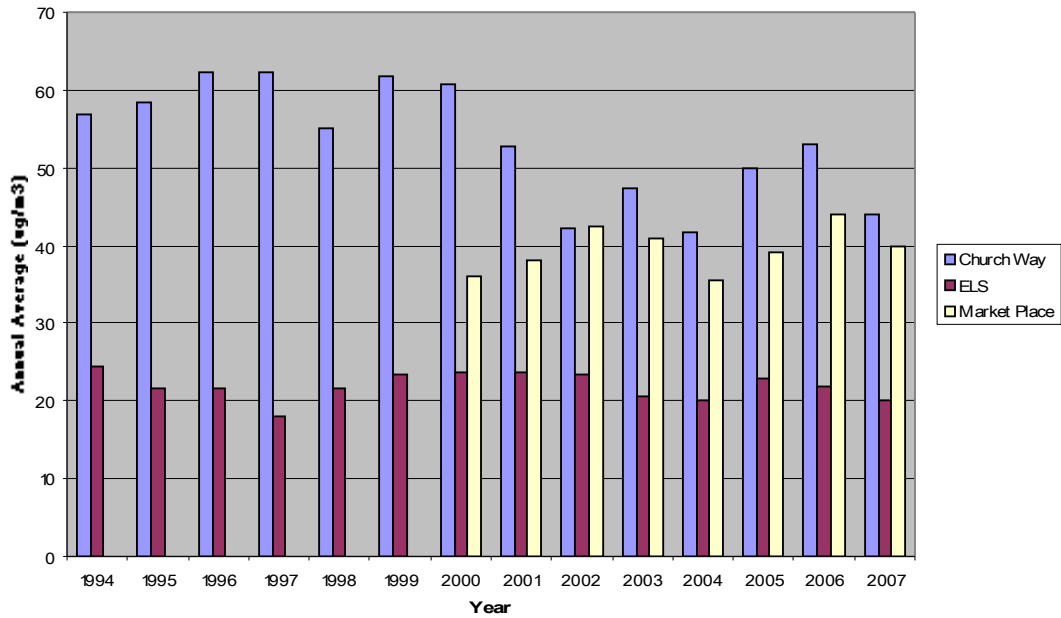
The sites in AQMA4 (Table 8 and Figure 4) show a downward trend at both sites, however there exists some concern about the results obtained from the automatic monitor. Investigation is taking place to identify any local factors that may be unknowingly affecting the results. The diffusion tube still signifies an exceedence. In addition a further location is being monitored within the AQMA, it has not been included within this report, as only 3-months data has been obtained, this data does however show that a potential exceedence of the annual average NO<sub>2</sub> objective will be likely. The status of AQMA remains valid.

Location maps for the Air Quality Monitoring Stations can be found in Appendix 2. Details of QA/QC procedures can be found in Appendix 2, including details of the bias adjustment used for diffusion tubes.

## **6.4 Conclusions**

The data above shows that levels within Doncaster experienced a peak in 2006 however monitoring suggests this was an anomaly. The trend has continued to fall with most levels currently at 2003 levels. Figure 5 illustrates the longer term monitoring of nitrogen dioxide using diffusion tubes. The sites indicate since 1994 either a stable or downward trend over the period. The market place site displays a less clear picture but the area has been affected by major development leading currently to a slight upward trend, however monitoring has only taken place since 2000 at this location.

**Figure 5: Long Term Monitoring Sites: Nitrogen Dioxide.**



The conclusion is that the AQMAs in Doncaster are still current and that no further sites have been identified as having the potential to exceed at this time.



## 7.0 Sulphur Dioxide

### 7.1 Introduction

The Government and the Devolved Administrations have adopted a 15minute mean of  $266 \mu\text{g}/\text{m}^3$  as an air quality standard for Sulphur Dioxide, with an objective for the standard not to be exceeded more than 35 times in a year by the end of 2005. Additional objectives are for a 1hour mean objective of  $350 \mu\text{g}/\text{m}^3$ , to be exceeded no more than 24 times per year, and a 24hour objective of  $125 \mu\text{g}/\text{m}^3$ , to be exceeded no more than 3 times per year, to be achieved by the end of 2004.

### 7.2 Conclusions of previous assessments

The conclusions of the previous assessments were that sulphur dioxide concentrations within the Borough posed negligible risk of causing an exceedence of the Air Quality Objective.

### 7.3 Monitoring data

The concentrations for each of the three monitoring sites is shown below;

#### Carr House Road Monitoring Station

This station has not operated in 2007, therefore no results are available. However there has been no evidence in previous years monitoring of a risk of exceedence.

Monitoring in this location has revealed only 3 occasions of the 15minute mean of  $266 \mu\text{g}/\text{m}^3$  being exceeded since monitoring began in 2001, all of which occurred in 2004, however this did not exceed the objective as it was within the allowed 35 exceedence limit.

#### Market Place Monitoring Station

There have been no exceedences of the 15minute; 1hour and 24hour mean objectives in 2007.

Monitoring has been carried out continuously in this location since 2001 and no exceedences have been recorded in that time.

#### St Mary's Gyratory Monitoring Station

There was one exceedence of the  $266 \mu\text{g}/\text{m}^3$  level, which is within the permitted limits. The 1hour and 24hour objective have not been exceeded in 2007.

Monitoring has been carried out continuously in this location since late 2003 and no exceedences of the permitted limits have been recorded in that time.

In both the Market Place and St Mary's Gyratory locations data capture was above 90%.

Details of QA/QC procedures can be found in Appendix 2.

## **7.4 Conclusions**

This progress report supports the conclusions of previous review and assessments.

There is negligible risk of exceedence of the sulphur dioxide objectives across the Borough. No further assessment is required.

The risk for exceedence is considered negligible for sulphur dioxide therefore as part of a rationalisation process monitoring will be phased out over the next few years for this pollutant.

## 8.0 Particulate Matter (PM<sub>10</sub>)

### 8.1 Introduction

The Government and the Devolved Administrations have adopted two Air Quality Objectives for fine particles (PM<sub>10</sub>); an annual mean concentration of 40 µg/m<sup>3</sup> and a fixed 24hour mean concentration of 50µg/m<sup>3</sup> to be exceeded on no more than 35 days per year. These objectives were to be achieved by the end of 2004.

New particles objectives, which are not yet included in the Regulations, are 20 µg/m<sup>3</sup> as an annual mean and 50 µg/m<sup>3</sup> as a 24hour mean not to be exceeded on more than 7 days per year, to be achieved by 2010.

There has also been recent debate over the impact of PM<sub>2.5</sub> and whether objectives need to be set for this parameter, however as yet no decisions on levels have been formally introduced.

### 8.2 Conclusions of previous assessments

The conclusions of the previous assessments were that the PM<sub>10</sub> concentrations within the Borough met with the Air Quality Objectives.

### 8.3 Monitoring data

**Table: 9 PM<sub>10</sub> Monitored Data.**

Location	Annual Mean (µg/m <sup>3</sup> ) <sup>1</sup>						Data Capture 2007 (%)	Predicted <sup>3</sup> 2010
	2007	2006	2005	2004	2003	2002		
Market Place	22.9	28.1	26.9	25.2	30.8	30.2	87.3	22.0
Carr House Road	No data	27.7	31.7 <sup>2</sup>	25.0	28.5	23.4	n/a	25.8
Edenthorpe	29.1	33.6	24.6	N/a	N/a	N/a	92	27.9
St Mary's Gyrotory	29.4	34.9	29.1	26.2	29.6	N/a	99	28.1

N.B. <sup>1</sup> All measurements T.E.O.M converted to gravimetric.

<sup>2</sup> Derived from less than 9 months data using approach in Box 8.5, Chapter 8, LAQM TG(03).

<sup>3</sup> Derived using approach & factors from the Year Adjustment Spreadsheet/ Updated guidance on [www.airquality.co.uk](http://www.airquality.co.uk).

The 24hour objective limit has not been exceeded at any location in the Borough in 2007.

### 8.4 Conclusions

The current monitoring data shows PM<sub>10</sub> levels have fallen since 2006. With the exception of the Edenthorpe site results overall either show stable or downward trends since monitoring began.

All results are still within the objective level and predicted 2010 figures based on the data shows that it would be expected that the levels will continue to pose negligible risk of exceedence in the future. No further assessment is

required. Any adoption of the tighter objective levels is likely to result in exceedences across the Borough.

## **9.0 New local developments, planning applications and policy**

### **9.1 New developments and update on 2006 developments**

The first phase of the transport interchange was completed in 2006. It is located within AQMA1 and is being monitored with our current equipment. The effect of the interchange and the associated changes to the road network will continue to be assessed under future LAQM reporting. See table 8 for monitoring results.

Doncaster Robin Hood Airport opened in April 2005, because the equivalent annual passenger throughput was below 5 mppa assessment for the purpose of LAQM was not required. Some monitoring has however been put in place around the airport to monitor any possible effects on air quality by increased road traffic. To date as detailed in section 6.3.1, Table 6 the results from the airport show no major impact from any increased traffic.

The Civic and Cultural Quarter (CCQ) is a regeneration project of an area of the town centre. This has the potential to affect the three town centre AQMAs. A request for a full air quality assessment has been submitted.

Environmental Impact Assessment (EIA) Scoping Report for site off M18 motorway, Junction 4 received for an extension to an existing Industrial Park. May have significant air quality impacts, awaiting a full EIA.

Road widening on A6182 White Rose Way. Assessment completed showing no significant impacts. Monitoring has been requested to support findings of report.

### **9.2 Planning policy**

#### **9.2.1 Local development framework (LDF)**

The Core Strategy Further Options document went out to consultation during August – September 2007. The public's views were sought on the matters of the approach to be taken to AQMAs. The responses will inform the preparation for the next stage of the LDF core strategy.

#### **9.2.2 In house procedures**

The Pollution Control Team check new planning applications weekly and any that have the potential to affect air quality are asked to provide an air quality assessment. Standard comments have been applied to make the process fair and equitable and are dependant on development size and location.

In 2007 while checking the weekly planning lists 24 applications were commented on for the purpose of air quality, due to their potential to impact on levels of exceedence in the Borough.

An example of the success of this procedure includes an application to build housing near to the M18 motorway. On our request an air quality assessment and monitoring regime was undertaken. The monitoring showed an area of the site was found to consistently show an exceedence, on construction of the residences in this location an AQMA would have had to be declared.

Consultations with planning and the developers led to plans being altered to avoid building in locations experiencing an exceedence of the objective.

In 2007 extra monitoring has been provided through development at two sites in Askern and Mexborough, in the form of diffusion tube studies.

## **10.0 Local Air Quality Strategy**

The Strategy has been re-written and is awaiting consultation. New guidance has been issued on better practice on consultation and this will be considered in addition to internal procedures. In conjunction with this a monitoring proposal has been produced outlining costs and identifying areas within the Borough that should be given special care because of the level of development taking place.

## 11.0 Action Plan

The actions detailed in the Action Plan, April 2003 are listed in Appendix 1 along with progress updates for 2007.

The actions in Table 11 are those integrated in the second Local Transport Plan and are included within this report for reference. The transport measures have undergone a prioritisation exercise, this will form the basis of targeting the measures to those that are the most realistic and have the most air quality gain within the LTP and therefore across South Yorkshire. Currently meetings are held monthly between the four South Yorkshire local authorities, both air quality officers and transport planners attend these meetings with the aim to progress the actions and increase/maintain partnership working in this area. A business plan has been produced to clarify the process. Bids have been submitted for this years funding in relation to actions within the action plan.

In summary, some of the achievements in 2007 include schools diffusion tube project underway (AP10/11 MD) and obtaining some basic monitoring through the planning system (AP7/8 DP). Actions LT22PT, LT26PP and LT28PP, shall be removed due to lack of progress, funding or have become unfeasible in terms of costs and benefits. New actions have recently been considered and may go forward to consultation if viable.



## Appendix 1: Air Quality Action Plan Measures

**Table: 10 Air Quality Action Plan Measures Stand Alone.**

	Action	Initial Progress	2007 Progress
Development Plan Review & Planning Applications			
	The Unitary Development Plan was adopted in July 1998 and is presently undergoing a process of revision. The plan contains policies relating to pollution but not exclusively to air quality. Many policies are aimed at promoting sustainability including the reduction of air pollution, most notably many of the transport policies aimed at reducing car travel and promoting public transport. Many of these transport policies have now been revised in light of the latest Government and Regional Planning advice. The following policies will be relevant to the action plan. LDF in production, consultation taking place and comments sent for inclusion in the plan.		LDF Core Strategy due in March 2009.
AP1 DP	Ensure that new developments are located, designed and managed so that the number of additional vehicle journeys they are likely to generate are minimised.	Involved in consultation and a policy statement has been written and forwarded for consideration to be entered into the Core Strategy. Ongoing process, linked in with forming AQ partnership group.	Discussion continues. Involved in consultation response by Planning Department to RSS. Discussions underway about SPD.
AP2 DP	Ensure that new development provides a real choice of transport, including walking, cycling and public transport and that such development contributes to meeting the demand for the transport provision that it generates.	Green Travel Plans required. LDF and supplementary documents to address action.	Ongoing
AP3 DP	Active management of the pattern of urban growth to make the fullest use of public transport and focus major transport generators of travel demand in town and district centres and near to major public transport interchanges.	LDF and supplementary documents to address action. Transport model also operational to assess impacts of developments.	Ongoing
AP4 DP	Ensure that day to day facilities which need to be near their clients in local centres are located so that they are accessible by walking and cycling	LDF action.	Ongoing
AP5	Place new housing principally within existing urban areas, with	LDF to address, Brownfield sites	Ongoing

DP	emphasis on locations which are highly accessible by public transport, walking and cycling	preferred particularly with good public transport access.	
AP6 DP	Ensure that development comprising employment, shopping, leisure and services offers a realistic choice of access by public transport, walking and cycling.	Green travel plans required and copies requested as needed.	Ongoing
AP7 DP	The council will have regard to the guidelines contained in the forthcoming revision of Planning Policy Guidance note PPG23, Planning and Pollution Control, when determining planning applications	Standard comments devised for relevant applications. Development Control: A guide for Planners has been produced with regard to PPG23 and best practice guidance. PPG 23 in use in Pollution Control for applications. Screening process of weekly lists to identify those who require assessment as suggested by guidance. Planning should have due regard to guidance.	Comments revised in light of experience. On-going. Produced list of 'at risk' areas. Requesting more AQ monitoring as standard on large developments with 'unquantified' pollution levels.
AP8 DP	When considering a planning application the council shall: - A. Ensure that air quality impacts are fully considered in all Environmental Impact Assessments B. Ensure that air quality impacts are fully considered in all Traffic Impact Assessments C. Fully consider air quality impacts where traffic volumes are anticipated to increase on roads within or near to AQMAs. D. Ensure that new developments do not lead to the declaration of further AQMAs if they are planned to be located near to busy roads etc	Pollution Control consulted on all Major Developments. Rolled out to consider all applications in the form of screening to ensure consistent approach. Full assessments required on relevant developments.	Air Quality monitoring requested if no monitoring in area as standard at relevant locations.
Monitoring, Modelling and Information Dissemination			
AP9 MD	The council will expand its existing air quality information provision service to include more use of strategically located electronic information message units.	Air quality information is already broadcast and updated 3 times daily on the council's web site, local radio, recorded answer phone message, electronic sign and message boards. Two public display units and Plasma	No further progress made with interactive kiosks. Investigating use of 'Partnership TV' to display air quality information.

		screens are located in across the Councils town centre buildings. Young persons website running called 'FreshAir', including interactive games.	
AP10 MD	The council will continue to expand its air quality monitoring and modelling capabilities in order to identify and predict areas of current or potential elevated air pollution	Increased spread of diffusion tubes. Romon obtained and located. Replacement housing for AQMA1 monitors. Modelling system upgraded.	Schools/Community diffusion tube studies underway as of March 2008. Looking into funding for fully updated EDB for Airviro model. Enviweb dissemination tool currently not operating.
AP11 MD	The council will produce an air quality promotion and project pack for use in schools to encourage children to become aware of the importance of good air quality and the role that private car use and public transport can play in decreasing and improving air quality respectively	Packs produced with promotional items. Each pack tailored to relevant year group with a connected presentation for adults.	All Year 1 – 6 activities and presentations produced. Three school visits done by Pollution Control Officers. Schools diffusion tube project under way, 4 schools involved started March 2008.
AP12 MD	Acquire, produce if necessary and distribute relevant leaflets and promotional material relating to improving air quality and reducing (in particular vehicle) emissions. This material to be distributed in all council offices where the public may visit, major retails outlets, libraries, GP's surgeries and hospitals and all public events.	Ongoing.	'Going Green' Scheme to involve local businesses in various local environment projects. May include dissemination of air quality information.
<b>Miscellaneous</b>			
AP13 MS	The council will continue to use all its powers to control industrial & commercial emissions to the atmosphere by liaison with the Environment Agency in respect of Part A processes and the institution of risk based process inspection in respect of Part B Processes.	Transfer made to PPC system. Risk based inspection completed. Inspections continue on yearly basis.	Ongoing. Enforcement taken place. Inspections completed.
AP14 MS	The council will continue to minimise domestic emissions to the atmosphere by rigorous enforcement of the Clean Air Act.	Ongoing. Due to council restructure the reactive work is no longer within our remit however the procedure continues with the aim to investigate all complaints.	Ongoing. Notices issued and abatement agreed on some cases in 2007/08.

AP15 MS	The council will continue to work towards achieving a 30% energy saving by 2010 by reducing CO <sub>2</sub> emissions and fuel poverty, increasing the energy efficiency and affordable warmth indices of properties within the Borough by such methods as: - Provision of energy advice to householders Freephone advice Tailored home energy reports One to one home energy advice visits Insulation grants and bulk discount insulation and heating schemes	Ongoing commitment – update in April. Period 1/04/06 to 31/03/07 7503 householders given advice 1439 reports produced 65 visits made 7047 heating and insulation referrals under Save & Warm Scheme	Awaiting current years figure. Ongoing commitment.
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**Table 11 Air Quality Action Plan Measures LTP integrated.**

	Action	Initial Progress	2007 Progress
Vehicle Emission Reduction			
LT1 EM	Carry out the Authority's duties under Road Traffic (Vehicle Emissions)(Fixed Penalty)(England) Regulations 2002 in respect of carrying out roadside vehicle emission testing and issuing fixed penalty notice in partnership with the other South Yorkshire Local Authorities and the Police.	Initial scheme aimed to be completed in 2004. April 2004 results reported, 889 vehicles tested in Doncaster, 10% failure rate. Success across South Yorkshire as an awareness raising exercise. No further funding available after 2004.	October 2007 emissions testing conducted and results received. Allows testing of vehicles while travelling. Data will be analysed for fleet composition means. Sites chosen around and within AQMAs where practicality allows.
LT2 EM	Carry out the Authorities duties under Road Traffic (Vehicle Emissions)(Fixed Penalty)(England) Regulations 2002 in respect of stopping engines when vehicles are stationary and together with the SYPTE encourage bus drivers to switch off their engines when stationary.	Initial scheme completion expected 2003. Informal surveying undertaken, and warnings issued to offenders and where appropriate fleet operators. Central Transport Interchange now operational.	Informal survey undertaken. No offenders – all fleets compliant.
LT3	Ensure that all transport termini and bus stops are provided with	Implementation to be completed in	Signs at each stopping point.

EM	prominent signs requiring drivers to switch off their engine when stationary.	2003. Due to new interchange being built awaited completion until then. Old bus station was compliant by 2003.	
LT4 EM	Liaise with the Vehicle Inspectorate to ensure all vehicles producing excessive and visible exhaust emissions "smoky vehicles" are inspected, tested and their emission reduced to acceptable levels.	To complete in December 2005. Complaints from the public forwarded on.	Procedure will continue.
LT5 EM	Undertake a feasibility study into the introduction of a Low Emission Zone (LEZ) within the AQMAs and in other areas of the Borough where vehicle emissions have a major impact on air quality.	Initial study to be completed by 2004, lack of funding delayed project. Looking at the possibility of attempting studies on the use of LEZ in car parks specifically.	No progress made.
LT6 EM	The council will continue to ensure that its own vehicle fleet is progressively "greened" by carrying out the following initiatives: - <ul style="list-style-type: none"> <li>- Ensuring all vehicles are properly maintained</li> <li>- Ensure 5% of all council fleet are dual fuel vehicles</li> <li>- Ensure all diesel engine vehicles are to Euro 2 standard</li> <li>- Use of fuel management system to monitor efficient vehicle use</li> <li>- Provide an LPG gas station at North Bridge Depot</li> <li>- Investigate feasibility of electric and hybrid fuel vehicles</li> <li>- Continue to take advantage of all Government initiatives and grant aid from such bodies as the Energy Saving Trust (Powershift)</li> </ul>	Continuous programme. Maintenance programme adhered to. As at December 2003, 6% of fleet dual fuel – target complete. LPG station installed 2002/2003. Demonstration vehicles tested but no funding obtained. All new vehicles purchased are Euro 4 standard. Introduction of bio-diesel fuel in January 2006.	The targets listed are going to be revised to ensure we continue to improve on the emissions from council fleet vehicles.
LT7 EM	The council will review its car allowance and car loan schemes in order to identify and implement reforms which encourage the use of the cleanest and most fuel efficient vehicles and minimise business mileage inline with Inland Revenue payment guidelines.	Completion expected 2003. Proposed policy designed to encourage use of "cleanest" vehicles, however allowances set nationally and little impact can be made within the council alone.	No further progress.
LT8 EM	Lobby the various Government bodies to create a legislative and policy framework that encourages continuing improvements in vehicle emission technology and a greater usage of cleaner vehicles.	Ongoing process. Respond to relevant consultations. National policy.	Ongoing.

Traffic Reduction and Management			
LT9 TM	Implement the findings of the countywide study into the feasibility of producing a HGV strategy.	Completion due 2005. Slow progress made to start with. Regional Freight Strategy working groups still meeting funded through Yorkshire Forward. South Yorkshire representations at meetings.	Council representatives still attending and participating in moving forward the Regional Strategy.
LT10 TM	Investigate the use if the Split Cycle Offset Optimisation Technique (SCOOT) traffic signal control system to predict and link traffic emissions to traffic light sequencing in order to maximise traffic flow and minimise slow moving or stationary traffic during periods of elevated air pollution.	Pilot study 2003. Equipment in place and study undertaken with Leeds University. Study completed in 2005 and used to inform design of bus priority on the A630 Balby Corridor. Three corridors covered – Balby Road, York Road and Wheatley Hall Road.	A638 Bawtry Road to be included once QBC opens. All corridors optimised for priority for public transport.
LT11 TM	Implement the specific policies contained in the Doncaster MBC Commuter Plan which are detailed in the plan under the following headings;- Reducing the need to travel Promoting alternative and more sustainable modes of transport to the car Reducing pollution through the use of environmentally acceptable vehicles and fuels Raising awareness e.g. promotion of travel plans.	Completion due 2005. Commuter Plan in place with targets to 2006. New businesses have to produce travel plans. Review and re-launch in 2006.	Ongoing.
LT12 TM	Introduce a council car sharing scheme	Completion due 2003. Scheme introduced in 2002, all staff invited to register. Joint promotions with Bassetlaw and Doncaster NHS Trusts. 160 staff registered. South Yorkshire Car Sharing Club now signed up members.	Ongoing.
LT13 TM	Expand the existing network of bus only lanes, targeting the AQMAS as a first priority.	Ongoing beyond 2005. In operation in AQMA 1 & 2.	Bus lanes under construction on A638 (Bawtry Road and York Road)

		Scheme expansion to continue. Directly linked with LTP2 shared priorities.	to add an additional 7km to the network. Feasibility study underway to consider schemes for A630 Balby Road during 2008/2009 onwards.
LT14 TM	Implement 2 park and ride sites by 2005 and complete a feasibility study to identify other sites for implementation in future years, targeting as a priority those routes that traverse AQMAs. Continue to provide park and ride sites over the Christmas period.	Ongoing beyond 2005. Park and ride at Lakeside operational. Christmas park and rides running. Park and Ride north and south under construction. Planning permission secured for P&R east for construction 2008. Feasibility study completed for 4 <sup>th</sup> site at A6182.	Not yet in operation.
LT15 TM	Ensure that all the strategies in the UDP and LTP complement each other and that development plan allocations and local transport and investment are closely linked.	2005 and ongoing. LDF being produced.	Ongoing.
LT16 TM	Promote the use of parking policies, alongside other planning and transport measures, to promote sustainable transport choices and reduce the reliance on the car.	2005 and ongoing. Integrated with LDF and LTP.	No further progress.
LT17 TM	Give priority to people over the ease of traffic movement and provide more road space for pedestrians, cyclists and public transport in urbanised areas.	2005 and ongoing. Integrated with LDF and LTP.	Within LTP 5-year programme.
LT18 TM	Ensure that new development shall, where appropriate, contribute to the provision of transport infrastructure for walking, cycling, public transport and highway improvements, secured through Section 106 agreements.	2005 and ongoing. Integrated with LDF and LTP.	Ongoing.
LT19	Take part in and adopt the countywide production of a guidance	Completion due 2003.	Involved in consultation of RSS.

TM	document aimed at advising developers wishing to submit planning applications for developments in or adjacent to AQMAs that could adversely affect air quality.	Draft guidance leaflet produced. NSCA and PPS 23 guidance now available.	SPD will supersede this. Ensure consulted/involved with production of relevant planning documents.
Public Transport			
LT20 PT	Implement the A638 Quality Bus Corridor and investigate the feasibility of expanding the Quality Bus Corridor scheme to other major routes that traverse the AQMAs, beginning with the A630 Balby Road Corridor.	Completion due 2005. Modification work undertaken on A638 and works started on Bawtry Road and York Road.	Feasibility study underway for A630 Balby Road.
LT21 PT	Improve the attractiveness of public transport use by a process of continual upgrading of passenger pick up points and vehicles.	2005 and ongoing. Upgrading carried out. Continuing process.	Ongoing.
LT22 PT	The council will support and promote the new transport interchange in order to ensure a fully integrated road/rail public transportation system is provided for the residents of and visitors to the Borough.	December 2005. Construction began in 2003, opened June 2006.	Completed action to be removed.
LT23 PT	The council will investigate the feasibility of carrying out vehicle emission testing on the Boroughs fleet of private hire vehicles as part of the licensing procedure.	Completion due 2003. No funding available.	Possibility exists to further this action with the help of the licensing team. Ongoing.
Promotion and Publicity			
LT24 PP	The council will, together with the operators of the new transport interchange, ensure that air quality information, in particular the current level of air pollution within the Borough is made available to all of the users of the interchange and other stakeholders.	Interchange open. Approach made to third party who controls public information system in interchange, awaiting their response.	Frenchgate/Interchange keen to join up to 'Going Green Scheme' may be able to further action under this project.
LT25 PP	The council will actively support and take part in all national and local events targeted towards reducing private car use, increasing public	"In Town without My Car Day" supported, in conjunction with	Committed funding to 'care4air' on long term basis.

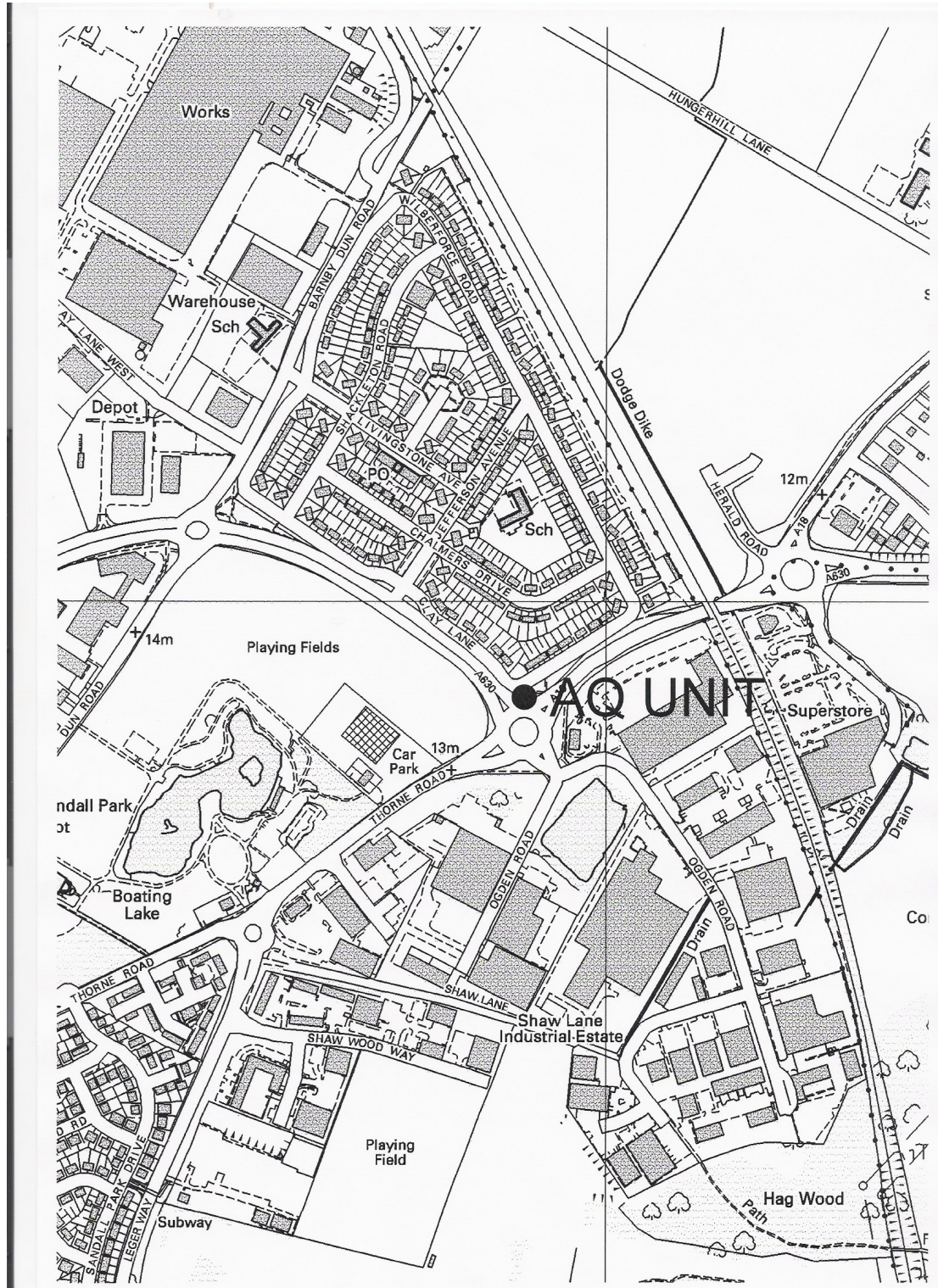


	transport and cycling use and reducing traffic pollution. Examples include "Walk to Work Day", "Don't Choke Britain Campaign" and "DMBC Car Sharing Promotion".	European Mobility Week in previous years. Staff initiatives to encourage action including "Walk the first Mile" and associated production of the walking maps. Care4Air partnership with other South Yorkshire local authorities – many events supported through this including conferences, award ceremonies etc.	
LT26 PP	The council will carry out a pilot scheme providing free voluntary emission testing events for private motorists at a number of venues within the Borough.	Completion due 2004. Scheme incorporated in SYVET programme. Events well attended and 90% of attendees thought partnership should be extended for a further year. No further funding. Action will be assessed after latest round of emission testing.	Latest vehicle emissions testing carried out not suitable for voluntary testing. Action to be removed. Completed.
LT27 PP	Ensure that all travel information leaflets, maps and information for the Borough contain information on the public transport, cycling and walking amenities.	Ongoing to 2005. Included on materials produced for events.	Ongoing.
LT28 PP	The council will expand the Borough's successful "Quality Streets" initiative to extend the amount of pedestrianised streets, both within the town centre and the retail centres of the satellite towns.	Completion 2005 and then continuing programme. Scheme in operation. Plans set out in LDF. No further pedestrianisation planned.	Completed action to remove.
LT29 PP	The council will continue to develop the Safe Routes to School Programme, the object of which is to assess and where applicable improve the safety of the routes taken by children to and from school in order to encourage more walking and cycling and reduce the number of journeys made by car.	Completion 2005 and then continuing programme. Scheme in operation and expanding in 4 separate areas. E.g. Bentley Kirkby Avenue Primary School – resulted in 60 regular	Upgrade of Trans Penine Trail between Sprotborough and Scawsby. Upgrading footpath in Hatfield to link to Secondary School. Two schemes planned to be delivered in 2008/9.

		cyclists (25% of school population).	
LT30 PP	The council will continue its ongoing commitment to producing School Travel Plans by engaging schools in the process of researching all aspects of travel to and from school, linking directly into the Safer Routes to School Programme. One aspect of this commitment is the implementation of a Walking Bus network.	Completion 2005 and then continuing programme. Walking bus pilot scheme began September 2002. School Travel Plan co-ordinator employed in 2004. Total of 62 schools submitted travel plans. Dedicated officer funded until 2012.	77 Schools with approved travel plans as of March 2007. Expect to have a further 15 travel plans for March 2008. Target for all schools to have travel plans by end 2008.  Bike-it scheme in Doncaster partnership with Sustrans. Expected to work with 12 schools per year.
LT31 PP	The council will actively participate in 'Walk to School Week' in order to use this as a starting point for sustainable walking to school.	Completion 2005 and then continuing programme. First event October 2002, then annually.	15 schools awarded either Walking Bus Grants (£1000) or Walking Bus Initiative Grants (£500) through Department for Transport. Same schools may receive further grants dependant on success of converting car journeys to walking.

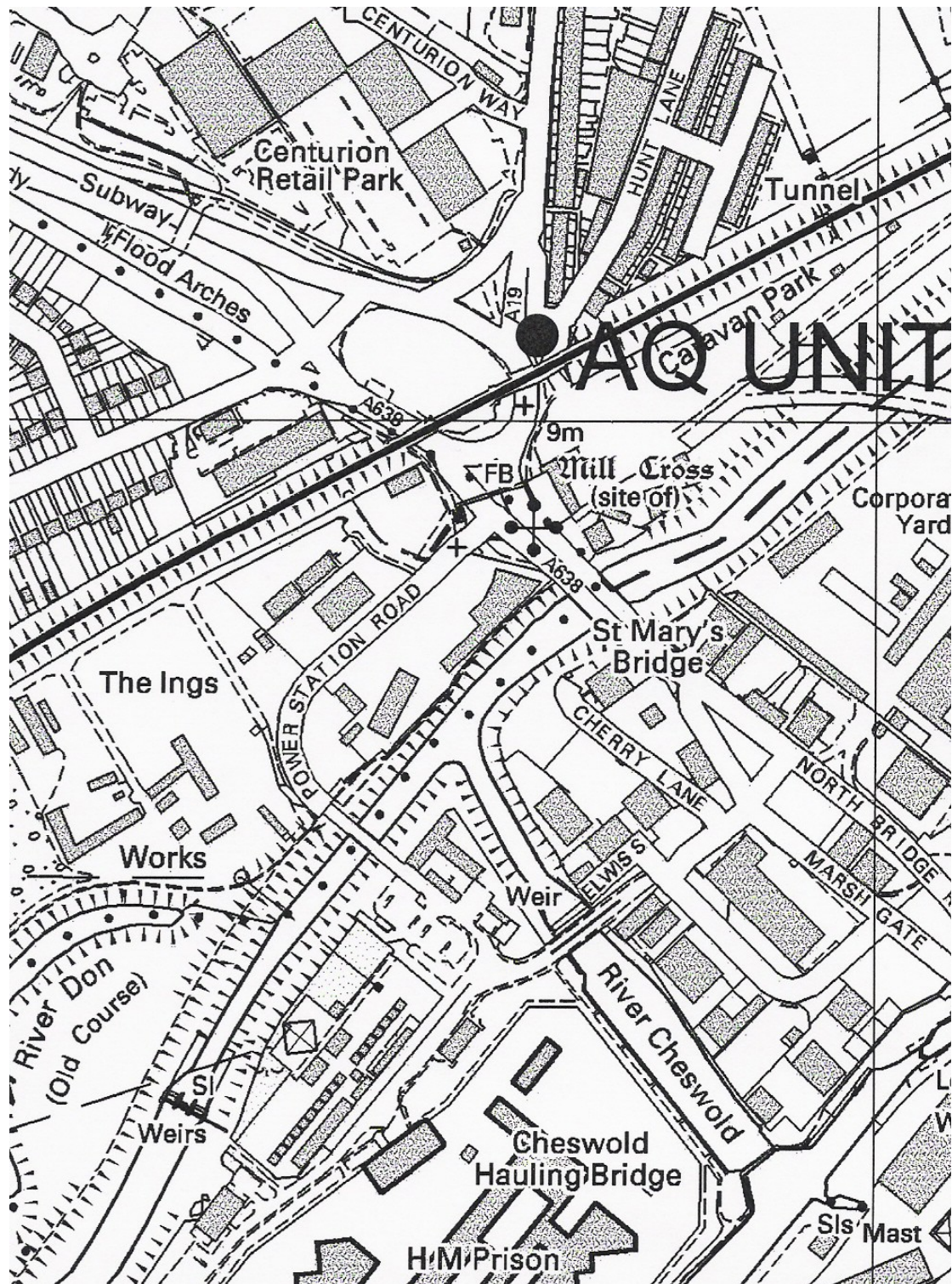
## Appendix 2: Locations of Air Quality Monitoring Stations, Specifications and Quality Checks

A18/A630 Clay Lane Air Quality Unit Map.



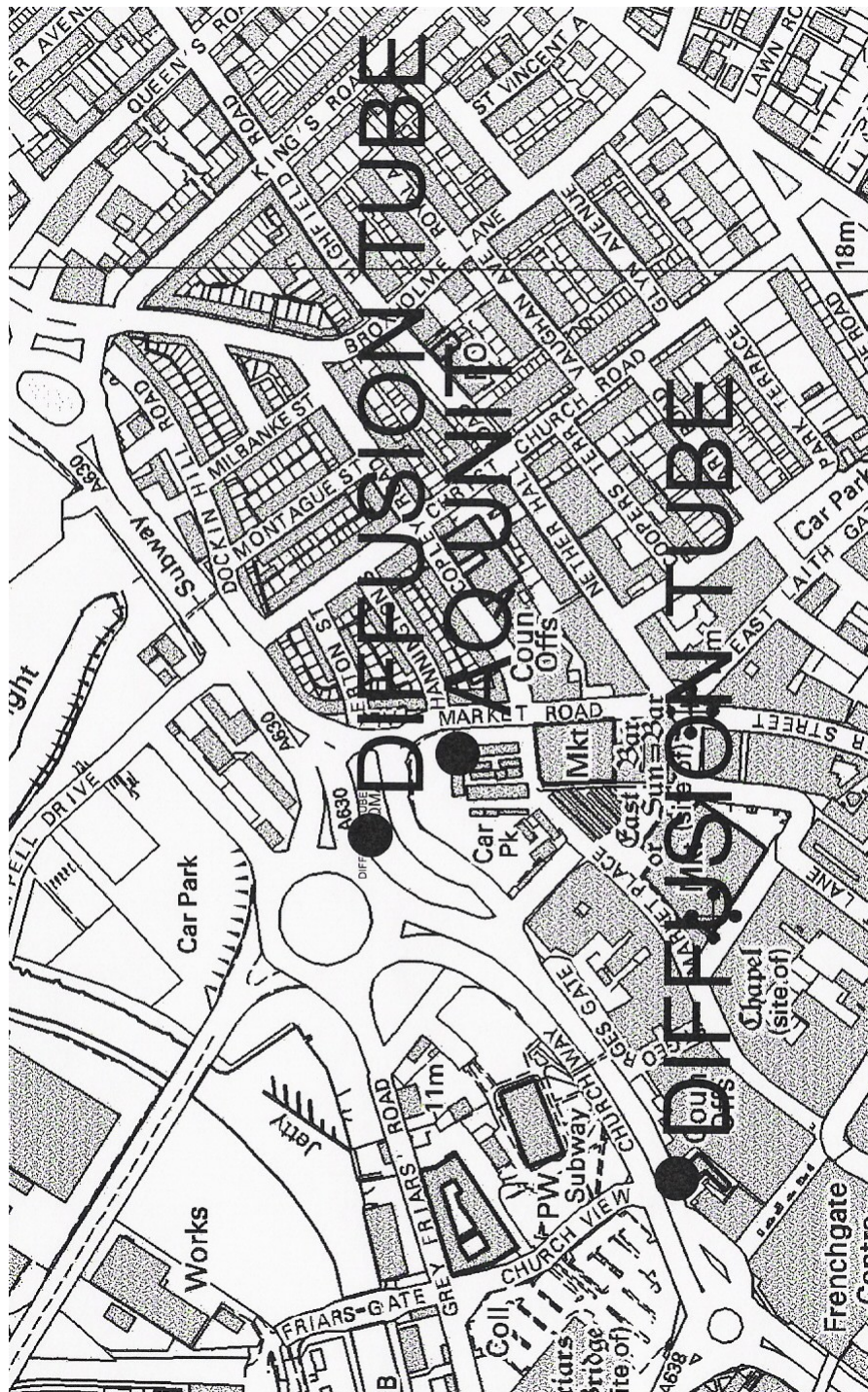


St Mary's Gyrotary Air Quality Unit Map.



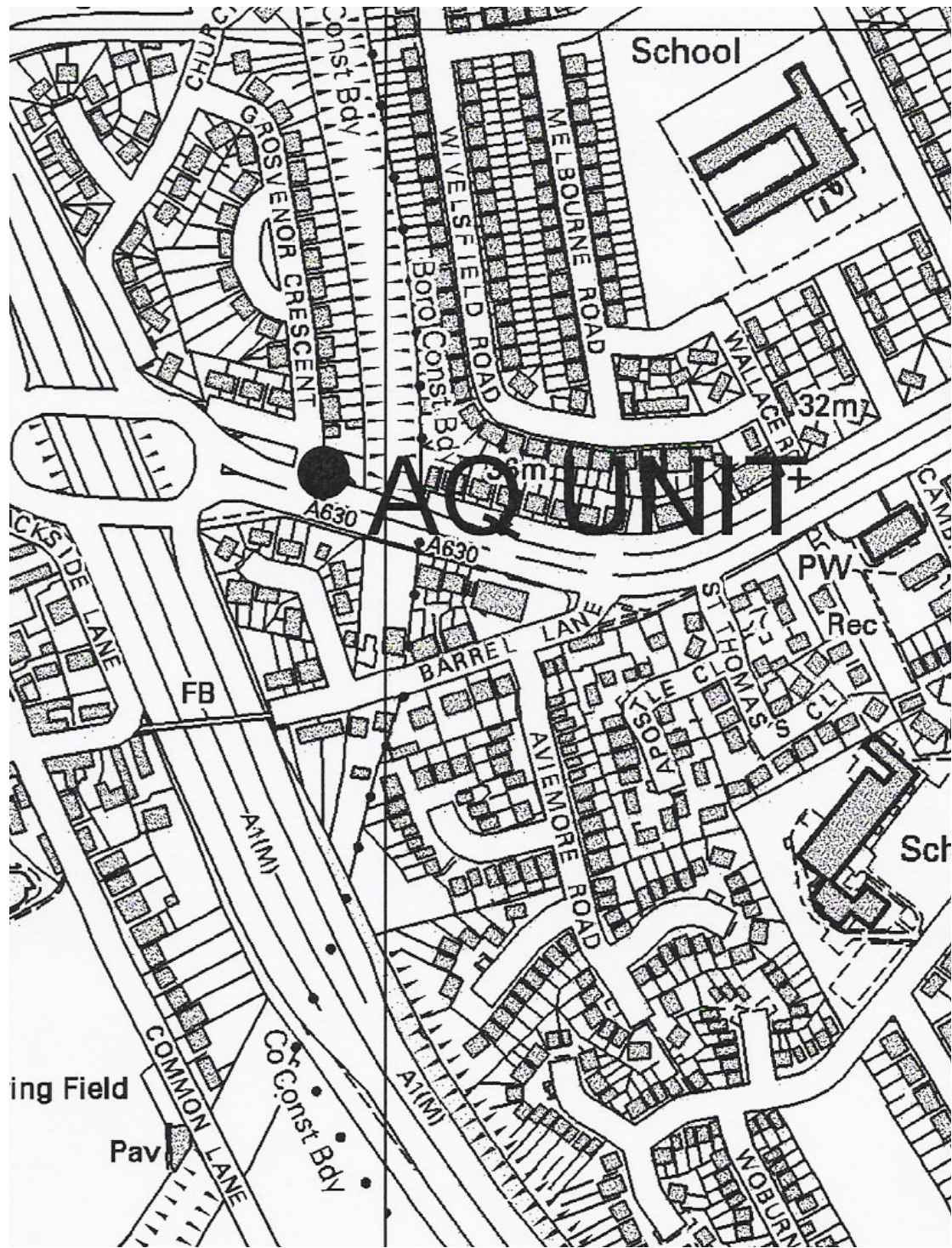


AQMA 1: Market Place Air Quality Unit and Diffusion Tube and Church Way Diffusion Tube



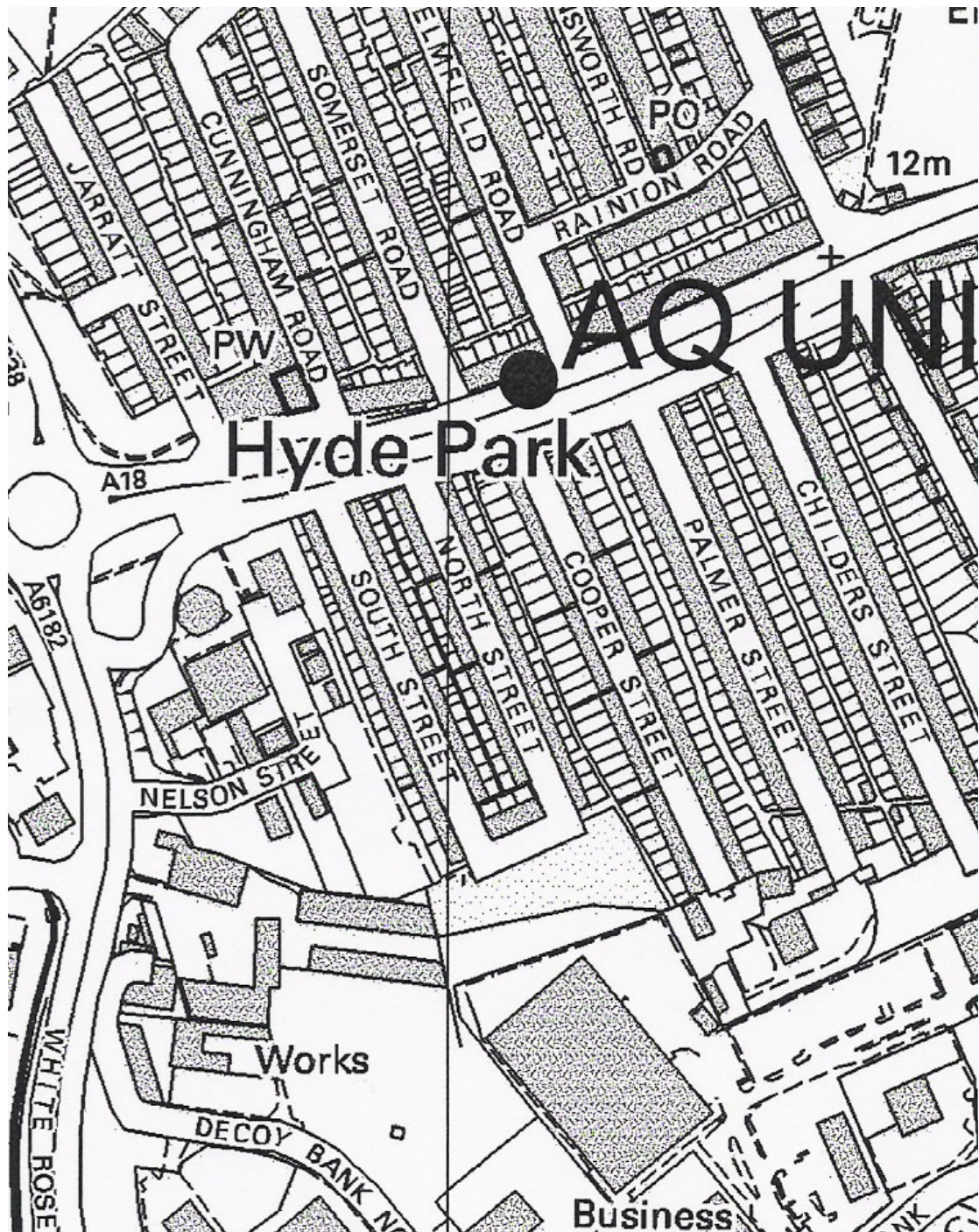


AQMA 2: Grosvenor Terrace Air Quality Unit Map



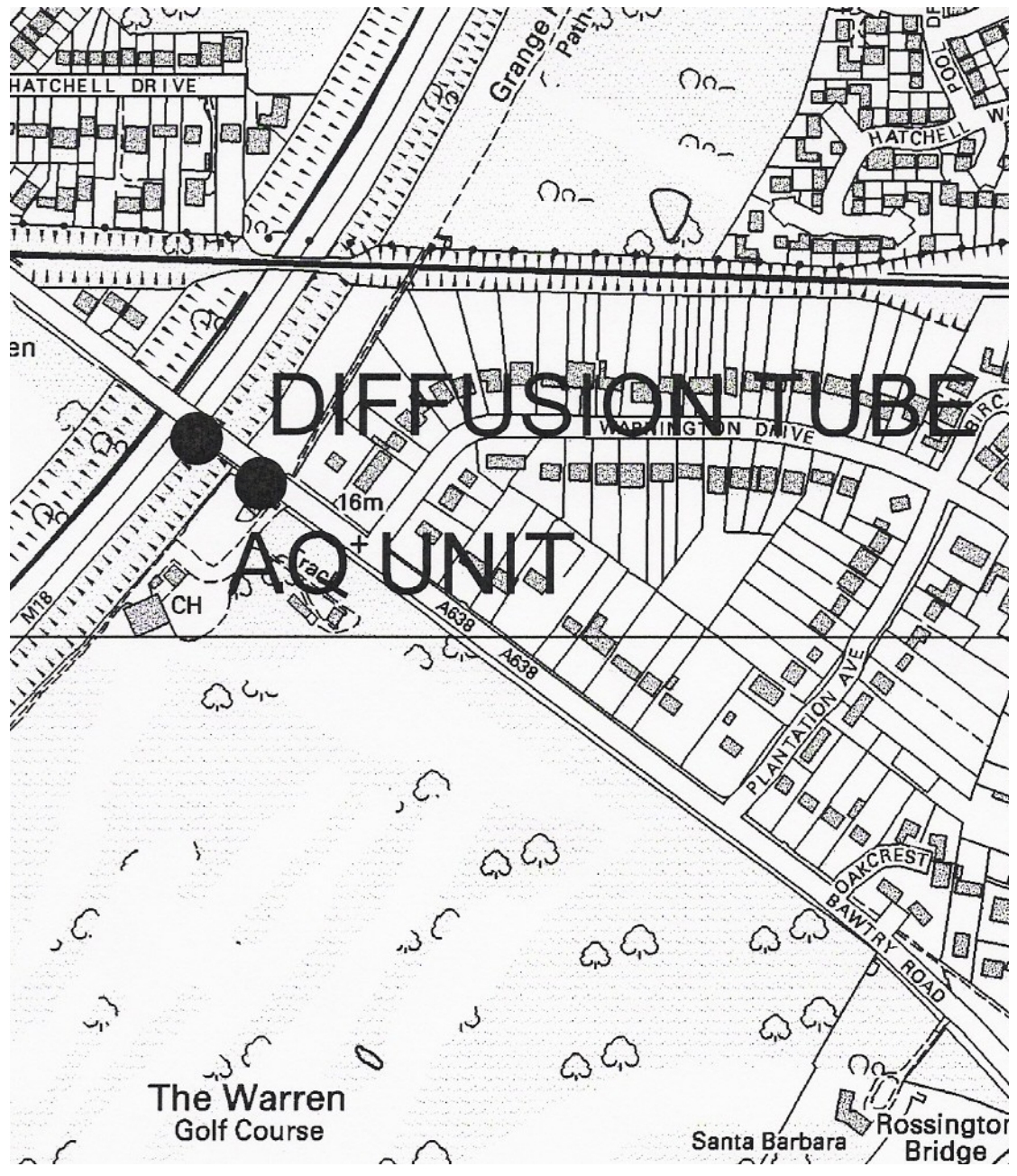


AQMA 3: Carr House Road Air Quality Unit Map





AQMA 4: Bawtry Road Air Quality Unit and Diffusion Tube Map





**Table:11 Air Quality Unit Specification**

<b>Station</b>	<b>Analyser</b>	<b>Logging System</b>	<b>Daily zero and span check</b>	<b>Air Conditioning</b>	<b>Service Contract</b>
<b>Market Place</b>	Monitor Labs ML9841B NOx analyser, Monitor Labs ML9850B SO2 analyser, R&P Series 1400a Teom Unit for PM10,	Envidas	Zero air NO in N2	Yes	Every 6 months & repairs
<b>Carr House Road</b>	Monitor Labs ML9841B NOx analyser, Monitor Labs ML9850B SO2 analyser, R&P Series 1400a Teom Unit for PM10.	Envidas	Zero air NO in N2 SO2	No	Every 6 months & repairs
<b>A18/A630</b>	Monitor Labs ML9841B NOx analyser, R&P Series 1400a Teom Unit for PM10.	Envidas	Zero air NO in N2	Yes	Every 6 months & repairs
<b>Warmsworth Interchange</b>	API Model 200A NOx analyser	Odessa DSM 3260 plus	NO in N2 Scrubbed zero air	Yes	Every 6 months & repairs
<b>Bawtry Road</b>	API Model 200A NOx analyser	Odessa DSM 3260 plus	NO in N2 Scrubbed zero air	Yes	Every 6 months & repairs
<b>St Mary's Gyrotory</b>	Monitor Labs ML9841B NOx analyser, Monitor Labs ML9850B SO2 analyser, R&P Series 1400a Teom Unit for PM10, Monitor Labs CO analyser.	Envidas	Zero air NO in N2 SO2 CO	Yes	Every 6 months & repairs

**Table: 12 Data Screening**

Daily Span and Zero checks performed automatically each night using the relevant span and zero gases, as mentioned in the specification above. This data is used to check day-to-day performance of each analyser and for error checking.
Fortnightly calibrations, done manually on site with use of the span and zero gases. Used to assess performance of analysers.
Six monthly services, performed by suppliers.
Data scaled, this was done using the factors obtained from fortnightly and daily checks.
Data ratification, checks done to remove erroneous data so that final data set is obtained and relevant calculation performed.

Unless otherwise specified the data capture rates for each data set meet and/or exceed the 90% data capture rate.

### Diffusion Tubes

The diffusion tubes are analysed by South Yorkshire Laboratories, which is UKAS accredited. The tubes are prepared by spiking acetone:triethanolamine (50:50) onto the grids prior to the tubes being assembled. The tubes are then desorbed with distilled water and the extract analysed using a segmented flow autoanalyser with ultraviolet detection.

Bias derived from <http://www.uwe.ac.uk/aqm/review/diffusiantube300307.xls>, for 2007 for South Yorkshire Laboratories of 0.84 as at 13/03/2008. The factor may subsequently change as more co-location studies are added, changes to the results published in this report may therefore be subject to change.

## References and Sources of Information

Local Air Quality Management Policy Guidance LAQM. PG(03) issued by DEFRA

Local Air Quality Management Technical Guidance LAQM. TG(03) issued by DEFRA

The Environment Agency Internet web site: [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

DEFRA. Internet web site: [www.defra.gov/environment](http://www.defra.gov/environment)

The Air Quality Archive Internet web site: [www.airquality.co.uk](http://www.airquality.co.uk)

Stanger Science & Environment. Internet web site [www.stanger.co.uk.airqual-modelhlp](http://www.stanger.co.uk.airqual-modelhlp)

Doncaster MBC, Directorate of Neighbourhood Services, Planning Section, Danum House, Doncaster.

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