

# Air Quality Review and Assessment

Cambridgeshire Local Authorities  
Progress Report 2007



East Cambridgeshire  
District Council



**Huntingdonshire**  
d i s t r i c t c o u n c i l

## Executive Summary

This Report constitutes the 2007 Air Quality Review and Assessment Progress Report for Cambridge City Council, East Cambridgeshire District Council, Fenland District Council, Huntingdonshire District Council and South Cambridgeshire District Council.

The Report includes air quality monitoring data from 2006 and makes predictions for the future for certain air pollutants. It also covers other issues and developments that have occurred in the last twelve months that may have a bearing on local air quality.

Cambridge City Council has found that NO<sub>2</sub> and PM<sub>10</sub> levels are little changed from 2003. Given that 2003 was a poor year for air quality across the country due to meteorological conditions it is likely that traffic and population growth in Cambridge are maintaining pressure on the Air Quality Objectives for those key pollutants.

The number of dwellings in Cambridge is due to rise by approximately a third by 2016 and continues to be an economic success. Whilst it is hoped that measures proposed in the action plan related to its AQMA will stabilise the recent decline in air quality, City Officers acknowledge that this will be difficult given the limited powers at their disposal.

East Cambridgeshire District Council has found that air quality objectives are likely to continue to be met throughout its area and so will next report findings with its next progress report in April 2008.

Continuous monitoring of AQMA sites within Fenland has been problematic over the year, however, data capture is improving and will be much better once tabled improvements have been made to communications on site. Despite low data capture at Wisbech, the continued absence of any SO<sub>2</sub> exceedance at Lynn Road is very promising. The installation of the scrubbers on site at HL should bring a large improvement in both PM and SO<sub>2</sub> emissions and it is envisaged that there will be no further need for AQMAs surrounding the installation, although the traffic PM<sub>10</sub> extent will be determined by modelling in the DA that is currently being undertaken

Monitoring by Hanson Building Products indicates that the national objective for 15-minute means SO<sub>2</sub> has not been exceeded, however, the existence of some exceedance bears the need for continued monitoring

Passive monitoring shows yet again the potential NO<sub>x</sub> issue in Wisbech and in conjunction with the

Continuous data captured at Napier Court will be used by the Council's consultants to undertake the further assessment and determine the true extent of the AQMA. This is needed urgently, so that the action plan can take into account the vitally important Nene Waterfront Development and the potential changes that this will bring to the local air quality.

Huntingdonshire District Council has found that air quality objectives are likely (to continue) to be met in areas outside those already identified as areas of exceedence. Those areas of exceedence are either already covered by AQMAs (four) or are proposed to be included in those areas by amendments recommended in the Huntingdonshire District Council Further Assessment 2007.

South Cambridgeshire District Council has recently completed a detailed assessment for nitrogen dioxide along the A14 corridor, an AQMA will be declared following completion of the consultation exercise in May 2007. Monitoring undertaken by South Cambridgeshire District Council during 2006 has shown that within the proposed AQMA the annual mean nitrogen dioxide objective continues to be exceeded. At one site the measured annual mean was well below the objective but as data capture for this site was poor this result is being treated with caution.

For PM<sub>10</sub> the number of exceedences of the 24 hour mean objective has been exceeded at both continuous monitoring sites whilst the annual mean has risen dramatically at the Bar Hill site. A detailed assessment for PM<sub>10</sub> is progressing well and it is hoped to conclude dispersion modelling work soon.

Within the Administrative area of Cambridgeshire County there are proposed large-scale traffic schemes, which are likely to have an affect on air quality in the future. Although still at formative stages the schemes are discussed further.

# Contents

|   |           |
|---|-----------|
| <b>List of Figures.....</b>                     | <b>v</b>  |
| <b>1.0 Introduction.....</b>                    | <b>1</b>  |
| <b>2.0 New Monitoring Results .....</b>         | <b>4</b>  |
| 2.1 Cambridge City Council .....                | 4         |
| 2.1.1 Nitrogen Dioxide.....                     | 4         |
| 2.1.2 PM <sub>10</sub> Monitoring Data .....    | 24        |
| 2.2 East Cambridgeshire .....                   | 27        |
| 2.2.1 Nitrogen Dioxide.....                     | 27        |
| 2.2.2 PM <sub>10</sub> Monitoring Data .....    | 30        |
| 2.3 Fenland District Council .....              | 33        |
| 2.3.1 Monitoring within AQMAs .....             | 33        |
| 2.3.2 Monitoring Outside AQMAs .....            | 36        |
| 2.4 Huntingdonshire District Council .....      | 37        |
| 2.4.1 Nitrogen Dioxide.....                     | 37        |
| 2.4.2 PM <sub>10</sub> Monitoring Data .....    | 43        |
| 2.5 South Cambridgeshire District Council ..... | 44        |
| 2.5.1 Nitrogen Dioxide.....                     | 45        |
| 2.5.2 PM <sub>10</sub> Monitoring Data .....    | 56        |
| 2.5.3 Benzene .....                             | 58        |
| 2.5.4 Sulphur Dioxide .....                     | 59        |
| <b>3.0 New Local Developments.....</b>          | <b>60</b> |
| 3.1 Cambridge City Council .....                | 60        |
| 3.1.1 New Part A Processes .....                | 60        |
| 3.1.2 New Part B Processes .....                | 60        |
| 3.1.3 New Retail Developments .....             | 60        |
| 3.1.4 New Road Schemes .....                    | 61        |
| 3.1.5 New Mineral Developments .....            | 61        |
| 3.1.6 New Housing Developments .....            | 61        |
| 3.1.7 New Landfill Developments .....           | 62        |
| 3.1.8 Mixed Use Development .....               | 62        |
| 3.2 East Cambridgeshire District Council.....   | 63        |
| 3.2.1 New Part A Processes .....                | 63        |
| 3.2.2 New Part B Processes .....                | 63        |
| 3.2.3 New Retail Developments. ....             | 63        |
| 3.2.4 New Road Schemes .....                    | 64        |
| 3.2.5 New Mineral Developments .....            | 64        |
| 3.2.6 New Landfill Developments .....           | 64        |
| 3.2.7 Mixed Use Development .....               | 64        |
| 3.3 Fenland District Council .....              | 65        |

|             |  |           |
|-------------|--|-----------|
| 3.3.1       | Part A1 installations .....                        | 65        |
| 3.3.2       | Part B Installations .....                         | 65        |
| 3.3.3       | New Retail Developments .....                      | 65        |
| 3.3.4       | New Road Schemes .....                             | 66        |
| 3.3.5       | New Mineral Development .....                      | 66        |
| 3.3.6       | New Landfill Development.....                      | 66        |
| 3.3.7       | New Mixed-Use Development.....                     | 66        |
| 3.4         | Huntingdonshire District Council .....             | 68        |
| 3.4.1       | New Part A Processes .....                         | 68        |
| 3.4.2       | New Part B Processes .....                         | 68        |
| 3.4.3       | New Retail Developments .....                      | 68        |
| 3.4.4       | New Road Schemes .....                             | 68        |
| 3.4.5       | New Minerals Development .....                     | 69        |
| 3.4.6       | New Landfill Development.....                      | 69        |
| 3.4.7       | New Mixed Use Development.....                     | 69        |
| 3.5         | South Cambridgeshire District Council .....        | 70        |
| 3.5.1       | New Part A Processes .....                         | 70        |
| 3.5.2       | New Part B Processes .....                         | 70        |
| 3.5.3       | New Retail Developments .....                      | 70        |
| 3.5.4       | New Road Schemes .....                             | 70        |
| 3.5.5       | New Mineral Developments .....                     | 70        |
| 3.5.6       | New Landfill Developments .....                    | 70        |
| 3.5.7       | Mixed Use Development .....                        | 71        |
| <b>4.0</b>  | <b>Partnership Working.....</b>                    | <b>72</b> |
| <b>5.0</b>  | <b>Air Quality Management Areas.....</b>           | <b>73</b> |
| <b>6.0</b>  | <b>Action Plans.....</b>                           | <b>74</b> |
| <b>7.0</b>  | <b>Planning and Policies.....</b>                  | <b>76</b> |
| <b>8.0</b>  | <b>Local Transport Plan and Strategies .....</b>   | <b>78</b> |
| <b>10.0</b> | <b>Commentaries from Defra and Responses .....</b> | <b>79</b> |
| 10.1        | Cambridge City Council .....                       | 80        |
| 10.2        | East Cambridgeshire District Council .....         | 84        |
| 10.3        | Fenland District Council .....                     | 87        |
| 10.4        | Huntingdonshire District Council .....             | 90        |
| 10.5        | South Cambridgeshire District Council .....        | 94        |

## List of Figures

|  |    |
|--|----|
| Figure 1. LAQM Timetable.....  | 1  |
| Figure 2. Current UK Air Quality Objectives applying to Local Authorities in England.....                                | 3  |
| Figure 3. Correction for Missing Data – NO <sub>2</sub> Analyser at Parker Street .....                                  | 4  |
| Figure 4. Correction for Missing Data – NO <sub>2</sub> Analyser at Gonville Place.....                                  | 5  |
| Figure 5. Corrected and uncorrected annual mean concentrations of nitrogen dioxide .....                                 | 5  |
| Figure 6. Continuous monitoring results for NO <sub>2</sub> with capture rates, 2002 – 2006 (µg/m <sup>3</sup> ) .....   | 7  |
| Figure 7. Comparison of annual means 2002 - 2006.....  | 8  |
| Figure 8. Bias Adjustment Factors used in this report .....  | 9  |
| Figure 9. NO <sub>2</sub> Tube Results for 2006, with 2000 - 2005 for comparison, (µg/m <sup>3</sup> ), bias-adjusted .. | 11 |
| Figure 10. Locations of the diffusion tubes .....  | 14 |
| Figure 11. Exposure at Diffusion Tube Locations .....  | 16 |
| Figure 12. Diffusion Tube Locations .....  | 19 |
| Figure 13. New Tube Locations .....  | 21 |
| Figure 14. Map of new locations .....  | 23 |
| Figure 15. PM <sub>10</sub> Concentrations (µg/m <sup>3</sup> ) 2002 – 2006 .....  | 25 |
| Figure 16. Comparison of PM <sub>10</sub> annual means .....   | 26 |
| Figure 17. Bias Adjustment Factors used in this report. ....   | 28 |
| Figure 18. East Cambridgeshire NO <sub>2</sub> Diffusion Tube Results. Annual mean µg/m <sup>3</sup> .....               | 29 |
| Figure 19. PM <sub>10</sub> Concentrations (µg/m <sup>3</sup> ) Measured at Wicken Fen (Site Type: Rural) .....          | 30 |
| Figure 20. Air Quality Monitoring Locations in East Cambridgeshire.....  | 32 |
| Figure 21. 2006 NO <sub>2</sub> Diffusion Tubes Data (µg/m <sup>3</sup> ) .....  | 33 |
| Figure 22. Hanson Building Products Ltd, Whittlesey - Monitoring of SO <sub>2</sub> exceedances (ppb).....               | 35 |
| Figure 23. NO <sub>2</sub> Diffusion Tube Monitoring .....   | 36 |
| Figure 24. Real time NO <sub>2</sub> monitoring data .....   | 38 |
| Figure 25. Diffusion Tube Locations .....  | 39 |
| Figure 26. Monitoring Locations.....   | 40 |
| Figure 27. NO <sub>2</sub> Diffusion Tube Annual Means .....   | 41 |
| Figure 28. PM <sub>10</sub> Data µg/m <sup>3</sup> Gravimetric Equivalent.....   | 43 |
| Figure 29. Proposed Air Quality Management Area (Conc. NO <sub>2</sub> > 39µg/m <sup>3</sup> ) .....                     | 44 |
| Figure 30. SCDC Mobile Unit at Bar Hill.....   | 45 |
| Figure 31. Air Quality Statistics for NO <sub>2</sub> Measured at the A14 Bar Hill (µg/m <sup>3</sup> ).....             | 46 |
| Figure 32. Monitoring Unit on the A14 at Impington, Cambridgeshire .....   | 47 |
| Figure 33. Air Quality Statistics for NO <sub>2</sub> Measured at the A14 (W), Impington (µg/m <sup>3</sup> ) .....      | 48 |
| Figure 34. Annual Mean NO <sub>2</sub> Concentrations in South Cambridgeshire (µg/m <sup>3</sup> ) .....                 | 50 |
| Figure 35. NO <sub>2</sub> concentrations at locations close to the objective .....                                      | 52 |
| Figure 36. NO <sub>2</sub> Diffusion Tube data trend in High Street, Histon bias adjusted.....                           | 52 |
| Figure 37. NO <sub>2</sub> Diffusion Tube data trend in Cambridge Road, Girton bias adjusted.....                        | 53 |
| Figure 38. NO <sub>2</sub> Diffusion Tube data trend in High Street, Sawston bias adjusted. ....                         | 54 |

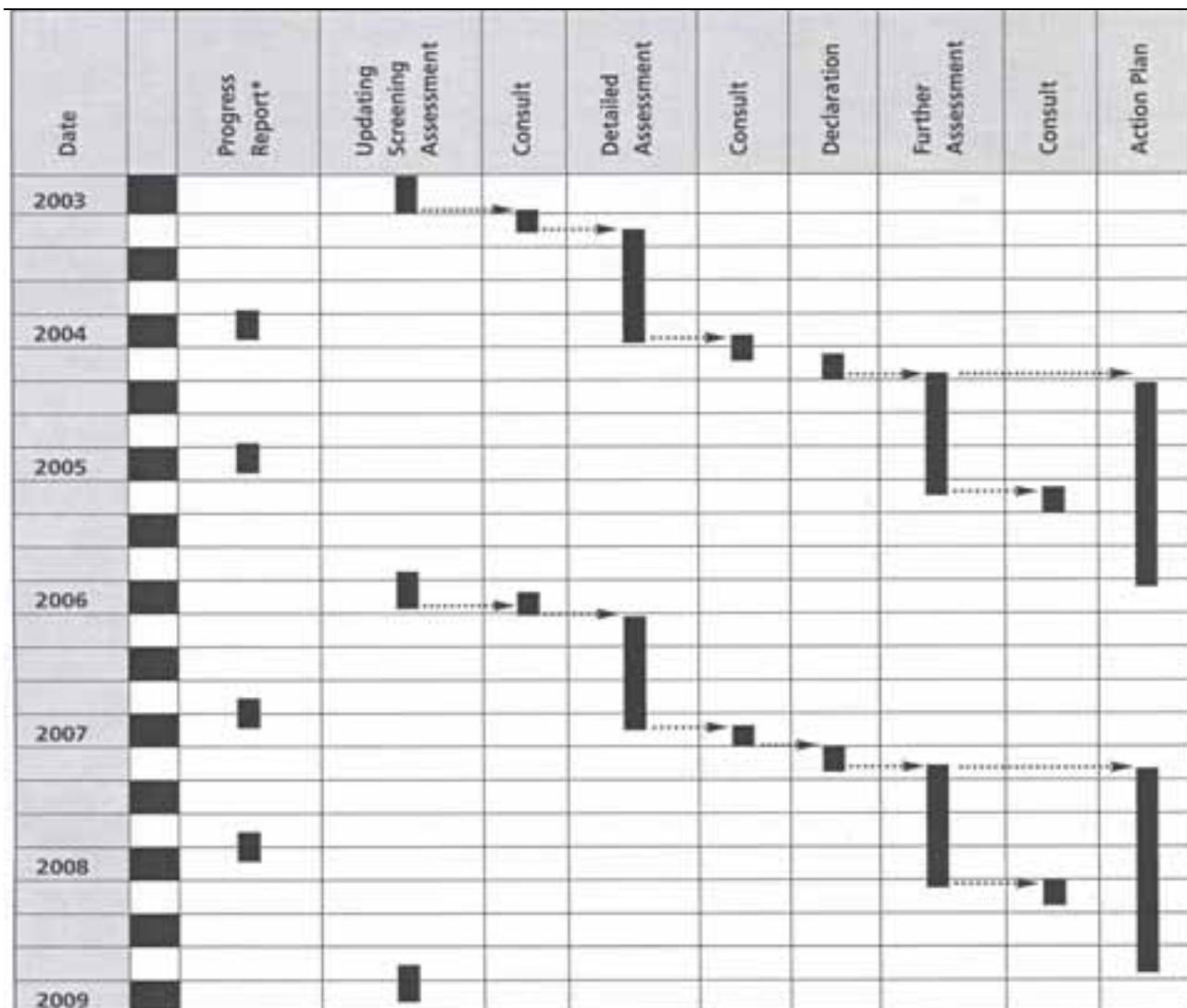
Figure 39. Map of Monitoring Locations along the A14 Corridor ..... 55  
Figure 40. PM<sub>10</sub> Concentrations Measured at the A14(E) Bar Hill (µg/m<sup>3</sup>)..... 56  
Figure 41. PM<sub>10</sub> Concentrations Measured at the A14(W) Impington (µg/m<sup>3</sup>) ..... 57  
Figure 42. Sulphur Dioxide Concentrations Measured at Barrington..... 59

# 1.0 Introduction

Local Authorities within the administrative area of Cambridgeshire have been jointly reporting findings, as required under the Environment Act 1995, since the introduction of the current air quality management regime in 1996.

Joint reports have been submitted to, and accepted by, the Government as required. The timetabling and nature of the reports are shown in Figure 1 below. These reports have been used to inform statutory consultees and others about local air quality.

**Figure 1. LAQM Timetable**



Reporting on the third 'round' of review and assessment began in April 2006 with the submission of the Updating and Screening Assessment (USA). The USA concluded that in East Cambridgeshire, Cambridge City and Huntingdonshire there was no evidence that there had been exceedences of any of the objectives in areas not already declared as AQMAs. It further concluded that there were no risks to the objectives in South Cambridgeshire in areas that were not already being subjected to Detailed Assessments (DAs). It also concluded that in Fenland there were risks of the NO<sub>2</sub> annual mean objective and the 24 hour mean PM<sub>10</sub> objective being exceeded in additional areas.

The 2006 USA, and all previous AQR&A Reports, can be found using the following link:

<http://www.huntsdc.gov.uk/Environment+and+Planning/Air+Quality>

There are Air Quality Objectives for seven pollutants measured over different averaging periods and these are shown overleaf in Figure 2.

This report represents the first progress report of the third round of Air Quality Review and Assessment, and it's purpose is to inform on monitoring data gathered during the last calendar year and on any changes that occurred in that year that may influence local air quality.

All the pollutants with air quality objectives have been considered but lead, carbon monoxide and 1,3 butadiene have not been reported as there is no indication that the objectives are at risk. The National Monitoring Network data has not suggested that any of these objectives are likely to be contravened.

**Figure 2. Current UK Air Quality Objectives applying to Local Authorities in England**

| Pollutant                                   | Objective   | Measured as                       | To be achieved by |
|---|---|-----------------------------------|-------------------|
| Benzene                                     | 16.25 $\mu\text{g}/\text{m}^3$  | Running Annual Mean               | 31 Dec 2003       |
|   | 5 $\mu\text{g}/\text{m}^3$  | Annual Mean                       | 31 Dec 2010       |
| 1,3-Butadiene                               | 2.25 $\mu\text{g}/\text{m}^3$   | Running Annual Mean               | 31 Dec 2003       |
| Carbon monoxide                             | 10.0 $\text{mg}/\text{m}^3$   | Maximum daily running 8 Hour Mean | 31 Dec 2003       |
| Lead  | 0.5 $\mu\text{g}/\text{m}^3$  | Annual Mean                       | 31 Dec 2004       |
|   | 0.25 $\mu\text{g}/\text{m}^3$   | Annual Mean                       | 31 Dec 2008       |
| Nitrogen dioxide                            | 200 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 18 times per year | 1 Hour Mean                       | 31 Dec 2005       |
|   | 40 $\mu\text{g}/\text{m}^3$   | Annual Mean                       |                   |
| Particles (PM <sub>10</sub> ) (gravimetric) | 50 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 35 times per year  | 24 Hour Mean                      | 31 Dec 2004       |
|   | 40 $\mu\text{g}/\text{m}^3$   | Annual Mean                       | 31 Dec 2004       |
| Sulphur dioxide                             | 266 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 35 times per year | 15 Minute Mean                    | 31 Dec 2005       |
|   | 350 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 24 times per year | 1 Hour Mean                       | 31 Dec 2004       |
|   | 125 $\mu\text{g}/\text{m}^3$ Not to be exceeded more than 3 times per year  | 24 Hour Mean                      | 31 Dec 2004       |

## 2.0 New Monitoring Results

### 2.1 Cambridge City Council

#### 2.1.1 Nitrogen Dioxide

Cambridge City Council had four chemiluminescence analysers in service in 2006 (the fifth is in the process of relocation). Two monitors are supplied and serviced by Monitor Labs (ML9841B NO-NO<sub>2</sub>-NO<sub>x</sub> chemiluminescence analysers), two monitors are supplied and serviced by Thermo Environmental Instruments Inc (Model 42c NO-NO<sub>2</sub>-NO<sub>x</sub> chemiluminescence analysers).

All five continuous monitors are roadside sites. The monitor at Regent Street is situated at the offices of Cambridge City Council Environmental Services Section. It is part of the National Automatic and Rural Network (AURN) on behalf of DEFRA and has been in place since 1993. Monitors for Silver Street<sup>1</sup>, Gonville Place and Parker Street were commissioned in 1998. The monitor at Newmarket Road was commissioned in 2001 in response to perceived data shortfalls for urban feeder roads following the first review.

Each of the sites is calibrated and maintained regularly by the Local Site Operator (LSO), regularly serviced by the supplier and audited by AEA NETCEN either as part of the AURN or through the 'Calibration Club'. All data is collated and ratified externally by AEA Technology. The results are ratified and returned as hourly sequential data.

Data capture was less than 90% at two sites, Parker Street (88% - 3 weeks' data were lost because of problems with the NO<sub>x</sub> converter in June) and Gonville Place (80% - 9 weeks' data were not considered acceptable because of analyser faults that were not resolved until mid-November). Estimated annual means have been calculated based on the approach in the Technical Guidance LAQM.TG(03), Box 6.5.

**Figure 3. Correction for Missing Data – NO<sub>2</sub> Analyser at Parker Street**

| NO <sub>2</sub> (µg/m <sup>3</sup> ) for 2006 | Cambridge,<br>Newmarket Road | Cambridge,<br>Regent Street | Bar Hill, A14,<br>South Cams | Average |
|---|------------------------------|-----------------------------|------------------------------|---------|
| Annual Mean (µg/m <sup>3</sup> )              | 31                           | 45                          | 43                           |         |
| Period Mean 05/06/06 - 27/06/06               | 27                           | 42                          | 41                           |         |
| Ratio 1: AM/PM(1)                             | 1.15                         | 1.07                        | 1.05                         | 1.09    |

---

<sup>1</sup> Silver Street monitor was decommissioned in January 2006. It has been re-located to Montague Road, adjacent to the inner ring road, and is expected to be operational before the end of April 2007.

The average from the analyser for the period 05/06/06 – 27/06/06 is 60  $\mu\text{g}/\text{m}^3$ . To correct for the missing data this figure is then multiplied by the ratio derived above.

$$60 * 1.09 = 65.4 \mu\text{g}/\text{m}^3$$

**Figure 4. Correction for Missing Data – NO<sub>2</sub> Analyser at Gonville Place**

| NO <sub>2</sub> ( $\mu\text{g}/\text{m}^3$ ) for 2006 | Cambridge,<br>Newmarket Road | Cambridge,<br>Regent Street | Bar Hill, A14,<br>South Cambs | Average |
|---|------------------------------|-----------------------------|-------------------------------|---------|
| Annual Mean ( $\mu\text{g}/\text{m}^3$ )              | 31                           | 45                          | 43                            |         |
| Period Mean 19/09/06 - 20/11/06                       | 36                           | 47                          | 43                            |         |
| Ratio 1: AM/PM(1)                                     | 0.86                         | 0.96                        | 1                             | 0.94    |

The average from the analyser for the period 15/09/06 – 20/11/06 is 48.25 $\mu\text{g}/\text{m}^3$ . To correct for the missing data this figure is then multiplied by the ratio derived above.

$$52 * 0.94 = 48.9 \mu\text{g}/\text{m}^3$$

The final annual mean concentrations for 2006 are shown below.

**Figure 5. Corrected and uncorrected annual mean concentrations of nitrogen dioxide**

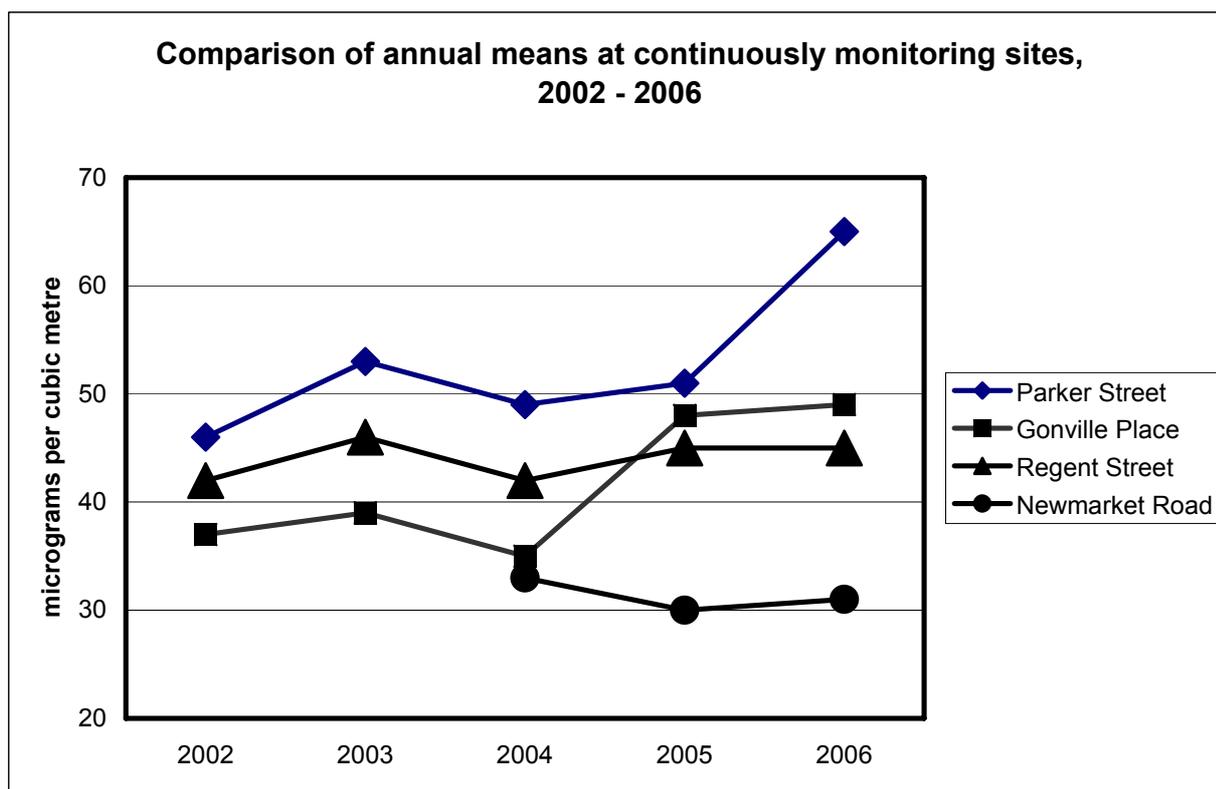
| Location       | Uncorrected 2006 annual<br>mean, $\mu\text{g}/\text{m}^3$ | Corrected 2006 annual mean,<br>$\mu\text{g}/\text{m}^3$ |
|----------------|---|---|
| Parker Street  | 60  | 65  |
| Gonville Place | 52  | 49  |
| Regent Street  | 45  | 45  |
| Newmarket Road | 31  | 31  |

Comparison of the data over the last five years (figure 7) shows a fairly flat trend of the overall mean in Newmarket Road and Regent Street and an overall increase in Gonville Place and Parker Street. Levels in Gonville Place suddenly increased in 2005, possibly related to works at the site that involved removal of a wide, solid gate, which may have been a partial barrier to air pollution from the adjacent road. Higher than usual levels continued in 2006; the gate has not yet been replaced, as works at the site are ongoing. The increase reported in Parker Street for 2006 is substantial although not seen in the diffusion tube (although this may be an artefact of choice of bias adjustment factor – discussed below), which is sited on the opposite side of the road. The increase may be caused by an increase in emissions of primary nitrogen dioxide as a result of the increased use of particle traps on HDV. Overall, hourly exceedences appear to be as widespread as previous years although lower in frequency than in 2005; the greatest number of exceedences is reported at Gonville Place.

**Figure 6. Continuous monitoring results for NO<sub>2</sub> with capture rates, 2002 – 2006 (µg/m<sup>3</sup>)**

|                | Annual mean<br>2002 | Data capture<br>% | Number of<br>hourly<br>exceedences<br>in 2002 | Annual mean<br>2003 | Data capture<br>% | Number of<br>hourly<br>exceedences<br>in 2003 | Annual mean<br>2004 | Data capture<br>% | Number of<br>hourly<br>exceedences<br>in 2004 | Annual mean<br>2005 | Data capture<br>% | Number of<br>hourly<br>exceedences<br>in 2005 | Annual mean<br>2006 | Data capture<br>% | Number of<br>hourly<br>exceedences<br>in 2006 |
|----------------|---------------------|-------------------|---|---------------------|-------------------|---|---------------------|-------------------|---|---------------------|-------------------|---|---------------------|-------------------|---|
| Parker Street  | 46                  | 95                | 1   | 52.5                | 90                | 1   | 49                  | 91                | 0   | 51                  | 83                | 0   | 65                  | 88                | 1   |
| Silver Street  | Insufficient data   | 18                | 1 recorded                                    | 47.6                | 95                | 1   | 34                  | 84                | 0   | 34                  | 94                | 0   | na                  | na                | na  |
| Gonville Place | 37                  | 80                | 0   | 39.4                | 95                | 0   | 35                  | 92                | 0   | 48                  | 95                | 9   | 49                  | 80                | 3   |
| Regent Street  | 42                  | 99                | 1   | 45.8                | 99                | 1   | 42                  | 97                | 0   | 45                  | 98                | 0   | 45                  | 90                | 1   |
| Newmarket Road | Insufficient data   | 47                | 0 recorded                                    | Insufficient data   | 56                | 1 recorded                                    | 33                  | 64                | 0   | 30                  | 99                | 0   | 31                  | 98                | 0   |

Figure 7. Comparison of annual means 2002 - 2006



#### Passive diffusion tube data for 2006

There are 46 nitrogen dioxide diffusion tubes within Cambridge City, most of which are located at the roadside or kerbside, as well as 3 urban background sites. Three of these sites are temporary and located at the request of the County Council to monitor the effect of infrastructure changes in the City Centre.

Harwell Scientifics supply and analyse the nitrogen dioxide tubes for Cambridge City Council. The tubes are prepared by spiking acetone: triethanolamine (50:50) onto the grids prior to being assembled. The tubes are desorbed with distilled water and the extract is analysed using a segmented flow autoanalyser with ultraviolet detection.

Exposure periods for the diffusion tubes are those of the UK Nitrogen Dioxide Diffusion Tube Network run by Netcen, with the tubes being changed every four or five weeks. QA/QC procedures are as detailed in the UK NO<sub>2</sub> Diffusion Tube Network Instruction Manual, which can be found at [www.airquality.co.uk/archive/reports/cat06/no2instr.pdf](http://www.airquality.co.uk/archive/reports/cat06/no2instr.pdf).

Some diffusion tube data were rejected from the dataset in line with advice from Netcen. Low concentrations are rare at urban background or roadside sites and are likely to result from an analytical problem or a faulty tube and therefore should be rejected, particularly if they are an isolated occurrence. High concentrations should be included unless there is a reason to reject

them. This approach was taken with the 2005 and 2006 data. Previous years data have not been altered because current levels of pollutants are those that are of interest (and the change to the annual average is small).

Tube data referred to within this report have been bias corrected. Cambridge City Council bias correction factors for 2000 onwards are published on the Air Quality Management website at <http://www.uwe.ac.uk/aqm/review/diffusiontube300307.xls>. However, the overall bias correction factor is used for all years in this report because our co-location site has a single tube so the results cannot be relied upon to be sufficiently robust. (Although we note that the Cambridge City Council bias adjustment figures are usually quite close to the overall factor).

The figures published on the AQM website in April 2007 are used in this report. The 2006 overall factor was reported as 0.78 and is referred to here as the 'April Update'. Approximately one third of the tubes results show exceedences of the annual mean. These are on the roads with high traffic numbers.

**Figure 8. Bias Adjustment Factors used in this report**

| Year | Bias Adjustment Factor |
|------|------------------------|
| 2000 | 0.79                   |
| 2001 | 0.78                   |
| 2002 | 0.84                   |
| 2003 | 0.87                   |
| 2004 | 0.89                   |
| 2005 | 0.93                   |
| 2006 | 0.78                   |

The 2006 overall factor is around 10% lower than that reported in previous years, and considerably different from that obtained in Cambridge City. The choice of bias adjustment figure can have a significant impact on reported results. For example, using the Overall Factor instead of the locally derived bias correction factor in 2006 means that far fewer tubes are reported above the objective of  $40 \mu\text{g m}^{-3}$  than would otherwise have been the case.

Advice on choice of locally or nationally derived bias adjustment factors is available from the Air Quality Review and Assessment help desk. Cases where the locally obtained Bias Adjustment Factor may be more representative include tubes exposed in a similar setting to the co-location site and co-location sites with good precision for the diffusion tubes and with high quality chemiluminescence results, i.e. to national AURN standards. Cases where the Combined Bias Adjustment Factor may be more representative include where the survey consists of tubes exposed over a range of settings, which differ from the co-location site, e.g. the collocation site is in a very exposed setting and the tubes being assessed are on a building façade in a canyon-like street or co-location sites with poor precision.

As most of our sites are roadside sites we will be using triplicate tubes in 2007, collocated with our Gonville Place chemiluminescence monitor, which is situated in a roadside location. The location was selected because it is considered to be the most representative of a 'typical' tube location.

**Figure 9. NO<sub>2</sub> Tube Results for 2006, with 2000 - 2005 for comparison, (µg/m<sup>3</sup>), bias-adjusted with the Overall Factor provided by AWE in April 2007**

| Location           | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|--------------------|------|------|------|------|------|------|------|
| Emmanuel Street    | 56   | 55   | 63   | 71   | 59   | 63   | 62   |
| Jesus Lane         | 36   | 40   | 48   | 55   | 47   | 53   | 46   |
| Magdalene Street   | 35   | 35   | 37   | 40   | 34   | 40   | 37   |
| Northampton Street | 51   | 50   | 56   | 61   | 48   | 49   | 45   |
| Silver Street      | 54   | 49   | 60   | 59   | 43   | 47   | 42   |
| Regent Street 2    | 57   | 59   | 63   | 64   | 52   | 53   | 52   |
| Newmarket Road 1   | 46   | 46   | 49   | 52   | 47   | 47   | 43   |
| Milton Road        | 52   | 50   | 55   | 58   | 49   | 50   | 41   |
| Drummer Street     | 55   | 57   | 62   | 61   | 58   | 57   | 49   |
| Gilbert Road       | 31   | 30   | 30   | 33   | 27   | 30   | 25   |
| Latham Road        | 20   | 20   | 21   | 22   | 17   | 21   | 16   |
| Newmarket Road 2   | 39   | 40   | 40   | 41   | 36   | 34   | 32   |
| East Road          | 36   | 35   | 37   | 40   | 37   | 39   | 34   |
| Mill Road          | 42   | 33   | 40   | 43   | 37   | 38   | 35   |
| Hills Road         | 36   | 40   | 43   | 46   | 47   | 46   | 38   |

| Location                      | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|-------------------------------|------|------|------|------|------|------|------|
| Regent Street<br>(CCC office) | 42   | 40   | 41   | 44   | 39   | 42   | 36   |
| Trinity Street                | 32   | 32   | 34   | 36   | 33   | 35   | 32   |
| Pembroke<br>Street            | 48   | 49   | 50   | 54   | 46   | 50   | 46   |
| Gonville Place                | 38   | 40   | 46   | 51   | 43   | 35   | 32   |
| Elizabeth Way                 | 44   | 42   | 45   | 49   | 43   | 43   | 37   |
| Victoria Road                 | 44   | 49   | 48   | 52   | 42   | 44   | 41   |
| Madingley<br>Road             | 42   | 40   | 46   | 48   | 41   | 45   | 40   |
| Huntingdon<br>Road            | 35   | 36   | 38   | 41   | 36   | 36   | 33   |
| Histon Road                   | 41   | 38   | 40   | 41   | 39   | 38   | 37   |
| Queens Road                   | 35   | 34   | 38   | 39   | 34   | 36   | 32   |
| Fen Causeway                  | 30   | 31   | 35   | 37   | 35   | 34   | 33   |
| Trumpington<br>Road           | 37   | 37   | 41   | 45   | 35   | 38   | 33   |
| Babraham<br>Road              | 37   | 40   | 42   | 44   | 40   | 42   | 35   |
| Cherry Hinton<br>Road         | 35   | 34   | 37   | 38   | 34   | 36   | 35   |
| Arbury Road                   | 39   | 37   | 44   | 46   | 38   | 44   | 39   |
| Newnham Road                  | 50   | 47   | 53   | 61   | 53   | 52   | 48   |
| Chesterton Rd                 | 42   | 37   | 41   | 45   | 42   | 42   | 34   |

| Location           | 2000 | 2001 | 2002 | 2003 | 2004 | 2005            | 2006 |
|--------------------|------|------|------|------|------|-----------------|------|
| Victoria Avenue    | 40   | 43   | 52   | 56   | 49   | 54              | 47   |
| Parker Street      | 48   | 44   | 50   | 56   | 51   | 47              | 46   |
| Abbey Road         | 45   | 41   | 45   | 48   | 46   | 50              | 42   |
| Cockburn Street    | 26   | 27   | 29   | 32   | 27   | 28              | 24   |
| Oaktree Avenue     | 28   | 27   | 29   | 31   | 30   | 28              | 24   |
| Chesterton Road    | 36   | 35   | 38   | 39   | 38   | 38              | 33   |
| Maids Causeway     | 39   | 42   | 46   | 46   | 41   | 49              | 47   |
| Emmanuel Road      | 44   | 50   | 54   | 65   | 58   | 59              | 54   |
| Downing Street     | 41   | 41   | 44   | 48   | 45   | 52              | 45   |
| Trumpington Street | 40   | 39   | 40   | 43   | 34   | 35              | 32   |
| Lensfield Road     |      |      |      |      | 33   | 37              | 32   |
| Park Terrace       |      |      |      |      |      | 49 <sup>2</sup> | 33   |
| St Andrew's Street |      |      |      |      |      | 74 <sup>3</sup> | 60   |
| Parkside           |      |      |      |      |      |                 | 33   |

---

<sup>2</sup> 2 months data

<sup>3</sup> 2 months data



A review of tube locations was undertaken in early 2007 for three reasons. Firstly, the distribution of poor and good air quality in the City Centre is now well understood – diffusion tubes have been used in Cambridge since 1993, R&A work (carried out since 1998) has included modelling as well as monitoring and it had become apparent that information from some of the tube locations was superfluous to requirements. A number of traffic restrictions, discussed in previous reports, had come into place, the effects of which could be observed by examination of data from both the diffusion tubes and continuous monitors. Some of the centrally located tube locations sites are on streets that now have minimal or less traffic – a situation that is not likely to change. Six sites in central Cambridge were proposed for removal – Jesus Lane, Regent Street 2, Trinity Street, Gonville Place, Chesterton Lane and Queen’s Road (see Figure 11). Further traffic restrictions are likely to come into force in the near future; tubes were retained where they should be able to show the impact from these changes.

Secondly, the Cambridge Urban Growth Agenda – a term that covers the increase in housing planned for Cambridge and its immediate environs (discussed elsewhere) - is likely to result in an increase in traffic. Therefore, City Council officers decided to relocate the removed tubes to locations where our understanding of air quality is less developed and where the impacts of increased traffic are most likely to be observed. Diffusion tubes have been placed on Barton Road, Coldhams Lane, Hills Road (near the junction with Cherry Hinton Road), Histon Road (near the junction with Kings Hedges Road), Huntingdon Road (at the City/South Cambs boundary) and Long Road (near the junction with Trumpington Road). Details of these changes are shown in figures 12 -14.

Thirdly, it became apparent that some of the tubes would deliver more meaningful results if they were slightly repositioned. It was originally considered (in 1993) that a range of positions (kerbside, roadside, background etc) would give a clear picture of air pollution across the City, but the Further Assessment (2006) showed that some sites were exceeding although they had not been predicted to exceed when the Detailed Assessment was carried out (2004). Therefore, City Council officers decided to reposition six sites – Milton Road, Babraham Road, Huntingdon Road, Arbury Road, and Lensfield Road have all been re-positioned closer to relevant receptors. Abbey Road tube, which always exceeds despite being approximately 10 metres from the main road) has been re-positioned at a slightly further distance from the Elizabeth Way junction to improve our understanding of dispersion in the area.

**Figure 11. Exposure at Diffusion Tube Locations**

|    | Location           | Relevant exposure   |
|----|--------------------|---|
| 1  | Emmanuel Street    | Shopping street at the bus station, retained to continue monitoring in the bus station area         |
| 2  | Jesus Lane         | Not retained as no further traffic changes are anticipated on this inner ring road                  |
| 3  | Magdalene Street   | Residential/shopping street and a main route to the inner core area                                 |
| 4  | Northampton Street | Residential/shopping street and on a key section of the inner ring road                             |
| 5  | Silver Street      | Shopping street and a main route to the inner core area, opposite former continuous monitoring site |
| 6  | Regent Street 2    | Not retained as no further changes are anticipated on this shopping street                          |
| 7  | Newmarket Road     | Shopping street, close to major roundabout (Elizabeth Way), and main feeder road                    |
| 8  | Milton Road        | Relocated closer to the facades of residential property on this main feeder road                    |
| 9  | Drummer Street     | Bus station, retained to continue monitoring in bus station area                                    |
| 10 | Gilbert Road       | Residential property and a main route across the city   |
| 11 | Latham Road        | Urban Background site at school playing fields  |
| 12 | Newmarket Road     | Main feeder road, only tube in this part of the city, further development planned in this area      |
| 13 | East Road          | Shopping street including sensitive receptor of a school  |
| 14 | Mill Road          | Residential/shopping street and a main route to the inner core area                                 |
| 15 | Hills Road         | Shopping street, located on a main route and near a key junction (Hyde Park Corner)                 |
| 16 | Regent Street      | Shopping street, co-located with continuous monitor at Council Offices (Environmental Health)       |
| 17 | Trinity Street     | Not retained as this shopping street has limited vehicular access (historic core area)              |
| 18 | Pembroke Street    | This shopping street is retained to monitor changes related to Lion Yard Car Park                   |
| 19 | Gonville Place     | Not retained as residential exposure is limited on this section of the inner ring road              |
| 20 | Elizabeth Way      | Retained to monitor traffic changes on this busy section of the inner ring road                     |
| 21 | Victoria Road      | Residential/shopping street and a main route to the inner core area                                 |

|    | Location           | Relevant exposure  |
|----|--------------------|--|
| 22 | Madingley Road     | Main feeder road, further development planned in this area   |
| 23 | Huntingdon Road    | Relocated closer to the facades of residential property on this main feeder road   |
| 24 | Histon Road        | Residential/shopping street and a main feeder road   |
| 25 | Queens Road        | Not retained as residential exposure is limited on this section of the inner ring road   |
| 26 | Fen Causeway       | Shopping street including sensitive receptors of a school/residential  |
| 27 | Trumpington Road   | Main feeder road, only tube in this part of the city, further development planned in this area   |
| 28 | Babraham Road      | Relocated closer to the facades of residential property on this main feeder road, further development due  |
| 29 | Cherry Hinton Road | Main feeder road, only tube in this part of the city, further development planned  |
| 30 | Arbury Road        | Relocated closer to the facades of residential property on this main feeder road   |
| 31 | Newnham Road       | Residential/shopping street and on a key section of the inner ring road  |
| 32 | Chesterton Lane    | Not retained as residential exposure is limited on this section of the inner ring road   |
| 33 | Victoria Avenue    | Residential/shopping street and on a key section of the inner ring road, adjacent to Cam crossing  |
| 34 | Parker Street      | Residential property in the bus station area, retained to monitor changes in bus station area  |
| 35 | Abbey Road         | Relocated further away from major roundabout (Elizabeth Way) but still close to façade of residential property (tube number 12 is situated close to the roundabout) to monitor spread of exceedences |
| 36 | Cockburn Street    | Urban Background site in residential area  |
| 37 | Oaktree Avenue     | Urban Background site in residential area  |
| 38 | Chesterton Road    | Residential/shopping street and on a key section of the inner ring road  |
| 39 | Maids Causeway     | Residential street on a key section of the inner ring road   |
| 40 | Emmanuel Road      | Residential street on a key section of the inner ring road near bus station  |
| 41 | Downing Street     | This shopping street is retained to monitor changes related to Lion Yard Car Park  |

|    | Location           | Relevant exposure   |
|----|--------------------|---|
| 42 | Trumpington Street | Residential/shopping street in central part of the City   |
| 43 | Lensfield Road     | Relocated closer to the facades of residential property on this part of the inner ring road         |
| 44 | Park Terrace       | County Council request to monitor any changes as further stages of Core Traffic Scheme come forward |
| 45 | St Andrew's St     | County Council request to monitor any changes as further stages of Core Traffic Scheme come forward |
| 46 | Parkside           | County Council request to monitor any changes as further stages of Core Traffic Scheme come forward |

**Figure 12. Diffusion Tube Locations**

|    | Location        | Grid reference   | Position  |
|----|-----------------|------------------|---|
| 8  | Milton Road*    | 545977<br>260352 | Lamp post at entrance to Birch Close, close to Birch Close sign. No longer on kerbside and closer to residential building facades.  |
| 23 | Huntingdon Road | 543694<br>259867 | Moved back from the main road to a post adjacent to garden fence.   |
| 28 | Babraham Road*  | 546948<br>255169 | On parking restriction post off Nightingale Road (on Hills Road). Closer to residential building facades.   |
| 30 | Arbury Road*    | 545693<br>260473 | On lamp post near Maio Road cul-de-sac, east side of the road. Housing close to the road on both sides. Moved to be closer to relevant receptors.   |
| 35 | Abbey Road*     | 546163<br>258983 | Moved to outside 33 Abbey Road to improve understanding of air pollution in the area.   |
| 43 | Lensfield Road* | 545271<br>257675 | On lamp post 11 outside 54 Lensfield Road opposite Panton Road. Moved to be closer to receptors.  |
| 47 | Barton Road     | 544100<br>257473 | On parking restriction and Cycle Crossing sign near Millington Road just outside Croft Lodge (block of flats). Housing on the south side of Barton Road is closer to the highway. A busy feeder road (6,500 vmp 12 hour period 2003), little air quality data from this part of the City. |
| 48 | Coldham's Lane  | 547216<br>258286 | On lamppost 34, between 177 and 179 Coldhams Lane. Housing on north eastern side of Coldhams Lane within 5m of road in places. A busy road (5,500 vmp 12 hour period 2003), little air quality data from this part of the City.   |

|    | Location          | Grid reference   | Position  |
|----|-------------------|------------------|---|
| 49 | Hills Road 2      | 546166<br>256580 | On brown Sports and Tennis Centre sign outside Bridges Guest House, just north of Elsworth Place, on east side of road near petrol station, opposite to Hills Road Sixth Form College. In vicinity of junction with Cherry Hinton Road. |
| 50 | Histon Road 2     | 544284<br>261273 | On east side of road, just after Blackhall Road near Footpath, on a lamp post with cycle signs, Adjacent to a house, allotments opposite. In vicinity of junction with Kings Hedges Road.   |
| 51 | Huntingdon Road 2 | 543101<br>260344 | On electricity post just west of Whitehouse Lane on north side of the road, opposite Travellers Rest. Positioned to assess future changes in air quality as a result of development in and to the north west of Cambridge.              |
| 52 | Long Road         | 544867<br>255709 | On R1134 sign post north side of the road near Orangery and opposite Gilmerton Court. Close to residential developments on a busy road and in vicinity of junction with Trumpington Road.   |

**Figure 13. New Tube Locations**

|                       |  |
|-----------------------|--|
| <p>Barton Road</p>    |    |
| <p>Coldham's Lane</p> |   |
| <p>Hills Road 2</p>   |  |

Histon Road 2



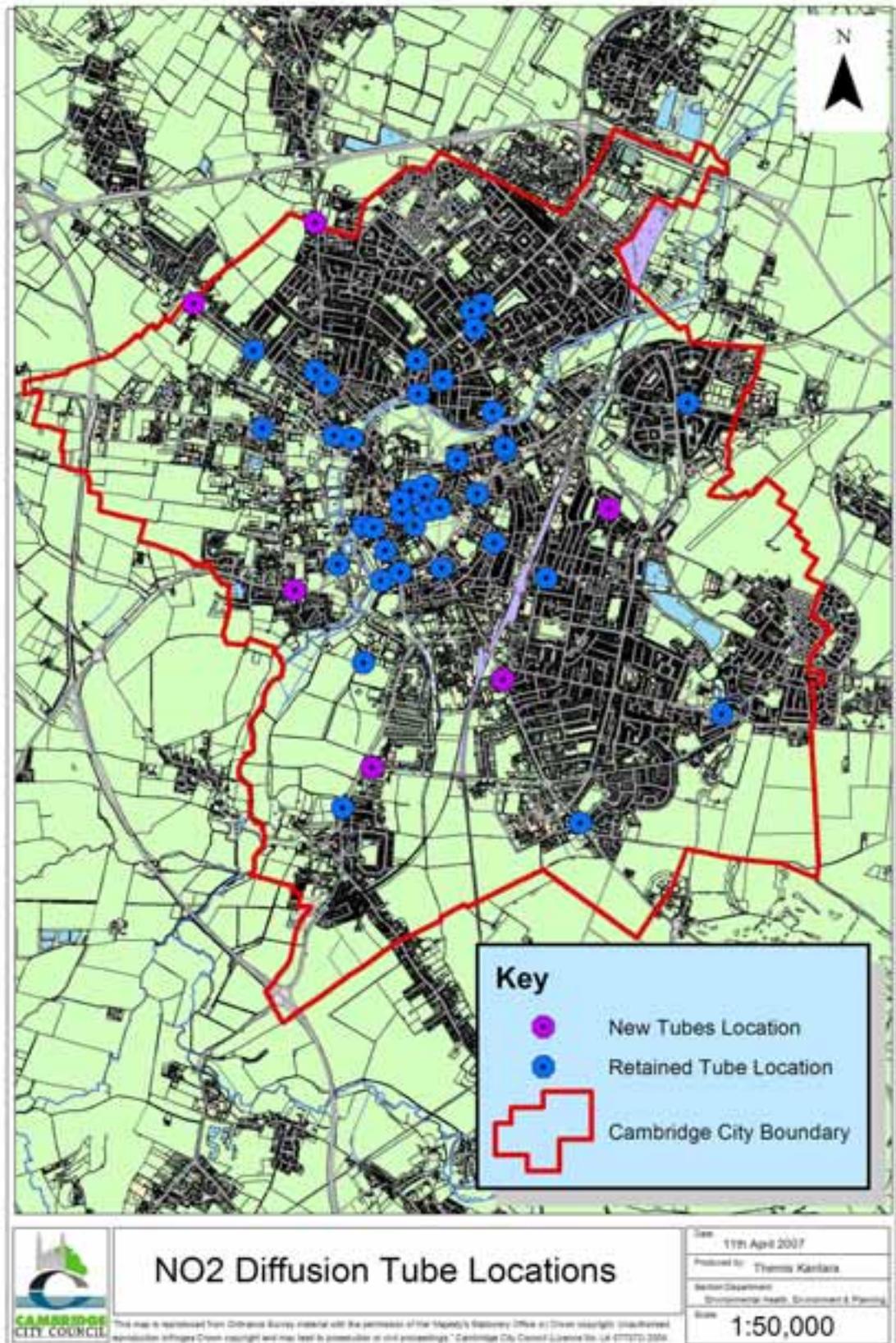
Huntingdon Road 2



Long Road



Figure 14. Map of new locations



## 2.1.2 PM<sub>10</sub> Monitoring Data

PM<sub>10</sub> are continuously monitored at four city centre locations in Cambridge, although only three were in service in 2006. The particulate monitor at Newmarket Road is an Eberline FH 62-IN Beta-attenuation monitor with a heated inlet manifold although this is held at 40°C as opposed to 50°C, the standard used in TEOM monitors. Service, repair and calibration of the Eberline particulate monitor are carried out under an annual contract with the equipment suppliers, Thermo Electron. The particulate monitors at Silver Street (relocated to Montague Road in April 2007), Parker Street and Gonville Place are Rupprecht & Patashnick TEOM® series 1400a ambient particulate (PM<sub>10</sub>) monitors. Service, repair and calibration of these monitors are carried out under an annual contract with Casella Stanger. Both types of monitor collect particulate matter on heated filters to minimise errors associated with evaporation and condensation. However, this can lead to loss of volatile PM<sub>10</sub>. As EU limit values and UK objectives are based on measurements using a gravimetric sampler, the results are multiplied by an interim default adjustment factor of 1.3 in accordance with current UK guidance. The results below have been adjusted.

All of the PM<sub>10</sub> monitoring stations are measuring concentrations that do not breach the current objectives, although concentrations in Parker Street are often approaching the objective.

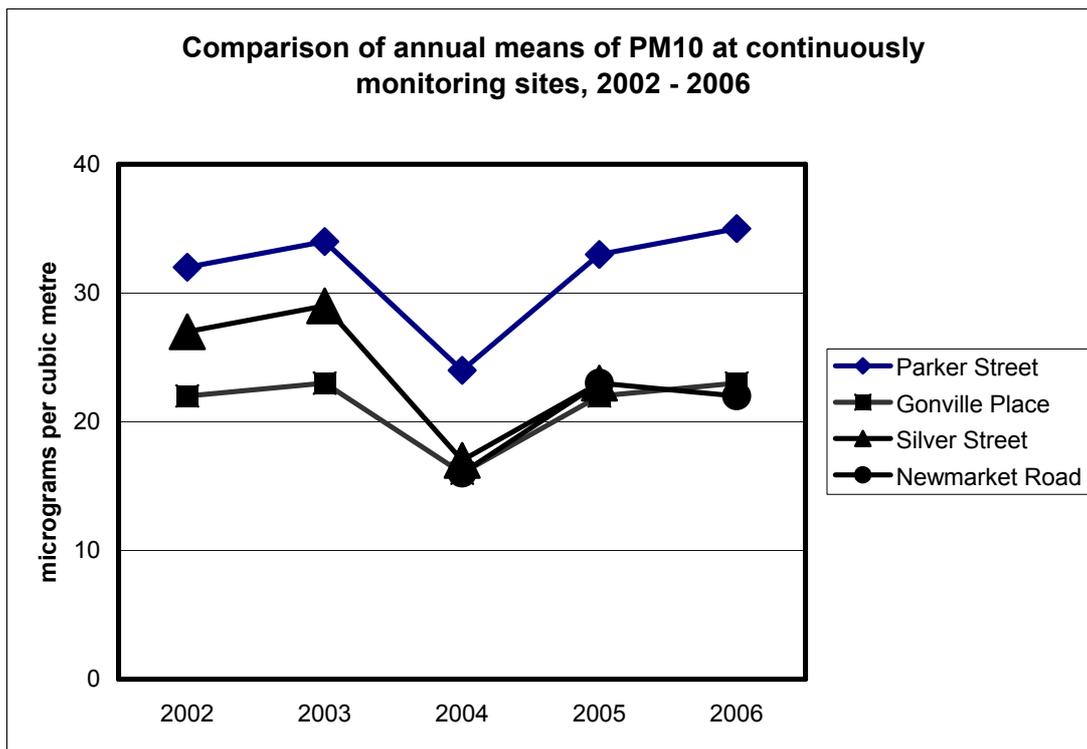
A comparison of the data over the past five years show a pattern repeated at all of the sites – levels are fairly constant at all sites, with the exception of a dip in 2004. This is likely to be related to meteorology.

**Figure 15. PM<sub>10</sub> Concentrations (µg/m<sup>3</sup>) 2002 – 2006**

|                | 2002              |                                       | 2003              |                                       | 2004        |                                       | 2005        |                                       | 2006        |                                       |                |
|----------------|-------------------|---------------------------------------|-------------------|---------------------------------------|-------------|---------------------------------------|-------------|---------------------------------------|-------------|---------------------------------------|----------------|
|                | Annual mean       | Number of exceedences of 24 hour mean | Annual mean       | Number of exceedences of 24 hour mean | Annual mean | Number of exceedences of 24 hour mean | Annual mean | Number of exceedences of 24 hour mean | Annual mean | Number of exceedences of 24 hour mean | Data capture % |
| Parker Street  | 32                | 25                                    | 34                | 33                                    | 24          | 15                                    | 33          | 20                                    | 35          | 28                                    | 96.7           |
| Silver Street  | 27                | 12                                    | 29                | 27                                    | 17          | 4                                     | 23          | 3                                     | na          | na                                    | na             |
| Newmarket Road | Insufficient Data |                                       | Insufficient Data |                                       | 16          | 0                                     | 23          | 4                                     | 22          | 4                                     | 96.5           |
| Gonville Place | 22                | 4                                     | 23                | 10                                    | 16          | 3                                     | 22          | 0                                     | 23          | 4                                     | 98.1           |

Data has been ratified by netcen.

Figure 16. Comparison of PM<sub>10</sub> annual means



## 2.2 East Cambridgeshire

### 2.2.1 Nitrogen Dioxide

The Annual mean objective being  $40\mu\text{g}/\text{m}^3$  by 31<sup>st</sup> December 2005. This was achieved in the previous years USA and continues to be the reference objective until it is superseded.

The 12 Diffusion Tube locations are given in Figure 20, most of which are located at the roadside or kerbside along with 4 urban background sites. No new tube locations were added to the network in 2006.

The prediction of 2010 concentrations was carried out using the Year Adjustment Calculator version 22A from [www.airquality.co.uk](http://www.airquality.co.uk).

Harwell Scientifics supply and analyse the nitrogen dioxide tubes for East Cambridgeshire District Council. The tubes are prepared by spiking acetone: triethanolamine (50:50) onto the grids prior to being assembled. The tubes are desorbed with distilled water and the extract analysed using a segmented flow autoanalyser with ultraviolet detection.

Exposure periods for the diffusion tubes are those of the UK Nitrogen Dioxide Diffusion Tube Network run by NETCEN, with the tubes being changed every four or five weeks. QA/QC procedures are as detailed in the UK NO<sub>2</sub> Diffusion Tube Network Instruction Manual, which can be found at [www.airquality.co.uk/archive/reports/cat06/no2instr.pdf](http://www.airquality.co.uk/archive/reports/cat06/no2instr.pdf)

The diffusion tube values have been multiplied by a bias correction factor obtained from the AQR&A support provided by UWE. The bias correction factor was derived from twelve sets of diffusion tubes (for 2006 data), which were collocated with real-time analysers in 2006.

**Figure 17. Bias Adjustment Factors used in this report.**

| Year | Bias correction factor |
|------|------------------------|
| 2003 | 0.87                   |
| 2004 | 0.89                   |
| 2005 | 0.93                   |
| 2006 | 0.78                   |

\*Sourced from AEA Collocation Spreadsheet 03/07 which can be found at

- <http://www.uwe.ac.uk/aqm/review/diffusiontube300307.xls> &
- <http://www.uwe.ac.uk/aqm/review/mguidance.html#Bias%20Adjustment>

Compared with the results detailed in the 2006 USA, the corrected tube readings for 2006 are marginally lower than those in 2005. A map detailing the locations of the diffusion tubes are shown in Figure 20.

**Figure 18. East Cambridgeshire NO<sub>2</sub> Diffusion Tube Results. Annual mean µg/m<sup>3</sup>**

| Site Name                      | Site type        | Distance From Kerb (m) | Corrected* NO <sub>2</sub> 2003 | Corrected* NO <sub>2</sub> 2004 | Corrected* NO <sub>2</sub> 2005 | Corrected* NO <sub>2</sub> 2006 | Adjust to 2010 (From 2006 data*) |
|--------------------------------|------------------|------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|----------------------------------|
| 38 Market St, Ely              | Roadside         | 1.5                    | 31.1                            | 25.2                            | 26.1                            | 24.8                            | 21.5                             |
| Abbot Thurston Av, Ely         | Urban Background | 1.5                    | 22.1                            | 18.2                            | 18.0                            | 15.5                            | 13.9                             |
| Station Rd, Ely                | Roadside         | 3.5                    | 34.5                            | 32.6                            | 30.0                            | 28.8                            | 24.9                             |
| Fieldside, Ely                 | Urban Background | 3                      | 23.9                            | 19.3                            | 18.7                            | 15.4                            | 13.8                             |
| Main St, Littleport            | Roadside         | 2                      | 27.4                            | 22.4                            | 20.0                            | 21.0                            | 18.2                             |
| High St, Soham                 | Roadside         | 1.5                    | 30.5                            | 24.1                            | 23.1                            | 23.0                            | 19.9                             |
| Market Street, Fordham         | Roadside         | 1.5                    | 45.7                            | 40.9                            | 31.6                            | 20.5                            | 17.8                             |
| Sheriff's Court, Borough Green | Urban Background | 1.5                    | 17.9                            | 14.6                            | 14.7                            | 11.4                            | 10.2                             |
| Station Rd, Haddenham          | Roadside         | 1                      | 30.7                            | 27.4                            | 26.9                            | 25.0                            | 21.6                             |
| Tramar Drive, Sutton           | Urban Background | 2                      | 24.3                            | 21.2                            | 20.6                            | 17.8                            | 15.9                             |
| Nutholt Lane, Ely              | Roadside         | 2.5                    | 34.5                            | 26.5                            | 27.9                            | 25.7                            | 22.3                             |
| A142, Witcham Toll             | Roadside         | 1                      | 35.4                            | 29.1                            | 30.1                            | 28.9                            | 25                               |

\* 2010 forecast predictions were made with the Year Adjustment Calculator (V.22a) provided at the following link:

[http://www.airquality.co.uk/archive/laqm/tools/Year\\_Adjustment\\_Calculator22a.xls](http://www.airquality.co.uk/archive/laqm/tools/Year_Adjustment_Calculator22a.xls)

## 2.2.2 PM<sub>10</sub> Monitoring Data

PM<sub>10</sub> Annual mean and number of exceedances of the annual mean for 2006.

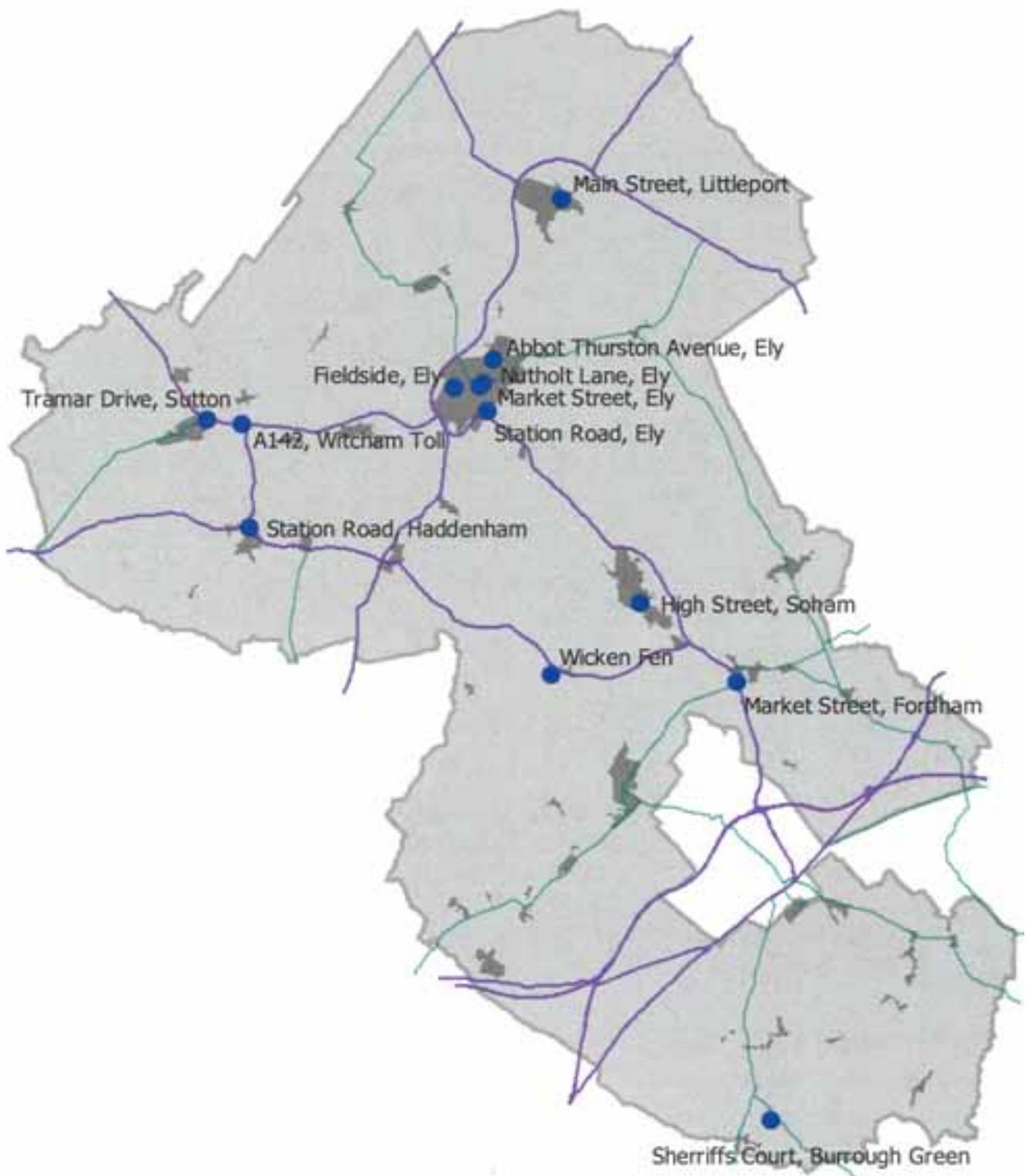
Annual mean objective being 40µgm<sup>-3</sup> and the 24 hour mean objective being 50µgm<sup>-3</sup>, not to be exceeded more than 35 times a year, however the 90<sup>th</sup> percentile is shown below due to data capture limitations (below 90%), as per guidance in LAQM.TG(03). As EU limit values and UK objectives are based on measurements using a gravimetric sampler. The results are multiplied by an interim default adjustment factor of 1.3 in accordance with current UK guidance. The results below have been adjusted.

**Figure 19. PM<sub>10</sub> Concentrations (µg/m<sup>3</sup>) Measured at Wicken Fen (Site Type: Rural)**

| PM <sub>10</sub>  | 2003 | 2004  | 2005  | 2006 | National Air Quality Objectives |
|---|------|-------|-------|------|---------------------------------|
| Measured Annual Mean without 1.3 interim adjustment factor applied                  | 26.2 | 15.1  | 15.7  | 20   |                                 |
| Data capture of hourly means  | 88 % | 100 % | 100 % | 85%  | 90 %                            |
| Annual Mean with interim adjustment factor of 1.3 applied (gravimetric)             | 34.1 | 19.6  | 20.4  | 26   | 40                              |
| Number of exceedances of 24 hour mean > 50µg/m <sup>3</sup>                         | 30   | 9     | 16    | 17   | 35                              |
| 90 <sup>th</sup> percentile (gravimetric)– reported where data capture is below 90% | 62.4 | N/A   | N/A   | 36.4 |                                 |

- The particulate monitor used is an Eberline FH 62-IR Beta-attenuation monitor with a heated inlet manifold, although this is held at 40°C as opposed to 50°C, the standard used in TEOM monitors.
- Data capture for the year is 85%. This is due to problems encountered with the data logger during July and August, which resulted in limited data being captured for these months. Unfortunately, due to agricultural activities, these months are usually periods of elevated PM<sub>10</sub> in this area. The annual mean would be expected to be slightly higher if data had been captured for this area, as would the number of 24hr exceedances. However, it is not expected that any of the objectives would have been breached, if 100% data capture had been achieved, based on previous annual data sets included in Table 3.
- On the advice of the Air Quality Helpdesk the results were not scaled up from 85% as per box 8.5 in the technical guidance, LAQM.TG(03), due to the lack of rural monitoring sites measuring PM<sub>10</sub>, no rural AUN sites monitor particulates in East Anglia.
- The monitor is located within the AUN rural monitoring station at Wicken Fen, approximate NG reference 556400, 269200 shown in Figure 20.
- There are no relevant receptors at the monitoring location which is surrounded to the south and east by arable land, to the north lies a wetland nature reserve and to the east the site is boarded by a public foot path, an unmade dust track, with fen drainage channels beyond. The nearest receptor is an isolated farm, some 260m to the east of the site away from the public footpath.
- Service, repair and calibration of the Eberline particulate monitor are carried out under an annual contract with the equipment suppliers, Themo Electron.
- This is the fourth year of data collection at the site. Compared with the results detailed in the 2006 Updating and Screening Assessment, the unadjusted PM<sub>10</sub> readings for 2006 are slighter higher than those in 2005. Although the 2006 results are still meeting the Air Quality Objectives.

Figure 20. Air Quality Monitoring Locations in East Cambridgeshire



This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office. Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. East Cambridgeshire District Council Licence Number LA0778361

## 2.3 Fenland District Council

### 2.3.1 Monitoring within AQMAs

Figure 21. 2006 NO<sub>2</sub> Diffusion Tubes Data (µg/m<sup>3</sup>)

| WISBECH                 | Raw  | Bias-<br>Adjusted |
|-------------------------|------|-------------------|
| Mount Pleasant Road     | 55.0 | 42.8              |
| Bowthorpe Centre        | 37.9 | 29.6              |
| Lynn Road AQMS          | 25.6 | 19.9              |
| Lynn Road Roundabout    | 54.6 | 42.5              |
| Weasenham Lane Junction | 43.0 | 33.5              |
| Ramnoth Road Junction   | 32.3 | 25.2              |
| Napier Court AQMS       | 35.5 | 27.6              |
| Westmead Avenue         | 22.6 | 17.6              |

#### Continuous Data Management

The Council has instructed Air Quality Consultants Ltd to ratify the 2006 Data. This has not yet been completed, therefore, the following data is all provisional.

#### QA/QC

The Council will be joining the Scientifics Calibration Club in order to establish a robust QA/QC regime at both monitoring sites.

#### NO<sub>2</sub> Chemiluminescence Data (Napier Court AQMS)

Fenland District Council installed a continuous monitor at Napier Court, facing Churchill Road, Wisbech on 28 June 2006.

There have been no exceedances of the 200 µg/m<sup>3</sup>. The Council will carry out the Further Assessment once 12 months of data is available.

## **Lynn Road Monitoring Station in Wisbech**

The Council experienced a severe computer hardware and software breakdown in 2005. The monitoring station was restarted on 16 June 2006 with an Envidas data logger. The data collection after this time has been very good for the API M100x SO<sub>2</sub> analyser. However, there have been hardware conflicts between the data logger and the METOne BAM1020 Particulate monitor. Whereby, the monitor sends a minor error alert to the data logger, which is falsely interpreted as an overload.

The Council has arranged for communications at the site to be altered so that the data capture can be increased, by allowing direct third party access to the monitor. This shall be completed by June.

### **SO<sub>2</sub>**

The 99.9<sup>th</sup> Percentile of 15-minute means is 76.4 µg/m<sup>3</sup>.

The 99.7<sup>th</sup> Percentile of 1-hour means is 63.0 µg/m<sup>3</sup>.

The 99.2<sup>nd</sup> Percentile of 24-hour means is 27.3 µg/m<sup>3</sup>

### **PM<sub>10</sub>**

The 90<sup>th</sup> Percentile for the PM<sub>10</sub> data is 57.3 µg/m<sup>3</sup>.

The mean for all 2006 data is 35.0 µg/m<sup>3</sup>.

The 90<sup>th</sup> percentile indicates that the objective has been breached. However, it is not possible to determine the degree to which the faulty communication setup has elevated the readings. Checking the data against Northampton's PM<sub>10</sub> results does not show any clear correlation between days of exceedance. Therefore, exceedances cannot be attributed to secondary particulates

## SO<sub>2</sub> Monitoring in Whittlesey

**Figure 22. Hanson Building Products Ltd, Whittlesey - Monitoring of SO<sub>2</sub> exceedances (ppb)**

|        | <b>Bradley Fen</b> |        |         | <b>Saxon Works</b> |        |         |
|--------|--------------------|--------|---------|--------------------|--------|---------|
| Period | 15 min             | 1hour  | 24 hour | 15 min             | 1hour  | 24 hour |
| Conc   | 100ppb             | 132ppb | 47ppb   | 100ppb             | 132ppb | 47ppb   |
| Jan    | 0                  | 0      | 0       | 0                  | 0      | 0       |
| Feb    | 0                  | 0      | 0       | 0                  | 0      | 0       |
| Mar    | 0                  | 0      | 0       | 2                  | 0      | 0       |
| Apr    | 0                  | 0      | 0       | 0                  | 0      | 0       |
| May    | 0                  | 0      | 0       | 2                  | 0      | 0       |
| June   | 2                  | 0      | 0       | 0                  | 0      | 0       |
| July   | 3                  | 0      | 0       | 4                  | 0      | 0       |
| Aug    | 0                  | 0      | 0       | 9                  | 0      | 0       |
| Sept   | 4                  | 0      | 0       | 1                  | 0      | 0       |
| Oct    | 0                  | 0      | 0       | 0                  | 0      | 0       |
| Nov    | 0                  | 0      | 0       | 0                  | 0      | 0       |
| Dec    | 0                  | 0      | 0       | 0                  | 0      | 0       |
| Total  | 9                  | 0      | 0       | 18                 | 0      | 0       |
| Limit  | 35                 | 24     | 3       | 35                 | 24     | 3       |

As can be seen, the number of exceedances at the modelled areas of maximum concentration are lower than the initial model suggested, and which the AQMA was based upon.

The Council will use this information along with Hanson's CEMS data in the stage 3 assessment to determine whether the AQMA is justified.

## 2.3.2 Monitoring Outside AQMAs

Figure 23. NO<sub>2</sub> Diffusion Tube Monitoring

| NO <sub>2</sub> Diffusion Tubes | Bias- |          |
|---------------------------------|-------|----------|
|                                 | Raw   | Adjusted |
| <b>MARCH</b>                    |       |          |
| Station Road                    | 26.9  | 20.9     |
| Broad Street                    | 45.1  | 35.1     |
| High Road                       | 30.6  | 23.9     |
| City Road                       | 20.4  | 15.9     |
| <b>WHITTLESEY</b>               |       |          |
| Orchard Roundabout              | 34.2  | 26.7     |
| Kings Dyke                      | 31.6  | 24.6     |
| A605 Opposite Syers Street      | 36.1  | 28.1     |
| Cemetery Road Roundabout        | 31.8  | 24.7     |
| <b>COATES</b>                   |       |          |
| A605                            | 31.3  | 24.3     |
| <b>CHATTERIS</b>                |       |          |
| Clare St                        | 28.7  | 22.4     |
| New Road                        | 26.7  | 20.8     |
| <b>THORNEY TOLL</b>             |       |          |
| North of A47                    | 40.5  | 31.5     |

Diffusion tubes were prepared and analysed by Scientifics' Harwell laboratory using TEA in Acetone (50%)

The bias adjustment of 0.779 was obtained from UWE's bias adjustment spreadsheet for the Harwell laboratory as of 16 April 2007.

## 2.4 Huntingdonshire District Council

### 2.4.1 Nitrogen Dioxide

Huntingdonshire DC has three real-time analysers measuring oxides of Nitrogen in their area. One analyser is housed at Pathfinder House, on the Huntingdon Ring road, with the inlet 3m from the kerb. One analyser is housed in a mobile unit that was located 10m north of the elevated A14 at Godmanchester until the end of December 2006. The third analyser is located above a shop in the AQMA in St Neots High Street. The data capture for all three analysers was in excess of 90% so no correction to the annual mean is required.

All of the analysers are Thermo Fisher 42c models linked to data loggers. These analysers are calibrated monthly, serviced every six months by Thermo Fisher and are subject to external QA/QC visits every six months. The analysers are located as follows:

- Huntingdon Ring Road. This analyser is located at Pathfinder House, Huntingdonshire District Council's Head Quarters, and is within the Huntingdon AQMA. This analyser's inlet is located above the pavement of the Huntingdon inner ring road. The analyser is three years old and replaced an older model which had been at that location since 1998.
- Mobile Unit. The mobile unit comprises several analysers within a trailer. This unit has been moved a number of times since its acquisition in 1999. For the last two years it has been adjacent to the elevated A14 at Godmanchester but in January 2007 it was relocated to a rural background site close to Grafham Water.
- St Neots High Street. This analyser is located above a shop in the High Street and is within the St Neots AQMA. The inlet is above the pavement of the High Street. The analyser is two years old and was purchased following the identification of high concentrations of NO<sub>2</sub> in and around the High Street to provide more detailed information.

**Figure 24. Real time NO<sub>2</sub> monitoring data**

| Location                    | Real-time Analyser Corrected Annual Mean NO <sub>2</sub><br>Concentration µg/m <sup>3</sup> |      |      |      |
|-----------------------------|---|------|------|------|
|                             | 2003  | 2004 | 2005 | 2006 |
| Year                        | 2003  | 2004 | 2005 | 2006 |
| Mobile Unit (Godmanchester) | 27  | 30   | 28   | 26   |
| Ring Road, Huntingdon       | 46  | 45   | 35   | 30   |
| High Street, St Neots       | -   | -    | 53   | 43   |

All three of the analysers are located within, and are proposed to remain within, designated AQMAs.

#### **NO<sub>2</sub> Diffusion Tube Data 2006.**

Huntingdonshire District Council (HDC) has been using NO<sub>2</sub> diffusion tubes since 1996. 27 NO<sub>2</sub> diffusion tubes are now exposed on a monthly basis across the district. The 'Pathfinder' tube is collocated with a real time analyser. The three 'mobile' tubes are collocated with the mobile analyser. The tube supplier is Harwell Scientifics and the preparation method is 50% TEA in Acetone. The bias figure used was provided by UWE and is 0.78. Corrected tube data in this report differs from that reported in the Huntingdonshire District Council Further Assessment 2007 as the bias adjustment figure which was available then (the February Update) was 0.93.

Data from the three real-time analysers (Figure 24 above) indicate that annual mean NO<sub>2</sub> concentrations at those locations have reduced significantly since 2005 and, indeed, since 2003. Diffusion tube data (Figure 26 below) appears to show the same trend.

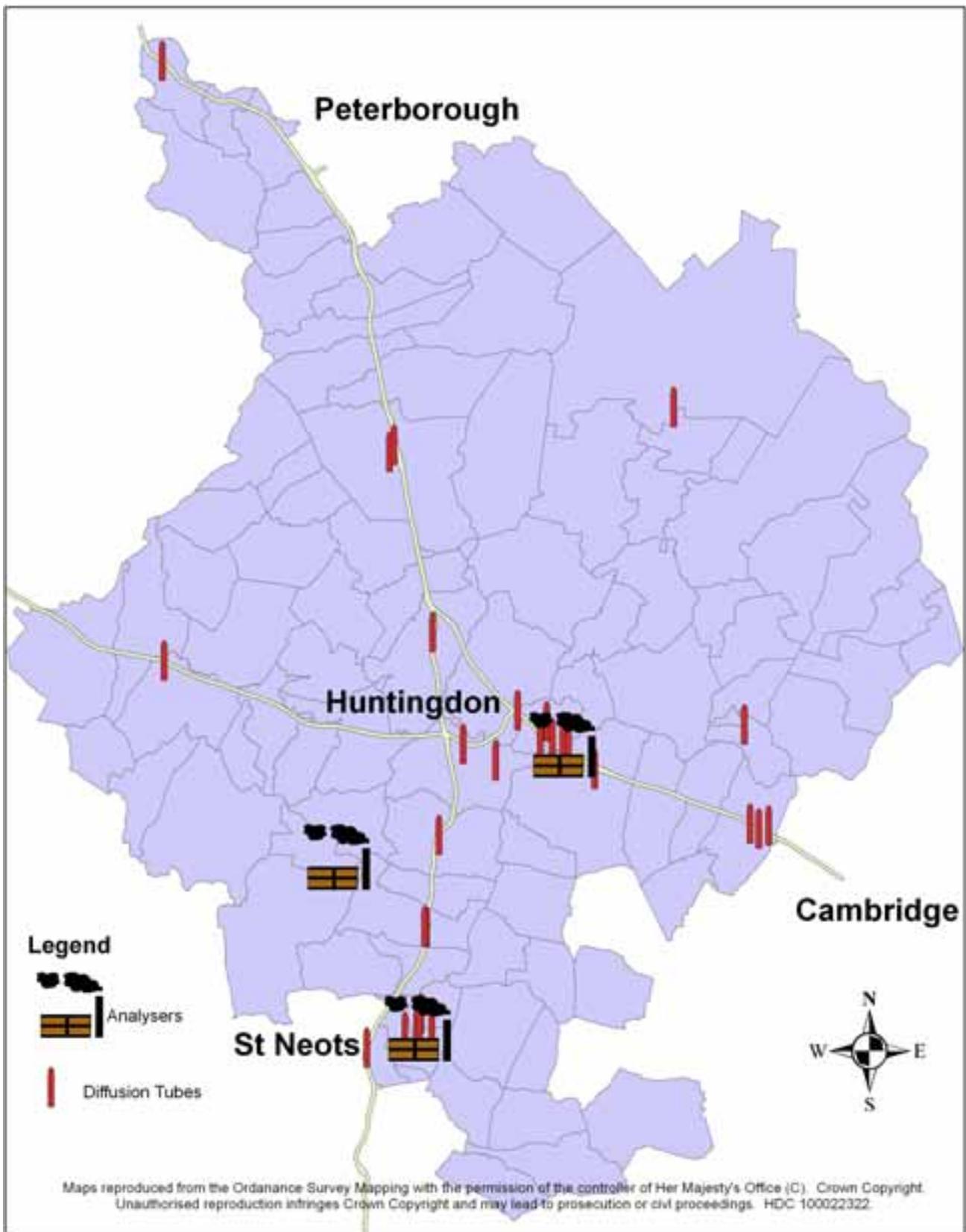
All of the measured exceedences of the annual mean NO<sub>2</sub> objective observed were within designated AQMAs.

There are NO<sub>2</sub> diffusion tubes monitoring at the following locations in the District.

**Figure 25. Diffusion Tube Locations**

| Settlement                | Location description | Grid Reference |
|---------------------------|----------------------|----------------|
| Alconbury                 | Manor Lane           | 518954, 276010 |
| Brampton 1                | Glebe Road           | 521433, 270910 |
| Brampton 2                | Thrapston Road       | 520156, 271564 |
| Buckden                   | Taylors Lane         | 519196, 267953 |
| Catworth                  | Thrapston Road       | 508409, 274876 |
| Eaton Socon               | Duchess Close        | 516370, 259514 |
| Fenstanton 1              | Headlands            | 532160, 268328 |
| Fenstanton 2              | Connington Road      | 531770, 268215 |
| Fenstanton 2              | Hilton Road          | 531427, 268397 |
| Godmanchester             | Cambridge Villas     | 525319, 270571 |
| Huntingdon 1              | Blethan Drive        | 522293, 272909 |
| Huntingdon 2              | George Street        | 523661, 271802 |
| Huntingdon 3              | Lodge Close          | 523177, 271627 |
| Huntingdon 4              | Pathfinder House     | 524056, 271533 |
| Huntingdon 5              | St Peters Road       | 523435, 272464 |
| Huntingdon 6              | Tennis Court Avenue  | 524274, 271939 |
| Mobile (triplicate tubes) | Various              | NA             |
| Ramsey                    | Blenheim Road        | 528433, 284936 |
| Sawtry 1                  | Beaumaris Road       | 517249, 283154 |
| Sawtry 2                  | Fen Lane             | 517440, 283443 |
| Southoe 1                 | Lees Lane            | 518714, 264308 |
| Southoe 2                 | Lees Lane            | 518638, 264329 |
| Stibbington               | Great North Road     | 508326, 298684 |
| St Ives                   | Ramsey Road          | 531206, 272334 |
| St Neots 1                | Avenue Road          | 518925, 260503 |
| St Neots 2                | Harland Road         | 518489, 260871 |
| St Neots 3                | The High Street      | 518323, 260263 |
| St Neots 4                | The High Street      | 518433, 260321 |
| St Neots 5                | The Paddocks         | 517869, 260132 |

Figure 26. Monitoring Locations



**Figure 27. NO<sub>2</sub> Diffusion Tube Annual Means**

| Location                       | Bias Adjusted NO <sub>2</sub> Diffusion Tube Annual mean<br>Concentration µg/m <sup>3</sup> |      |      |      |
|--------------------------------|---|------|------|------|
|                                | 2003  | 2004 | 2005 | 2006 |
| Year                           | 2003  | 2004 | 2005 | 2006 |
| <b>Fenstanton</b>              |   |      |      |      |
| Headlands                      | 32  | 28   | 31   | -    |
| Hilton Road                    | -   | -    | -    | 39   |
| Connington Road                | -   | -    | -    | 32   |
| <b>Huntingdon</b>              |   |      |      |      |
| Ring Road                      | 50  | 49   | 51   | 41   |
| George Street                  | -   | -    | -    | 44   |
| St Peters Road                 | -   | -    | -    | 31   |
| Blethan Drive                  | 45  | 39   | 42   | 36   |
| Tennis Court Avenue            | 40  | 35   | 36   | 34   |
| Lodge Close                    | -   | -    | -    | 23   |
| Cambridge Villas, G'Manchester | 38  | 31   | 32   | 29   |
| Laws Crescent, Brampton        | 40  | 35   | 43   | 31   |
| Glebe Road, Brampton           | 26  | 23   | 26   | -    |
| <b>St Neots</b>                |   |      |      |      |
| The High Street 1              | 46  | 38   | 42   | 34   |
| The High Street 2              | -   | -    | -    | 34   |
| The Paddocks                   | 31  | 28   | 30   | 24   |
| Avenue Road                    | 27  | 24   | 25   | 20   |
| Harland Road                   | 25  | 23   | 23   | 21   |
| <b>A1</b>                      |   |      |      |      |
| Duchess Close, Eaton Socon     | -   | -    | -    | 30   |
| Lees Lane, Southoe 1           | 31  | 24   | 24   | 22   |
| Lees Lane, Southoe 2           | 26  | 22   | 24   | -    |
| Taylors Lane, Buckden          | 29  | 26   | 28   | 23   |
| Manor Lane, Alconbury          | 33  | 27   | 29   | 24   |
| Fen Lane, Sawtry               | 30  | 23   | 26   | 24   |
| Beaumaris Road, Sawtry         | 26  | 23   | 25   | -    |
| Great North Road, Stibbington  | -   | -    | -    | 36   |

| Location                 | Bias Adjusted NO <sub>2</sub> Diffusion Tube Annual Mean Concentration µg/m <sup>3</sup> |      |      |      |
|--------------------------|--|------|------|------|
|                          | 2003   | 2004 | 2005 | 2006 |
| Year                     | 2003   | 2004 | 2005 | 2006 |
| Other                    |  |      |      |      |
| Thrapston Road, Catworth | -  | -    | -    | 26   |
| Blenheim Road, Ramsey    | 26   | 24   | 26   | 20   |
| Ramsey Road, St Ives     | 27   | 25   | 28   | 23   |

## 2.4.2 PM<sub>10</sub> Monitoring Data

Huntingdonshire District Council operates a real time fine particulate (PM<sub>10</sub>) analyser at its mobile unit which was located in Godmanchester just north of the elevated A14. The instrument is an FH 62 I-R supplied by Thermo Fisher. In 2006 the data capture rate for the instrument was 96% so no correction is required for capture rate. A correction factor of 0.786 is applied, however, in accordance with the Government Guidance for MET-one BAMs, which operate on a similar basis to the FH 62. (UK Equivalence Programme for Monitoring of Particulate Matter, Defra 2006).

**Figure 28. PM<sub>10</sub> Data µg/m<sup>3</sup> Gravimetric Equivalent**

| Year                                       | 2004 | 2005 | 2006 |
|--|------|------|------|
| Data Capture                               | 96%  | 96%  | 96%  |
| Raw annual mean (µg/m <sup>3</sup> )       | 17.4 | 18.3 | 18.3 |
| Corrected annual mean (µg/m <sup>3</sup> ) | 13.7 | 14.4 | 14.4 |

PM<sub>10</sub> monitoring results over the last three years have been consistently below the annual mean objective.

Following the publication of the findings of the UK Equivalence Programme of Monitoring Particulate Matter it appears that it may not possible to accurately correct data from the FH 62 I-R.

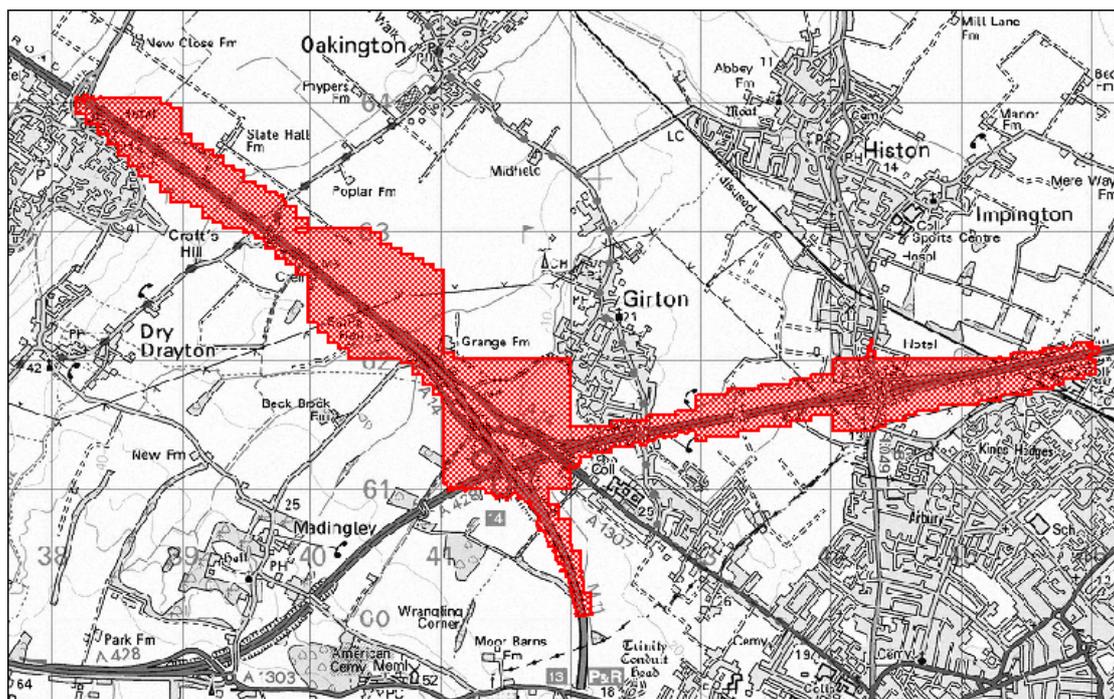
In addition to the above it is expected that the new Air Quality Strategy, expected later this year, will introduce a requirement for monitoring PM<sub>2.5</sub>.

In view of the above it has been decided not to purchase new particulate monitoring equipment until there is a consensus of opinion on which instruments are suitable and until the new particulate matter objectives have been published.

## 2.5 South Cambridgeshire District Council

The monitoring programme in South Cambridgeshire has been continuing in accordance with the strategy drawn up from previous air quality management work which has highlighted a risk of exceedence of the air quality objectives for annual mean nitrogen dioxide and 24 hour PM<sub>10</sub> in locations close to the A14. A detailed assessment for nitrogen dioxide was completed in January 2007 and recommended that an air quality management area be declared as defined in Figure 29, consultation on the detailed assessment is due to finish at the end of April and a commencement order will follow. Dispersion modelling work is continuing on PM<sub>10</sub> and it is hoped that the detailed assessment will be concluded shortly.

**Figure 29. Proposed Air Quality Management Area (Conc. NO<sub>2</sub> > 39µg/m<sup>3</sup>)**



## 2.5.1 Nitrogen Dioxide

Monitoring by chemiluminescence and diffusion tube is undertaken at locations across the district and results are available on request by following the links on our website at [www.scams.gov.uk](http://www.scams.gov.uk).

Continuous monitoring of nitrogen Dioxide has taken place at a roadside location on the eastbound carriageway of the A14 at Bar Hill (TL 386 637) since 2001. The monitor employed is a Thermo Electron oxide of nitrogen analyser that utilises the chemiluminescent technique to obtain continuous hourly average ambient oxides of nitrogen concentrations. The National Environmental Technology Centre (NETCEN) provides an independent audit and data review service of this equipment. The results available for this site are a fully scaled and ratified dataset from January 2001 to December 2006.

**Figure 30. SCDC Mobile Unit at Bar Hill**



Progress Report Guidance LAQM.PRG(03) suggest that if data is available for less than 9 months then it should be adjusted to provide an estimate of the annual mean using the procedure set out in LAQM.TG(03). Data for Bar Hill has been adjusted for 2001, 2002 and 2004 but data capture achieved over 90% in the years 2003, 2005 and 2006 therefore no adjustment has been made to the results.

From the results in Figure 31 it would appear that there are no implications for the hourly objective, however the annual mean objective is exceeded and shown to be likely to exceed the objective in 2005 by the method described in Box 6.6 of Technical Guidance LAQM.TG(03).

**Figure 31. Air Quality Statistics for NO<sub>2</sub> Measured at the A14 Bar Hill (µg/m<sup>3</sup>)**

|   | NO <sub>2</sub> 2001 | NO <sub>2</sub> 2002 | NO <sub>2</sub> 2003 | NO <sub>2</sub> 2004 | NO <sub>2</sub> 2005 | NO <sub>2</sub> 2006 | National Air Quality Objectives              |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|
| Maximum hourly mean                                   | 124.2                | 145.2                | 166                  | 161                  | 187                  | 157                  |  |
| Hourly mean 99.8 <sup>th</sup> percentile             | 109.0                | 113.0                | 132                  | 117.5                | 118.3                | 122.0                | <b>200 µg/m<sup>3</sup> [18 exceedences]</b> |
| Number of exceedences of the AQS 200µg/m <sup>3</sup> |                      |                      | 0                    | 0                    | 0                    | 0                    | <b>18</b>                                    |
| Annual Recorded Mean                                  | 38.2                 | 43.9                 | 49.7                 | 46                   | 42                   | 43                   | <b>40 µg/m<sup>3</sup></b>                   |
| Data Capture  | 72%                  | 67%                  | 91.7%                | 84.1%                | 90.4%                | 95.4%                | <b>90%</b>                                   |
| Annual Mean (Adjusted)                                | 40.5                 | 41.9                 | N/a                  | 44.6                 | N/a                  | N/a                  | <b>40 µg/m<sup>3</sup></b>                   |
| Estimated Annual Mean in 2005/2010                    | 36.1                 | 38.6                 | 47.1                 |                      | <b>34.4</b>          | <b>36.5</b>          | <b>40 µg/m<sup>3</sup></b>                   |

In February 2002 a similar monitor was installed at Impington on the westbound carriageway of the A14. From 2002 until 2005 this site was independently audited and data reviewed by Air Quality Monitoring Services Ltd. Since 2005 however, the National Environmental Technology Centre (NETCEN) has provided an independent audit and data review service of this equipment. The results available are a fully scaled and ratified dataset from February 2002 to December 2006. As data capture was below 90% in 2002, 2003, 2004 and 2006 the data has been adjusted to provide an estimate of the annual mean using LAQM.TG(03) (Box A1.3, page A1-16). The main data losses during 2006 were due to poor remote communications at the site which has been addressed by manually downloading to support the automatic polling of data.

This site, which is funded as part of the Cambridgeshire Transport Plan, was set up to represent a worst-case relevant exposure. As can be seen in Figure 32 the monitor is positioned in a roadside location 8 metres from the kerbside of the A14 westbound adjacent to the convergence of the slip road from the A1049. This stretch of carriageway is regularly congested at peak times. The monitor is between two residential properties whose gardens are a similar distance from the kerbside, which is just perceptible in the following photograph.

**Figure 32. Monitoring Unit on the A14 at Impington, Cambridgeshire**



**Figure 33. Air Quality Statistics for NO<sub>2</sub> Measured at the A14 (W), Impington (µg/m<sup>3</sup>)**

|   | NO <sub>2</sub> 2002 | NO <sub>2</sub> 2003 | NO <sub>2</sub> 2004 | NO <sub>2</sub> 2005 | NO <sub>2</sub> 2006 | National Air Quality Objectives              |
|---|----------------------|----------------------|----------------------|----------------------|----------------------|--|
| Maximum hourly mean measured                          | 236.7                | 485.5                | 299.5                | 281                  | 160                  |  |
| Hourly mean 99.8 <sup>th</sup> percentile             | 184.3                | 294.7                | 250.7                | 93.3                 | 106.4                | <b>200 µg/m<sup>3</sup> [18 exceedences]</b> |
| Number of exceedences of the AQS 200µg/m <sup>3</sup> | 2                    | 141                  | 0                    | 1                    | 0                    | <b>18</b>                                    |
| Annual Recorded Mean                                  | 48.5                 | 52.2                 | 41.3                 | <b>31</b>            | 30                   | <b>40 µg/m<sup>3</sup></b>                   |
| Data Capture  | 72 %                 | 80.7 %               | 86.4%                | 92.4%                | 76%                  | <b>90%</b>                                   |
| Annual Mean (Adjusted)                                | 52.7                 | 52.2                 | 42.1                 | <b>N/a</b>           | 30.6                 | <b>40 µg/m<sup>3</sup></b>                   |
| Estimated Annual Mean in 2005/2010                    | 48.5                 | 49.5                 |                      | 25.4                 |                      | <b>40 µg/m<sup>3</sup></b>                   |

Results may be indicating a downward trend however this should be considered a tentative indication as the data capture was so low in 2006. There has also been a reduction in the number of the exceedences of the hourly averages recorded but again this should be treated with caution. Certainly the scale of exceedences of the hourly average in 2003 has not been repeated.

## **Diffusion Tube Monitoring Network**

The monitoring of nitrogen dioxide by diffusion tube has been an ongoing project since 1995. There are currently 19 sites within the District as detailed in Figure 34. The tubes are supplied and analysed by Harwell Scientifics a UKAS accredited laboratory (0322). The tube preparation method is 50% TEA in Acetone and analysis is by desorption with distilled water, and the extract analysed using a segmented flow auto analyser with ultraviolet detection. The exposure periods for the diffusion tubes are those of the UK Nitrogen Dioxide Diffusion Tube Network run by NETCEN which effectively is a four or five week duration. QA/QC procedures are as detailed in the UK NO<sub>2</sub> Diffusion Tube Network Instruction Manual, this document can be found at [www.airquality.co.uk/archive/reports/cat06/no2instr.pdf](http://www.airquality.co.uk/archive/reports/cat06/no2instr.pdf)

The diffusion tube bias adjustment is calculated from a co-location study carried out at twelve sites giving a bias adjustment factor of 0.78 for 2006. The following table shows the annual mean diffusion tube concentration recorded for 2006, corrected for bias and year adjusted to 2010. As the method prescribed in technical guidance for future year estimation only relates to roadside sites this calculation has not been undertaken for background sites.

**Figure 34. Annual Mean NO<sub>2</sub> Concentrations in South Cambridgeshire (µg/m<sup>3</sup>)**

| <b>Diffusion Tube Site</b>              | <b>Site Designation</b> | <b>Annual Mean 2006<br/>µg/m<sup>3</sup></b> | <b>Corrected for bias<br/>µg/m<sup>3</sup></b> | <b>Estimated to 2010</b> |
|---|-------------------------|--|--|--------------------------|
| High Street, Histon.<br>TL439 637       | Roadside                | 48.3   | 37.7   | 32.0                     |
| Narrow Lane,<br>Histon.<br>TL441 641    | Background              | 24.1   | 18.8   |                          |
| High Street,<br>Sawston. TL486<br>490   | Roadside                | 38.6   | 30.1   | 25.6                     |
| Paddock Way,<br>Sawston<br>TL487 493    | Background              | 22.5   | 17.5   |                          |
| The Coppice,<br>Histon.<br>TL442 620    | Background              | 27.6   | 21.5   |                          |
| Lone Tree Ave.,<br>Histon.<br>TL441 618 | Background              | 31.0   | 24.2   |                          |
| A505, Thriplow.<br>TL440 445            | Roadside                | 37.8   | 29.5   | 25.0                     |
| High Street, Linton.<br>TL561 468       | Roadside                | 40.0   | 31.2   | 26.5                     |
| High Street,<br>Tadlow.<br>TL281 474    | Background              | 18.0   | 14.0   |                          |
| High Street,<br>Harston.<br>TL425 510   | Roadside                | 34.1   | 26.6   | 22.6                     |
| Garner Close,<br>Milton.<br>TL475 631   | Background              | 28.4   | 22.1   |                          |

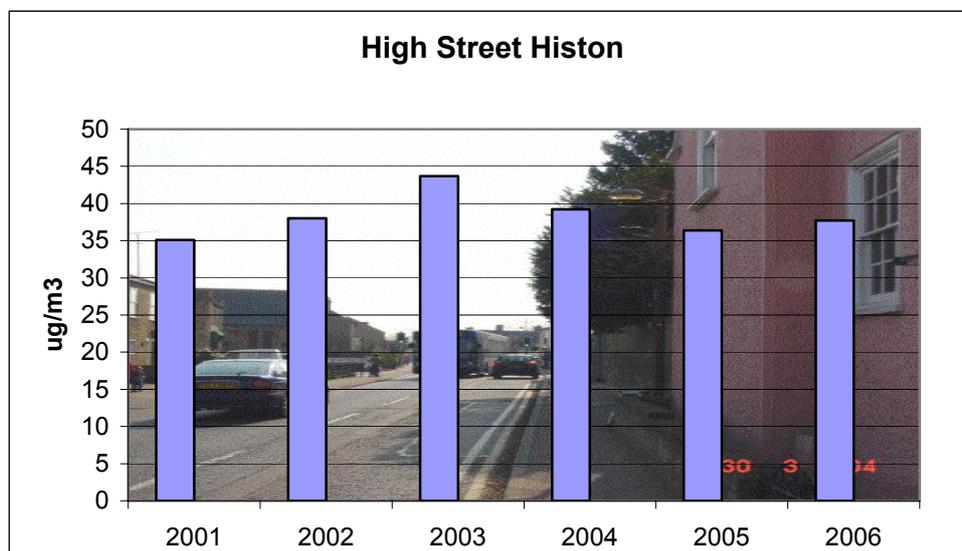
| Diffusion Tube Site                     | Site Designation | Annual Mean 2006 $\mu\text{g}/\text{m}^3$ | Corrected for bias $\mu\text{g}/\text{m}^3$ | Estimated to 2010 |
|---|------------------|---|---|-------------------|
| Cambridge Rd,<br>Girton.<br>TL425 614   | Roadside         | 41.9                                      | 32.7  | 27.8              |
| Brook Close,<br>Histon<br>TL439635      | Roadside         | 30.4                                      | 23.7  | 20.1              |
| Water Lane,<br>Histon<br>TL440633       | Roadside         | 41.3                                      | 32.2  | 27.4              |
| Cambridge Rd,<br>Impington<br>TL442618  | Background       | 34.6                                      | 27.0  |                   |
| New Rd,<br>Sawston<br>TL484497          | Roadside         | 26.3                                      | 20.5  | 17.4              |
| Mill Lane,<br>Sawston<br>TL485493       | Roadside         | 24.6                                      | 19.2  | 16.3              |
| Elms Drive,<br>Haslingfield<br>TL410520 | Background       | 19.1                                      | 14.9  |                   |
| Glebe Rd,<br>Barrington<br>TL399498     | Background       | 20.3                                      | 15.8  |                   |

Once corrected for bias there are no measurements over  $40 \mu\text{g}/\text{m}^3$ . However, historically readings have been high at three tube locations High Street, Histon, Cambridge Road, Girton and High Street, Sawston. Trend data for these sites is reported below with readings corrected for bias and graphed over the measurement period

**Figure 35. NO<sub>2</sub> concentrations at locations close to the objective**

| Location                              | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 |
|---------------------------------------|------|------|------|------|------|------|
| High Street, Histon.<br>TL439 637     | 35.1 | 38   | 43.7 | 39.2 | 36.4 | 37.7 |
| Cambridge Rd,<br>Girton.<br>TL425 614 | 36.4 | 40.3 | 44.8 | 36.2 | 41.7 | 32.7 |
| High Street,<br>Sawston.<br>TL486 490 | 35.3 | 38.6 | 42.6 | 35.9 | 36.5 | 30.1 |
| High Street Linton<br>TL561 468       | 30.4 | 32.4 | 33.6 | 33.3 | 30.0 | 31.2 |

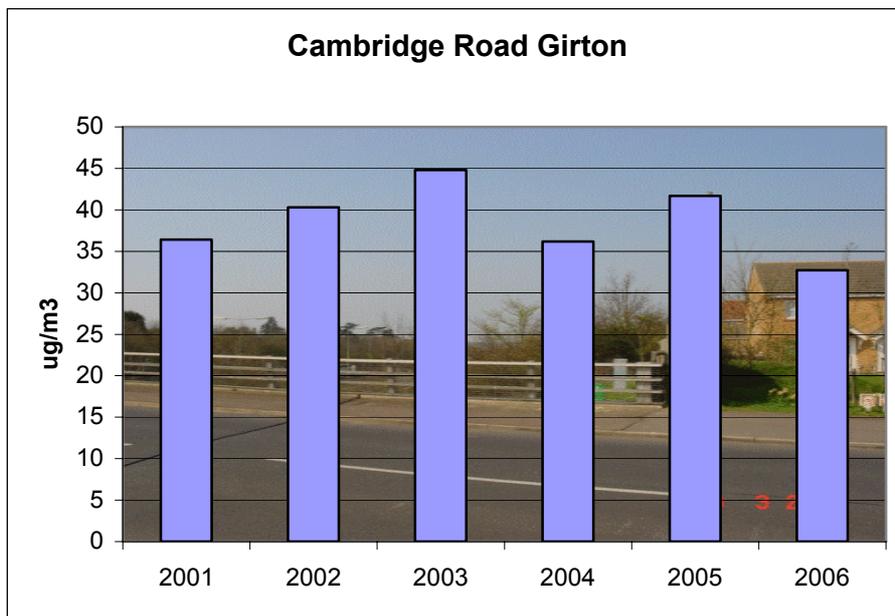
**Figure 36. NO<sub>2</sub> Diffusion Tube data trend in High Street, Histon bias adjusted.**



High Street, Histon is a narrow village road which although is not subject to excessive traffic flows can become congested at peak times owing to vehicles parking on the road and causing obstructions to the flow of traffic. The tube is adjacent to a residential façade and is therefore in a relevant location. Additional monitoring locations were commissioned in 2005 when a new road traffic scheme was implemented in the village. The scheme was abandoned after 8 months and any direct effect on air quality was difficult to establish. Concentrations remain below but close to the objective.

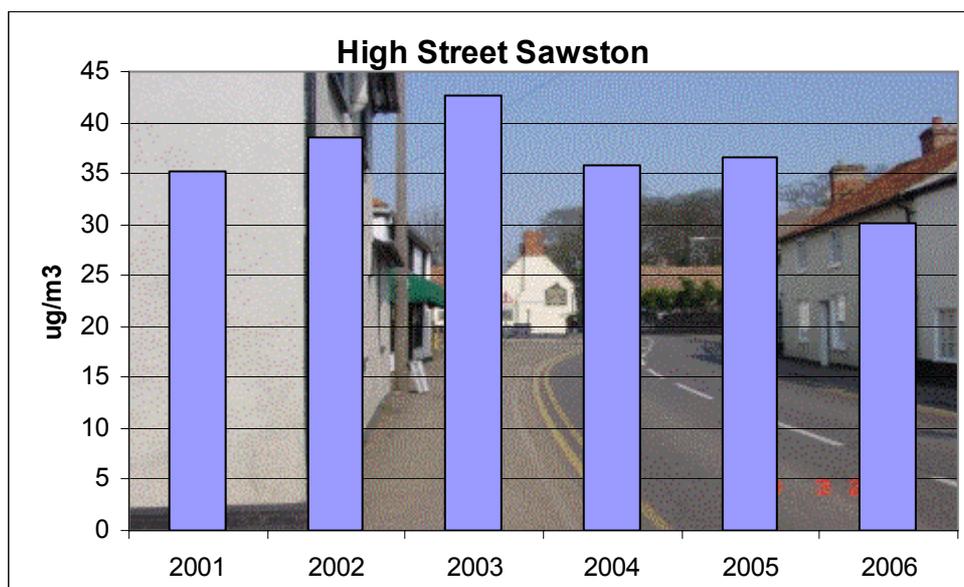
The monitoring location in Girton is at the entrance to a small development and opposite a local shop. From Figure 37 it can be seen that the tube is situated on a lamppost in a roadside location and on a bridge over the A14 dual carriageway below. The site is an equal distance from the A14 as local residential gardens and is a relevant location within the proposed Air Quality Management Area. Therefore to measure such a low annual mean in 2006 is a positive indication that the AQMA boundary may be in a precautionary position.

**Figure 37. NO<sub>2</sub> Diffusion Tube data trend in Cambridge Road, Girton bias adjusted.**



The other location that previously exceeded the annual mean objective is located in Sawston, currently our largest village with a population of 8,000. The monitoring site is adjacent to the façade of the local public house and the same distance from the roadside as the façade of residential properties and is therefore in a relevant location. As these results are now well below the annual mean objective no further action is considered necessary at this stage however, we will continue to monitor the situation in future years.

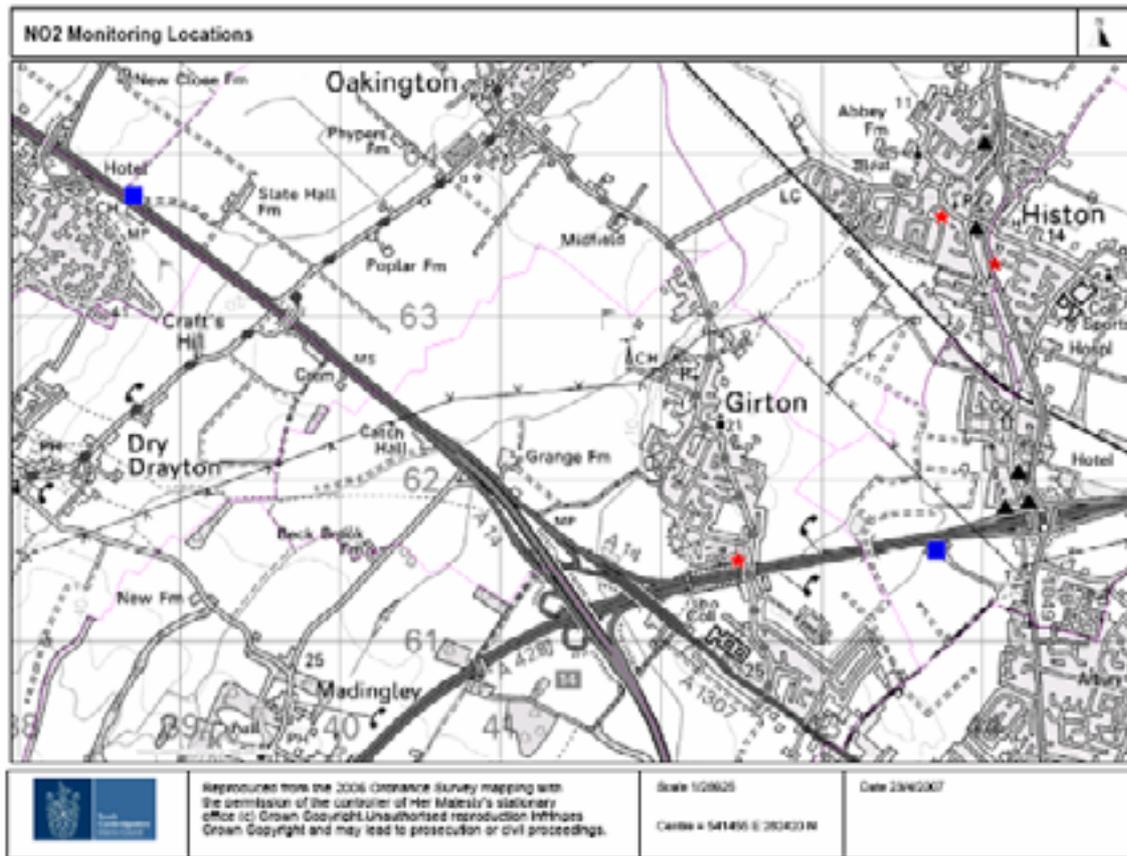
**Figure 38. NO<sub>2</sub> Diffusion Tube data trend in High Street, Sawston bias adjusted.**



A new location that has shown an increase in 2006 is the High Street in Linton. The diffusion tube is on the façade of a property at a point where the road is narrow and is the same distance from the road as the houses in this area, thus a relevant location. Despite a significant rise in the concentration in 2006 over previous years once the figure is adjusted for bias the difference is far less dramatic. Recent alterations in the road layout may be having an impact on air quality however this will be continue to be monitored closely to ensure that air quality does not deteriorate.

There appears to be a continuing trend downwards in the majority of these figures since 2001. The largest significant factor on air quality in South Cambridgeshire is traffic emissions and work will continue with Cambridgeshire County Council on the Transport Plan to ensure that the air quality impact of transport is considered and mitigated.

Figure 39. Map of Monitoring Locations along the A14 Corridor



|   |  |
|---|--|
| ★ | NO <sub>2</sub> Diffusion Tube Site with Annual Mean above the Objective (before bias correction) in 2006. |
| ▲ | NO <sub>2</sub> Diffusion Tube Site with Annual Mean below the Objective in 2006.                          |
| ■ | Continuous Monitoring Locations.   |

## 2.5.2 PM<sub>10</sub> Monitoring Data

Fine particles are monitored at two locations in South Cambridgeshire, on the A14(E) (TL385 637) at Bar Hill and on the A14(W) (TL437 616) at Impington. Measurements at both sites are made using an Eberline FH 62-IR Beta-attenuation Monitor. This instrument has a heated inlet manifold, which is held at 40°C, the temperature is sufficient to drive off the volatile content of the sample and therefore the guidance given in LAQM.TG(03) is to correct for this by multiplying all measurements by a factor of 1.3 prior to comparison with the air quality objective. Results are quoted as µg/m<sup>3</sup> TEOM equivalents prior to correction and as µg/m<sup>3</sup> gravimetric subsequently.

The PM<sub>10</sub> results measured at Bar Hill are quality assured and reported by NETCEN. The site was commissioned in March 2001 as described above for nitrogen dioxide and there is a fully scaled and ratified dataset available pursuant to this period (Figure 40).

**Figure 40. PM<sub>10</sub> Concentrations Measured at the A14(E) Bar Hill (µg/m<sup>3</sup>)**

|  | 2001       | 2002   | 2003   | 2004        | 2005  | 2006  | National Air Quality Objectives |
|--|------------|--------|--------|-------------|-------|-------|---------------------------------|
| Measured Annual Mean (TEOM equivalent)                                     | 22         | 23     | 25     | 21          | 22    | 34    |                                 |
| Data capture of hourly means   | 75.2 %     | 96.5 % | 92.4 % | 84.7%       | 92.9% | 98.2% | <b>90 %</b>                     |
| Estimated Annual Mean (see below)  | 22.35      | N/a    | N/a    | <b>20.4</b> | N/a   | N/a   |                                 |
| Annual Mean (Gravimetric)  | 28.6       | 29.9   | 32.5   | 27.3        | 28.6  | 44.2  | <b>40 µg/m<sup>3</sup></b>      |
| Number of exceedences of 24 hour mean > 50µg/m <sup>3</sup>                | 9 measured | 27     | 40     | 17          | 25    | 51    | <b>35</b>                       |
| 90 <sup>th</sup> percentile (gravimetric)– where data capture is below 90% | 48.1       | N/a    | N/a    |             | N/a   | N/a   |                                 |

The results in Figure 40 show that there were 40 exceedences of the daily objective in 2003 and 51 in 2006 at this site, whilst the annual mean is within the objective in all years except 2006. This location is currently subject to a detailed assessment for PM<sub>10</sub> and it is hoped to conclude the dispersion modelling soon.

Monitoring at the A14(W) in Impington at the site described above for nitrogen dioxide and shown in Figure 32 has been operating since 19 February 2002. The analyser is identical to the one at Bar Hill and therefore the data has been handled in the same manner. Air Quality Monitoring Services Ltd provided data ratification and auditing services at this site until 2004, since then netcen have provided a full data audit and ratification process for this dataset. The data sets for all years are presented below in Figure 41.

**Figure 41. PM<sub>10</sub> Concentrations Measured at the A14(W) Impington (µg/m<sup>3</sup>)**

|   | 2002          | 2003          | 2004  | 2005 | 2006  | National Air Quality Objectives |
|---|---------------|---------------|-------|------|-------|---------------------------------|
| Measured Annual Mean (TEOM equivalent)  | 22.9          | 30.2          | 25.5  | 32   | 28    |                                 |
| Data capture of hourly means  | 80.2 %        | 88.1 %        | 72.2% | 42%  | 81.1% | 90 %                            |
| Estimated Annual Mean (see below)   | 22.8          | 30.1          | 25.75 | 31.0 | 28.0  |                                 |
| Annual Mean (Gravimetric)   | 29.9          | 39.1          | 33.1  | 41.6 | 36.4  | <b>40 µg/m<sup>3</sup></b>      |
| Number of exceedences of 24 hour mean > 50µg/m <sup>3</sup>                         | 22 (measured) | 72 (measured) | 6     | 37   | 42    | 35                              |
| 90 <sup>th</sup> percentile (gravimetric)– reported where data capture is below 90% | 54.6          | 66.4          |       |      |       |                                 |

Data capture at this has been consistently low. In 2006 there has been an intermittent problem with remote communications to the site resulting in lots of small data losses. Data is now being manually downloaded in an attempt to back up data capture whilst solutions to more secure communications are sought. LAQM.TG(03) suggests that where data capture is less than 90% the annual mean concentration should be estimated by comparison with compliant datasets. This procedure is explained in Box 8.5 of LAQM.TG(03), however owing to the 2006 data loss in this

scenario being diffuse this approximation was not able to be applied.

Monitoring shows that the annual mean objective was achieved in all years excepting 2005. However the twenty four hour mean appears to be consistently exceeded at this site. A detailed assessment of PM<sub>10</sub> is currently being undertaken and is hoped to be concluded soon.

Monitoring will continue at this location and the developing air quality strategy and A14 Improvement Proposals will be examined with the intention to reduce the level of fine particulates in this area.

### **2.5.3 Benzene**

No further monitoring has been undertaken since that carried out in 2003. Results then found concentrations to be significantly below the air quality standards. Conditions have not changed which may affect this position.

## 2.5.4 Sulphur Dioxide

Continuous monitoring of Sulphur Dioxide has continued at the Fruit Farm, Barrington which first came on line in 2003. An API sulphur dioxide analyser utilising the ultra violet fluorescence technique to obtain continuous 15-minute average ambient sulphur dioxide concentrations was commissioned by AEA Technology's National Environment Technology Centre (NETCEN) who also audits the equipment and scales and ratifies the data. The full dataset is available to 31 December 2006 and shows that all standards are being achieved by a significant margin (Figure 42).

**Figure 42. Sulphur Dioxide Concentrations Measured at Barrington**

| Location                              | Year          | Maximum 15 Minute Mean ( $\mu\text{g}/\text{m}^3$ ) [number of exceedences] | Maximum One Hour Mean ( $\mu\text{g}/\text{m}^3$ ) [number of exceedences] | Maximum 24 Hour Mean ( $\mu\text{g}/\text{m}^3$ ) [number of exceedences] | Data Capture (%) |
|---------------------------------------|---------------|---|--|---|------------------|
| Challis Green, Barrington             | 1998          | 192 [0]   | 160 [0]  | 32 [0]  | 23               |
|                                       | 1999          | 125 [0]   | 117 [0]  | 32 [0]  | 83               |
|                                       | 2000          | 114 [0]   | 85 [0]   | 32 [0]  | 60               |
|                                       | 2001          | 106 [0]   | 106 [0]  | 29 [0]  | 96               |
|                                       | 2002          | 138 [0]   | 94 [0]   | 18 [0]  | 94               |
|                                       | 2003          | 133 [0]   | 104 [0]  | 41 [0]  | 97               |
| Fruit Farm, Barrington                | 2003          | 330 [5]   | 269 [0]  | 80 [0]  | 94               |
|                                       | 2004          | 82 (0)  | 61 (0)   | 17 (0)  | 73               |
|                                       | 2005          | 21 (0)  | 19 (0)   | 6 (0)   | 78               |
|                                       | 2006          | 43 (0)  | 27 (0)   | 9 (0)   | 95               |
| <b>National Air Quality Objective</b> | <b>2004-5</b> | <b>266 [35]</b>   | <b>350 [24]</b>  | <b>125 [3]</b>  | <b>90</b>        |

## **3.0 New Local Developments**

### **3.1 Cambridge City Council**

#### **3.1.1 New Part A Processes**

Whilst not a new process the permit for clinical waste incineration at Addenbrookes now falls under the IPPC regime as a Part A (1) process. Similarly, an application was made (originally in 2005) for an IPPC permit to operate the following activities; disposal of hazardous waste other than by landfill or incineration, Part A (1), at Cambridge Waste Management Centre, Cowley Road. This application has not yet been determined. The activities at the site are already occurring, as this is an existing waste management operation under waste management license coming into PPC. Otherwise there are no new Part A processes in the Cambridge City Council district.

#### **3.1.2 New Part B Processes**

There are seven new Part B processes in the district – all dry cleaning establishments that have been brought into the regime in 2006/7. One licence has been revoked (petrol station) and one premises has closed (waste oil burning).

#### **3.1.3 New Retail Developments**

There are new relevant retail developments in the district.

The Grand Arcade re-development in the centre of the City continues. Initially this led to some short-term increases in PM<sub>10</sub> during demolition work. There is a significant volume of HDV movements associated with this site however there is no evidence to suggest that they are impacting on air quality in the city centre – probably because other vehicle movements are have been diminished by traffic restrictions whilst construction work is in progress. No additional car parking spaces have been allocated to this development so there should be no additional impact on air quality upon completion.

The Bradwells Court/Christ's Pieces development is adjacent to the Grand Arcade. This is a smaller development, replacing an older retail area. No additional air quality impacts are anticipated.

Any further expansion in these areas will be subject to full air quality assessments under Planning Policy Statement PPS23 (further details below).

### **3.1.4 New Road Schemes**

No new road schemes have been developed in the last year. However, some may be in place before 2010. Of note is the proposed expansion to eight lanes of the A14 north of Cambridge and in the South the proposed Addenbrookes Link Road, which will define a new housing development associated with it. The latter has been subject to a full assessment of Air Quality but has been based on a flawed Transport Assessment, such that an AQA has not yet been accepted.

### **3.1.5 New Mineral Developments**

No new mineral developments have been approved.

### **3.1.6 New Housing Developments**

Substantial housing developments are already under construction on the northern fringe of the City (Arbury Camp) and although they lie largely outside the administrative area they will have an impact on the City. Substantial housing developments at the NIAB site, Clay Farm, Glebe Farm and the former Monsanto site are also coming forward for development before 2010 - these will have a significant impact in the south of the District and again will be subject to a full review of air quality prior to approval. Transport and air quality assessments have been provided for some of these sites, but at the time of writing the transport assessments have been of poor quality and not accepted by transport planners at the City or the County councils. Therefore, air quality

assessments have also been inadequate. None address the issue of the impact of the development on the AQMA, some state that as the proposed development site is outside an AQMA it is therefore suitable for development. We have noticed a paucity of understanding of PPS 23 and, rather worryingly, lack of reference to the NSCA guidance (2006 or 2004). The inadequacy of the air quality assessments received delays the decision-making process, both because they take longer to assess and because work is returned to be re-submitted.

### **3.1.7 New Landfill Developments**

No new landfill sites have been approved.

### **3.1.8 Mixed Use Development**

The Station area is planned for redevelopment for commercial, retail and housing uses. Developments as a whole are currently subject to a detailed assessment for Air Quality, in line with PPS23. This development is within the AQMA and as such will be carefully scrutinised in air quality terms. The planning application for this development was refused on many grounds including air quality and is likely to be re-submitted in the near future.

The Addenbrookes hospital site is being extended and use on the current site is being intensified. Approximately 215,000 m<sup>2</sup> of additional clinical facilities and R&D facilities are planned, as well as a hotel, conferencing facilities and additional retail and food outlets. The air quality assessment for the development itself is adequate although the impact of additional traffic on the roads network and the knock-on effect on air quality has not yet been satisfactorily assessed or sufficient mitigation measures proposed.

## **3.2 East Cambridgeshire District Council**

### **3.2.1 New Part A Processes**

#### **New Part A Processes**

No new Part A processes have commenced operation in the previous year since the 2006 USA.

#### **New Part B Processes**

Applications were received for two Dry Cleaning processes in 2006. These processes have been permitted but are not considered to be significant in terms of assessment. They were both existing processes that are now covered by the LA-PPC regime and the permitted installations are located at the following addresses:

- Johnson Cleaners UK Ltd, 4 Forehill Ely, NGR 554303, 280265 (Permit Ref: PPC/23/2007)
- Great Shelford Dry Cleaners, 8 High Street, Soham, NGR 559464, 272967 (Permit Ref: PPC/24/2007)

### **3.2.2 New Part B Processes**

A new mobile crushing and screening process was permitted on 3<sup>rd</sup> October 2003 operated by Eastern Recycling Ltd, based at NG TL564, 808. This new process is not considered to be significant in terms of assessment.

Two Part B processes have been subject to revocations, these being:-

- B & W Mechanical Handling, a coating of metal process located at TL 515,785.
- JRD Mouldings, an adhesive coatings process located at TL 604,722

### **3.2.3 New Retail Developments.**

No new relevant retail developments since the 2006 USA have taken place.

### **3.2.4 New Road Schemes**

No New relevant road schemes since the 2006 USA have taken place.

### **3.2.5 New Mineral Developments**

No new mineral developments have been approved since the 2006 USA have taken place.

### **3.2.6 New Landfill Developments**

No new landfill sites have been approved since the 2006 USA have taken place.

### **3.2.7 Mixed Use Development**

No relevant mixed-use developments have been approved in since the 2006 USA have taken place.

## **3.3 Fenland District Council**

### **3.3.1 Part A1 installations**

Hanson Building Products Ltd

Hanson will be closing their Stewartby brick works in 2008. This will lead to more production at Whittlesey. This will not require further building on site, as both sites are run under capacity.

#### **Premier Foods (HL Foods)**

Premier Foods are following an Environment Agency improvement plan issued with their permit. This involves a two-phase installation of wet scrubbers on all boiler plant. Planning consent has been given for the relevant plant. This development is expected to have an enormous positive impact on existing air quality in Wisbech. Reducing both SO<sub>2</sub> and PM<sub>10</sub> emissions to acceptable levels in addition to the improvements already made by securing a low-sulphur coal supply.

#### **Hooks Drove Poultry Farm**

An application for a permit has been received for a 165000 unit (broiler) poultry farm. This site was pre-existing, therefore, it is expected that any changes in air quality from the issue of a permit will be positive.

### **3.3.2 Part B Installations**

The Council has issued two permits for Dry Cleaning installations to Johnson Cleaners one in Wisbech, one in March.

The Council is currently drafting a permit for a concrete block factory to be built by Hanson Building Products Ltd adjacent to their Kings Dyke brickworks. The standard of abatement and management practices at the development are such, that it is not believed that it will be a significant contributor to air quality issues in Whittlesey.

### **3.3.3 New Retail Developments**

There are no new retail developments

### **3.3.4 New Road Schemes**

There is a scheme to build a roundabout on the A141 near March. There are no relevant receptors.

The A47 Thorney bypass has not led to significant increase in NO<sub>2</sub> emissions at Thorney Toll, however, a 4-month scheme of road surface improvements did raise the average tube concentration to over the 40 µg/m<sup>3</sup> limit, but over the year, this was not significant.

#### **Nene Waterfront**

There will be significant road changes within the Wisbech NO<sub>2</sub> AQMA. This will be part of the regionally important Nene Waterfront Regeneration Project, which is detailed below. The development will heavily impact upon the significant junctions of the Lynn Road roundabout and Lynn Road/ Mount Pleasant Road. Traffic projections have been studied by Bureau Veritas (formerly Casella) and modelled. It is suggested that the air quality will not worsen in the long-term, however, s106 agreements are likely to be required to ensure that this is the case.

### **3.3.5 New Mineral Development**

No significant developments to report

### **3.3.6 New Landfill Development**

No developments to report

### **3.3.7 New Mixed-Use Development**

As stated in the road scheme section, the Nene Waterfront development, a project funded by EEDA, English Partnerships, European Regional Development fund and the Fenland District and Cambridgeshire County Councils, aims to regenerate the centre of Wisbech. The design brief can be accessed at

<http://www.fenland.gov.uk/assets/nenewaterfront/downloads/Final%20Development%20Brief.pdf>

but in essence, the development will be characterised by a 5 zone approach consisting of the

following

#### Zone 1

This zone shall include a mix of residential accommodation and a new link road from De Havilland Road to Chase Street. The precise form and layout of the residential development will depend upon the outcome of detailed ground investigations and the proposed remediation strategy.

#### Zone 2

It is envisaged that this zone shall include a mix of residential, leisure (Class D2), cafe/restaurant (Class A3), and employment (B1a, b,c) uses. It may also contain an element of small scale retail (Class A1). Residential above ground floor cafe/restaurant/leisure uses ('vertical' mixed-use buildings) will be particularly encouraged on the waterfront. It is likely that residential will be predominantly flats, although houses of an urban character and density will also be appropriate. It is considered that the northern part of the zone would be particularly suited to the accommodation of marina / port related leisure and employment uses.

#### Zone 3

This zone should include for a mixed residential and leisure/retail/cafe/restaurant/ commercial (Class D2, A1, A2, A3, B1) uses. It is envisaged that such uses will be accommodated within the ground floors of the buildings associated with the proposed town square. In addition the zone should include for the provision of an open space designed to accommodate a Local Area for Play (LAP). The LAP could be provided to the east of the zone (rather than on the river front) so that it is accessible to residents from the wider regeneration area.

#### Zones 4a and b

These zones shall include a mix of existing uses (in existing buildings) along with new buildings accommodating residential and retail/cafe/restaurant/leisure (Class D2, A1, A2 and A3) uses. Vertical mixing uses will be encouraged.

#### Zone 5

It is likely that the existing uses will remain, although there may be longterm potential for future redevelopment for a mix of uses. Such future development will be encouraged. In addition developers advancing residential proposals will be expected to include for 13% of total housing units as affordable.

## **3.4 Huntingdonshire District Council**

### **3.4.1 New Part A Processes**

A number of existing landfills, a compressor station and pig and poultry activities have fallen within the Pollution Prevention and Control Regime during 2006/07 and have applied for a Permit to operate. These include:

- Somersham Landfill Site
- Warboys Landfill Site
- Godmanchester, Cow Lane Landfill Site
- Huntingdon Compressor Station, Bigrams Lane
- Buckden Leachate Treatment Plant
- Somersham Alpha Farm Poultry Unit
- Kimbolton Poultry Unit
- 

An A2 waste recycling plant has opened in Ramsey.

### **3.4.2 New Part B Processes**

Three new activities have been permitted and two have been revoked but these are considered insignificant in terms of their effect on the local air quality.

### **3.4.3 New Retail Developments**

No relevant retail developments have been permitted since the USA.

### **3.4.4 New Road Schemes**

There have been no new road schemes permitted since the USA. Proposals for the rerouting of the A14 from Brampton to Bar Hill continue to be considered.

### **3.4.5 New Minerals Development**

There have been no relevant mineral developments within the District in 2006.

### **3.4.6 New Landfill Development**

There have been no new landfill developments within the district in the last twelve months.

### **3.4.7 New Mixed Use Development**

There is to be a large residential development on the east side of St Neots. There is outline planning permission for residential development of 63.2 hectares of land on former agricultural land known as Loves Farm. Development has commenced on some parts of the site under subsequent approval of reserved matters.

## **3.5 South Cambridgeshire District Council**

### **3.5.1 New Part A Processes**

No new Part A processes have been authorised since the last review in 2006.

### **3.5.2 New Part B Processes**

Five new dry cleaning processes have been authorised since the last report however it is unlikely that they will have a significant effect on air quality.

### **3.5.3 New Retail Developments**

There have been no new retail developments in the district over the previous twelve months.

### **3.5.4 New Road Schemes**

Upgrading has been completed on the A1198 at Caxton and Papworth Everard allowing both villages to be by-passed and reducing traffic flows through the settlement considerably.

Work is continuing on the A428 dualling from Caxton to Madingley to cater for the increased traffic flows along this section, work is expected to be completed in 2007.

### **3.5.5 New Mineral Developments**

There have been no new mineral developments since the last review.

### **3.5.6 New Landfill Developments**

There have been no new landfill developments within the district in the last twelve months.

### **3.5.7 Mixed Use Development**

South Cambridgeshire District Council is within the eastern region growth area and is therefore subject to a significant amount of new mixed use development. A new town Northstowe comprising 8-10,000 dwellings, is proposed north of Cambridge as well as significant housing developments to the Northwest, southwest and east of Cambridge.

All applications received are screened to ensure that any impacts on air quality are identified and mitigated as far as possible. Whilst applications are awaited for most of the growth area schemes and work is continuing in production of environmental statements and assessments, only one application has been submitted during the past year. This application relates to the redevelopment of 8.7 hectares of previously developed land for a mix of uses including up to 380 dwellings, up to 4,000 sq metres of B1(A) office floor space, no greater than 250 square metres A1 retail floor space and provision of open space and associated access engineering works at a site adjacent to the A10 in Hauxton. An air quality impact assessment has been requested from the developer and its conclusions will inform the decision making process. It is thought unlikely that there will be a significant impact on air quality solely from this development which would jeopardise any relevant air quality standards.

## 4.0 Partnership Working

The close working relationship that has developed through the Air Quality Working Group (partnership of the five district councils and the county council) has enabled a countywide approach to be taken towards air quality and for measures to be incorporated into transport programmes and plans. This is particularly important given the continuing rise in traffic combined with the future population growth, which could exacerbate existing problems of air pollution.

The Group is aware that increased traffic growth and future population growth planned for the County, particularly in the Cambridge sub-region together with the outcomes of Review and Assessment processes may make it necessary to declare Air Quality Management Areas elsewhere in the County for one or more pollutants. It is also aware that assumptions about improved vehicle technology leading to a drop in emissions over the coming years were optimistic as air pollution levels have not fallen where traffic counts show that the numbers of vehicle movements remain unchanged. In addition, vehicle use continues to rise across the county.

## 5.0 Air Quality Management Areas

Cambridge City Council currently have an AQMA for annual mean NO<sub>2</sub> covering much of the city area.

Fenland District Council currently has four AQMAs. Two, located in Wisbech, are for contraventions of the 15-minute mean SO<sub>2</sub> objective and the PM<sub>10</sub> daily mean objective. The third, also in Wisbech, is for exceedence of the NO<sub>2</sub> annual mean. The fourth is in Whittlesey and is for the 15-minute mean SO<sub>2</sub> objective.

Huntingdonshire District Council currently has four AQMAs for annual mean NO<sub>2</sub>. Three of these are located in parts of Huntingdon, Brampton and St Neots. The fourth includes relevant receptors close to the A14 between the Hemingford's and Fenstanton. All four AQMAs were subject to a Further Assessment, the findings of which were reported to Defra in February 2007. The Further Assessment recommended amending three of the AQMAs.

## 6.0 Action Plans

Cambridge City Council developed a preliminary Action Plan which was fully incorporated into the new Local Transport Plan for Cambridgeshire in 2006. Primarily there are two commitments. Firstly there is a commitment to keep traffic levels steady at the outer and inner radial cordons. This will allow improvements in vehicle emissions over the plan period to contribute to improving ambient air quality. Secondly, a more proactive approach has been made towards improving the bus fleet within Cambridge through a 'Quality Bus Partnership'. Traffic movements are already strictly controlled in the core area, within the inner ring road, by rising bollards. Taxis and PSVs require a transponder to enter and exit some areas, which allows for some measure of control over those vehicles using central Cambridge.

The LTP sets a provisional target for bus operators to improve their fleets to 90% Euro II standard or equivalent by the end of 2007 with the option to set progressively stricter targets annually. This measure will allow for a certain amount of growth in bus use without the consequent adverse impact upon ambient air quality. Detailed work is currently underway to determine the effect of changes in the bus fleet on total emissions. The aim of the work is to provide concrete targets for individual operators. In addition, we plan to commission a new, updated Emissions Inventory (provided that our funding bid is successful), which will be a crucial tool to ensure that this characterisation is based on a much more reliable foundation.

A combined Emissions Inventory is planned with the District Councils because the transport issues that affect the city are shared with the Districts; this will have the benefit of a considerable cost reduction.

Cambridgeshire County Council are currently recruiting for a Bus Partnership Co-ordinator, whose role will be to oversee the co-ordination, operation and monitoring of bus services in Cambridge central area.

Fenland District Council developed an action plan for Wisbech SO<sub>2</sub> and PM<sub>10</sub> in 2002. The Environment Agency is completing its requirements under the action plan by way of the improvement plan at HL foods which includes the installation of turbo scrubbers on the exhausts of the boiler plant.

Huntingdonshire District Council and South Cambridgeshire District Council both currently have AQMAs but have not completed their Action Plans. They have provisionally agreed to develop a joint action plan in conjunction with Cambridge City Council. The rationale behind the decision is

that all three councils share the A14 corridor and its associated NO<sub>2</sub> problems. Also all three councils share a common approach to the assessment of air quality and are accustomed to joint reporting. A bid for Defra funding was made jointly by the three councils to enable an updated detailed emissions inventory to be developed to assist the development of the action plan.

## 7.0 Planning and Policies

The Regional Spatial Strategy (RSS) for the East of England will supersede the current Structure Plan for Cambridgeshire and Peterborough, when it is adopted later this year, and take forward the existing development strategy and growth agenda. The scale of housing growth required is significantly greater than that experienced in recent years with most growth being concentrated in the Cambridge sub-region at locations around Cambridge City and in a new settlement at Northstowe in South Cambridgeshire District. These locations have been chosen not only to help minimise environmental impact and reduce travel distance into Cambridge but also for their suitability to be served by sustainable transport networks.

No specific air quality policy is included in the Secretary of State's Proposed Changes to the RSS as PPS12 provides general advice about air quality management for those preparing Local Delivery Documents. Local Development Frameworks comprising Development Plan Documents and other supporting documents are replacing Local Plans. Each district is currently in the process of updating and replacing its Local Plan.

### **Cambridge City**

Policy 4/14 of Cambridge City Local Plan 2006 states that 'Development within or adjacent to an Air Quality Management Area (AQMA) will only be permitted if:

A – it would have no adverse effect upon air quality within the AQMA or

B – air quality levels within the AQMA would not have a significant adverse effect on the proposed use / users.'

Cambridge City Council has recently produced Sustainable Design and Construction Supplementary Planning Guidance that includes a detailed section on requirements for air quality assessments. A guidance document for developers is also under development. Recently revised NSCA Guidance in addition to the New PPS 23 is proposed to form the basis for this supplementary local guidance developed as part of our Air Quality Action Plan.

### **East Cambridgeshire, Fenland and Huntingdonshire**

The current Local Plans for East Cambridgeshire, Fenland and Huntingdonshire are now in the process of being replaced.

## **South Cambridgeshire**

South Cambridgeshire District Council submitted its Development Control Policies DPD to the Secretary of State in January 2006 and the Examination in Public took place in October 2006. The Inspector's Report on the findings of this is due shortly.

Policy NE/17 states

1. Development proposals will need to have regard to any emissions arising from the proposed use and seek to minimise those emissions to control any risks arising and prevent any detriment to the local amenity by locating such development appropriately.
2. Where significant increases in emissions covered by nationally prescribed air quality objectives are proposed, the applicant will need to assess the impact on local air quality by undertaking an appropriate modelling exercise to show that the national objectives will still be achieved. Development will not be permitted where it would adversely affect air quality in an Air Quality Management Area.

## **8.0 Local Transport Plan and Strategies**

The current Cambridgeshire Local Transport Plan (LTP) covers the period 2006 – 2011, and takes into account the latest government guidelines which include demonstrating how plans help to meet the Government / Local Government Association Shared Priorities for Transport of road safety, accessibility, congestion and air quality.

The LTP aims to minimise the impact transport has on air quality through the promotion of sustainable transport and through a range of transport interventions in those areas where air quality has become an issue. This is taken forward through partnership working enabling targeted measures and Air Quality Action Plans to be incorporated. Market Town Transport Strategies, which form an integral part of the LTP, are proving to be a very successful way of providing a wide range of integrated transport measures.

The County Council through the Transport Innovation Fund is developing a Long Term Transport Strategy. This is aiming to address transport problems in the area by developing a package of measures including demand management and complementary measures (public transport, cycling, walking and highways proposals). Results of initial work are expected later this year and will be reported in future Progress Reports.

### **Cambridgeshire Guided Bus**

Cambridgeshire County Council was given the final go-ahead for the guided busway in July 2006 and construction works have now started with an anticipated completion date of early 2009. The busway will provide a high quality public transport system between Huntingdon and Cambridge. The quality of service and the buses has been identified as a key factor in achieving modal shift and in order to achieve this, the County Council is entering into partnership agreements with bus operators to establish minimum specifications for the vehicles that will be using the guideway. This includes the provision of new buses, which will have to comply with Euro IV standards for engine emissions.

## **10.0 Commentaries from Defra and Responses**

Following completion of the draft Progress Report it was submitted to Defra. Defra then has specialist consultants read the document and check the content. A commentary is then produced for each of the author Local Authorities and these commentaries are reproduced below. Cambridge City Council and Fenland District Council have both made responses to their commentaries.

## 10.1 Cambridge City Council

Area 3C  
Ergon House  
Horseferry Road  
London. SW1P 2AL

Telephone 020 7238 1676  
Website [www.defra.gov.uk](http://www.defra.gov.uk)

Email [tutu.aluko@defra.gsi.gov.uk](mailto:tutu.aluko@defra.gsi.gov.uk)



Mr Jo Dicks  
Principal Scientific Officer  
Cambridge City Council  
Mandela House  
4 Regent Street  
Cambridge  
CB2 1BY

Date 5 October 2007

Dear Mr Dicks

### LOCAL AIR QUALITY MANAGEMENT: 2007 AIR QUALITY PROGRESS REPORT

Thank you for consulting the Secretary of State for Environment, Food and Rural Affairs on your air quality Progress Report submitted as part of joint Cambridgeshire's PR. The PR also presents progress with Action Plans and LTP. Please find attached comments on the review and assessment aspects of the report. We will send you our comments on the action plan element in due course.

On the basis of the information provided, the review and assessment report is accepted. There is no requirement to proceed to a Detailed Assessment. **Please note however our comments on assessing your monitoring results to establish whether locations where diffusion tube measured concentrations are higher than  $40\mu\text{g}/\text{m}^3$  in 2006 are within your AQMA and whether they represent relevant exposure. If so, Cambridge should proceed as soon as possible to a Detailed Assessment. There is also evidence that the 1-hour mean nitrogen dioxide objective is being exceeded at Parker Street. If there is relevant exposure in the area Cambridge should also proceed to a Detailed Assessment without delay to confirm whether the objective is likely to be exceeded. We request that you keep us informed of subsequent action.**

If you have any specific queries about the comments contained in either appraisal report, we would advise that you initially contact the relevant help desk. Details on how to contact the help desks can be found in the relevant appraisal report.

Yours sincerely

Tutu Aluko  
AIR, ENVIRONMENT QUALITY DIVISION



Ref: PR3-084a

## Progress Report Appraisal

Report Prepared by: **Cambridge City Council**

Date Progress Report Issued: **May 2007**

The Progress Report sets out new information on air quality obtained by Cambridge City Council, as part of the Review & Assessment process required under the Environment Act 1995 and subsequent Regulations.

This Appraisal Report covers the air quality Review and Assessment aspects of the Progress Report. The Action Plan elements are appraised separately.

The Progress Report covers the **minimum requirements for reporting on monitoring and new local developments**. It also covers **some of the recommended additional elements including:**

- progress with Action Plans
- progress with the LTP

The Local Authority does not propose to progress to a Detailed Assessment.

On the basis of the information provided by the local authority, the review and assessment aspects of the Progress Report are **accepted**.

However, the Council's attention is drawn to paragraph 1.05 in the Progress Report Guidance (LAQM.PRG(03)) which reminds authorities that:

***if at any time they identify a risk of an air quality exceedence then they should proceed to a Detailed Assessment and not delay until the next full round of review and assessment***

The Council should therefore assess its nitrogen dioxide monitoring results to establish whether they represent a risk of exceedence at locations with relevant exposure. If this is the case then the Council should proceed to a Detailed Assessment for these locations. It should keep Defra informed as to what further action is to be taken.

Ref: PR3-084a

## Commentary

The report is well structured and covers all of the minimum requirements and some of the recommended additional items of the information specified in the Guidance.

The following specific items are drawn to the local authority's attention to help inform future work:

1. It would be very useful to clearly identify whether monitoring sites are located within Cambridge AQMA or not. It has been assumed that all diffusion tubes measured concentrations higher than  $40\mu\text{g}/\text{m}^3$  in 2006 are located within the AQMA or if not, these locations with exceedences of the  $\text{NO}_2$  annual mean objective have no relevant exposure. If this is incorrect then a Detailed Assessment should be undertaken.
2. There is evidence that the 1-hour mean nitrogen dioxide objective is being exceeded in the local authority area. Automatic monitor at Parker Street presented in Figure 5 (page 5) measured a concentration of  $65\mu\text{g}/\text{m}^3$  (corrected data). It is appropriate to base the decision of a likely exceedence of the 1-hour  $\text{NO}_2$  objective on an exceedence of  $60\mu\text{g}/\text{m}^3$  as an annual mean (Laxen & Marner, 2003: analysis of the relationship between 1-hour and annual mean nitrogen dioxide at UK roadside and kerbside monitoring sites). There is no requirement to undertake a Detailed Assessment for an area already covered by an AQMA for relevant air quality objective but Cambridge AQMA is declared for the nitrogen dioxide annual mean objective. It has been assumed that the real-time monitor at Parker Street does not represent locations where members of the public might reasonably expected to spend 1 hour or longer. If this is incorrect then a Detailed Assessment should be undertaken to confirm whether the objective is likely to be exceeded and ensure that the Action Plan has measures within it to address this problem.

This commentary is not designed to deal with every aspect of the report. It highlights a number of issues that should help the local authority in carrying out further Review & Assessment work.

Issues can be followed up through the Review and Assessment helpdesk as follows:

|                      |  |
|----------------------|--|
| Help desk telephone: | 0117 328 3668  |
| Help desk email:     | <a href="mailto:aqm-review@uwe.ac.uk">aqm-review@uwe.ac.uk</a>         |
| Web site:            | <a href="http://www.uwe.ac.uk/aqm/review">www.uwe.ac.uk/aqm/review</a> |

In case of enquiry contact Dr Anita Lewis or Mr Jo Dicks  
Direct dial 01223 457926/45  
Fax 01223 457909  
E-mail: anita.lewis@cambridge.gov.uk  
jo.dicks@cambridge.gov.uk



Tuto Aluko  
Area 3C  
Ergon House  
Horseferry Road  
LONDON  
SW1P 2AL

8<sup>th</sup> October 2007

Dear Mr Aluko

**LAQM: 2007 Air Quality Progress Report – response to DEFRA**

Thank you for your letter of 4<sup>th</sup> October 2006 with the Progress Report Appraisal for the Cambridge City Council AQPR issued in May 2007.

1. Diffusion tube measurements greater than 40  $\mu\text{g}/\text{m}^3$ . I confirm that in 2006 all (but one) diffusion tubes that measured more than 40  $\mu\text{g}/\text{m}^3$  are in the AQMA. The exception was Milton Road. This is one of the six diffusion tubes that were relocated following the diffusion tube review in March 2007, reported in the Progress Report. There is also a discussion on diffusion tube and exceedences of the annual mean in the Further Assessment of 2006.
2. The continuous monitor and the diffusion tube in Parker Street are located on opposite sides of this canyon street. From street morphology and prevailing wind directions we would expect the continuous monitor to measure a higher level of nitrogen dioxide than the diffusion tube. They are both at locations where a member of the public might reasonably be expected to spend one hour or longer. However, the continuous monitor recorded **one** exceedence of the hourly objective for nitrogen dioxide in 2006 (and 2005, 2004, 2003, 2002). Therefore, we do not consider that a Detailed Assessment should be undertaken.

Finally, the current and developing Action Plan contains actions to address the air quality problems in the area around Parker Street (the bus station area).

I hope this clarifies the points that you have raised, but please do not hesitate to contact me if you would like further information.

Yours sincerely

Dr Anita Lewis

Environmental Services  
Cambridge CB2 1BY  
Telephone 01223 457892



## 10.2 East Cambridgeshire District Council

Area 3C  
Ergon House  
Horseferry Road  
London. SW1P 2AL

Telephone 020 7238 1676  
Website [www.defra.gov.uk](http://www.defra.gov.uk)

Email [tutu.aluko@defra.gsi.gov.uk](mailto:tutu.aluko@defra.gsi.gov.uk)



Mr Phillip Wright  
Environmental Health Department  
East Cambridgeshire District Council  
The Grange  
Nutholt Lane  
Ely  
Cambridgeshire CB7 4PL

10 December 2007

Dear Mr Wright

### LOCAL AIR QUALITY MANAGEMENT: 2007 AIR QUALITY PROGRESS REPORT

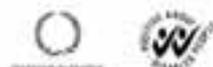
Thank you for consulting the Secretary of State for Environment, Food and Rural Affairs on your air quality Progress Report submitted as part of joint Cambridgeshire's PR. The PR also presents progress with Action Plans and LTP. Please find attached comments on the review and assessment aspects of the report. We will send you our comments on the action plan element in due course.

On the basis of the information provided, the report is accepted.

If you have any specific queries about the comments contained in either appraisal report, we would advise that you initially contact the relevant help desk. Details on how to contact the help desks can be found in the relevant appraisal report.

Yours sincerely

Tutu Aluko  
AIR, ENVIRONMENT QUALITY DIVISION



Ref: PR3-084b

## **Progress Report Appraisal**

Report Prepared by: **East Cambridgeshire District Council**

Date Progress Report Issued: **May 2007**

The Progress Report sets out new information on air quality obtained by East Cambridgeshire District Council, as part of the Review & Assessment process required under the Environment Act 1995 and subsequent Regulations.

It covers the **minimum requirements for reporting on monitoring and new local developments**. It also covers **none of the recommended additional elements**. The Local Authority does not propose to progress to a Detailed Assessment.

On the basis of the information provided by the local authority, the report is **accepted**.

Ref: PR3-084b

## Commentary

The report is well structured and covers all of the minimum requirements specified in the Guidance.

The following specific items are drawn to the local authority's attention to help inform future work:

1. Minor point – in point 2 on page 31 there is a reference to Table 3. There is no 'table' in the Progress Report. All tables have been named as 'figures'.
2. Minor point – the first paragraph on page 64 says "Construction of the Fordham by-pass is now underway with completion due in May 2005..." Please amend the date.

This commentary is not designed to deal with every aspect of the report. It highlights a number of issues that should help the local authority in carrying out further Review & Assessment work.

Issues can be followed up through the Review and Assessment helpdesk as follows:

|                      |  |
|----------------------|--|
| Help desk telephone: | 0117 328 3668  |
| Help desk email:     | <a href="mailto:aqm-review@uwe.ac.uk">aqm-review@uwe.ac.uk</a>           |
| Web site:            | <a href="http://www.uwe.ac.uk/aqm/review/">www.uwe.ac.uk/aqm/review/</a> |

## 10.3 Fenland District Council

Area 3C  
Ergon House  
Horseferry Road  
London. SW1P 2AL

Telephone 020 7238 1676  
Website [www.defra.gov.uk](http://www.defra.gov.uk)

Email [tutu.aluko@defra.gov.uk](mailto:tutu.aluko@defra.gov.uk)



Mr Graeme Carson  
Environmental Protection Manager  
Fenland District Council  
Fenland Hall  
County Road  
March  
Cambs PE15 8NQ

10 December 2007

Dear Mr Carson

### LOCAL AIR QUALITY MANAGEMENT: 2007 AIR QUALITY PROGRESS REPORT

Thank you for consulting the Secretary of State for Environment, Food and Rural Affairs on your air quality Progress Report submitted as part of joint Cambridgeshire's PR. The PR also presents progress with Action Plans and LTP. Please find attached comments on the review and assessment aspects of the report. We will send you our comments on the action plan element in due course.

On the basis of the information provided, the review and assessment report is accepted. **However, Fenland Council should have submitted a Detailed Assessment report for NO<sub>2</sub> and PM<sub>10</sub> – work was identified following their 2006 USA report. We ask that you write to us updating us on progress in completing the Detailed Assessment report.**

If you have any specific queries about the comments contained in either appraisal report, we would advise that you initially contact the relevant help desk. Details on how to contact the help desks can be found in the relevant appraisal report.

Yours sincerely

Tutu Aluko  
AIR, ENVIRONMENT QUALITY DIVISION



Ref: PR3-084c

## Progress Report Appraisal

Report Prepared by: Fenland District Council

Date Progress Report Issued: May 2007

The Progress Report sets out new information on air quality obtained by Fenland District Council, as part of the Review & Assessment process required under the Environment Act 1995 and subsequent Regulations.

This Appraisal Report covers the air quality Review and Assessment aspects of the Progress Report. The Action Plan elements are appraised separately.

The Progress Report covers the **minimum requirements for reporting on monitoring and new local developments**. It also covers **one of the recommended additional elements including:**

- progress with Action Plans

The Progress Report states that the Local Authority is currently undertaking to a Detailed Assessment for PM<sub>10</sub>.

On the basis of the information provided by the local authority, the review and assessment aspects of the Progress Report are **accepted**. However, Fenland District Council should have submitted a Detailed Assessment for NO<sub>2</sub> and PM<sub>10</sub>, instead of a Progress Report, following the outcome of their Updating and Screening Assessment in 2007. It is unclear why this has not been completed and the local authority should update Defra on their progress in completing the Detailed Assessment.

Ref: PR3-084c

### Commentary

The report is well structured and covers most of the minimum requirements and one of the recommended additional items of the information specified in the Guidance.

The following specific items are drawn to the local authority's attention to help inform future work:

1. There is a reference to NO<sub>2</sub> chemiluminescence data at Napier Court on page 33 but no data (even provisional) is presented in the Progress Report.
2. For future reports, SO<sub>2</sub> concentrations should be reported as µg/m<sup>3</sup> to allow direct comparison with the objectives and not as ppb as it is presented in Figure 22.
3. It would be helpful if future reports could include maps outlining locations of diffusion tube and automatic monitor in order to provide more evidence of where relevant exposure exists in relation to monitoring sites and Air Quality Management Areas.

This commentary is not designed to deal with every aspect of the report. It highlights a number of issues that should help the local authority in carrying out further Review & Assessment work.

Issues can be followed up through the Review and Assessment helpdesk as follows:

|                      |  |
|----------------------|--|
| Help desk telephone: | 0117 328 3688  |
| Help desk email:     | <a href="mailto:aqm-review@uwe.ac.uk">aqm-review@uwe.ac.uk</a>         |
| Web site:            | <a href="http://www.uwe.ac.uk/aqm/review">www.uwe.ac.uk/aqm/review</a> |

Graeme Carson  
Tel 01354 622431  
Fax 01354 606911  
E-mail: gcarson@fenland.gov.uk

**Tutu Aluko  
Area 3C  
Ergon House  
Horseferry Road  
London  
SW1P 2AL**

**Re: LAQM 2007: Air Quality Progress Report – Response to DEFRA  
Fenland District Council, Cambs**

Thank you for your letter dated 4 October 2007.

We acknowledge receipt of the Progress Report Appraisal for our Progress Report , submitted to you in May 2007.

You have raised the question of why the Progress Report was submitted when the Council were actually due to submit a Detailed Assessment for NO<sub>2</sub> and PM<sub>10</sub>.

However it is our understanding that Fenland Council are due to submit a further Assessment for NO<sub>2</sub> in Wisbech. We also understand we need to produce Progress Reports on the SO<sub>2</sub> AQMA in Whittlesey and the SO<sub>2</sub> and PM<sub>10</sub> AQMAs in Wisbech.

**Please could you confirm our understanding of the requirements.**

We are also awaiting your comments on Fenland Council's Detailed Assessment on NO<sub>2</sub> in Whittlesey, which we submitted to DEFRA in August this year. Please accept my apologies if you have already sent the comments to us. The Technical Officer who had been dealing with these matters has recently left us, and we cannot locate your response. **In this respect could you please forward me a copy of your comments.**

With regards to the outstanding reports you have requested please be advised that the Council has recently appointed AQC as consultants. Their brief is to produce these reports and they are optimistic that they should be completed and submitted in the near future.

Your commentary on the 2007 Progress Report identifies missing NO<sub>2</sub> data from the monitoring station in Wisbech.

(Cont'd)

2/

I write to report that data capture for 2006 was very poor (<50%) and has not yet been verified or corrected. The raw uncorrected annual mean for 2006 was  $33\mu\text{g}/\text{m}^3$ .

We anticipate that verified corrected data set would be submitted in the Full Assessment for Wisbech  $\text{NO}_2$  in due course.

I thank you in anticipation of your reply.

Yours sincerely,

Graeme Carson  
Environmental Protection Manager

## 10.4 Huntingdonshire District Council

Area 3C  
Ergon House  
Horseferry Road  
London. SW1P 2AL

Telephone 020 7238 1676  
Website [www.defra.gov.uk](http://www.defra.gov.uk)

Email [tutu.aluko@defra.gsi.gov.uk](mailto:tutu.aluko@defra.gsi.gov.uk)



Mr Toby Lewis  
Huntingdonshire DC  
Pathfinder House  
St Marys Street  
Huntingdon  
PE29 3TN

Date 10 December 2007

Dear Mr Lewis

### LOCAL AIR QUALITY MANAGEMENT: 2007 AIR QUALITY PROGRESS REPORT

Thank you for consulting the Secretary of State for Environment, Food and Rural Affairs on your air quality Progress Report submitted as part of joint Cambridgeshire's PR. The PR also presents progress with Action Plans and LTP. Please find attached comments on the review and assessment aspects of the report. We will send you our comments on the action plan element in due course.

On the basis of the information provided, the report is accepted. There is no requirement to proceed to a Detailed Assessment.

If you have any specific queries about the comments contained in either appraisal report, we would advise that you initially contact the relevant help desk. Details on how to contact the help desks can be found in the relevant appraisal report.

Yours sincerely

Tutu Aluko  
AIR, ENVIRONMENT QUALITY DIVISION



Ref: PR3-084d

## Progress Report Appraisal

Report Prepared by: Huntingdonshire District Council

Date Progress Report Issued: May 2007

The Progress Report sets out new information on air quality obtained by Huntingdonshire District Council, as part of the Review & Assessment process required under the Environment Act 1995 and subsequent Regulations.

It covers the minimum requirements for reporting on monitoring and new local developments. It covers none of the recommended additional elements. The Local Authority does not propose to progress to a Detailed Assessment.

### Commentary

The report is well structured and covers all of the minimum requirements specified in the Guidance.

There are no specific items to draw to the local authority's attention.

This commentary is not designed to deal with every aspect of the report. It highlights a number of issues that should help the local authority in carrying out further Review & Assessment work.

Issues can be followed up through the Review and Assessment helpdesk as follows:

|                      |  |
|----------------------|--|
| Help desk telephone: | 0117 328 3688  |
| Help desk email:     | <a href="mailto:aqm-review@uwe.ac.uk">aqm-review@uwe.ac.uk</a>           |
| Web site:            | <a href="http://www.uwe.ac.uk/aqm/review/">www.uwe.ac.uk/aqm/review/</a> |

## 10.5 South Cambridgeshire District Council

Area 3C  
Ergon House  
Horseferry Road  
London. SW1P 2AL

Telephone 020 7238 1676  
Email [tutu.aluko@defra.gsi.gov.uk](mailto:tutu.aluko@defra.gsi.gov.uk)



Ms Susan Walford  
Environmental Services  
South Cambridgeshire DC  
South Cambridgeshire Hall  
9 – 11 Hills Road  
Cambridge  
CB2 1PB

10 December 2007

Dear Ms Walford

### LOCAL AIR QUALITY MANAGEMENT: 2007 AIR QUALITY PROGRESS REPORT

Thank you for consulting the Secretary of State for Environment, Food and Rural Affairs on your air quality Progress Report submitted as part of joint Cambridgeshire's PR. The PR also presents progress with Action Plans and LTP. Please find attached comments on the review and assessment aspects of the report. We will send you our comments on the action plan element in due course.

On the basis of the information provided, the review and assessment report is accepted. **However South Cambridgeshire should have submitted a Detailed Assessment for NO<sub>2</sub> and PM<sub>10</sub>. Although, a DA for NO<sub>2</sub> was submitted in December 2006, the DA for PM<sub>10</sub> is still outstanding. We ask that you write to us updating us on progress in completing the Detailed Assessment report.**

If you have any specific queries about the comments contained in either appraisal report, we would advise that you initially contact the relevant help desk. Details on how to contact the help desks can be found in the relevant appraisal report.

Yours sincerely

Tutu Aluko  
AIR, ENVIRONMENT QUALITY DIVISION



Ref: PR3-084e

## Progress Report Appraisal

Report Prepared by: South Cambridgeshire District Council

Date Progress Report Issued: May 2007

The Progress Report sets out new information on air quality obtained by South Cambridgeshire District Council, as part of the Review & Assessment process required under the Environment Act 1995 and subsequent Regulations.

It covers the minimum requirements for reporting on monitoring and new local developments. It covers none of the recommended additional elements. The Progress Report states that the Local Authority is currently undertaking to a Detailed Assessment for PM<sub>10</sub>.

On the basis of the information provided by the local authority, the review and assessment aspects of the Progress Report are accepted. However, South Cambridgeshire District Council should have submitted a Detailed Assessment for NO<sub>2</sub> and PM<sub>10</sub> following the outcome of their Progress Report in 2005. A Detailed Assessment for NO<sub>2</sub> was submitted in December 2006 but the Detailed Assessment for PM<sub>10</sub> is still outstanding. It is unclear why this has not been completed and the local authority should update Defra on their progress in completing the Detailed Assessment.

### Commentary

The report is well structured and covers all of the minimum requirements specified in the Guidance. There are no specific items to draw to the local authority's attention.

This commentary is not designed to deal with every aspect of the report. It highlights a number of issues that should help the local authority in carrying out further Review & Assessment work.

Issues can be followed up through the Review and Assessment helpdesk as follows:

|                      |  |
|----------------------|--|
| Help desk telephone: | 0117 328 3668  |
| Help desk email:     | <a href="mailto:aqm-review@uwe.ac.uk">aqm-review@uwe.ac.uk</a>         |
| Web site:            | <a href="http://www.uwe.ac.uk/aqm/review">www.uwe.ac.uk/aqm/review</a> |