

2011 Air Quality Progress Report for



In fulfillment of Part IV of the Environment Act 1995
Local Air Quality Management

April 2011

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Executive Summary

Huntingdonshire District Council has examined their monitoring data from 2010 and studied the various developments and development proposals which may have a bearing on Air Quality.

No significant changes have been found to suggest that there will be new air quality issues.

A detailed assessment of nitrogen dioxide (NO₂) concentrations in an area of Buckden close to a roundabout on the A1 is being undertaken currently and its completion is anticipated in early 2012.

Table of contents

1	Introduction	6
1.1	Description of Local Authority Area	6
1.2	Purpose of Progress Report	6
1.3	Air Quality Objectives	7
1.4	Summary of Previous Review and Assessments	9
2	New Monitoring Data	15
2.1	Summary of Monitoring Undertaken	15
2.2	Comparison of Monitoring Results with Air Quality Objectives	22
3	New Local Developments	27
3.1	Road Traffic Sources	27
3.2	Other Transport Sources	27
3.3	Industrial Sources	28
3.4	Commercial and Domestic Sources	28
3.5	New Developments with Fugitive or Uncontrolled Sources	28
4	Local / Regional Air Quality Strategy	29
5	Planning Applications	30
6	Air Quality Planning Policies	31
7	Local Transport Plans and Strategies	34
8	Climate Change Strategies	35
9	Implementation of Action Plans	35
10	Conclusions and Proposed Actions	42
10.1	Conclusions from New Monitoring Data	42
10.2	Conclusions relating to New Local Developments	42
10.3	Other Conclusions	42
10.4	Proposed Actions	42
11	References	44

Appendices

Appendix 1 QA/QC Data

List of Tables

Table 1.1	Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.
Table 2.1	Details of Automatic Monitoring Sites
Table 2.2	Details of Non- Automatic Monitoring Sites
Table 2.3a	Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective
Table 2.3b	Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective
Table 2.4a	Results of Nitrogen Dioxide Diffusion Tubes
Table 2.4b	Results of Nitrogen Dioxide Diffusion Tubes
Table 2.5a	Results of PM ₁₀ Automatic Monitoring: Comparison with Annual Mean Objective
Table 2.5b	Results of PM ₁₀ Automatic Monitoring: Comparison with 24-hour Mean Objective

List of Figures

Figure 1.1	Air Quality Management Area No. 1: Huntingdon
Figure 1.2.	Air Quality Management Area No. 2: St Neots
Figure 1.3.	Air Quality Management Area No. 3: Brampton
Figure 1.4.	Air Quality Management Area No. 4: A14 Hemingford to Fenstanton
Figure 2.1	Map(s) of Automatic Monitoring Site
Figure 2.2	Map(s) of Non-Automatic Monitoring Sites

1 Introduction

1.1 Description of Local Authority Area

Huntingdonshire District Council is located in the south west of the county of Cambridgeshire. It comprises four market towns; Huntingdon, St Neots, St Ives and Ramsey as well as many villages.

Whilst the district is predominantly rural it does have major transport links. The A1 and A1(M) run north south through the middle of the district and the A14 runs east west. Both these roads are heavily trafficked and the A14 has a particularly high proportion of Heavy Duty Vehicles (HDVs).

The main East Coast Railway line runs north south through the district.

There are industrial areas in each of the four market towns and the emissions from these processes have been screened in previous Air Quality Review and Assessment (AQR&A) stages. Some of the processes were subjected to detailed dispersion modelling (ADMS Urban). No industrial processes in Huntingdonshire have resulted in Air Quality Management Areas (AQMAs) being declared although some of them make contributions to concentrations of NO₂ in AQMAs.

The most significant source of problem LAQM pollutants in the district (NO₂ and PM₁₀) is road traffic.

1.2 Purpose of Progress Report

Progress Reports are required in the intervening years between the three-yearly Updating and Screening Assessment (USA) Reports. Their purpose is to maintain continuity in the Local Air Quality Management process.

They are not intended to be as detailed as USA Reports, or to require as much effort. However, if the Progress Report identifies the risk of exceedence of an Air Quality Objective, the Local Authority (LA) should undertake a Detailed Assessment immediately, and not wait until the next round of Review and Assessment.

1.3 Air Quality Objectives

The Air Quality Objectives applicable to LAQM **in England** are set out in the Air Quality (England) Regulations 2000 (SI 928) and the Air Quality (England) (Amendment) Regulations 2002 (SI 3043). They are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre ($\mu\text{g}/\text{m}^3$) (for carbon monoxide the units used are milligrammes per cubic metre, mg/m^3). Table 1.1 includes the number of permitted exceedences in any given year (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England.

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
	0.25 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu\text{g}/\text{m}^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2005
Particles (PM₁₀) (gravimetric)	50 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu\text{g}/\text{m}^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu\text{g}/\text{m}^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

The first round of review and assessment consisted of three initial stages of increasing complexity. If at the end of Stage 3 it was determined that an Air Quality Objective would not be met, then a fourth stage would be undertaken with an AQMA declared.

In Cambridgeshire the District Councils and the County Council produced a joint Stage 1 document, pooling resources and expertise. The first stage consisted of a general 'look' at the district for potential pollution sources and at air quality and traffic data that were available, and any other relevant information. If it was likely that there were areas where pollution levels would exceed the air quality objectives then a second stage review and assessment was required.

Huntingdonshire District Council undertook a Stage 2 Review and Assessment, which involved looking more closely at those areas identified in Stage 1 as likely pollution problem areas. This work was carried out in conjunction with the District Councils partners as for Stage 1 and was reported in the same document, published in **1998**. Stage 2 involved the use of simple air quality forecasting models and more detailed air quality monitoring data. The results from this assessment provided a better indication of pollution exceedences occurring, or not. Those 'hotspots' (areas likely to exceed the objectives) were progressed to the third stage Review and Assessment. Huntingdonshire District Council required a Stage 3 Review and Assessment.

Huntingdonshire District Council undertook the Stage 3 Review and Assessment. This required the use of more advanced modelling techniques and additional air quality monitoring data and traffic data. Again, Huntingdonshire District Council conducted this work with its partner organisations and produced a joint report in **April 2000** concluding that a Stage 4 Review and Assessment would not be necessary.

Following the first round of review and assessments, Defra issued new guidance that slightly altered the review and assessment structure. There are now two initial stages instead of three.

Huntingdonshire District Council completed a USA Report in conjunction with its partners in **April 2003**. This involved assessing any new changes within the district that affected the air quality since the previous round of AQR&A. These included air quality monitoring data, traffic flows, industrial processes, planning developments etc. Simple air quality forecasting screening models were used. Where the USA indicated that there were areas within the district which may exceed objectives then the next stage would be a Detailed Assessment. Where no such evidence was found the next stage would be a Progress Report. In Huntingdonshire no evidence of likely exceedences was found at that time.

The Progress Report, produced in **April 2004** unexpectedly concluded that there were likely to be exceedences of the annual mean objectives for NO₂. This view was reached following unusual meteorology in 2003 resulting in poor dispersion of traffic pollutants and correspondingly high measured concentrations of NO₂ during that year. These findings triggered the requirement for a Detailed Assessment in the following year.

A Detailed Assessment was carried out on those areas that had been found to be likely to exceed the annual objective for NO₂ and the report was published in **April 2005**. Based on monitoring results from NO₂ diffusion tubes and continuous analysers it was determined that exceedences were still likely in parts of Huntingdon and St Neots. This study also revealed that further modelling work should be undertaken around some of the district's trunk roads to investigate other potential areas of exceedence.

The result of the Detailed Assessment meant that Huntingdonshire District Council was required to designate two AQMAs. The largest encompassed much of Huntingdon, specifically areas close to the A14 and the inner ring road. The other AQMA, much smaller, covered part of St Neot's High Street.

Huntingdonshire District Council completed its second USA in conjunction with its partners in **April 2006**. This study did not find any pollutants, which had not already been identified, were likely to exceed the objectives. Appended to the USA, however, was a further Detailed Assessment which reported on the investigation of the district's trunk roads, which had been identified as potential problems in the 2005 Detailed Assessment. This appendix identified two additional areas where exceedences were likely and this resulted in the declaration of additional AQMAs in Brampton and in areas close to the A14, between Hemingford Abbots and Fenstanton.

In conjunction with the designation of the AQMAs, a Further Assessment of the air quality within the AQMAs was undertaken and this was published in **2007**. This resulted in amending three of the four AQMAs, enlarging them slightly. The Progress Report submitted in **April 2007** found no new information that was not already covered by the Further Assessment.

The Progress Report, submitted in **April 2008** concluded that objectives were likely to continue to be met in areas that are not in existing AQMAs.

Huntingdonshire District Council completed its third USA in **June 2009**, the first report submitted using Defra's new reporting format. The 2009 USA did not find any exceedences of the objectives outside areas already declared as AQMAs.

In **May 2010** Huntingdonshire District Council completed its Joint Air Quality Action Plan in conjunction with its local authority neighbours; South Cambridgeshire District Council and Cambridge City Council. Cambridgeshire County Council is acknowledged for its assistance in the development of this Action Plan. The Joint Air Quality Action Plan was accepted by Defra and the respective Councils were commended for their work.

Huntingdonshire District Council also submitted a Progress Report in **May 2010** which identified no new issues except for high concentrations of NO₂ measured at a new diffusion tube monitoring site in the village of Buckden close to a roundabout on the A1. As a result Huntingdonshire District Council has proceeded to conduct a

Detailed Assessment of this issue. It was originally intended to submit the Buckden Detailed Assessment alongside this document but, due to difficulties verifying the dispersion model of the area, with the agreement of Defra, the Buckden Detailed Assessment has been deferred until 2011.

All of the previous AQR&A reports are available at:

<http://www.huntingdonshire.gov.uk/Environment%20and%20Planning/Air%20Quality/Pages/default.aspx>

Figure 1.1. Air Quality Management Area No. 1: Huntingdon

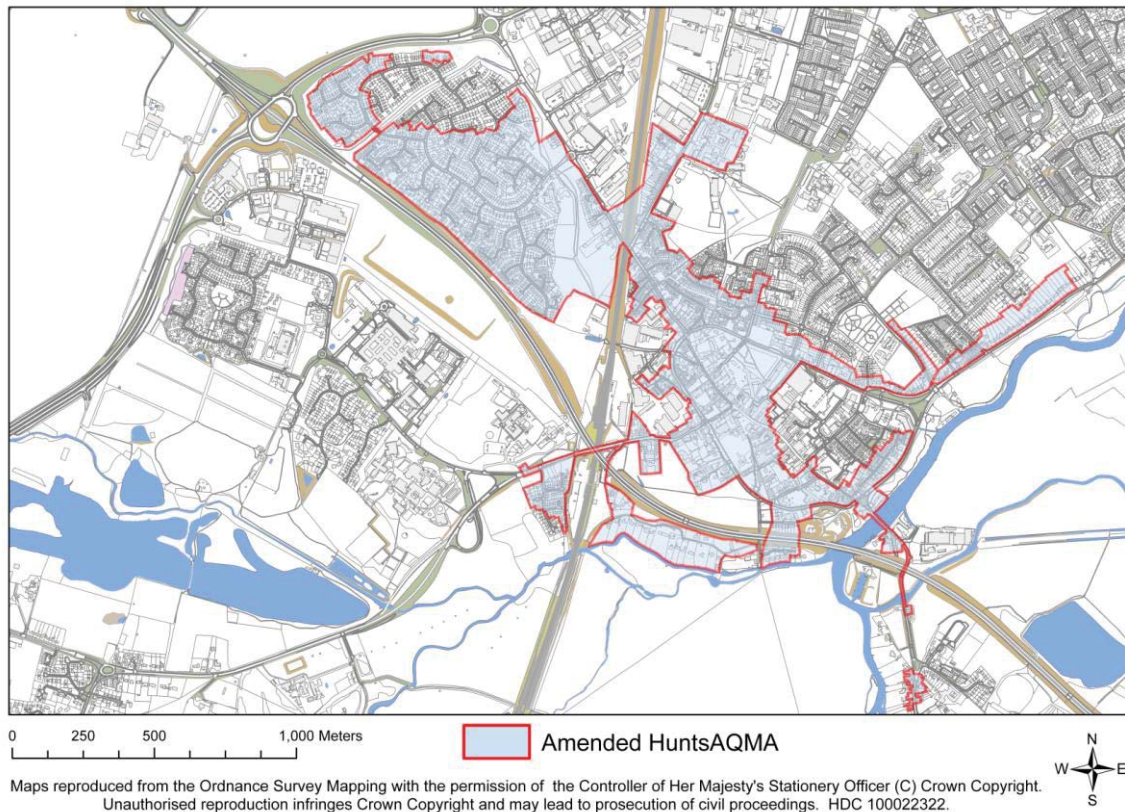


Figure 1.2. Air Quality Management Area No. 2: St Neots

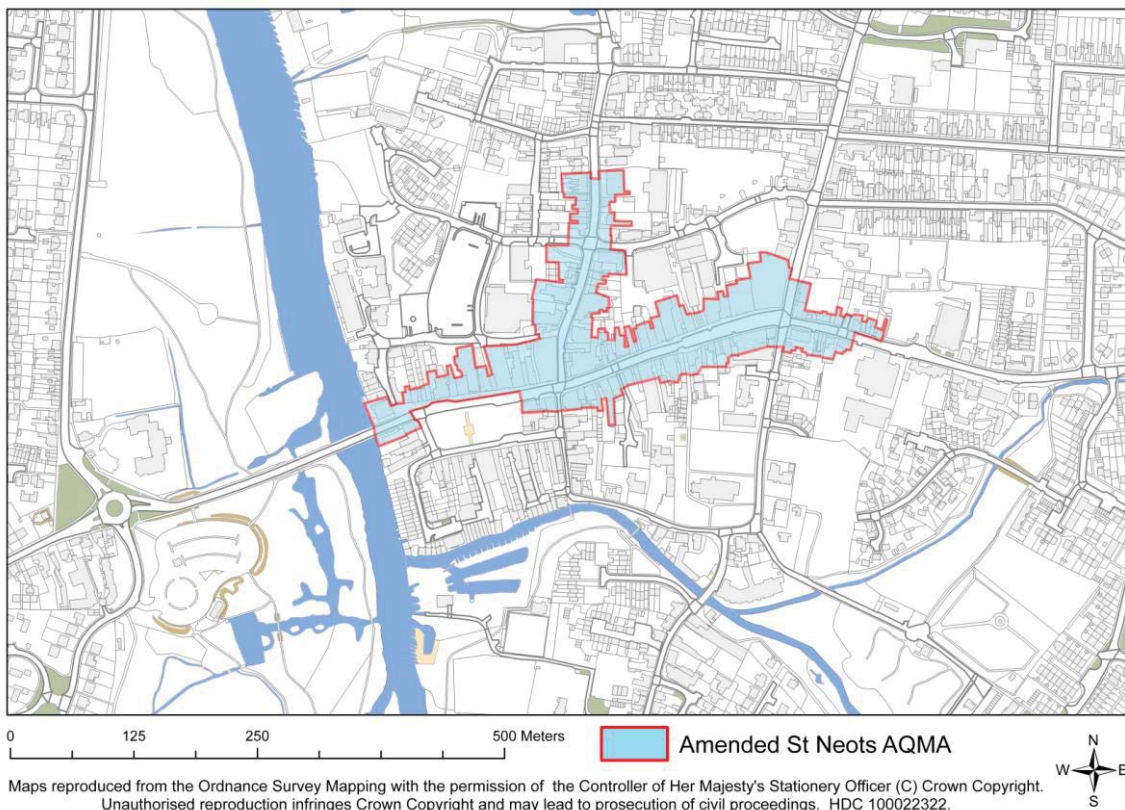


Figure 1.3. Air Quality Management Area No. 3: Brampton

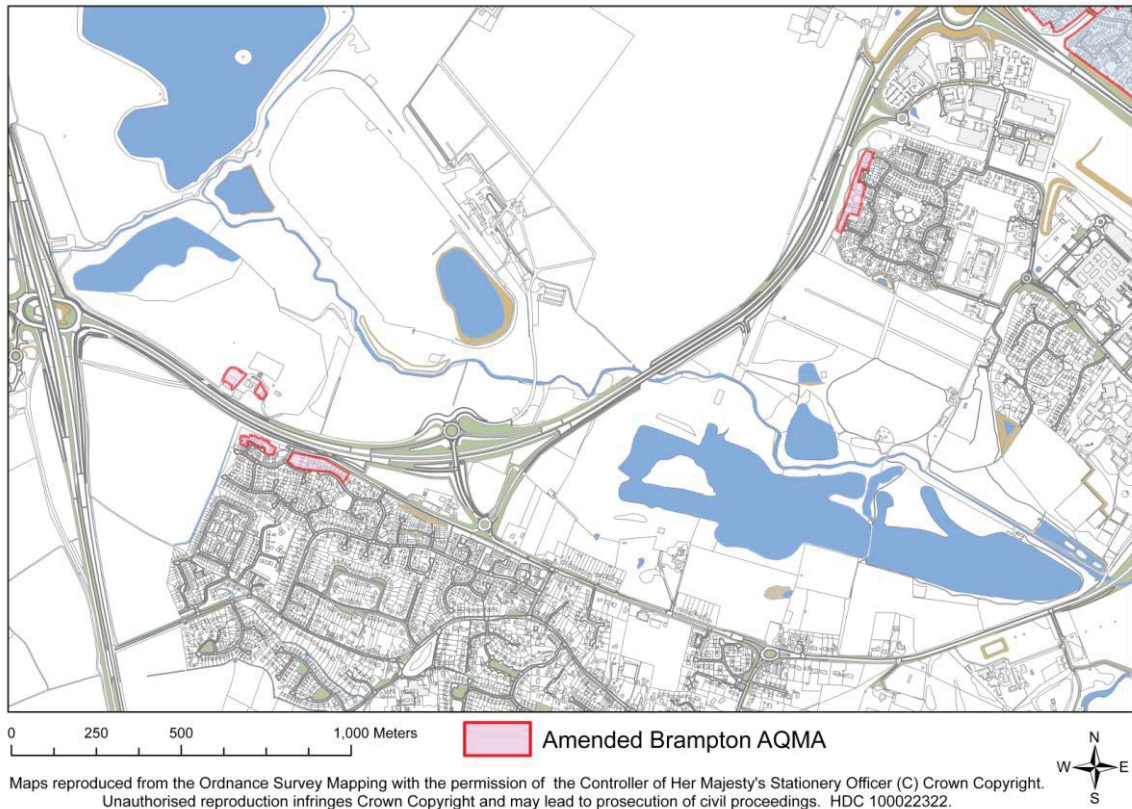
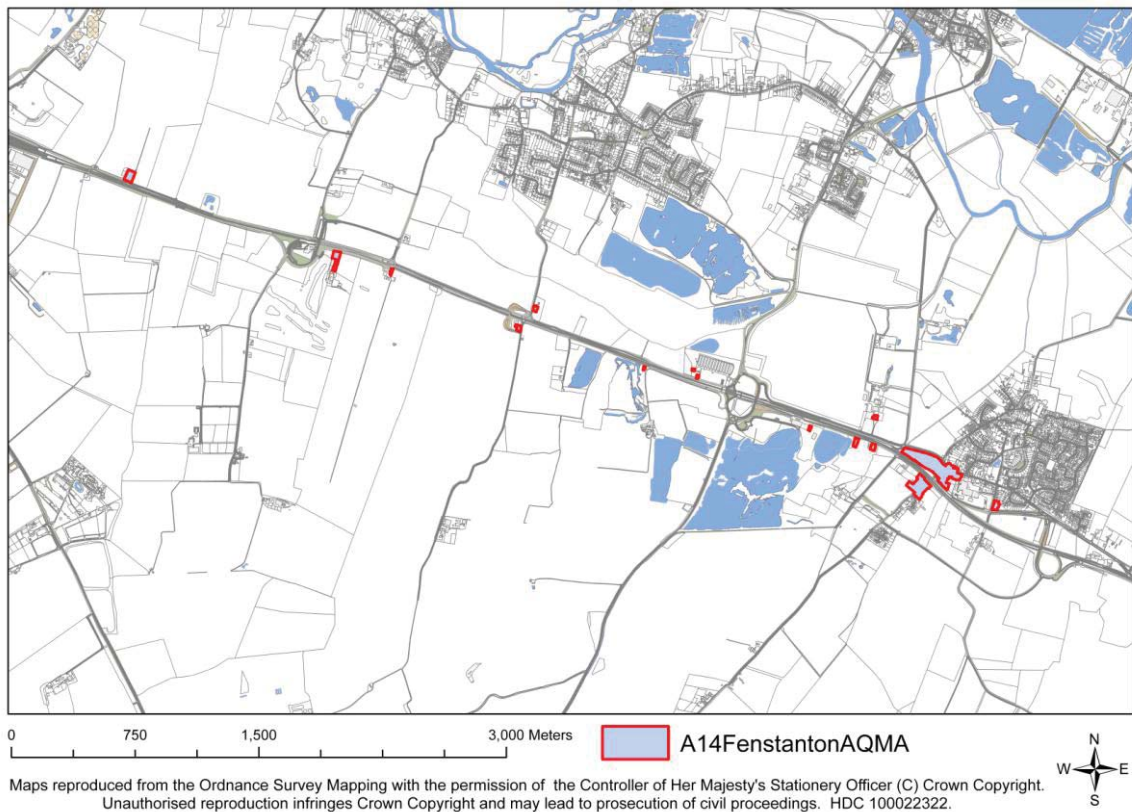


Figure 1.4. Air Quality Management Area No. 4: A14 Hemingford to Fenstanton



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Huntingdonshire District Council only operated a single real time monitoring station during 2010 and this was a rural background site located in West Perry close to Grafham Water. This site was decommissioned in November 2010 as the instruments were very old and the maintenance and repair liabilities resulted in the site representing poor value for money.

A long established site, located at the Council's HQ, Pathfinder House, on the ring road at Huntingdon was decommissioned in 2008 due to the demolition of the old HQ and the construction of the new HQ on the same site. A new, purpose built monitoring enclosure was constructed in 2010 and the site was fully commissioned in January 2011 monitoring NO₂, PM₁₀ and PM_{2.5}.

In the 2010 Progress Report it was stated that a new monitoring station was being considered for the village of Brampton as the proposed offline section of the A14 upgrade could have resulted in elevated concentrations of pollutants in this village. As the A14 upgrade has now been cancelled for the foreseeable future Huntingdonshire District Council are not proceeding with a new monitoring station at this time.

All analysers are subject to monthly checks and calibrations where appropriate. These checks and calibrations are conducted by Council Officers. Data management is conducted in house and validation is undertaken on an annual basis.

Six-monthly maintenance visits are conducted by Air Monitors.

External QA/QC procedures are in place for the site by virtue of an ongoing contract with the NETCEN Calibration Club and their 2010 reports are appended to this document.

Figure 2.1 Map(s) of Automatic Monitoring Site

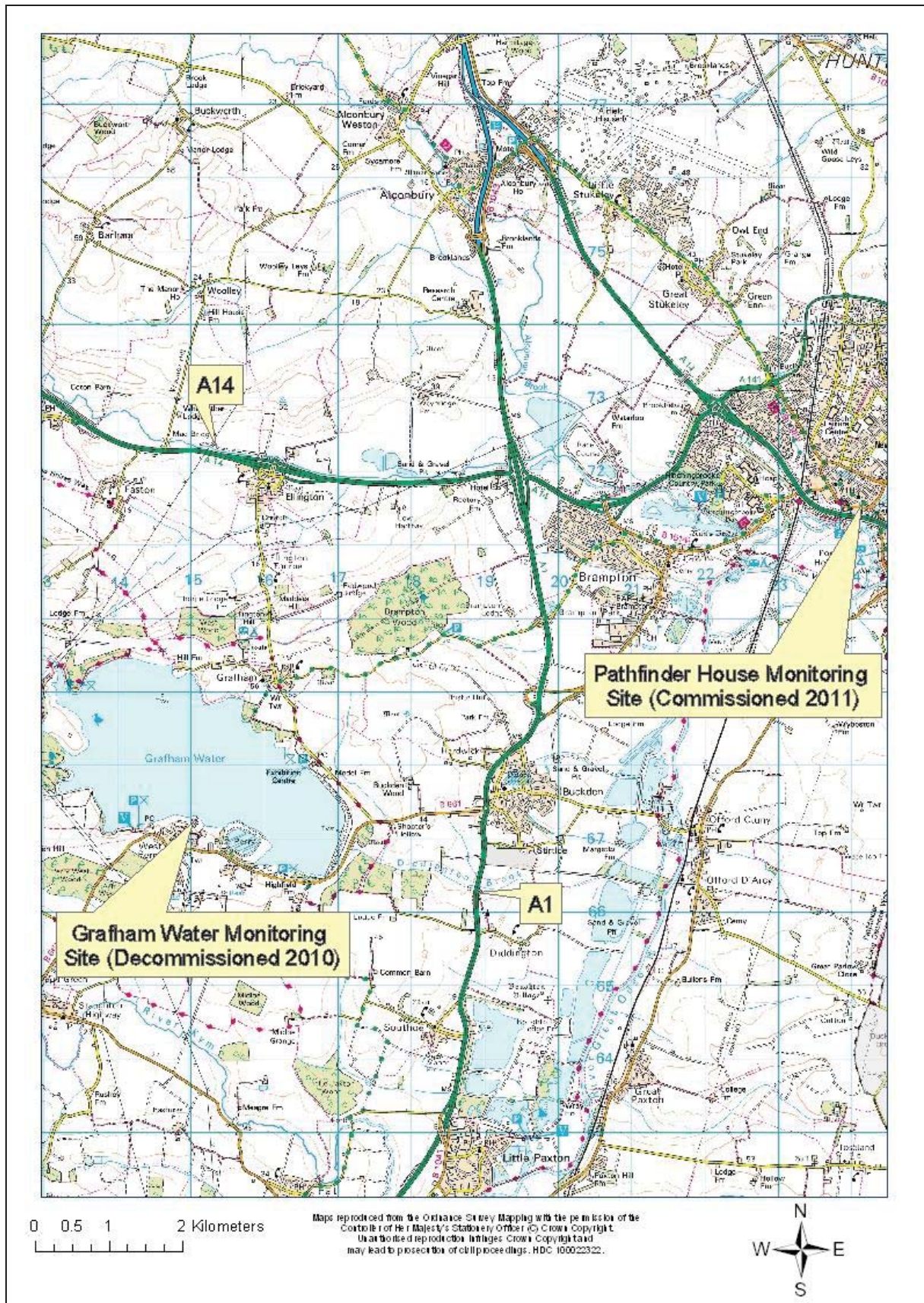


Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location ?
Huntingdon	Roadside	X 524060 Y 271532	NO ₂	Y	Y	7m	Y

2.1.2 Non-Automatic Monitoring

Huntingdonshire District Council deploys thirty-four NO₂ diffusion tubes around the district. Two of these were newly commissioned in January 2011 so no annual mean data for these locations is available yet.

The diffusion tubes are supplied and analysed by the Environmental Scientifics Group (formerly Harwell Scientifics).

The preparation method is 50% TEA in acetone.

The laboratory procedures follow the procedures set out in the Harmonisation Practical Guidance.

The bias adjustment factor used was 0.85 as found on the co location study on the Review and Assessment Helpdesk website in April 2011.

Harwell Scientifics is rated as a Good Category laboratory in the WASP scheme.

Figure 2.2 Map(s) of Non-Automatic Monitoring Sites

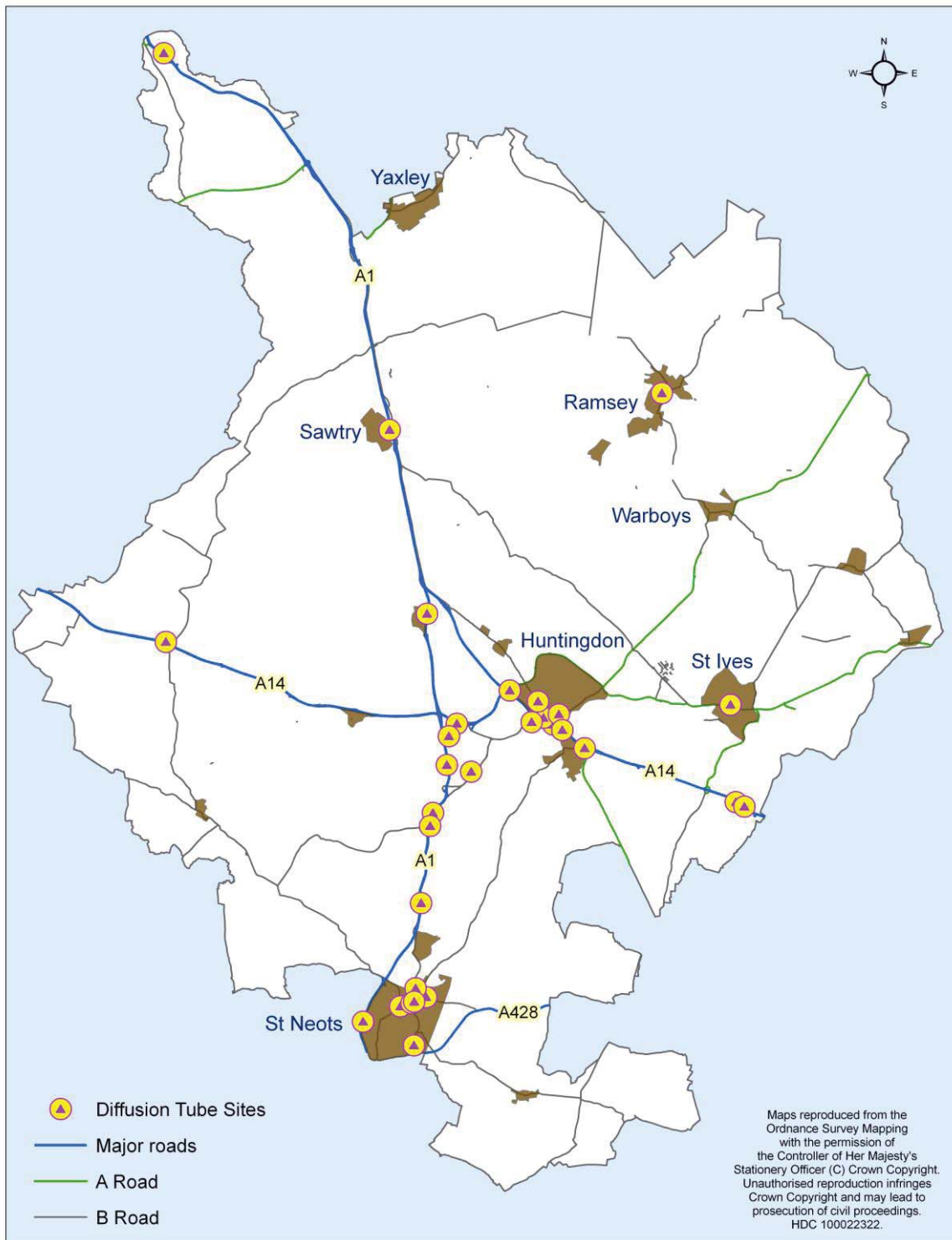


Table 2.2 Details of Non-Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case Location?
Alconbury: Manor Lane	Roadside	518954, 276010	NO ₂	N	Y	2	N
Brampton: Thrapston Road	Roadside	521433, 270910	NO ₂	Y	Y	2	N
Brampton: Hansell Road	Suburban	519839, 271061	NO ₂	N	Y	0.5	N
Brampton: Grafham Road Cottages	Suburban	519771, 269903	NO ₂	N	Y	0.5 (40m to trunk road)	Y
Brampton: RAF Brampton	Suburban	520734, 269623	NO ₂	N	Y	0.5	N
Buckden: Taylors Lane	Roadside	519196, 267953	NO ₂	N	Y	1	N
Buckden: High Street	Roadside	519082, 267433	NO ₂	N	Y	1 (35m to trunk road)	Y
Catworth: Thrapston Road	Rural	508409, 274876	NO ₂	N	Y	1 (42 To trunk road)	N
Eaton Socon: Duchess Close	Suburban	516370, 259514	NO ₂	N	Y	24 (To trunk road)	N
Fenstanton 1: Connington Road	Roadside	531770, 268215	NO ₂	Y	Y	2 (23m to trunk road)	Y
Fenstanton 2: Hilton Road	Roadside	531427, 268397	NO ₂	Y	Y	2 (94 To trunk road)	N
Godmanchester: Cambridge Villas	Roadside	525319, 270571	NO ₂	N	Y	12 (34m to trunk road)	N
Huntingdon 1: Blethan Drive	Roadside	522293, 272909	NO ₂	Y	Y	2	N
Huntingdon 2: George Street	Kerbside	523661, 271802	NO ₂	Y	N	1	Y
Huntingdon 3: Lodge Close	Suburban	523177, 271627	NO ₂	N	Y	2	N
Huntingdon 4: Pathfinder House	Kerbside	524056, 271533	NO ₂	Y	Y	1	Y
Huntingdon 5: St Peters Road	Kerbside	523435, 272464	NO ₂	Y	Y	1	N
Huntingdon 6: Tennis Court Av	Roadside	524274, 271939	NO ₂	Y	Y	2	N
Ramsey: Blenheim Road	Urban Background	528433, 284936	NO ₂	N	Y	2	N
Southoe: Lees Lane	Roadside	518714, 264308	NO ₂	N	Y	2 (14m to trunk road)	Y
Stibbington: Great North Road	Roadside	508326, 298684	NO ₂	N	Y	2 (8m to trunk road)	Y
Sawtry: Fen Lane	Suburban	517438, 283443	NO ₂	N	Y	2	N
Southoe: Lees Lane	Roadside	518714, 264308	NO ₂	N	Y	2 (14m to trunk road)	Y
St Ives: Ramsey Road	Urban Background	531206, 272334	NO ₂	N	Y	1	N
St Neots 1: Avenue Road	Urban Background	518925, 260503	NO ₂	N	Y	1	N

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case Location?
St Neots 2: Harland Road	Urban Background	518489, 260871	NO ₂	N	Y	1	N
St Neots 3: High Street	Kerbside	518323, 260263	NO ₂	Y	Y	1	Y
St Neots 4: High Street	Kerbside	518433, 260321	NO ₂	Y	Y	1	Y
St Neots 5: The Paddocks	Kerbside	517869, 260132	NO ₂	N	Y	1	N
Eynesbury	Suburban	518424, 258566	NO ₂	N	Y	17	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Monitoring of NO₂ during 2010 revealed no exceedences of the objectives at locations not already included in declared AQMAs except for at a new diffusion tube site located in the High Street, Buckden close to the round about on the A1.

Exceedences were measured at diffusion tube sites in Huntingdon and St Neots which are both within AQMAs. Concentrations were measured at tube sites in Fenstanton and St Neots which were very close to the objectives but both of these sites are within AQMAs.

Automatic Monitoring Data

Table 2.3a Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Proportion of year with valid data 2010 %	Annual mean concentrations (µg/m ³)		
				2008 *	2009	2010
Hunts	Huntingdon	Y	-	48	-	-
St Neots	St Neots	Y	-	44	-	-
Mobile	West Perry (Grafham)	N	68%	15	15	16

Table 2.3b Results of Automatic Monitoring for Nitrogen Dioxide: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2010 %	Number of Exceedences of hourly mean (200 µg/m ³) <i>If the period of valid data is less than 90% of a full year, include the 99.8th %ile of hourly means in brackets.</i>		
				2008 *	2009	2010
Hunts	Huntingdon	Y	-	0	-	-
St Neots	St Neots	Y	-	0	-	-
Mobile	West Perry (Grafham)	N	68%	0	0	0

Diffusion Tube Monitoring Data

Table 2.4a Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Data Capture 2009 %	Annual mean concentrations
				2010 ($\mu\text{g}/\text{m}^3$) Adjusted for bias
Alconbury	Manor Lane	N	100	26.5
Brampton 1	Laws Crescent	Y	100	35.6
Brampton 2	Hansell Road	N	92	18.1
Brampton 3	Grafham Rd Cottage	N	100	22.7
Brampton 4	RAF Brampton	N	100	18.8
Buckden 1	Taylor's Lane	N	100	24.2
Buckden 2	High Street	N	92	45.9
Catworth	Thrapston Road	N	100	25.1
Eaton Socon:	Duchess Close	N	100	33.5
Fenstanton 1	Hilton Road	Y	100	38.2
Fenstanton 2	Connington Road	Y	100	29.5
Godmanchester:	Cambridge Villas	N	100	31.1
Huntingdon 2	George Street	Y	100	44.2
Huntingdon 3	St Peters Road	Y	100	35.3
Huntingdon 4	Blethan Drive	N	100	34
Huntingdon 5	Tennis Court Av	Y	100	30.6
Huntingdon 6	Lodge Close	Y	100	24.7
Mobile 1	West Perry	N	100	13.6
Mobile 2	West Perry	N	100	13.7
Mobile 3	West Perry	N	100	13.8
Ramsey	Blenheim Road	N	92	21.5
Sawtry	Fen Lane	N	100	24.7
Southoe	Lees Lane	N	100	23.4
Stibbington	Great North Road	N	100	32.1
St Ives	Ramsey Road	N	100	22.5
St Neots 1	Avenue Road	N	100	21.7
St Neots 2	Harland Road	N	100	19.9

Site ID	Location	Within AQMA?	Data Capture 2009 %	Annual mean concentrations
				2009 ($\mu\text{g}/\text{m}^3$) Adjusted for bias
St Neots 3	High Street 1	Y	100	40
St Neots 4	High Street 2	Y	100	39.9
St Neots 5	The Paddocks	N	100	27.9
Eynesbury	Arundel Crescent	N	100	25.4

Table 2.4b Results of Nitrogen Dioxide Diffusion Tubes

Site ID	Location	Within AQMA?	Annual mean concentrations ($\mu\text{g}/\text{m}^3$) Adjusted for bias		
			2008 *	2009	2010
Alconbury:	Manor Lane	N	24	24.6	26.5
Brampton:	Laws Crescent	Y	39	33.6	35.6
Brampton 2	Hansell Road	N	-	19.3	18.1
Brampton 3	Grafham Rd Cottage	N	-	18.6	22.7
Brampton 4	RAF Brampton	N	-	17.8	18.8
Buckden:	Taylor's Lane	N	26	21.6	24.2
Buckden 2	High Street		-	48.5	45.9
Catworth:	Thrapston Road	N	28	25.4	25.1
Eaton Socon:	Duchess Close	N	33	27.6	33.5
Fenstanton 1:	Hilton Road	Y	31	28.3	38.2
Fenstanton 2:	Connington Road	Y	43	41.0	29.5
Godmanchester:	Cambridge Villas	N	30	24.2	31.1
Huntingdon 2:	George Street	Y	32	29.3	44.2
Huntingdon 3:	St Peters Road	Y	49	45.9	35.3
Huntingdon 4:	Blethan Drive	N	24	21.1	34
Huntingdon 5:	Tennis Court Av	Y	30	28.6	30.6
Huntingdon 6:	Lodge Close	Y	33	26.0	24.7
Mobile 1	West Perry	N	14	12.4	13.6
Mobile 2	West Perry	N	14	14.2	13.7
Mobile 3	West Perry	N	15	12.7	13.8
Ramsey:	Blenheim Road	N	21	19.7	21.5
Sawtry:	Fen Lane	N	24	21.7	24.7
Southoe:	Lees Lane	N	23	19.3	23.4
Stibbington:	Great North Road	N	34	33.8	32.1
St Ives:	Ramsey Road	N	23	20.2	22.5
St Neots 1:	Avenue Road	N	22	18.7	21.7
St Neots 2:	Harland Road	N	20	19.2	19.9
St Neots 3:	High Street 1	Y	40	37.6	40
St Neots 4:	High Street 2	Y	39	37.4	39.9
St Neots 5:	The Paddocks	N	30	26.2	27.9
Eynesbury	Arundel Crescent	N	-	27.0	25.4

2.2.2 PM₁₀

During 2010 Huntingdonshire District Council only had one live PM₁₀ analyser and this was located at the Grafham Water Training Centre in West Perry. This site is a rural background site.

Table 2.5a Results of PM₁₀ Automatic Monitoring: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2010 %	Annual mean concentrations (µg/m ³)		
				2008 *	2009 *	2010
Mobile	West Perry (Grafham)	N	76	12	12	11

Table 2.5b Results of PM₁₀ Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2010 %	Number of Exceedences of daily mean objective (50 µg/m ³) <i>If data capture < 90%, include the 90th %ile of daily means in brackets.</i>		
				2008 *	2009 *	2010
Mobile	West Perry (Grafham)	N	76	2	2	0

2.2.3 Sulphur Dioxide

Huntingdonshire District Council has no SO₂ monitoring sites.

2.2.4 Benzene

Huntingdonshire District Council has no Benzene monitoring sites.

2.2.5 Other pollutants monitored

Huntingdonshire District Council has no other monitoring sites.

2.2.6 Summary of Compliance with AQS Objectives

Huntingdonshire District Council has measured concentrations of NO₂ above the annual mean objective at relevant locations outside the AQMAs, and **will need to proceed to a Detailed Assessment**, for parts of Buckden close to the A1. This need was identified in the 2010 Progress Report but the dispersion modelling of Buckden has been delayed and the Detailed Assessment is now expected to be completed in early 2012.

3 New Local Developments

3.1 Road Traffic Sources

The opening of the Guided Bus way from Huntingdon to Cambridge has been delayed a number of times and the completion date is still uncertain.

A new link road was approved in November 2009 to the west of Huntingdon town centre but has yet to be built. Huntingdonshire District Council failed to report this permission in the 2010 Progress Report due to an oversight. An Air Quality Assessment was submitted and accepted as part of the planning application. The findings of this assessment were that some properties would experience a medium increase in NO₂ concentrations of moderate adverse significance but that this would not result in any exceedences of the annual mean objective. An almost identical number of properties were predicted to experience a moderate decrease (substantially beneficial) in concentrations. The PM₁₀ assessment indicated that there would be very small increases of negligible significance at some properties.

A new Sainsbury store is proposed to be built adjacent to the new link road mentioned above. The assessment of emissions from road traffic was necessarily linked with the assessment of the new link road described above and resulted in no predicted exceedences of the objectives.

3.2 Other Transport Sources

A new multi storey car park (MSCP) was approved in January 2011 for the former Sainsbury site on the Huntingdon ring road. An Air Quality Assessment was submitted in connection with this application which considered the changes to traffic emissions resulting from the new link road and the MSCP. The assessment concluded that a small number of receptors, close to the site, would experience negligible to slight adverse impacts resulting from increased NO₂ annual mean concentrations. No exceedences of objectives were predicted.

3.3 Industrial Sources

No relevant industrial sources have been identified.

3.4 Commercial and Domestic Sources

The new Sainsbury Store proposed for the west of Huntingdon is proposed to include a biomass boiler. An Air Quality Assessment was submitted in connection with this application. Emissions of NO_x and PM₁₀ from the biomass boiler were assessed as having a negligible impact.

3.5 New Developments with Fugitive or Uncontrolled Sources

No new developments with potential fugitive or uncontrolled sources have been identified.

Huntingdonshire District Council confirms that there are no new or newly identified local developments which may have an impact on air quality within the Local Authority area.

4 Local / Regional Air Quality Strategy

There is no local or regional air quality strategy.

5 Planning Applications

There have been planning applications with the potential for impacts on air quality during the assessment period; however none of the impacts were predicted to lead to exceedences of Air Quality Objectives. The approved applications are detailed in the new developments section above and comprise:

- The Huntingdon west of town centre link road
- The new Sainsbury site on the new link road
- The new multi storey car park in Huntingdon

6 Air Quality Planning Policies

Air quality policies have been included in the Core Strategy which was adopted in September 2009. This is the first part of the Local Development Framework. The relevant policies are reproduced below.

Core Strategy September 2009

Policy CS 1

Sustainable Development in Huntingdonshire

All plans, policies and programmes of the Council and its partners, with a spatial element, and all development proposals in Huntingdonshire will contribute to the pursuit of sustainable development.

Reflecting environmental, social and economic issues the following criteria will be used to assess how a development proposal will be expected to achieve the pursuit of sustainable development, including how the proposal would contribute to minimising the impact on and adaptability to climate change. All aspects of the proposal will be considered including the design, implementation and function of development. The criteria are:

Making best use of land (including the remediation of contaminated land), buildings and existing infrastructure;

Minimising the use of non-renewable energy sources and construction materials and resources and maximising opportunities for renewable and low carbon energy sources and on-site renewable energy provision and improving energy efficiency;

Reducing water consumption and wastage, minimising the impact on water resources and water quality and managing flood risk;

Minimising and reducing greenhouse gas emissions, oxides of nitrogen, fine particles and other forms of pollution;

Encouraging waste reduction and recycling;

Preserving and enhancing the diversity and distinctiveness of Huntingdonshire's towns, villages and landscapes including the conservation and management of buildings, sites and areas of architectural, historic or archaeological importance and their setting;

Protecting, maintaining and enhancing the range and vitality of characteristic habitats and species to create a viable ecological network;

Promoting sustainable, well designed and accessible places that respect the setting and character of the surrounding area, that are adaptable to meet changing needs and reduce crime, antisocial behaviour and the fear of crime;

Promoting inclusive, cohesive and empowered communities and encouraging community involvement in the design, development and management of places;

Promoting health, well-being and active lifestyles by protecting, maintaining and enhancing green space and sport and recreational facilities;

Supporting the local economy and businesses, by providing opportunities for lifelong learning and skills development and by enabling the integration of a mix of uses that provide employment opportunities suitable for local people;

Minimising the need to travel, promoting and increasing opportunities to make necessary journeys by foot, cycle or public transport.

An assessment will be required to accompany any proposal for major development **(7)** to demonstrate how the criteria have been met.

New policy**Development Management DPD: Proposed Submission 2010 Policy C4****Air Quality Management**

Where a development proposal is likely to result in a negative impact on monitored air quality within an Air Quality Management Area (AQMA) a formal assessment of the impact will be required. Where the assessment confirms that is likely, planning permission will only be granted if suitable mitigation measures can be agreed, satisfactorily implemented and maintained.

Development proposals within or adjacent to an AQMA will only be permitted where the air quality within the AQMA would not have an adverse effect on the proposed development or its users.

Supporting text to policy C4

The Council is required to designate Air Quality Management Areas in locations where air pollution monitoring indicates the air quality does not meet national objectives aimed at protecting people's health and the environment. There are currently four AQMAs designated in Huntingdonshire due to excessive annual mean levels of nitrogen dioxide. The largest of these is in Huntingdon covering an area around the ring road, Ermine Street and parts of Stukeley Meadows. A smaller AQMA is designated in St Neots town centre focused on the High Street and part of New Street. Emissions from heavy goods vehicles are the greatest contributor to high nitrogen dioxide levels in the District resulting in two smaller AQMAs being designated at Brampton in close proximity to the A14, and along the A14 from Hemingford to Fenstanton. The current designations are monitored and amendments to these areas as well as further designations will be implemented as appropriate. Detail of the current position with AQMAs is available on the Council's website.

It is important that development proposals do not contribute further to existing air quality problems as this would increase the difficulty in bringing air quality in these areas to within acceptable levels. Equally it is important that people's health is not put at risk by increasing the potential for exposure to raised levels of pollutants.

7 Local Transport Plans and Strategies

Cambridgeshire County Council adopted their LTP3 document on the 29 March 2011. The documents that form the LTP can be found at <http://www.cambridgeshire.gov.uk/transport/strategies/local/>

The LTP3 Policies and Strategies document, at Figure 2.1, gives examples of how the LTP3 will contribute to the listed objectives.

Objective 5 is most relevant to air quality and is stated to be:

'Meeting the challenges of climate change and enhancing the natural environment'.

The cited examples of LTP3 contributions are:

- Consider new, and expand existing, quality bus partnerships to ensure that public transport operators use increasingly 'clean fleets'
- Monitor air quality and implement Air Quality Action Plans
- Develop Noise Action Plans
- Actions to address traffic growth, particularly car use
- Future proof our maintenance programme and scheme appraisal processes against the effects of climate change
- Encourage behavioural change away from single occupancy car use
- Minimise the impacts of transport on the natural environment, heritage and landscape and seek solutions that deliver long-term environmental benefits

These proposed contributions are welcomed by HDC as potentially benefiting local air quality within AQMAs. The proposal to consider expanding existing quality bus partnerships is particularly welcomed.

8 Climate Change Strategies

Huntingdonshire District Council's climate change strategy is contained within their recent document 'Growing Awareness, A Plan for our Environment'. Chapter 1 of the document covers 'climate change' and 'travel and emissions to air'. The targets and indicators section is reproduced below.

Action	Indicator	
Develop & implement site specific employee travel plans for the Council's main sites and reduce CO ₂ emissions from leased & employee owned vehicles	Number of Council employees travelling to work by car Carbon emissions for Council loan or lease vehicles	
Contributory projects	Description	Delivery Year
Corporate Travel Plan and site-specific travel plans	Targets are set within the Corporate Travel Plan for reducing single occupant use of private cars, and for promoting a modal shift to other forms of transport	08/09 – 10/11
Review of lease car scheme and car user allowances	Currently car user allowances rise with engine capacity, amending the scheme to rectify this will remove incentives to buy larger vehicles	09/10
Calculate accurate CO ₂ emissions figures for all Council employee travel	Calculate accurate CO ₂ emissions for all Council employee travel to and for work	08/09

Action	Indicator	
Effective management of the Council's own vehicle fleet to reduce emissions	Litres of fuel used in fleet travel Tonnes of CO ₂ emitted from fuel use Level of NO _x & PM ₁₀ emissions	
Contributory projects	Description	Delivery Year
Rescheduling of refuse collection and recycling rounds	Rescheduling of refuse collection rounds to reduce fuel use	08/09
Green Fleet Review to be undertaken	Review of fleet to be undertaken to give fleet efficiency savings	09/10

Action		Indicator
Provide more opportunities for residents to walk, cycle, and use public & community transport, and encourage schools and businesses to develop travel plans with Cambridgeshire County Council and other partners		Local bus journeys originating in Huntingdonshire Children travelling to school – usual mode of travel Number of businesses developing travel plans
Contributory projects	Description	Delivery Year
Delivery of Market Town Transport Strategy Action Plans	Ramsey & Chatteris Area Market Town Transport Strategy to commence in 2008/09	09/10 – 12/13
Support and promote the 'Travel for Work' partnership	Encourage uptake of the scheme amongst businesses in the district	08/09 – 12/13
Cycle path improvements	Undertake improvements to a number of cycle paths across the district	09/10 – 10/11

Action		Indicator
New development to be accommodated in locations which limit the need to travel whilst catering for local needs		% of housing completions in market towns and key service centres
Contributory projects	Description	Delivery Year
Local Development Framework (LDF)	Ensure new development is located in areas with established infrastructure to reduce the need to travel	08/09 – 12/13

Action		Indicator
Manage demand for car parking in town centre locations, and encourage the use of low emission vehicles and alternative forms of travel		Number of season tickets sold for vehicles with CO ₂ emissions under 120 g/km in Council-owned long-stay car parks
Contributory projects	Description	Delivery Year
Huntingdonshire Car Parking Strategy	Designed to manage car parking demand in town centres across the district	08/09 – 12/13
Reduced season ticket prices in long-stay car parks for low emission vehicles	Reduction in season ticket prices for vehicles with CO ₂ emissions under 120 g/km in Council-owned long-stay car parks	08/09 – 12/13

Action		Indicator
Develop and implement Air Quality Action Plans to facilitate prevention and mitigation of air pollution in Huntingdonshire		Successful implementation of Air Quality Management Strategy in the district
Contributory projects	Description	Delivery Year
Council Emissions Inventory	Work being undertaken in the district during 2008/09 which will inform the Air Quality Management Strategy	08/09

Action		Indicator
Work to reduce emissions from buses and taxis in the district, through regular emissions testing and possible introduction of age limits		Average emissions from buses and taxi operations in the district
Contributory projects	Description	Delivery Year
Guided Busway project	Buses diverted from A14 easing congestion. All buses using Guided Busway must be to Euro 3 emissions standard	08/09
Amended taxi and private hire licensing regulations	Requiring age and emission limitations with variable charging based on road tax category	08/09

9 Implementation of Action Plans

Huntingdonshire District Council and its neighbours, Cambridge City Council and South Cambridgeshire District Council, completed their Joint AQAP in February 2010. The document was approved by the necessary panels and committees and was sent to Defra for approval. Feedback from Defra was received, on 2 September 2010, which commended the Councils for their work and accepted their findings and recommendations.

The Joint AQAP and Defra feedback can be seen at:

<http://www.huntingdonshire.gov.uk/Environment%20and%20Planning/Air%20Quality/Pages/default.aspx>

The top five measures that are most likely to show significant benefits to air quality within the three AQMAs affected by the A14 (i.e. not St Neots) are listed below. The AQMAs are Huntingdon, Brampton and A14 Hemingford to Fenstanton.

1. The rerouting of the A14 away from settlements.
2. Implementation of Air Quality policies in the Local Plan – new development not permitted to have a significant adverse impact on air quality within AQMAs.
3. Development of an effective freight transport partnership between operators using the A14.
4. Inclusion of Huntingdonshire in the Quality Bus Partnership - minimum emission criteria for all PSVs as well as targets for ongoing improvements in emissions.
5. Completion and opening of the Cambridgeshire Guided Busway.

The top four measures that are most likely to show significant benefits to air quality within the St Neots AQMA are:

1. Inclusion of Huntingdonshire in the Quality Bus Partnership - minimum emission criteria for all PSVs as well as targets for ongoing improvements in emissions.
2. Changes to the traffic-light systems in St Neots High Street as specified in the St Neots Market Town Strategy.
3. Implementation of Air Quality policies in the Local Plan – new development not permitted to have a significant adverse impact on air quality within AQMSs.
4. Development of an effective freight transport partnership between operators accessing St Neots.

Commentary on the implementation of Air Quality Action Plan Actions

Unfortunately, since the publication of the AQAP, the A14 upgrade has been cancelled. Whilst attempts are being made to access European funding for this proposal, procurement is far from certain. As the A14 upgrade was seen as extremely positive for air quality management in Huntingdonshire; HDC will continue to lobby for this investment at every opportunity.

The Air Quality Policy which was to be included in the Local Plan is currently still unadopted. The policy is included in the Development Management DPD which has reached 'proposed submission' stage having undergone several phases of statutory consultation. The policy is currently being given limited weight by officers and inspectors but is only used in conjunction with the statutory adopted local plan (1995) as amended (2002).

Huntingdonshire District Council has joined the East of England Freight Quality Partnership which meets quarterly. It will use this forum to lobby for improvements to the efficiency of the use of the HGV fleet and to keep aware of developments.

The Bus Quality Partnership has been active in Cambridgeshire for a number of years and its focus has traditionally been on the bus fleet accessing Cambridge City. This has been a logical position as Cambridge City were the first district council in the

County to declare an AQMA and, from a relatively early stage, buses were identified as a very significant contributor to overall concentration of NO₂ in the City centre. Unfortunately, a side effect of using more modern and less polluting buses in the City has been to push the older buses out to the market towns and more rural areas. A key action for Huntingdonshire, therefore, is to be formally recognised as active in the QBP and a formal request for this to occur was made in May 2009. Cambridgeshire County Councils response was very negative and stated that the QBP is only designed to deal with issues within the core area of Cambridge City. This response was disappointing given the County Council's aim stated in their LTP 2006 – 2011, Appendix 6 'Bus Strategy, Operations Policies:

These policies establish the Council's longer-term aspirations for buses and must be implemented if the objectives of the LTP are to be achieved. These policies will be developed in close partnership with the District Council's and the bus companies and aim to provide a high quality, accessible bus system offering seamless, frequent and reliable journeys. The Council will therefore do the following;

- i) Develop Quality partnership agreements with bus companies*

Huntingdonshire District Council will continue to lobby the County Council for formal inclusion in the QPB. It is encouraging to see in the newly adopted LTP3 documents that Cambridgeshire County Council has made a commitment to consider expansion of existing QPBs.

The Guided Bus way between St Ives and Cambridge was due to open in 2009 but has suffered from a series of delays and, at the time of writing, is still not open. It is understood that the contractor has handed the Bus way over to Cambridgeshire County Council in April 2011 but that there are still a number of unresolved issues preventing the opening.

The changes to the traffic lights system in St Neots, as specified in the St Neots Market Town Strategy, have not yet been implemented. Cambridgeshire County Council hopes to implement the scheme in 2011/2012, subject to funding.

Air Quality Action Plan Indicators*1. Air Pollutant Concentrations*

Location	Annual Mean Objective	2010 bias adjusted annual mean concentration $\mu\text{g}/\text{m}^3$
Castle Moat Road, Huntingdon	$40\mu\text{g}/\text{m}^3$	NA
High Street, St Neots	$40\mu\text{g}/\text{m}^3$	$40\mu\text{g}/\text{m}^3$
Laws Crescent, Brampton	$40\mu\text{g}/\text{m}^3$	$35.6\mu\text{g}/\text{m}^3$

- 2. Reduction in NO_x emissions through local authority's estate and operations (NI 194) – Huntingdonshire.* Due to the reporting cycles for this information it is not possible to report the most recent year as there has been insufficient time to collate the information. It is only possible to report the reduction achieved between 2008/09 and 2009/10. This reduction was from 8.61 tonnes to 7.72 tonnes which comprises a reduction of 10%.
- 3. Implementation of Air Quality policies in the Local Plan – Huntingdon.* The air quality policies are not yet adopted although they are being given limited weight as the Development Management DPD has undergone the required statutory consultations and has reached the 'proposed submission' stage.
- 4. Inclusion in the Freight Quality Partnership – Huntingdon.* Huntingdonshire District Council joined the East of England Freight Quality Partnership.

10 Conclusions and Proposed Actions

10.1 Conclusions from New Monitoring Data

There is no evidence to support the revocation or amendment of any of the existing AQMAs in Huntingdonshire.

Monitoring data from a diffusion tube site at Buckden has indicated that exceedences of the NO₂ annual mean objective are likely at relevant locations and Huntingdonshire District Council has proceeded to a detailed assessment for this area. With the agreement of Defra the submission date for the Detailed Assessment has been deferred until April 2012 to allow further modelling to take place.

10.2 Conclusions relating to New Local Developments

There are no new local developments that give rise to the need for any detailed assessments.

10.3 Other Conclusions

The Joint Air Quality Action Plan for Huntingdonshire District Council, Cambridge City Council and South Cambridgeshire District Council was accepted, and commended, by Defra in August 2010.

10.4 Proposed Actions

Huntingdonshire District Council will proceed to a detailed assessment for Buckden and the aim will be to submit the completed detailed assessment to Defra by the end of April 2012. In accordance with the agreement with Defra; possible actions for mitigating NO₂ concentrations in the affected area of Buckden will be considered prior to the declaration (if that proves necessary).

The joint Air Quality Action Plan was approved by Defra in August 2010 and the first progress report on the implementation of the plan is included within this Progress Report.

11 References

Cambridgeshire County Council Draft LTP3 Document:

<http://www.cambridgeshire.gov.uk/transport/strategies/local/>

Previous AQR&A Documents:

[http://www.huntingdonshire.gov.uk/Environment%20and%20Planning/Air%20Quality/
Pages/default.aspx](http://www.huntingdonshire.gov.uk/Environment%20and%20Planning/Air%20Quality/Pages/default.aspx)

Appendices

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

Diffusion tubes are sourced from Scientifics. The bias adjustment factor used was 0.85 which was sourced from the Air Quality Archive in April 2011.

Discussion of Choice of Factor to Use

Huntingdonshire only have a single collocation study at a background site and it was thought that the nationally derived figure would be more representative.

Huntingdonshire has used the national figure in previous bias adjustment and this figure has proved to be consistent in the last few years.

PM Monitoring Adjustment

The PM analysers used are Eberline FH62 BAMs. This model has not been equivalence tested but the principle of operation is almost identical to the METone BAM which has been equivalence tested and has a gravimetric equivalent correction factor. The correction factor is division by 1.21.

Short-term to Long-term Data adjustment

No short-term to long-term data adjustment was required for 2010 data.

QA/QC of diffusion tube monitoring

WASP Results from Scientifics


HSL Calculations (Pre-Sendout)		Harwell Analysis						HSL Calculations (Pre-Sendout)		Harwell Analysis					
Sample A		Tubes A						Sample B		Tubes B					
Calculated Spiked Value	Measured Value	Result Tube 1	Result Tube 2	Average	Standard Deviation	RSD	Z-Score	Calculated Spiked Value	Measured Value	Result Tube 1	Result Tube 2	Average	Standard Deviation	RSD	Z-Score
1.92	1.91	1.921	1.896	1.910	0.018	0.9%	-0.1	1.47	1.47	1.409	1.422	1.420	0.009	0.6%	-0.5
2.03	2.04	1.905	1.914	1.910	0.007	0.4%	-0.8	2.20	2.20	2.049	2.046	2.048	0.003	0.1%	-0.9
1.84	1.84	1.880	1.439	1.660	0.312	18.8%	-1.3	1.42	1.44	1.880	1.429	1.655	0.319	19.3%	2.1
1.84	1.84	1.880	1.880	1.880	0.000	0.0%		1.42	1.44	1.439	1.429	1.434	0.007	0.5%	
1.68	1.69	1.795	1.784	1.790	0.008	0.4%	0.8	1.68	1.69	1.031	1.035	1.033	0.003	0.3%	0.9
2.02	2.01	2.017	2.047	2.032	0.022	1.1%	0.0	1.22	1.19	1.269	1.230	1.252	0.024	1.9%	0.2
1.22	1.22	1.242	1.234	1.238	0.006	0.5%	0.1	0.94	0.95	0.957	0.951	0.954	0.005	0.5%	0.1
1.37	1.38	1.470	1.472	1.471	0.043	2.9%	0.5	2.28	2.3	2.435	2.386	2.411	0.035	1.5%	0.4
0.92	0.94	0.974	0.991	0.983	0.013	1.3%	0.5	1.86	1.93	1.947	1.958	1.953	0.008	0.4%	0.4
1.36	1.37	1.395	1.384	1.390	0.008	0.6%	0.2	1.47	1.45	1.511	1.516	1.514	0.004	0.3%	0.2
2.15	2.16	2.242	2.235	2.239	0.005	0.2%	0.3	0.84	0.84	0.906	0.901	0.904	0.004	0.4%	0.6
1.83	1.85	1.877	1.854	1.866	0.013	0.7%	0.2	1.19	1.2	1.229	1.223	1.226	0.005	0.4%	0.2
0.89	0.87	0.920	0.918	0.919	0.002	0.2%	0.2	1.58	1.59	1.619	1.640	1.630	0.015	0.9%	0.2


QA/QC of automatic monitoring

Huntingdonshire District Council has an ongoing QA/QC contract with NETCEN Calibration Club to undertake monitoring station audits on a six-monthly basis. The last two audit reports are attached below.

AEA QA/QC Report April 2010







Toby Lewis
Huntingdonshire District Council
Pathfinder House
St Mary's Street
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Cambridgeshire
PE29 3TN

25 April 2010
Reference 20645084/R8



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AIR MONITORING CALIBRATION CLUB
 Ambient air monitoring station:
 Mobile station (Located at Grafham Water Training Centre)
 Date of Audit: 31 March 2010

Dear Toby,

This report documents the results of quality control audits to Huntingdonshire District Council's Mobile (located at Grafham Water Training Centre) air monitoring station. The work is carried out under contract AEA/20645084 for the supply of audit services under AEA's Air Monitoring Calibration Club. The monitoring site previously at Pathfinder House is no longer operational. The monitoring site at St Neots is currently inaccessible and a Quality Control Audit was unachievable.

The Mobile ambient air monitoring station was audited on 31 March 2010. The equipment audits utilise procedures that are applied within the Department for Environment, Food and Rural Affairs (Defra) national automatic air monitoring network's quality control programme.

AUDIT RESULTS

Oxides of nitrogen analyser
 A major factor governing the performance of NO_x analysers is the ability of the analyser converter to reduce nitrogen dioxide to nitric oxide. The minimum requirement for instrumentation in the national automatic air monitoring network is an efficiency in the range of 95-105%. The test shows the converter in this analyser to be 102% efficient at an NO₂ concentration of 254 ppb. This is a good result.

To be sure that the analyser was sampling only ambient air, the instrument was leak checked. The NO_x analyser at the Mobile station failed the leak test. It was recommended that an immediate Equipment Support Unit call out made to rectify this issue. The analyser exhibited good steady state responses to both zero and span (calibration) gases with acceptable levels of variation (noise).

A business name of AEA Technology plc.
Registered office 329 Harwell, Didcot, Oxfordshire OX11 0QJ
Registered in England and Wales no 3095862



Based on the NO_x analyser response to the audit standard and audit zero, the concentration of the site NO cylinders have been re-assessed. This provides an indication of the site standard stability. For the purpose of these stability checks the criteria adopted within the national network, and used here, is that the recalculated concentration should lie within 10% of the stated concentration. The recalculated concentration results are presented below:

Mobile - NO cylinder 108873				
	NO _x (ppb)	% change from stated	NO (ppb)	% change from stated
Stated Concentration	450	---	449	---
Recalc. Concentration (14/04/09)	439	-2.2	431	-4.2
Recalc. Concentration (19/10/09)	427	-5.1	427	-4.9
Recalc. Concentration (31/03/10)	424	-6.9	426	-5.0

The recalculated results at the Mobile Station indicate that the site NO cylinder is stable, within the definition adopted above, and can therefore reliably be used to scale ambient data.

Ozone analyser

The ozone calibration was performed using a reference photometer deployed in inter calibrations of the Defra national automatic air monitoring network. The photometer is checked regularly against the national ozone standard held by the National Physical Laboratory (NPL). Any deviation between the photometer and the national ozone standard is accounted for in our calculation of the analyser factor.

The ozone analyser showed acceptable agreement with the AEA photometer when compared with criteria used within the national automatic air monitoring network. The calculated audit ozone factors are provided on the accompanying Certificate of Calibration.

Eberline PM₁₀ & PM₁ analysers

To ensure that true PM₁₀ & PM₁ measurements are made, the total flow through the sample inlets must be 16.7 litres per minute. A volumetric flow test was carried out on the instruments. The measured flow on the instruments showed good agreement with the system flow set point.

Certificate of Calibration

Calibration factors and zeros have been produced on the basis of the audit calibration conducted. The calibration was conducted with transfer standards traceable to national metrology standards. The enclosed Certificate of Calibration provides the calibration and zero response factors for the oxides of nitrogen and ozone analysers under test on the day of the audit as well as the measured total flow for the Eberline particulate analyser's.

Implications for Data Management

As a result of this audit the following recommendations can be made:

- Compare the Huntingdonshire District Council database scaling factors for the day of the audit with the factors and zeros on the Certificate of Calibration. If a deviation greater than the uncertainty associated with the respective factors exists, investigate the underlying reason and implement suitable data management actions.
- The NO_x analyser failed the leak test during the audit. It was recommended that an immediate Equipment Support Unit call out made to rectify this issue.

If you have any questions relating to our audit or wish to discuss any aspect of air pollution monitoring, please don't hesitate to contact me on 0870 190 8212 or at jo.green@aeat.co.uk

Yours sincerely



Jo Green
Air Pollution Monitoring

HDC Actions in response to the April 2010 QA/QC Report

Following receipt of the April 2010 report a repair was made to the NO_x analyser.

AEA QA/QC Report October 2010



Toby Lewis
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15 October 2010
 Reference 20645084/R9

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AIR MONITORING CALIBRATION CLUB
 Ambient air monitoring station:
 Mobile station (located at Grafham Water Training Centre)
 Date of Audit: 05 October 2010

Dear Toby,

This report documents the results of quality control audits to Huntingdonshire District Council's Mobile air monitoring station (located at Grafham Water Training Centre). The work is carried out under contract AEA/20645084 for the supply of audit services under AEA's Air Monitoring Calibration Club.

The Mobile ambient air monitoring station was audited on 05 October 2010. The equipment audits utilise procedures that are applied within the Department for Environment, Food and Rural Affairs (Defra) national automatic air monitoring network's quality control programme.

AUDIT RESULTS

Oxides of nitrogen analyser

A major factor governing the performance of NO_x analysers is the ability of the analyser converter to reduce nitrogen dioxide to nitric oxide. The minimum requirement for instrumentation in the national automatic air monitoring network is an efficiency in the range of 95-105%. The test shows the converter in this analyser to be 99.6% efficient at an NO₂ concentration of 236 ppb. This is a good result.

To be sure that the analyser was sampling only ambient air, the instrument was leak checked. The NO_x analyser at the Mobile station marginally failed the leak test. It was recommended that the Equipment Support Unit rectify this issue. The analyser exhibited good steady state responses to both zero and span (calibration) gases with acceptable levels of variation (noise).

A business name of AEA Technology plc.
 Registered office 329 Harwell, Didcot, Oxfordshire OX11 0QJ
 Registered in England and Wales no 3095862



Based on the NO_x analyser response to the audit standard and audit zero, the concentration of the site NO cylinders have been re-assessed. This provides an indication of the site standard stability. For the purpose of these stability checks the criteria adopted within the national network, and used here, is that the recalculated concentration should lie within 10% of the stated concentration. The recalculated concentration results are presented below:

Mobile - NO cylinder 108873				
	NO _x (ppb)	% change from stated	NO (ppb)	% change from stated
Stated Concentration	450	---	449	---
Recalc. Concentration (14/04/09)	439	-2.2	431	-4.2
Recalc. Concentration (19/10/09)	427	-5.1	427	-4.9
Recalc. Concentration (31/03/10)	424	-6.9	426	-5.0
Recalc. Concentration (05/10/10)	430	-4.5	430	-4.2

The recalculated results at the Mobile Station indicate that the site NO cylinder is stable, within the definition adopted above, and can therefore reliably be used to scale ambient data.

Ozone analyser

The ozone calibration was performed using a reference photometer deployed in inter calibrations of the Defra national automatic air monitoring network. The photometer is checked regularly against the national ozone standard held by the National Physical Laboratory (NPL). Any deviation between the photometer and the national ozone standard is accounted for in our calculation of the analyser factor.

The ozone analyser showed acceptable agreement with the AEA photometer when compared with criteria used within the national automatic air monitoring network. The calculated audit ozone factors are provided on the accompanying Certificate of Calibration.

Eberline PM₁₀ & PM_{2.5} analysers

To ensure that true PM₁₀ & PM_{2.5} measurements are made, the total flow through the sample inlets must be 16.7 litres per minute. A volumetric flow test was carried out on the instruments. The measured flow on the PM_{2.5} instrument showed good agreement with the system flow set point. The PM₁₀ instrument had a flow fault and a flow measurement was unobtainable at the Audit. This was recommended for immediate attention. Please note that the inlet heads on both analysers require cleaning.

Certificate of Calibration

Calibration factors and zeros have been produced on the basis of the audit calibration conducted. The calibration was conducted with transfer standards traceable to national metrology standards. The enclosed Certificate of Calibration provides the calibration and zero response factors for the oxides of nitrogen and ozone analysers under test on the day of the audit as well as the measured total flow for the Eberline particulate analyser's.

Implications for Data Management

As a result of this audit the following recommendations can be made:

- Compare the Huntingdonshire District Council database scaling factors for the day of the audit with the factors and zeros on the Certificate of Calibration. If a deviation greater than the uncertainty associated with the respective factors exists, investigate the underlying reason and implement suitable data management actions.
- The NO_x analyser marginally failed the leak test during the audit. It was recommended for attention by the Equipment Support Unit.
- Inspect and remove any PM₁₀ data that has been affected by the flow fault that was present at the time of the Audit.

If you have any questions relating to our audit or wish to discuss any aspect of air pollution monitoring, please don't hesitate to contact me on 0870 190 8212 or at jo.green@aeat.co.uk

Yours sincerely



Jo Green
Air Pollution Monitoring



Date of issue:
 Cert No: 02346
 AEA Identification Number: 20645084/C9

15 October 2010
 Page 2 of 2

The gaseous ambient analysers listed above have been tested for zero response, calibration factor, linearity and converter efficiency (NO_x analysers only) by documented methods. The factors have been calculated using certified gas standards. The particulate analysers listed above have been tested for sample flow rates and k_0 (where appropriate) by documented methods. Note that the test results are valid on the day of test only, as analyser drift over time cannot be quantified. All results for gaseous species are given in ppb (parts per billion) mole fractions or ppm (parts per million) mole fractions.

¹The zero response is the zero reading on the data logging system of the analyser when audit zero gas was introduced to the analysers under test.

²The calibration factor is the multiplying factor required to scale the reading on the data logging system of the analyser into reported concentration units (ppb for NO, NO_x, SO₂, O₃ and ppm for CO. Where 1 ppm = 1000 ppb). It should be used in conjunction with the zero response. A corrected concentration is calculated using the following equation:

$$\text{Concentration} = F (\text{Output} - \text{Zero Response})$$

Where F = Calibration Factor provided on this certificate
 Output = Reading on the data logging system of the analyser
 Zero Response = Zero Response provided on this certificate

³Converter eff. is the measured efficiency of the NO₂ to NO converter within the oxides of nitrogen analyser under test.

⁴The measured main flow rate (where applicable) is the flow rate through the particulate analyser under test. The measured aux flow rate (where applicable) is the flow rate through the bypass tubing of the particulate analyser under test. The measured total flow rate is the total flow rate through the particulate analyser under test. Units of flow are l.min⁻¹. Where flow rates are highlighted in bold, it indicates that measurements were not made at the analyser sample inlet. These measurements therefore may not accurately reflect analyser performance in normal operation.



CERTIFICATE OF CALIBRATION

551.11 Harwell, Didcot, Oxfordshire OX11 0QJ. Telephone 0870 1906523 Fax 0870 1906377



0401

Approved Signatories:

K. Stevenson

B. Stacey

Signed: *MRen*

S. Eaton
Date: 19/10/10

J. Green ✓

Date of issue:
Cert No: 02346

15 October 2010
Page 1 of 2

Customer Name and Address: Huntingdonshire District Council
Pathfinder House
St Mary's Street
Huntingdon
Cambridgeshire
PE29 3TN

Description: Calibration factors for Huntingdonshire District Council Mobile
(located at the Grafham Water Training Centre) air monitoring station

AEA Identification Number: 20645084/C9

Site / Date Test Carried Out	Species	Analyser Serial No.	Zero Response ¹	Uncertainty (ppb)	Calibration Factor ²	Uncertainty (%)	Converter eff. (%) ³
Mobile 05 October 2010	NO _x	63774-341	2	5	0.831	5	99.6
	NO	63774-341	1	5	0.833	5	na
	O ₃	606815007	0	3	1.063	4	na

Site / Date Test Carried Out	Species	Analyser Serial No.	Parameter	Specified Value	Measured Value	Uncertainty (%)	Deviation %
Mobile 05 October 2010	Eberline PM ₁₀	285	Total Flow ⁴	- Instrument Fault, No Flow Recorded at Audit -			
	Eberline PM ₁	1033	Total Flow ⁴	16.67	15.48	2	-7.1

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2 providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.



Appendix B4

QA/QC Unit – Intercalibration Summary Report

Site Name Huntingdon West Perry Grahham

AEA Operator Nick Rand

Start Date / Time 5/10/10

Extensive tests on the following analysers and systems were undertaken:

NO _x ✓	SO ₂	CO	O ₃ ✓	PM ₁₀ ✓	PM _{2.5} ✓	Cylinders ✓	Infrastructure ✓	Inlet ✓
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There were no faults The following faults were identified at the audit visit

<p>NO_x Converter below 95% / above 105% Leak / flow test failed <i>Slight Leak test fail and</i> Poor instrument response characteristics <i>flow sensor needs adjusting.</i></p>		<input checked="" type="checkbox"/> <input type="checkbox"/>	<i>(Responds ok.)</i>
<p>SO₂ Response to m-xylene > 50ppb Leak / flow test failed Poor instrument response characteristics</p>		<input checked="" type="checkbox"/> <input type="checkbox"/>	
<p>CO Leak / flow test failed Poor instrument response characteristics</p>		<input checked="" type="checkbox"/> <input type="checkbox"/>	
<p>O₃ Analyser > 5% out from photometer Leak / flow test failed Poor instrument response characteristics</p>		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<i>ALL OK</i>
<i>ESM</i>	<p>PM₁₀ K₀ > 2.5% out from stated value Leak test failed Flow rates > 10% from stated values</p>	<input type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<i>NO FLOW NEEDS ATTENTION</i>
<i>Thermo</i>	<p>PM_{2.5} K₀ > 2.5% out from stated value Leak test failed Flow rates > 10% from stated values</p>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<i>ok</i>
<p>PM analyser Main flow rates different</p>		<input type="checkbox"/>	
<p>Site Cylinders > 10% of expected concentration</p>		NO <input type="checkbox"/> NO ₂ <input type="checkbox"/> CO <input type="checkbox"/> SO ₂ <input type="checkbox"/>	<i>ok</i>
<p>Site Infrastructure: _____</p>			
<p>The Management Unit has been informed. The CMCU will arrange repair / You must contact the ESU to arrange repair ASAP. If necessary, please contact AEA if you need any advice on appropriate courses of action. Contact 0870 1906001</p>			

ESM PM10 REQUIRES A CALL OUT.

HDC Actions in response to the October 2010 QA/QC Report

Shortly after receipt of the October report the entire monitoring station was retired due to the age and repair liabilities of the instruments.

Area 5F
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Website www.defra.gov.uk

Fax 020 7238 1656

Email tutu.aluko@defra.gsi.gov.uk



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

31 January 2012

Dear Mr Lewis

LOCAL AIR QUALITY MANAGEMENT: 2011 AIR QUALITY PROGRESS REPORT

Thank you for consulting the Secretary of State for Environment, Food and Rural Affairs on Huntingdonshire DC's Air Quality Progress Report. Please find attached appraisal report for the Progress Report (PR). The appraisal also includes our comments on the Action Plan element of the PR.

On the basis of the information provided the conclusions of the Progress Report are accepted. We look forward to receiving the Council's 2012 USA by the due date which is the end of April 2012. We also look forward to the Council's Report on the detailed assessment of Buckden in 2012. The points in the commentary of the appraisal report should be taken into account in future reports.

Yours sincerely

Tutu Aluko

ATMOSPHERE AND LOCAL ENVIRONMENT PROGRAMME



Local Authority:	Huntingdonshire District Council
Reference:	PR4-429
Date of issue	03/06/2011

Progress Report Appraisal Report

The 2011 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.

The Review and Assessment Progress Report meets the minimum requirements for **monitoring and new local developments** and includes some of the additional elements outlined in the guidance. The report also provides an update on the Council's recent Air Quality Action Plan.

On the basis of the information provided by the local authority, the report is **accepted for monitoring data and new local developments**. The update of the Air Quality Action Plan is also accepted.

The Council will now need to submit their Detailed Assessment for Buckden. Their Updating and Screening Assessment is due in April 2012.

Local Authority:	Huntingdonshire District Council
Reference:	PR4-429
Date of issue	03/06/2011

Commentary

The report is well structured and covers the minimum information on monitoring and new local developments specified in the Guidance as well as additional elements.

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

1. It is best practice to adjust short term data with a capture rate less than 75% to represent a full year. This was not done in the case of the West Perry (Grafham) monitoring site, but it is recommended that this is carried out in future reports for sites with a low data capture.
2. It is unclear which site the details in Table 2.1 refer to? Is this the new site that was installed in Huntingdon in 2011?
3. It is assumed that the column heading '% data capture rate for 2009' in Table 2.4a should read '% data capture rate for 2010'?
4. It is noted that the Council's Air Quality Action Plan is relatively recent and Section 9 provides a good description on the progress (or issues faced) with each measure and the quantitative indicators used to assess each. This approach to using indicators is very much welcomed.
5. It is recommended that in future reports that the Council should consider providing an update of each measure in the format of a table, following the guidelines in LAQM.TG(09), Box 4.3. This table allows the Council to provide concise information on the progress of each measure and to assess the impacts on emission or AQ. In this table, the Council could also outline the responsible authority for each measure and future timescales for implementation.

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 either in completing the Progress Report adequately (if required) or in carrying out future Review & Assessment work.

Issues specifically related to this appraisal can be followed up by returning the attached comment form to Defra, Welsh Assembly Government, Scottish Government or DOE, as appropriate – or by emailing the form to reportappraisal@ttr-ltd.com.

For any other queries please contact the Local Air Quality Management Helpdesk:
Telephone: 0800 0327 953
Email: LAQMHelpdesk@uk.bureauveritas.com

Local Authority:	Huntingdonshire District Council
Reference:	PR4-429
Date of issue	03/06/2011

Appraisal Response Comment Form

Contact Name:	
Contact Telephone number:	
Contact email address:	

Comments on appraisal/Further information: