2013 Air Quality Progress Report for Huntingdonshire District Council

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

April 2013

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Executive Summary

Huntingdonshire District Council has undertaken a thorough review of air quality monitoring data gathered during the 2012 calendar year and of local developments which took place or were proposed during the review period.

Monitoring of nitrogen dioxide suggested that concentrations have continued to very gradually decline in the district. There may be justification for consideration of revocation of one of the district's four Air Quality Management Areas if this trend if found to be continuing in the 2014 Progress Report.

Monitoring of particulate matter at Huntingdon has indicated that there have been exceedences of the 24 hour mean objective at the monitoring site, however, detailed analysis suggests that this resulted from local domestic coal burning and is in no way representative of wider exposure. The detailed analysis is reported and it is recommended that this does not trigger progression to a detailed assessment.

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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 NO_2 in AQMAs.

The most significant source of problem LAQM pollutants in the district (NO_2 and PM_{10}) is road traffic.

1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or

not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

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

They are not intended to be as detailed as Updating and Screening Assessment 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), The Air Quality (England) (Amendment) Regulations 2002 (SI 3043), and are shown in Table 1.1. This table shows the objectives in units of micrograms per cubic metre μg/m^3 (milligrammes per cubic metre, mg/m^3 for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m^3	Running annual mean	31.12.2003
	5.00 µg/m^3	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m^3	Annual mean	31.12.2004
	0.25 µg/m^3	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10}) (gravimetric)	50 µg/m^3, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m^3	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/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 NO_2. This view was reached following unusual meteorology in 2003 resulting in poor dispersion of traffic pollutants and correspondingly high measured concentrations of NO_2 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 NO_2 and the report was published in **April 2005**. Based on monitoring results from NO_2 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 NO_2 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.

Huntingdonshire District Council submitted a Progress Report in **April 2011** which identified no new issues. It was originally intended to submit the Buckden Detailed Assessment alongside the 2011 Progress Report but, due to difficulties verifying the dispersion model of the area, with the agreement of Defra, the Buckden Detailed Assessment was deferred.

An Updating and Screening Assessment was submitted in **April 2012** which identified no new problems. A comprehensive detailed modelling exercise of NO_x in Buckden demonstrated that contraventions of the annual mean NO_2 objective were of questionable significance. A report was submitted to Defra detailing the findings and recommending that it was not necessary to proceed to declaration of an AQMA at this time. The recommendation was accepted by Defra who advised that the situation should continue to be closely monitored in the future. The Appraisal Report from Defra is appended at Appendix 1.

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

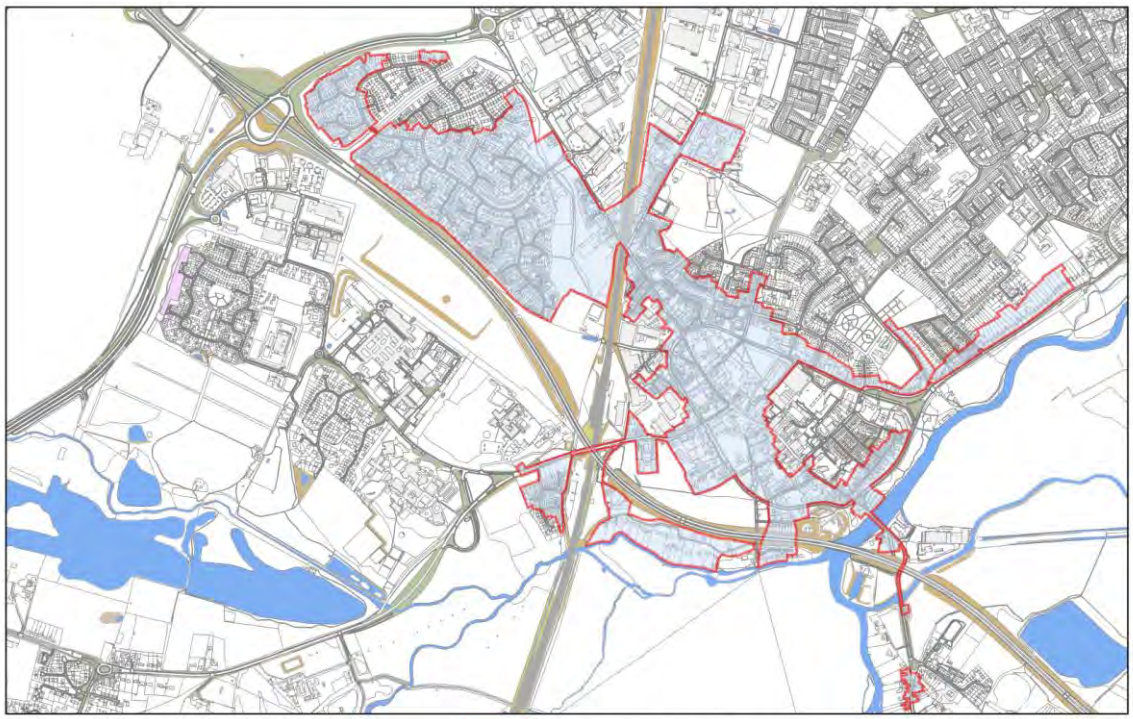


Figure 1.2. Air Quality Management Area No. 2: St Neots

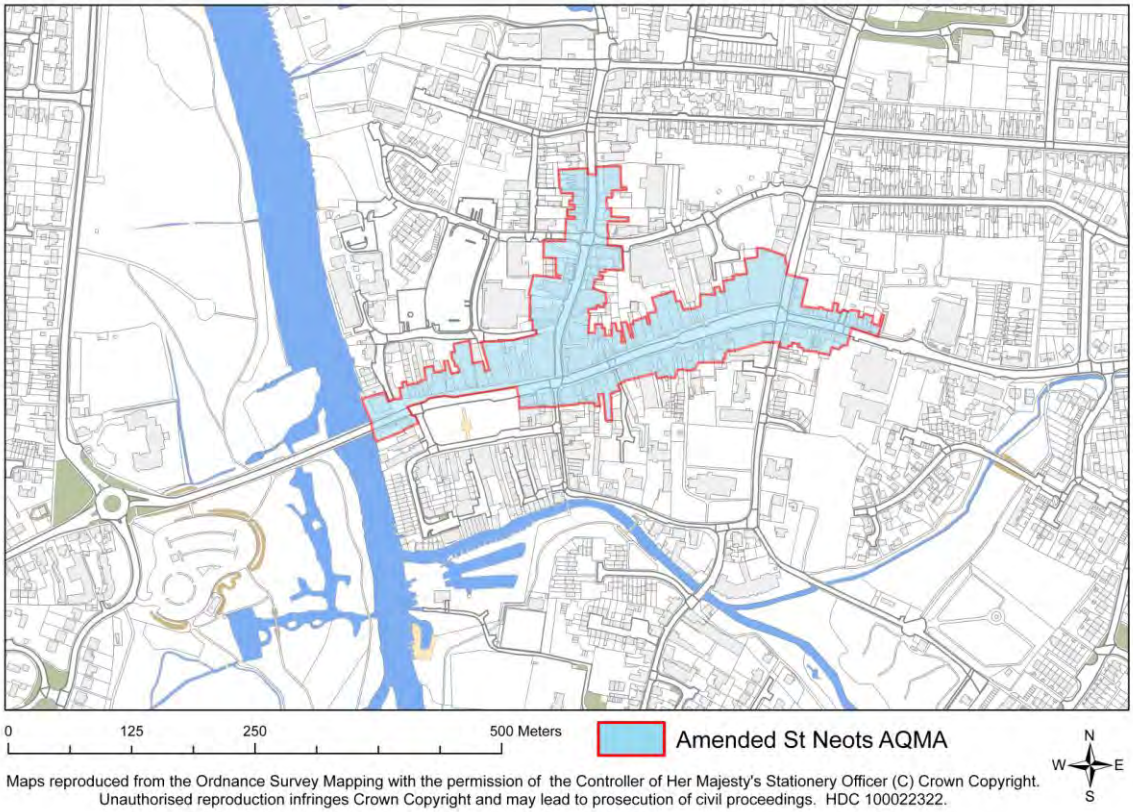


Figure 1.3. Air Quality Management Area No. 3: Brampton

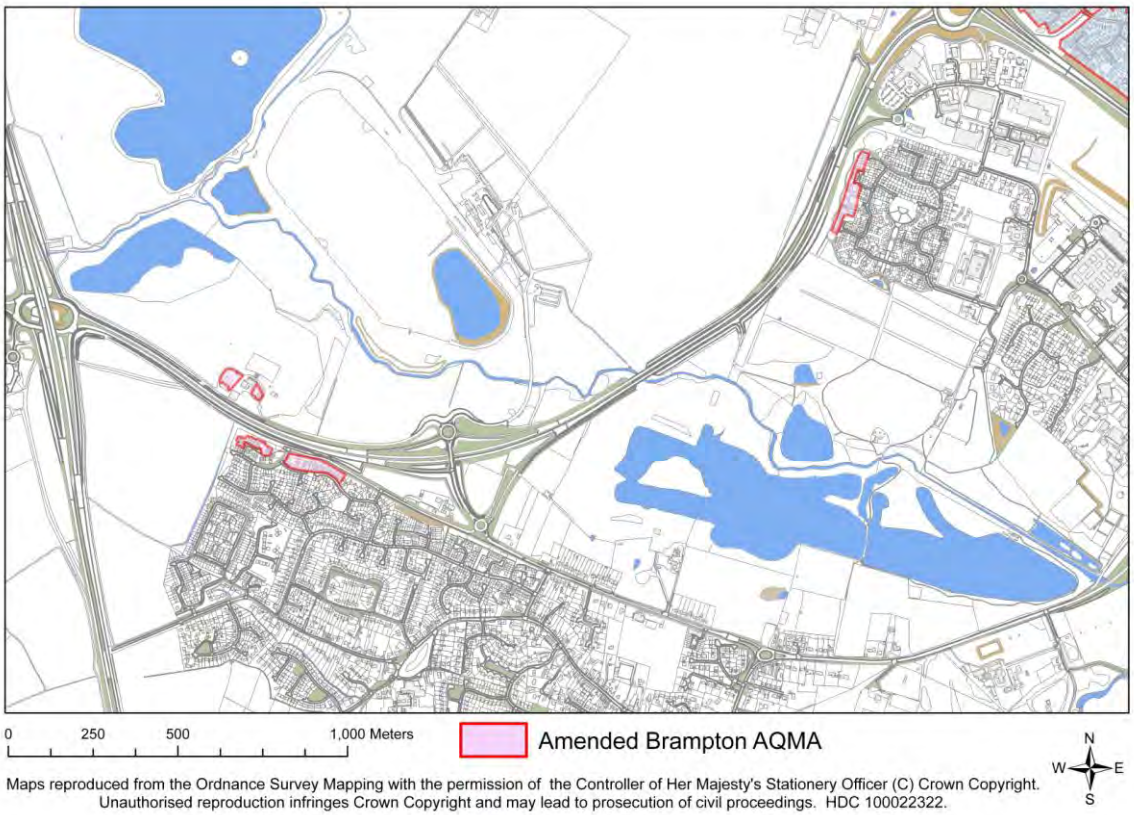
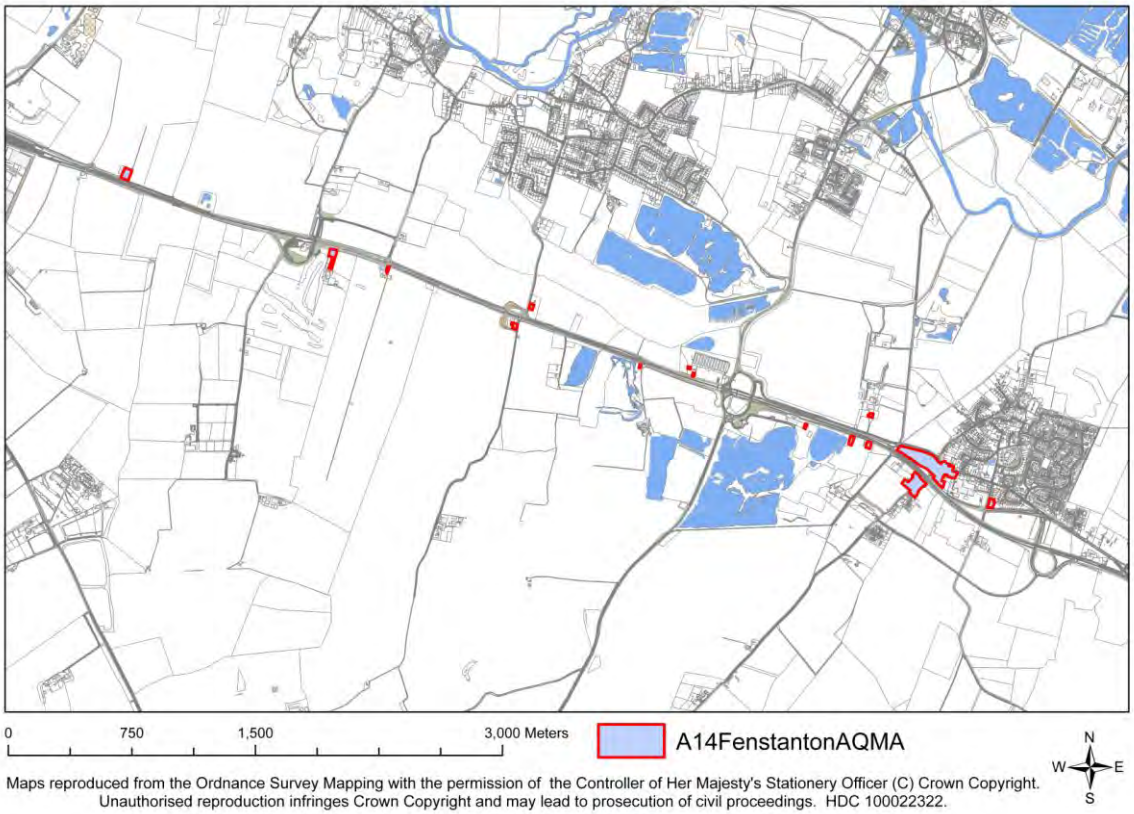


Figure 1.4. Air Quality Management Area No. 4: A14 Hemingford to Fenstanton



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

Huntingdonshire only now runs a single real time monitoring site which is located adjacent to the Councils HQ in Huntingdon. This site was commissioned in January 2011 and monitors oxides of nitrogen (NO_x), fine particles (PM_{10} and $PM_{2.5}$) and ozone (O_3).

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 the equipment suppliers, Air Monitors.

The data capture during 2012 was very good for all instruments so no adjustment was necessary to annual equivalent.

External QA/QC procedures are in place for the site by virtue of an ongoing contract with the NETCEN Calibration Club and their 2012 reports are appended to this document at Appendix 2.

Figure 2.1 Map(s) of Automatic Monitoring Sites (if applicable)

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Table 2.1 Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
	Huntingdon	Roadside	X 524060	Y 271532	4m	NO_2, PM_{10}, $PM_{2.5}$ O_3	Y	Chemiluminescence Beta Attenuation Beta Attenuation UV Photometric	Y 3m	7m	Y

2.1.2 Non-Automatic Monitoring Sites

Huntingdonshire District Council deploys thirty-four NO_2 diffusion tubes around the district.

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 0.79 as found on the co location study on the Review and Assessment Helpdesk website in March 2013.

Details about the Environmental Scientifics diffusion tubes are included in Appendix 2.

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

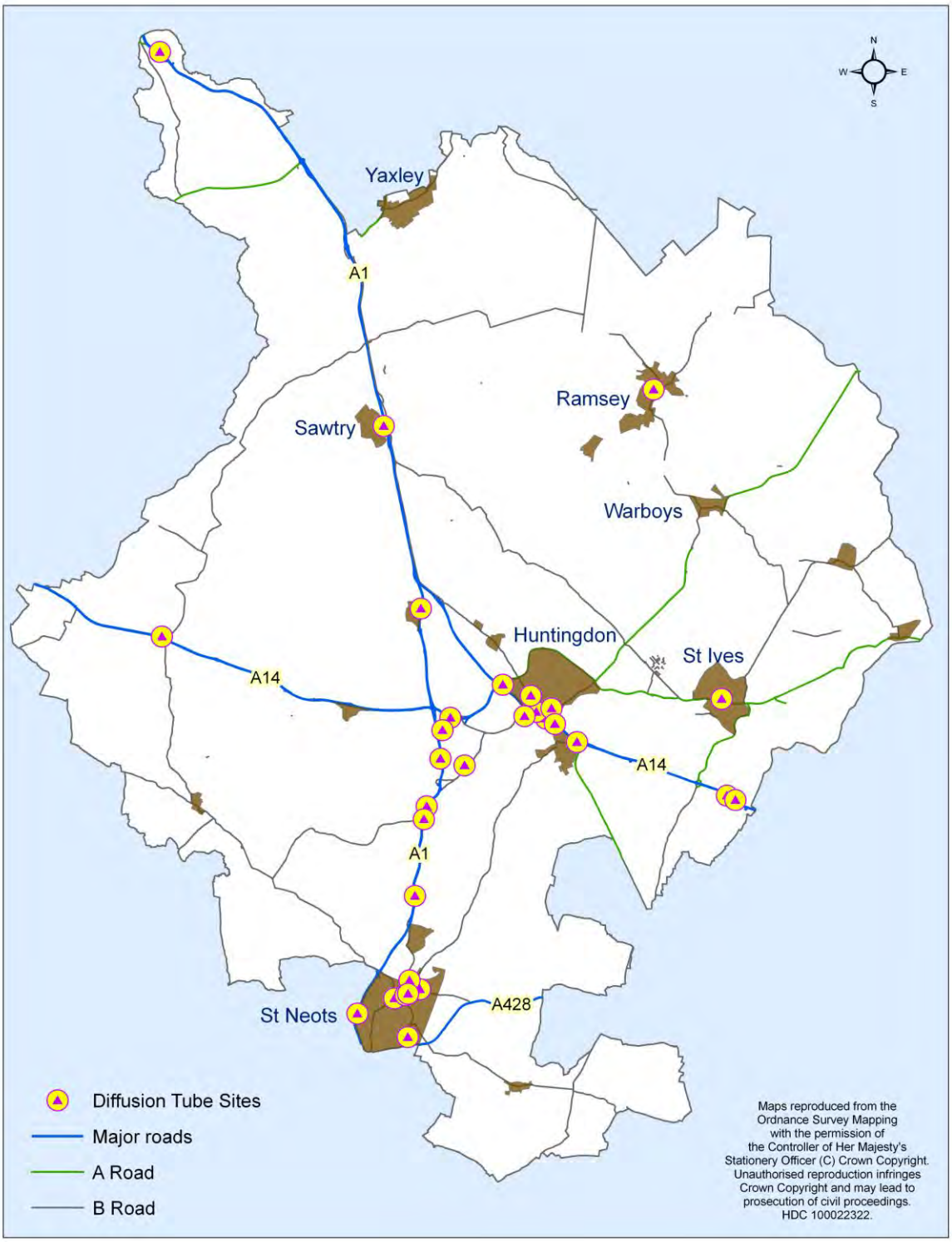


Table 2.2 Details of Non- Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Collocated Y/N	Distance to Relevant Exposure	Distance to kerb of nearest road	Worst-case Location?
Alconbury: Manor Lane	Roadside	518954, 276010	NO_2	N	N	6m	2	N
Brampton 1: Laws Crescent	Roadside	521433, 270910	NO_2	Y	N	32m	2	N
Brampton 2: Hansell Road	Suburban	519839, 271061	NO_2	N	N	18m	0.5	N
Brampton 3: Grafham Road Cottages	Suburban	519771, 269903	NO_2	N	N	23m	0.5 (40m to trunk road)	Y
Brampton 4: RAF Brampton	Suburban	520734, 269623	NO_2	N	N	10m	0.5	N
Buckden 1: Taylors Lane	Roadside	519196, 267953	NO_2	N	N	3m	1	N
Buckden 2: 4 High Street	Roadside	519082, 267433	NO_2	N	N	0m	1 (35m to trunk road)	Y
Buckden 3: 34 High Street	Roadside	519140, 267566	NO_2	N	N	0m	1	Y
Buckden 4: 6 Perry Road	Roadside	518981, 267393	NO_2	N	N	0m	12	N
Catworth: Thrapston Road	Rural	508409, 274876	NO_2	N	N	42m	1 (42 To trunk road)	N
Eaton Socon: Duchess Close	Suburban	516370, 259514	NO_2	N	N	3m	24 (To trunk road)	N
Fenstanton 1: Hilton Road	Roadside	531427, 268397	NO_2	Y	N	20m	2 (94 To trunk road)	N
Fenstanton 2: Connington Road	Roadside	531770, 268215	NO_2	Y	N	14m	2 (23m to trunk road)	Y
Godmanchester: Cambridge Villas	Roadside	525319, 270571	NO_2	N	N	3m	12 (34m to trunk road)	N
Huntingdon 1: Blethan Drive	Roadside	522293, 272909	NO_2	Y	N	3m	2	N
Huntingdon 2: George Street	Kerbside	523661, 271802	NO_2	Y	N	0m	1	Y
Huntingdon 3: Lodge Close	Suburban	523177, 271627	NO_2	N	N	3m	2	N
Huntingdon 4: Nursey Road	Kerbside	524056, 271533	NO_2	Y	N	0m	1	Y
Huntingdon 5: St Peters Road	Kerbside	523435, 272464	NO_2	Y	N	3m	1	N
Huntingdon 6: Tennis Court Av	Roadside	524274, 271939	NO_2	Y	N	4m	2	N
Huntingdon: Pathfinder House 1	Roadside	524097, 271540	NO_2	Y	Y	8m	6	N
Huntingdon: Pathfinder House 2	Roadside	524097, 271540	NO_2	Y	Y	8m	6	N
Huntingdon: Pathfinder House 3	Roadside	524097, 271540	NO_2	Y	Y	8m	6	N
Ramsey: Blenheim Road	Urban Background	528433, 284936	NO_2	N	N	4m	2	N
Southoe: Lees Lane	Roadside	518714, 264308	NO_2	N	N	24m	2 (14m to trunk road)	Y
Stibbington: Great North Road	Roadside	508326, 298684	NO_2	N	N	22m	2 (8m to trunk road)	Y

Site Name	Site Type	OS Grid Ref	Pollutants Monitored	In AQMA ?	Collocated Y/N	Distance to Relevant Exposure	Distance to kerb of nearest road	Worst-case Location?
Sawtry: Fen Lane	Suburban	517438, 283443	NO_2	N	N	4m	2	N
St Ives: Ramsey Road	Urban Background	531206, 272334	NO_2	N	N	5m	1	N
St Neots 1: Avenue Road	Urban Background	518925, 260503	NO_2	N	N	4m	1	N
St Neots 2: Harland Road	Urban Background	518489, 260871	NO_2	N	N	3m	1	N
St Neots 3: High Street	Kerbside	518323, 260263	NO_2	Y	N	0m	1	Y
St Neots 4: High Street	Kerbside	518433, 260321	NO_2	Y	N	0m	1	Y
St Neots 5: The Paddocks	Kerbside	517869, 260132	NO_2	N	N	22m	1	N
Eynesbury	Suburban	518424, 258566	NO_2	N	N	0m	17	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide (NO_2)

Monitoring of NO_2 during 2012 revealed no exceedences of the objectives at locations not already included in declared AQMA.

Automatic Monitoring Data

Huntingdonshire only now runs a single real time NO_2 monitoring site which is located adjacent to the Councils HQ in Huntingdon.

The data capture during 2012 was very good for all instruments so no adjustment was necessary to annual equivalent.

No exceedences of objectives were observed during 2012.

Table 2.3 Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2012 % [b]	Annual Mean Concentration (µg/m^3)				
					2008* [c]	2009* [c]	2010* [c]	2011* [c]	2012 [c]
Huntingdon	Roadside	Y	97%	97%				37.6	**55.5**

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

* Annual mean concentrations for previous years are optional

Table 2.4 Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2012 % [b]	Number of Hourly Means > 200µg/m^3				
					2008* [c]	2009* [c]	2010* [c]	2011* [c]	2012 [c]
Huntingdon	Roadside	Y	97%	97%				0	3

In bold, exceedence of the NO_2 hourly mean AQS objective (200µg/m^3 – not to be exceeded more than 18 times per year)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] If the data capture for full calendar year is less than 90%, include the 99.8th percentile of hourly means in brackets

* Number of exceedences for previous years is optional

Diffusion Tube Monitoring Data

Huntingdonshire District Council deploys thirty-four NO_2 diffusion tubes around the district.

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 0.79 as found on the collocation study on the Review and Assessment Helpdesk website in March 2013.

Details about the Environmental Scientifics diffusion tubes are included in Appendix 2.

Monthly tube results for 2013 are tabulated in Appendix 3.

Table 2.5 Results of NO_2 Diffusion Tubes 2012

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Full Calendar Year Data Capture 2012 (Number of Months) [a]	2012 Annual Mean Concentration ($\mu g/m^3$) - Bias Adjustment factor = 0.79 [b]
Alconbury	Manor Lane	Roadside	N	N	10	21.0
Brampton 1	Laws Crescent	Roadside	Y	N	12	26.9
Brampton 2	Hansell Road	Suburban	N	N	10	16.3
Brampton 3	Grafham Road Cottages	Suburban	N	N	12	17
Brampton 4	RAF Brampton	Suburban	N	N	12	14.3
Buckden 1	Taylors Lane	Roadside	N	N	12	20
Buckden 2	4 High Street	Roadside	N	N	12	23.3
Buckden 3	34 High Street	Roadside	N	N	11	31.3
Buckden 4	6 Perry Road	Roadside	N	N	12	23.7
Catworth	Thrapston Road	Rural	N	N	12	22.6
Eaton Socon	Duchess Close	Suburban	N	N	12	27.9
Fenstanton 1	Hilton Road	Roadside	Y	N	12	35.5
Fenstanton 2	Connington Road	Roadside	Y	N	12	24.5
Godmanchester	Cambridge Villas	Roadside	N	N	12	24.3
Huntingdon 1	Blethan Drive	Roadside	Y	N	12	29.1
Huntingdon 2	George Street	Kerbside	Y	N	12	**44.5**
Huntingdon 3	Lodge Close	Suburban	N	N	12	20.2
Huntingdon 4	Nursery Road	Kerbside	Y	N	10	24.4
Huntingdon 5	St Peters Road	Kerbside	Y	N	12	27.9
Huntingdon 6	Tennis Court Av	Roadside	Y	N	12	26.4
Pathfinder House 1	Pathfinder Hse, Huntingdon	Roadside	Y	Y	12	**49.3**
Pathfinder House 2	Pathfinder Hse, Huntingdon	Roadside	Y	Y	12	**49**

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Full Calendar Year Data Capture 2012 (Number of Months) [a]	2012 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.79 [b]
Pathfinder House 3	Pathfinder Hse, Huntingdon	Roadside	Y	Y	12	**48.5**
Ramsey	Blenheim Road	Urban Background	N	N	12	17.2
Southoe	Lees Lane	Roadside	N	N	12	18.5
Stibbington	Great North Road	Roadside	N	N	10	27.8
Sawtry	Fen Lane	Suburban	N	N	12	19.7
St Ives	Ramsey Road	Urban Background	N	N	12	18.9
St Neots 1	Avenue Road	Urban Background	N	N	12	18.5
St Neots 2	Harland Road	Urban Background	N	N	12	15.8
St Neots 3	High Street	Kerbside	Y	N	12	35.9
St Neots 4	High Street	Kerbside	Y	N	12	35.5
St Neots 5	The Paddocks	Kerbside	N	N	11	22.8
Eynesbury	Arundel Crescent	Suburban	N	N	12	22.3

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

Underlined, annual mean > 60µg/m^3, indicating a potential exceedence of the NO_2 hourly mean AQS objective

[a] Means should be "annualised" as in Box 3.2 of TG(09)(http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if full calendar year data capture is less than 75%

[b] If an exceedence is measured at a monitoring site not representative of public exposure, NO_2 concentration at the nearest relevant exposure should be estimated based on the "NO_2 fall-off with distance" calculator (http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html), and results should be discussed in a specific section. The procedure is also explained in Box 2.3 of Technical Guidance LAQM.TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30).

Table 2.6 Results of NO_2 Diffusion Tubes (2008 to 2012)

Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) μg/m^3				
			2008 (Bias Adjustment Factor = 0.80)	2009 (Bias Adjustment Factor = 0.82)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.84)	2012 (Bias Adjustment Factor = 0.79)
Alconbury	Roadside	N	24	24.6	26.5	22.0	21.0
Brampton 1	Roadside	Y	39	33.6	35.6	27.4	26.9
Brampton 2	Suburban	N	-	19.3	18.1	16.8	16.3
Brampton 3	Suburban	N	-	18.6	22.7	17.9	17
Brampton 4	Suburban	N	-	17.8	18.8	16.2	14.3
Buckden 1	Roadside	N	26	21.6	24.2	21.4	20
Buckden 2	Roadside	N	-	**48.5**	**45.9**	29.0	23.3
Buckden 3	Roadside	N	-	**-**	**-**	29.9	31.3
Buckden 4	Roadside	N	-	**-**	**-**	25.9	23.7
Catworth	Rural	N	28	25.4	25.1	26.6	22.6
Eaton Socon	Suburban	N	33	27.6	33.5	29.3	27.9
Fenstanton 1	Roadside	Y	**43**	**41.0**	38.2	37.0	35.5
Fenstanton 2	Roadside	Y	31	**28.3**	29.5	28.6	24.5
Godmanchester	Roadside	N	30	24.2	31.1	23.9	24.3
Huntingdon 1	Roadside	Blethan Drive	32.2	29.3	34	32.8	29.1
Huntingdon 2	Kerbside	George Street	**49**	**45.9**	**44.2**	**48.8**	**44.5**
Huntingdon 3	Suburban	Lodge Close	24.2	21.1	24.7	19.9	20.2
Huntingdon 4	Kerbside	Nursery Road				26.1	24.4
Huntingdon 5	Kerbside	St Peters Road	29.9	28.6	35.3	28.1	27.9
Huntingdon 6	Roadside	Tennis Court Av	33.3	26.0	30.6	32.0	26.4
Pathfinder House 1	Roadside	Y	-	-	-	**51.6**	**49.3**
Pathfinder House 2	Roadside	Y	-	-	-	**49.0**	**49**

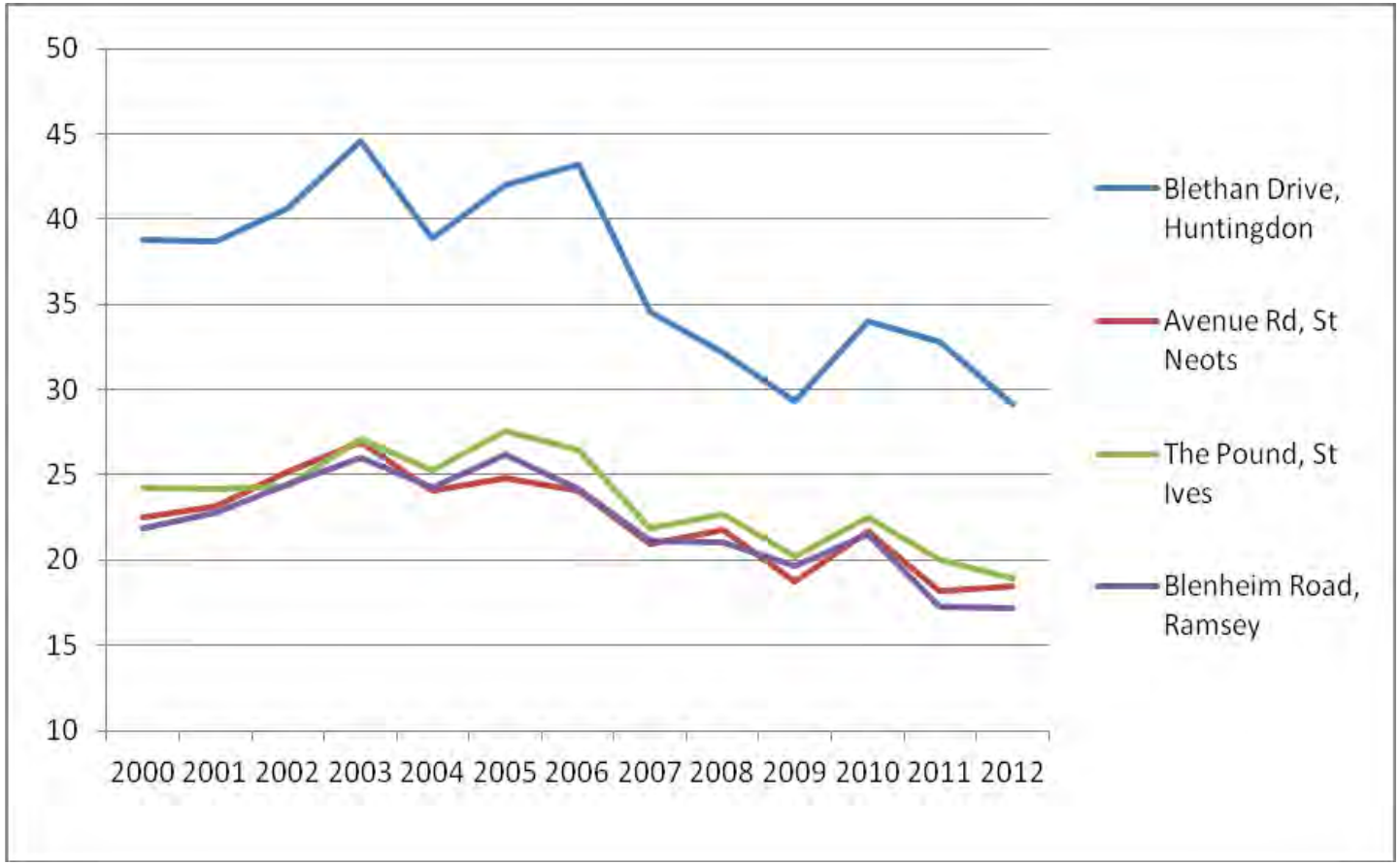
Site ID	Site Type	Within AQMA?	Annual mean concentration (adjusted for bias) µg/m^3				
			2008 (Bias Adjustment Factor = 0.80)	2009 (Bias Adjustment Factor = 0.82)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.84)	2012 (Bias Adjustment Factor = 0.79)
Pathfinder House 3	Roadside	Y	-	-	-	**52.4**	**48.5**
Ramsey	Urban Background	N	21	19.7	21.5	17.3	17.2
Southoe	Roadside	N	23	19.3	23.4	19.5	18.5
Stibbington	Roadside	N	34	33.8	32.1	32.3	27.8
Sawtry	Suburban	N	24	21.7	24.7	19.6	19.7
St Ives	Urban Background	N	23	20.2	22.5	20.0	18.9
St Neots 1	Urban Background	N	22	18.7	21.7	18.2	18.5
St Neots 2	Urban Background	N	20	19.2	19.9	16.7	15.8
St Neots 3	Kerbside	Y	**40**	37.6	**40.0**	39.3	35.9
St Neots 4	Kerbside	Y	39	37.4	39.9	37.4	35.5
St Neots 5	Kerbside	N	30	26.2	27.9	23.5	22.8
Eynesbury	Suburban	N	-	27.0	25.4	23.4	22.3

In bold, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

Underlined, annual mean > 60µg/m^3, indicating a potential exceedence of the NO_2 hourly mean AQS objective

[a] Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if full calendar year data capture is less than 75%

Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations (Bias adjusted µg/m^3) Measured at Diffusion Tube Monitoring Sites



2.2.2 Particulate Matter (PM_{10})

Fine particles (PM_{10} and $PM_{2.5}$) have been monitored at the Pathfinder House road side monitoring site (Figure 2.1 above and 2.3 below) in Huntingdon since the end of 2010. The monitoring site is thought to represent worst case exposure in Huntingdonshire as it is broadly representative of residential exposure for a number of dwellings close to, and downwind from, the frequently congested Huntingdon Ring Road. It is also downwind and from the heavily trafficked elevated A14, which is about 140m away.

Due to the site's exposure to road traffic pollutants it is already within the Huntingdon Air Quality Management Area for annual mean NO_2 but exceedences of the PM_{10} objectives have not been observed there before.

Annual mean PM_{10} concentrations measured at the site have been comfortably below the annual mean objective, as shown in table 2.7. In 2011 there were no exceedences of the 24 hour mean but analysis of the 2012 data, after correcting to gravimetric equivalent, surprisingly indicated 41 exceedences of this objective (>50µg/m^3). As this was so unexpected detailed analysis of these exceedences was conducted.

On analysis it was found that the majority of these exceedences resulted from short periods of very high concentrations of PM_{10} which were not accompanied by a correspondingly elevated concentration of $PM_{2.5}$. This was surprising as the two concentrations usually correlate fairly well, with one mirroring the other.

The 2012 raw data were then downloaded for collocated PM_{10} and $PM_{2.5}$ instruments at Girton and Barhill (both in South Cambridgeshire) and these data were examined for similar trends. Neither the short period very high concentrations nor the lack of correlation with $PM_{2.5}$ were found in the data at either of these sites.

The next stage of the analysis involved looking in detail at the weather conditions which were associated with the high PM_{10} episodes. Weather data was sourced from

the University of Cambridge Computer Laboratory and was plotted against the raw 15min PM data. A clear correlation was found.

It appears that the majority of the high PM_{10} episodes occurred under very specific weather conditions. The wind directions in 2012 were strongly dominated by south westerly's as is normal for the area and winds were from the southern hemisphere for approx 67% of the time. Wind direction analysis demonstrated the percentages shown in Table 2.7 below.

Table 2.7 Percentage wind directions for Cambridge 2012

WD	N	NE	E	SE	S	SW	W	NW
%age	1	8	6	12	17	28	14	14

As the main known pollution sources are to the south of the monitoring station (the A14 and the congested Ring Road) it is under these southerly wind conditions that we would expect to see the majority of pollution. The analysis, however, demonstrated that these high PM_{10} episodes occurred predominantly under very calm conditions, when there was little of no wind but when the wind was most often from the north. This phenomenon was more pronounced when looking at the highest concentrations of PM_{10}. Looking at Table 2.8 below, including the notes in the last column, it is evident that there were only three exceedences which resulted with winds from the southern hemisphere.

The close proximity of a cluster of domestic properties, with chimneys, 10 – 15m north of the monitoring station suggest that domestic coal burning is the most likely cause of these incidents. This seems particularly likely looking at the channelling effect that would result from the orientation and canyon like spaces amongst the building cluster. Discussions with NETCEN (the QAQC provider for the monitoring station) and the LAQM Helpdesk (13/02/13) suggested that this view was the most likely explanation for the unexpected exceedences. The configuration of buildings, the location of the monitoring station, and the relative locations of the road sources can be seen in Figure 2.4 below.

It is unfortunate that the monitoring station is located in a position where this unwanted influence on measured PM_{10} concentrations can occur. The site was chosen as it belongs to the district council, is close to the two major road sources and it was thought to be appropriate at the time.

In view of the above it is not proposed to proceed to a detailed assessment for PM_{10} on this occasion but rather to closely monitor concentrations in the future and to conduct similar analysis on any future exceedences to establish the source of the exceedences.

Table 2.8 Times of exceedences of 24 hour mean PM_{10} objective with notes

Date	Day	WD	WS m/s (approx)	Temp	24 hour mean µg/m3	Notes
16/01/12	Mon	NE/E	0-2	Cold	63	No wind when concs high
17/01/12	Tues	E/SE/S	0-2	Cold	73	No wind when concs high
29/01/12	Sun	NE	0-2	Cold	60	No wind when concs high
30/01/12	Mon	-	0	Cold	85	Virtually no wind
31/01/12	Tue	NE/NW	0-2	Cold	76	No wind when concs high
01/02/12	Wed	N/NE	0-2	Cold	54	
02/02/12	Thu	N/NE	0-2	Cold	67	
29/02/12	Wed	SW/SE	0-2	Mild	60	Highest concs when no wind
01/03/12	Thu	S/SE	0-2	Mild	66	No wind when concs high
02/03/12	Fri	SW/SE/NW	0-2	Cold	79	No wind when concs high
12/03/12	Mon	-	0	Cold	50	Virtually no wind all day
13/03/12	Tue	-	0	Cold	66	Virtually no wind all day
14/03/12	Wed	S/SE	0-2	Cold	76	
15/03/12	Thu	SE	0-2	Cold	87	Highest concs when no wind
16/03/12	Fri	SW	4-6	Cold	58	
21/03/12	Wed	NW/NE	2-4	Mild	72	No wind when concs high
22/03/12	Thu	NE	2-4	Mild	96	No wind when concs high
23/03/12	Fri	-	0	Mild	104	Virtually no wind all day
24/03/12	Sat	E/SE	0-2	Cold	54	No wind when concs high
26/03/12	Mon	E/NE	2-4	Mild	52	No wind when concs high
28/03/12	Wed	NW	0-2	Mild	63	Highest concs when no wind
29/03/12	Thu	NW	0-2	Mild	66	
30/03/12	Fri	W/NW	0-2	Mild	59	
01/05/12	Tues	NE/NW	4-6	Mild	64	
17/05/12	Thu	SE	4-6	Mild	59	
18/05/12	Fri	NE	6-8	Mild	55	
21/05/12	Mon	NW	6-8	Mild	51	
22/05/12	Tue	NW	6-8	Mild	69	
23/05/12	Wed	NW	4-6	Mild	86	
24/05/12	Thu	NW	2-4	Mild	52	
28/05/12	Mon	NW	0-2	Warm	60	V. high concs when no wind
29/05/12	Tue	NW	2-4	Warm	64	V. high concs when no wind
04/06/12	Mon	NW	4-6	Mild	75	BH two values 961 and 245
25/07/12	Wed	SE/NW	4-6	Hot	54	
23/10/12	Tue	NW	2-4	Mild	109	
24/10/12	Wed	NW	2-4	Mild	68	Change to NE and conc drops
26/10/12	Fri	NE	2-4	Mild	118	
05/11/12	Mon	NW	4-6	Mild	51	
15/11/12	Thur	NE/NW/S/SE	0-2	Mild	68	No wind when concs high

Figure 2.4 Plan of Monitoring Station Location

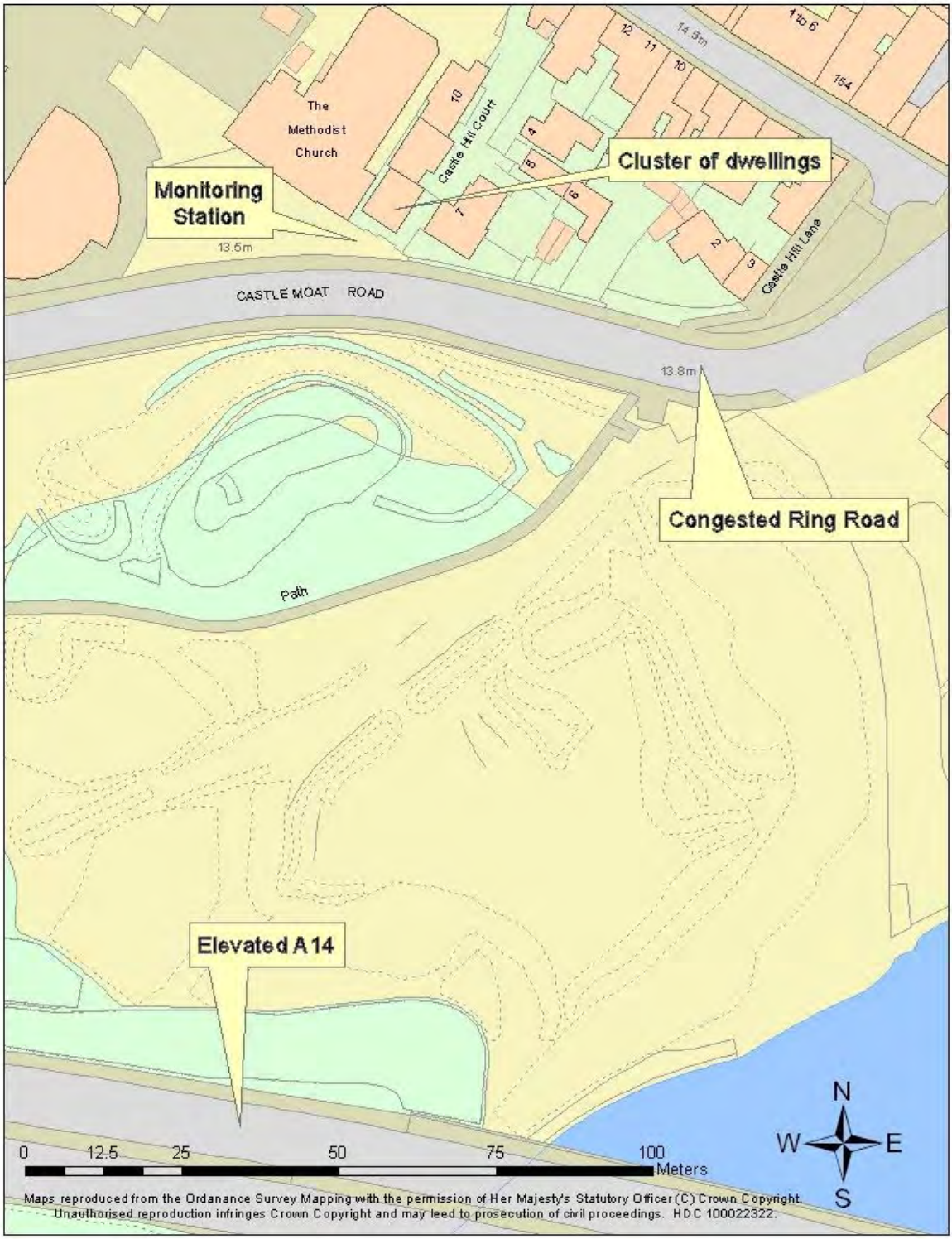


Table 2.9 Results of Automatic Monitoring for PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2012 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m^3)				
						2008* [c]	2009* [c]	2010* [c]	2011* [c]	2012 [c]
Huntingdon	Roadside	Y (For NO_2)	97%	97%	N				26.3	31.2

In bold, exceedence of the PM_{10} annual mean AQS objective of 40µg/m^3

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] Means should be "annualised" as in Box 3.2 of TG(09) (http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=38), if valid data capture is less than 75%

* Annual mean concentrations for previous years are optional

Table 2.10 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % [a]	Valid Data Capture 2012 % [b]	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m^3				
						2008* [c]	2009* [c]	2010* [c]	2011* [c]	2012 [c]
Huntingdon	Roadside	Y (For NO_2)	97%	97%	Y				0	**41**

In bold, exceedence of the PM_{10} daily mean AQS objective (50µg/m^3 – not to be exceeded more than 35 times per year)

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%)

[c] if data capture for full calendar year is less than 90%, include the 90.4th percentile of 24-hour means in brackets

* Number of exceedences for previous years is optional

2.2.3 Sulphur Dioxide (SO_2)

Huntingdonshire District Council has no sulphur dioxide 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 examined the results from monitoring in the district. Concentrations outside of the AQMAs are all below the objectives at relevant locations therefore there is no need to proceed to a Detailed Assessment. Some apparent exceedences of the PM_{10} 24 hour mean were observed within the Huntingdon AQMA for annual mean NO_2 but it is not proposed to proceed to a Detailed Assessment for the reasons given above.

3 New Local Developments

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.

Huntingdonshire District Council confirms that all the following have been considered:

- **Road traffic sources**
- **Other transport sources**
- **Industrial sources**
- **Commercial and domestic sources**
- **New developments with fugitive or uncontrolled sources.**

4 Planning Applications

Alconbury Weald

'Alconbury Weald' is a very substantial mixed use outline application (1201158OUT), received on the 15 August 2012, for the redevelopment of the former airfield at Alconbury and neighbouring farmland (Grange Farm, Great Stukeley). The application seeks 290,000m^2 of employment floor space including industrial, commercial and retail premises, up to 5000 dwellings, leisure facilities, health facilities, educational facilities and associated infrastructure.

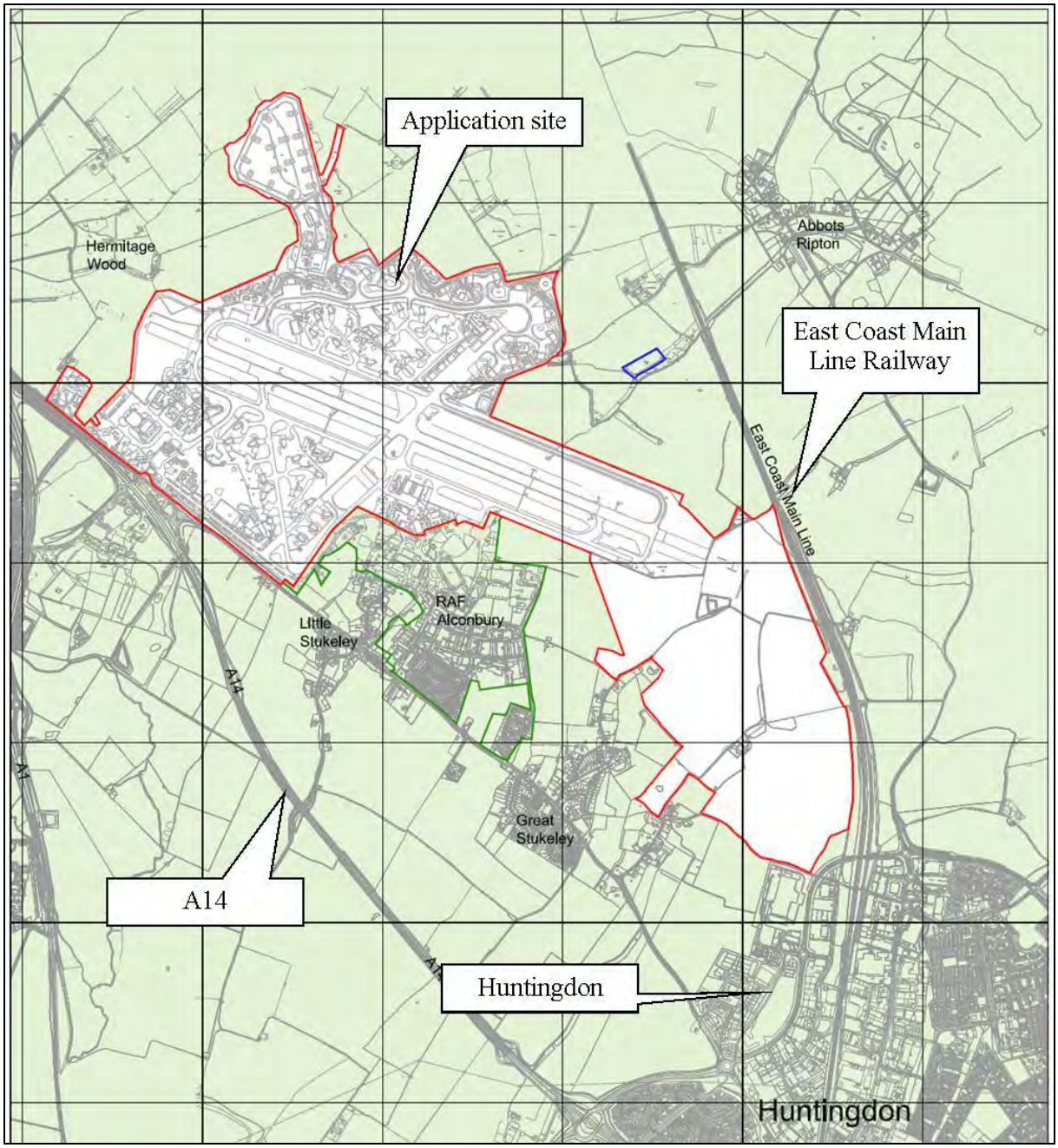
The application has benefited from substantial pre application consultation and has principle of redevelopment of the former airfield for a mix of uses has the broad support of Huntingdonshire District Council. Work is continuing on the application details and it is expected that a formal decision on the outline application will be made in October 2013.

An initial air quality assessment was undertaken as part of the Environmental Statement written in July 2012. The air quality assessment was underpinned by a diffusion tube monitoring survey and detailed modelling of emissions, including future traffic flows and expected emissions within the development site itself. Predictions included the likely impacts of the development on the Huntingdon Air Quality Management Area (annual mean NO_2) to the south of the development site.

The methodologies for this initial air quality work were discussed with and agreed by Huntingdonshire District Council during pre-application discussion but further assessment work is likely to be necessary as the scheme evolves and detailed plans emerge.

The conclusions from the initial air quality assessment are that concentrations of pollutants within the development site itself will be well below objectives and that the impacts on the existing AQMA in Huntingdon will be negligible.

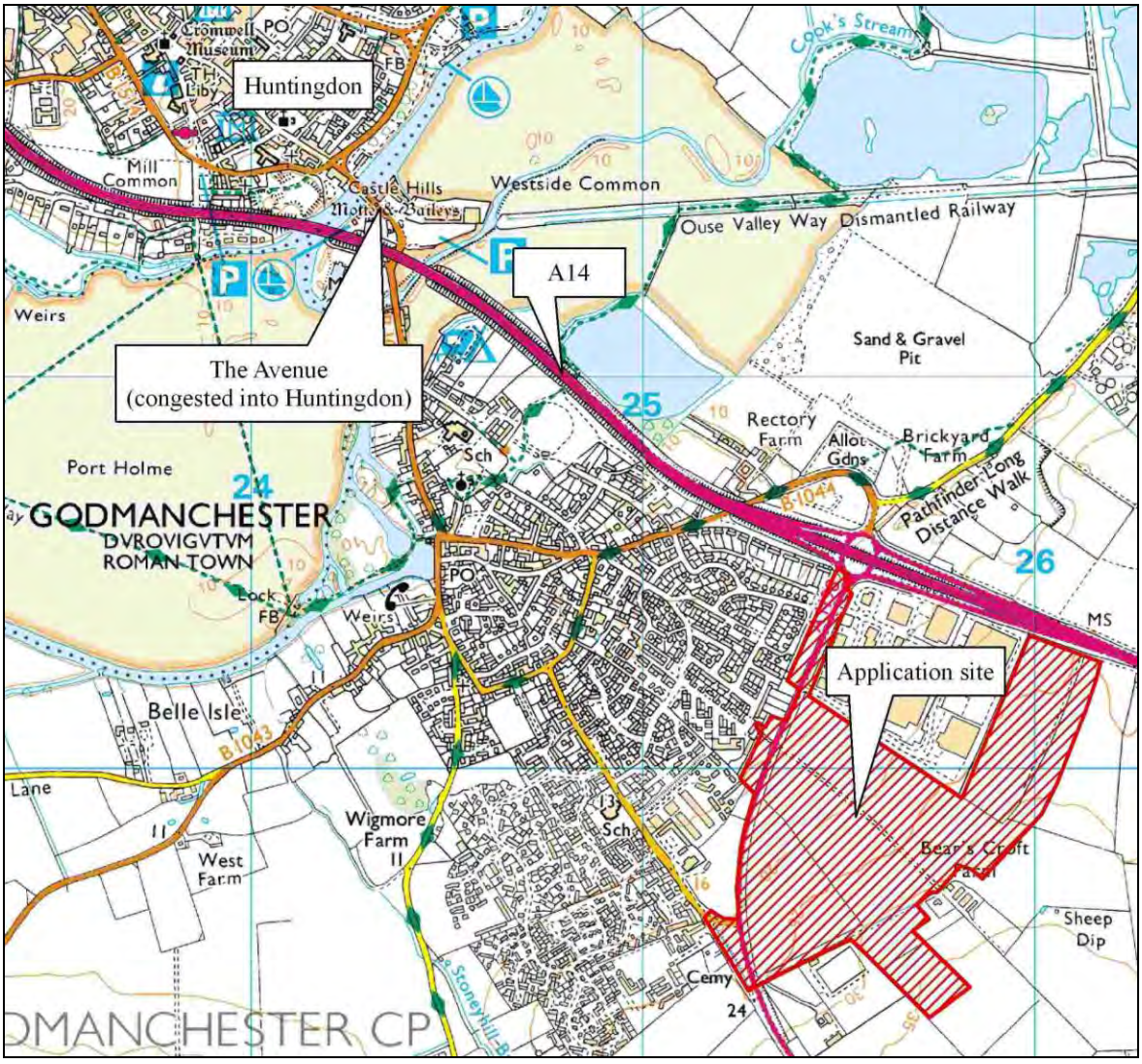
Figure 4.1 Alconbury Weald Application Site



Bearscroft Farm

'Bearscroft Farm' is a significant outline application (1200685OUT) for residential development on the eastern edge of Godmanchester which was received on 23 April 2012. It proposes 753 dwellings with some limited retail provision. The development proposal was accompanied by an Environmental Statement which incorporated an air quality assessment. The main potential air quality impacts were identified as those which may compound the traffic related NO_2 problems on the Avenue, leading from Godmanchester into Huntingdon, part of which is in the Huntingdon AQMA. These impacts were assessed with the help of detailed traffic modelling and the impacts at all receptors were found to be negligible.

Figure 4.2 Bearscroft Farm Application Site



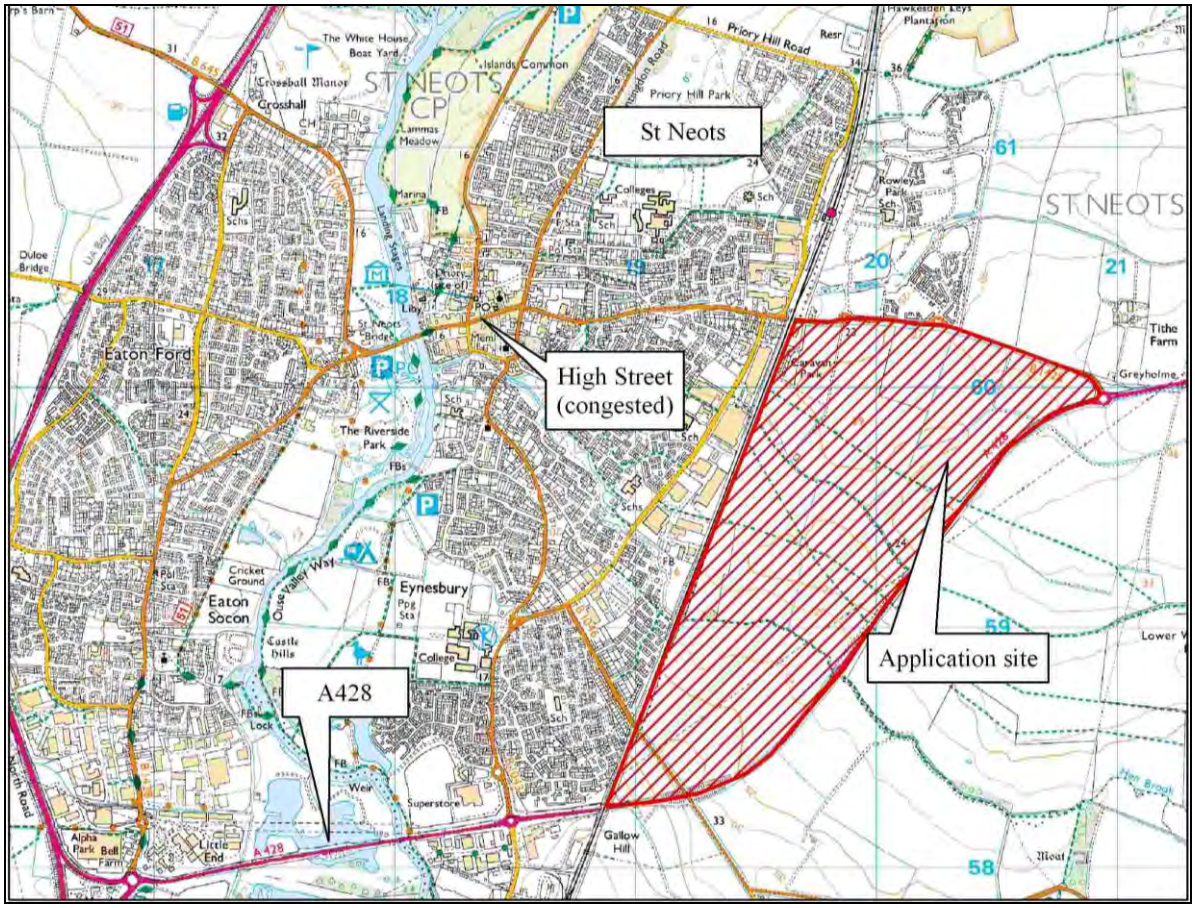
Wintringham Park

'Wintringham Park' is an outline application (1300178OUT) for a mixed use development of up to 2,800 dwellings , up to 63,500m^2 of employment space, two primary schools and associated infrastructure. It lies to the east of St Neots with the A428 to the south and the East Coast Main Line railway to the west of the site.

Potential air quality impacts were identified due to the AQMA for annual mean NO_2 in the middle of St Neots, where the canyon like High Street leading to the town bridge creates something of a bottle neck.

An air quality impact assessment was included as part of the Environmental Statement associated with the application and this assessment concluded that the impacts on air quality were negligible.

Figure 4.3 Wintringham Park Application Site



5 Air Quality Planning Policies

The Huntingdonshire Core Strategy Policy CS 1, Sustainable Development, is now fully adopted as part of the Huntingdonshire Development Plan and this is reproduced below.

The Development Management Document (DPD) Proposed Submission on Air Quality, Policy C4, which has been reported in previous R&A Reports, has lost considerable weight as a policy. This is due to the year transition period for the National Planning Policy Framework coming to an end and the fact that the DPD policies will not be taken forward.

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.

6 Local Transport Plans and Strategies

Huntingdonshire District Council doesn't have a transport plan or strategy per se. Their Market Town strategies are contained in Cambridgeshire County Council's Local Transport Plan (LTP3) which covers 2011 to 2026 which is available at http://www.cambridgeshire.gov.uk/NR/rdonlyres/81A57E02-48D8-4C24-862F-B42A900F70D8/0/LTP3PoliciesandStrategy.pdf

Cambridgeshire County Council kindly provided draft chapters of the 2012 County Traffic Monitoring Report for use within this report. Generally, data shows how the economic conditions have significantly reduced commercial road traffic in the County in recent years. HGV traffic in the County reduced 8.7% compared with 2011 and is down 13% compared with 2002 (an often used base year).

Data on the market towns suggests that the number of vehicles entering and leaving the towns was slightly up in St Neots and Ramsey (+2%), slightly down in Huntingdon and St Ives (-3%).

7 Climate Change Strategies

Huntingdonshire District Council does not have a Climate Change Strategy per se but does have their Growing Awareness document which is described as 'A Plan for our Environment'. The document covers the five year period to 2013/14. This document does not cover Air Quality as a discrete entity but rather covers broad subject categories as follows:

- Managing a Resource Efficient Council
- Improving the Efficiency of Existing Homes
- Environmental Advice for Local Business, Schools and Community Groups
- Shaping Sustainable Growth
- Sustainable Water Management
- Sustainable Waste Management
- Clean and Safe Huntingdonshire

A number of these sections include measures which contribute to improved local air quality, most notable Managing a Resource Efficient Council, and most recent indicator progress is reported in the Annual Review. The progress table for this chapter is reproduced below.

Table 7.1 Huntingdonshire District Council Growing Awareness Indicators

MANAGING A RESOURCE EFFICIENT COUNCIL - Progress 10/11 - 11/12							
	PROGRESS						
INDICATOR	Baseline (08/09)	09/10	10/11	11/12	Five year target	Tracking	Responsible service
Amount of energy consumed by Council-owned buildings and resulting CO_2e emissions	13,361 mWh's of energy 4,887 tonnes of CO_2e	12,533 mWh's of energy 8.05% reduction on 08/09 4,365 tonnes of CO_2e 10.68% reduction on 08/09	12,665 mWh's of energy 7% reduction on 08/09 4,400 tonnes of CO_2e 10% reduction on 08/09	10,958 mWh's of energy 18% reduction on 08/09 3,806 tonnes of CO_2e 22% reduction on 08/09 (subject to final confirmation July 2012)	30% decrease in CO_2e emissions		Environmental Management
% of energy used by the Council that is sourced from a 'green tariff'	0%	100%	100%	100%	100%		Environmental Management
Number of Council buildings with on-site renewable energy technology	0	1 – CHP system at One Leisure Huntingdon	1 - Solar thermal hot water heating - St Neots Enterprise Centre	1 additional site - PV at Eastfield House	5		Environmental Management
% of Council employees travelling to work by car	50.71% (2008)	50.51% (2009)	50.30% (2010)	54.48% (2011)	Under 50%		Environmental Management
CO_2e emissions from Council staff travelling for work	167 tonnes	168 tonnes 0.85% increase on 08/09	149 tonnes 11% reduction on 08/09	149 tonnes 11% reduction on 08/09	30% decrease in CO_2e emissions		Environmental Management
CO_2e emissions from the Council's fleet	1,895 tonnes	1,483 tonnes 21.5% reduction on 08/09	1,431 tonnes 24% reduction on 08/09	1,320 tonnes 35.98% reduction on 08/09	30% decrease in CO_2e emissions		Environmental Management
Reams of paper used by the Council	3,550 reams	3,237 reams 9% reduction on 08/09	3,142 reams 11.5% reduction on 08/09	3,087 13% reduction on 08/09	25% reduction		All services
Successful accreditation to a recognised Environmental Management System (EMS)	No EMS	Review process on schedule	Review process on schedule	Review process on schedule	Accreditation to EMS achieved		Environmental Management
Cubic metres of water consumed by Council buildings	40,205 M^3	44,285 M^3 10% increase on 08/09	42,063 M^3 4.6% increase on 08/09	42,506 M^3 5.7% increase on 08/09 (subject to final confirmation July 2012)	5% reduction		Environmental Management
Number of Council buildings with water recycling systems	1 site	1 additional site – Pathfinder House	1 additional site – Caxton Road	1 additional site – Godmanchester Nursery	5 sites in total		Environmental Management

MANAGING A RESOURCE EFFICIENT COUNCIL - Progress 10/11 - 11/12							
% of waste recycled from the Council's headquarters	50.9%	53%	49.6%	48.8%	5% increase		Environmental Management
% of Council office buildings with access to recycling facilities	72%	78%	82%	82%	100%		Environmental Management

8 Implementation of Action Plans

The Joint Air Quality Action Plan developed by Cambridge City Council, Huntingdonshire District Council and South Cambridgeshire District Council in 2010 proposed a suite of five measures in pursuit of the NO_2 annual mean objective in the Huntingdonshire Air Quality Management Areas. These measures were:

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 Air Quality Management Areas.

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 Public Service Vehicles as well as targets for ongoing improvements in emissions.

5. Completion and opening of the Cambridgeshire Guided Busway.

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 continue to lobby for this investment at every opportunity.

The Air Quality Policy which was to be included in the Development Plan will not now be taken forward and therefore carries very little weight in decisions. The reasons for this are given in section 5 above.

Huntingdonshire District Council has joined the East of England Freight Quality Partnership which meets quarterly. It uses 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 remains active in the Cambridge City Council area but Cambridgeshire County Council has consistently refused to allow the partnership to be enlarged to encompass the Huntingdonshire District Council area.

The Cambridgeshire guided busway opened in August 2011, two years later than planned. The most recent Cambridgeshire County Council Traffic Monitoring Report covers 2011 and a study on the impact on traffic flows since the guided busway opened is included in Chpt 8. The tabulated data is reproduced below and indicates a small reduction in flows on the A14.

Table 8.1 Reduction in flows on the A14 following the opening of the Guided Bus way

A14 Section	Sept-Nov 16hr AAWF 2011	Change since Sept-Nov 2010
West of Huntingdon		
Catworth Hill	40,625	-3.3%
Junction 20 Ellington	42,616	-3.2%
Huntingdon Racecourse	46,678	-2.7%
Huntingdon to Cambridge		
Huntingdon to God'chester	69,333	-1.8%
God'chester to St Ives	67,557	-1.5%
South-west of Dry Drayton junction	87,527	-1.9%
Cambridge Northern Bypass		
Girton	64,772	-1.2%
Milton	60,388	-1.1%
Quy	35,945	-1.1%

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

Monitoring data gathered during 2012 has held no surprises apart from the unexpected apparent contravention of the 24 hour mean PM_{10} objective.

There were no exceedences of any objectives outside existing AQMAs and the only exceedences of the annual mean NO_2 objective were within the Huntingdon AQMA. Concentrations measured in the other three AQMAs were all below objective levels. The annual mean concentrations in the High Street in St Neots were relatively close to the objectives again and there is no suggestion that there is sufficient evidence to recommend a revocation of this AQMA at this time.

The annual mean NO_2 concentration in Laws Crescent Brampton, which is the monitoring indicator for the Brampton AQMA, has been consistently well below the annual mean objective since 2010 (when it was close to 90% of the objective level). If monitoring results remain as low in 2013 then further studies to support a possible revocation should be considered.

9.2 Conclusions relating to New Local Developments

Whilst there are several significant new developments either proposed or within the planning system, none of these are predicted to have a significant detrimental effect on air quality.

9.3 Other Conclusions

The Air Quality Action Plan produced jointly with Cambridge City Council and South Cambridgeshire District Council in 2010 has not progressed very well. Of the five key actions, only one can be said to have had a very positive impact air quality, that being the Guided Bus way (St Ives to Cambridge). Although the Guided Bus way was delivered late it has proved to be very successful and early indications are that there has been a modest but significant reduction of flows on the A14.
The A14 upgrade has failed to materialize but although negotiations continue between Government and the local authorities nothing is certain.

9.4 Proposed Actions

The next proposed course of action is to increase diffusion tube coverage in the village of Buckden in line with advice received in the Buckden Detailed Assessment Appraisal (Appendix 1).

An Air Quality Progress Report will be published in 2014 and will consider, in particular, the issues that were raised in 8.1 above.

Appendices

Appendix 1: Detailed Assessment of Buckden Appraisal Report from Defra

Local Authority:	Huntingdonshire District Council
Reference:	DA4-196
Date of issue	February 2013

Detailed Assessment Appraisal Report

The Report sets out the Detailed Assessment, which forms part of the Review & Assessment process required under the Environment Act 1995 and subsequent Regulations.

The report provides a pre-Detailed Assessment of annual mean NO_2 concentrations in Buckden to determine whether an AQMA should be declared. Based on the evidence provided, the local authority concluded that an AQMA should not be declared at this time. The pre-DA report is accepted but it is recommended that the local authority continue monitoring and site additional tube(s). If exceedences are measured at relevant receptors in the future, then they should re-do the modelling assessment.

The local authority is advised to note the commentary below.

Commentary

1. None of the monitoring sites exceeded the objective in 2011. However, from the USA report, it is noted that there was only 9 months worth of data collected at the sites, so the data were annualised. Concentrations at Buckden 2 were much lower in 2011 compared to 2009 and 2010. It is recommended that the local authority clarify that their monitoring locations are at relevant locations and state that they will continue monitoring for at least a full year.
2. It is not clear which model run Figure 2 refers to and whether these results have been adjusted and verified correctly. It is also noted that the modelling assessment shows relatively poor agreement with the monitored results so there is a level of uncertainty with the outputs.
3. It is recommended that the local authority position diffusion tubes (preferably triplicate tubes) at the flats (building 3). If exceedences are monitored in the future, then they should re-do the modelling assessment.
4. With regards to the issue of whether any amenity areas with sensitive receptors are affected, the local authority should refer to the Technical Guidance which states that *" it is considered reasonable to select the facade of residential properties closest to the road as a representative location to assess exposure for pollutants with a 24-hour or annual mean objective"* Therefore if the objective is exceeded at a façade, then these

flats are considered a relevant receptor regardless of whether there are any windows. The Guidance also states "*that it is reasonable to consider land designated for some form of public use, including residential development, but not currently in such use, as being a location with relevant exposure*". It is accepted from the evidence provided that the house at 2 High Street is no longer designated as residential, so the objective does not apply to this property.

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 Detailed Assessment 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:	**DA4-196**
Date of issue	**February 2013**

Appraisal Response Comment Form

Contact Name:	
Contact Telephone number:	
Contact email address:	

Comments on appraisal/Further information:

Appendix 2: Quality Assurance / Quality Control Data

Diffusion Tubes

The diffusion tubes were supplied by ESG and the preparation method was 50% TEA in Acetone. The ESG lab was ranked as Satisfactory (the highest ranking). The bias adjustment factor used was 0.79 as found on the collocation study on the Review and Assessment Helpdesk website in March 2013.

The WASP report for ESG is shown below.

LAQM Helpdesk – September 2012

Summary of Laboratory Performance in WASP NO_2 Proficiency Testing Scheme for Rounds 111-118.

Reports are prepared by HSL for BV/NPL on behalf of Defra and the Devolved Administrations.

Background

The Workplace Analysis Scheme for Proficiency (WASP) is an independent analytical proficiency-testing (PT) scheme, operated by the Health and Safety Laboratory (HSL). WASP offers a number of test samples designed to test the proficiency of laboratories undertaking analysis of chemical pollutants in workplace and ambient air. One such sample is the WASP NO_2 test sample type that is distributed to participants in a quarterly basis.

WASP NO_2 PT forms an integral part of the UK NO_2 Network's QA/QC, and is a useful tool in assessing the analytical performance of laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). With consent from the participating laboratories, HSL provides summary proficiency testing data to the LAQM Helpdesk for hosting on the web-pages at http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html

The WASP scheme is operated independently by HSL. The cost of operating the WASP is borne by the laboratories, which pay an annual fee to HSL.

Defra and the Devolved Administrations advise that diffusion tubes used for Local Air Quality Management should be obtained from laboratories that have demonstrated satisfactory performance in the WASP scheme.

For this reason, although WASP remains an independent proficiency-testing scheme, laboratory performance in WASP is also assessed by NPL in conjunction with separate data from the Field Intercomparison Exercise carried out at Marylebone Road, central London. The information is used to help the laboratories to identify if they have problems and may assist devising measures to improve their performance. This forms part of work for Defra and the Devolved Administrations under the Local Air Quality Management Services Contract.

This information will be updated on a quarterly basis following completion of each WASP PT round. The posting of reports to schedule is dependent on the laboratories sending their results promptly to HSL.

WASP NO_2 PT Scheme overview

Purpose of scheme

The WASP performance testing scheme uses artificially spiked Palmes type diffusion tubes to test each participating laboratory's analytical performance on a quarterly basis. Such tubes are not designed to test other parts of the measurement system e.g. sampling. Every quarter, roughly January, April, July and October each year, each laboratory receives four diffusion tubes doped with an amount of nitrite, known to HSL, but not the participants. At least two of the tubes are usually duplicates, which enables precision, as well as accuracy, to be assessed. The masses of nitrite on the spiked tubes are different each quarter, and reflect the typical analytical range encountered in actual NO_2 ambient monitoring in the UK when using such diffusion tubes.

LAQM Helpdesk – September 2012

Preparation of test samples

Diffusion tubes are spiked using a working nitrite solution prepared from a stock solution. The concentration of this stock solution is initially assayed using a titrimetric procedure. All steps in the subsequent test sample production process, involving gravimetric and volumetric considerations, are undertaken using calibrated instruments employing traceable standards. As an additional cross check, 12 spiked Palmes tubes are picked at random from each spike loading level and submitted to a third party laboratory which is accredited to ISO 17025 to undertake this analysis using an ion chromatographic procedure.

In summary, the tube spiking precision is calculated to be better than 0.5 %, expressed as a standard deviation, and this is derived from repeat gravimetric checking of the pipette device used to spike the test samples. The calculated spike values, derived from titrimetric, gravimetric and volumetric considerations, are found to be typically within ± 3 % of results obtained by the third party laboratory using an ion chromatographic analytical procedure.

Scheme operation

The participants analyse the test samples and report the results to HSL. HSL assign a performance score to each laboratory's result, based on how far their results deviate from the reference values for each test samples. The reference values are best estimates of the levels of nitrite doped onto the test sample tubes. At the completion of the round, laboratories receive a report detailing how they have performed and how their results relate to those of their peers.

Performance scoring

Changes to Scoring System as reported on the LAQM website

The z-score system is used by HSL to assess the performance of laboratories participating in the WASP NO_2 scheme. Information on the interpretation of the z score is provided below.

It was proposed however that HSL would migrate to an alternative scoring scheme, which is commonly used elsewhere in their WASP scheme for other PT services. In anticipation of this proposed migration, laboratory summary performance, previously reported on the LAQM website, has been based upon this WASP scoring system.

HSL has decided, upon review, to maintain the z-score system, primarily due to the fact that it is a more readily understandable scoring system when viewed by a wider audience. Hence, going forward, laboratory summary performance, to be reported on the LAQM website, will be based upon this z-score system.

Key changes to the scoring system include:

- All monthly performance scores are reported and the previous WASP scoring system, which allowed the lowest performing round result (best 4 out of 5) to be dropped, is no longer used.

- The use of the z-score allows new entrants or those leaving the WASP scheme to be assessed as the score is not based on a rolling performance indicator.
- All results from UK laboratories participating in the WASP scheme are now reported (previously laboratories that did not demonstrate satisfactory performance were not included).

Z-Score performance

Performance scores are currently based upon the z-score statistic, a widely used scoring system employed in chemical proficiency testing. More detailed information is available at http://www.hsl.gov.uk/centres-of-excellence/proficiency-testing-schemes/wasp.aspx where the latest version of the WASP participant handbook (March 2012) can be downloaded.

The z-score, z_{score}, may be defined as:

$$z_{score} = \frac{(x_{lab} - \bar{x}_{ref})}{\sigma_{ref}}$$

where;

x_{lab} = participant result from a laboratory

$\bar{x}_{ref}$ = reference result (here it is the calculated nitrite spike value)

σ_{ref} = reference standard deviation (currently set at 7.5 % of $\bar{x}_{ref}$)

Performance score interpretation

A z_{score} may be interpreted as:

$z_{score} \leq \pm 2$ – satisfactory laboratory result

$z_{score} > \pm 2$ and $\leq \pm 3$ – questionable (warning) laboratory result

$z_{score} > \pm 3$ – unsatisfactory laboratory result

As a general rule of thumb, provided that a laboratory does not have systematic sources of bias in their laboratory measurement system, then on average, 19 out of every 20 z-scores should be $\leq \pm 2$. In this scheme each laboratory receives 4 test samples per round and therefore submits 4 z-scores per round. Hence over 5 rounds laboratories would receive 20 test samples and report 20 z –scores.

LAQM Helpdesk – September 2012

Assessing the performance of a laboratory

End users that avail of analytical services from laboratories should satisfy themselves that such laboratories meet their requirements. A number of factors ideally need to be considered including

- Expertise and skills of staff within the laboratory?
- Does the laboratory follow accepted measurement standards, guidance?
- Does the laboratory operate a robust internal quality control system?
- Is the laboratory third party accredited to relevant standards such as ISO 17025?
- Does the laboratory successfully participation in relevant external proficiency testing schemes?
- How good is their customer care (communication, turnaround times, pricing etc)?

Participation therefore in an external proficiency-testing scheme such as WASP represents but one factor in such considerations.

Participation in a single round of an external proficiency-testing scheme represents but a"snap-shot" in time of the analytical quality that a laboratory can produce. It is more intuitive therefore to consider performance over a number of rounds.

Following on from above, therefore over a rolling five round WASP window, one would expect that 95 % of laboratory results should be $\leq \pm 2$. If this percentage is substantially lower than 95 % for a particular laboratory, within this five round window, then one can conclude that the laboratory in question may have significant systematic sources of bias in their assay.

A summary of the WASP performance for each laboratory participating in the scheme is provided in Table 1. This table provides the percentage of results where the z-score was between -2 and +2 which is deemed to be a satisfactory z-score.

Contacts for HSL WASP scheme

Further specific information on the WASP NO_2 PT scheme is available from HSL by contacting the proficiency testing team at proficiency.testing@hsl.gov.uk or at 01246 218553. For general questions about the scheme within the context of wider LAQM activities please contact Nick Martin at NPL on 0208 943 7088 or nick.martin@npl.co.uk.

Table 1: Laboratory summary performance for WASP NO_2 PT rounds 111 - 118

The following table lists those UK laboratories undertaking LAQM activities that have participated in recent HSL WASP NO_2 PT rounds and the percentage (%) of results submitted which were subsequently determined to be satisfactory based upon a z-score of $\leq \pm 2$ as defined above.

WASP Round	WASP R111	WASP R112	WASP R113	WASP R114	WASP R115	WASP R116	WASP R117	WASP R118
Round conducted in the period	October – December 2010	January - March 2011	April - June 2011	July - September 2011	October - December 2011	January – March 2012	April – June 2012	July – September 2012
Aberdeen Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Bristol City Council [6]	100 %	100 %	100 %	100 %	100 %	-	-	-
Cardiff Scientific Services	75 %	100 %	100 %	100 %	75 %	100 %	100 %	100 %
Edinburgh Scientific Services	100 %	100 %	100 %	100 %	0 %	100 %	100 %	100 %
Environmental Services Group, Didcot (formerly Bureau Veritas Laboratories, Glasgow and Harwell Scientifics) [1] [2]	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Exova (formerly Clyde Analytical)	100 %	100 %	100 %	0 %	75 %	0 %	0 %	100 %
Glasgow Scientific Services	100 %	100 %	100 %	100 %	100 %	100 %	50 %	100 %
Gradko International [2]	100 %	100 %	100 %	100 %	37.5 %	100 %	100 %	100 %
Kent Scientific Services	100 %	50 %	100 %	100 %	75 %	75 %	100 %	75 %
Kirklees MBC	0 %	100 %	0 %	0 %	50 %	100 %	100 %	75 %
Lambeth Scientific Services	100 %	50 %	25 %	100 %	25 %	75 %	100 %	0 %
Lancashire County Analysts [3]	100 %	75 %	-	-	-	-	-	-
Milton Keynes Council	100 %	100 %	75 %	100 %	100 %	100 %	100 %	75 %
Northampton Borough Council	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Somerset Scientific Services [4]	-	-	-	-	100 %	100 %	100 %	100 %
South Yorkshire Air Quality Samplers	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Staffordshire County Council	100 %	100 %	100 %	100 %	100 %	100 %	100 %	75 %
Tayside Scientific Services (formerly Dundee CC)	100 %	100 %	100 %	100 %	100 %	100 %	100 %	100 %
Walsall MBC [5]	100 %	-	-	-	-	-	-	-
West Yorkshire Analytical Services	100 %	75 %	75 %	100 %	100 %	75 %	75 %	50 %

[1] Bureau Veritas laboratory and Harwell Scientific now part of ESG Group.
[2] Participant subscribes to two sets of test samples (2 x 4 test samples) in each WASP PT round.
[3] No longer involved in NO_2 diffusion tube measurements from R113.
[4] New participant from R115.
[5] No longer involved in NO_2 diffusion tube measurements from R112.
[6] No longer involved in NO_2 diffusion tube measurements from R116.

Automatic Monitoring

Due to good data capture rates in 2012, no short term to long term adjustments were necessary.

As particulate matter was monitoring using BAMs with heated inlets, raw PM10 data was corrected by multiplying by a factor of 1.21.

QA/QC of Automatic Monitoring

Site audits are conducted twice annually by AEA and their reports are below.

AEA

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Huntingdonshire District Council
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Huntingdon
Cambridgeshire
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Stewart Eaton
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T: 0870 190 6465
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W:http://www.airqualityengland.co.uk/

12 June 2012
Reference 20645084/R12

AIR MONITORING CALIBRATION CLUB
Ambient air monitoring station:
Pathfinder House
Date of Audit: 31 May 2012

Dear Toby,

This report documents the results of quality control audits to Huntingdonshire District Council's Pathfinder House 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 Pathfinder House ambient air monitoring station was audited on 31 May 2012. 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 efficient in the range of 95 -105%. The test shows the converter in this analyser to be 98.8% efficient at an NO_2 concentration of 252 ppb. This is a good result.

To ensure that the analyser was sampling only ambient air, the instrument was leak checked and found to be free of significant leaks. The analyser exhibited good steady state responses to both zero and span (calibration) gases with acceptable levels of variation (noise).

Based on the NO_x analyser response to the audit standard and audit zero, the concentration of the site NO cylinder has been 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:

Pathfinder House - NO cylinder 112836				
	NO_X (ppb)	% change from stated	NO (ppb)	% change from stated
Stated Concentration	456	---	456	---
Recalc. Concentration (31/05/12)	432	-5.3	433	-5.1

The results at the Pathfinder House Station indicate that the station NO cylinder concentrations are 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 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 AEA photometer and the national ozone standard is accounted for in our calculation of the analyser factor. This factor is quoted on the enclosed UKAS certificate of calibration.

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.

Thermo 5014i PM_{10} & $PM_{2.5}$ analysers
To ensure that true PM_{10} & $PM_{2.5}$ 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 flows on the PM_{10} and $PM_{2.5}$ instruments showed good agreement with the system flow set points.

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 analyser under test on the day of the audit as well as the measured total flow for the particulate analyser's.

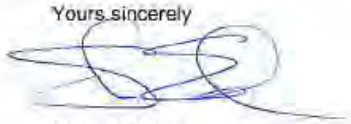
Implications for Data Management

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.

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 6509 or at ian.roberts@aeat.co.uk

Yours sincerely



Stewart Eaton
Air Pollution Monitoring

AEA

CERTIFICATE OF CALIBRATION

551.11 Harwell, Didcot, Oxfordshire OX11 0QJ. Telephone 0870 1906509 Fax 0870 1906318

UKAS CALIBRATION

0401

Approved Signatories: B. Stacey, S. Eaton, I. Roberts, D. Hector

Signed: Date: 3 July 12

Cert No: 02630

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

Description: Calibration factors for Huntingdonshire Pathfinder House air monitoring station.

AEA Identification Number: 20645084/June 2012

Site / Date Test Carried Out	Species	Analyser Serial No.	Zero Response[1]	Uncertainty (ppb)	Calibration Factor[2]	Uncertainty (%)	Converter eff. (%)[3]
Pathfinder House 31 May 2012	NO_x	426608503	1.3	2.7	1.005	3.8	98.8
	NO	426608503	0.8	2.6	1.006	3.9	na
	O_3	606815007	0.3	3.0	1.027	3.1	

Site / Date Test Carried Out	Species	Analyser Serial No.	Parameter	Specified Value	Measured Value	Deviation %
Pathfinder House 31 May 2012	PM_{10}	CM9510077	Main Flow[4]	16.67	16.49	-1.1
	$PM_{2.5}$	CM9510083	Main Flow[4]	16.67	16.57	-0.6

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.

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.

[1]The 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.

[2]The 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, SO_2, O_3 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:

Concentration = F (Output - 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

[3]Converter eff. is the measured efficiency of the NO_2 to NO converter within the oxides of nitrogen analyser under test.

[4]The 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.

AEA

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08 October 2012
Reference 20645084/R13

AIR MONITORING CALIBRATION CLUB
Ambient air monitoring station:
Pathfinder House
Date of Audit: 02 October 2012

Dear Toby,

This report documents the results of quality control audits to Huntingdonshire District Council's Pathfinder House 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 Pathfinder House ambient air monitoring station was audited on 02 October 2012. 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 test shows the converter in this analyser to be 99.1% efficient at an NO_2 concentration of 253 ppb. This is a good result.

To ensure that the analyser was sampling only ambient air, the instrument was leak checked and found to be free of significant leaks. The analyser exhibited good steady state responses to both zero and span (calibration) gases with acceptable levels of variation (noise).

Based on the NO_x analyser response to the audit standard and audit zero, the concentration of the site NO cylinder has been 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:

Pathfinder House - NO cylinder 112836				
	NO_x (ppb)	% change from stated	NO (ppb)	% change from stated
Stated Concentration	456	---	456	---
Recalc. Concentration (31/05/12)	432	-5.3	433	-5.1
Recalc. Concentration (02/10/12)	422	-7.4	420	-7.9

The results at the Pathfinder House Station indicate that the station NO cylinder concentrations are stable, within the definiton adopted above, and can therefore reliably be used to scale ambient data.

Ozone analyser
The ozone calibration was performed using a reference photometer deployed 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 AEA photometer and the national ozone standard is accounted for in our calculation of the analyser factor. This factor is quoted on the enclosed UKAS certificate of calibration.

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.

Thermo 5014i PM_{10} & $PM_{2.5}$ analysers
To ensure that true PM_{10} & $PM_{2.5}$ 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 flows on the PM_{10} and $PM_{2.5}$ instruments showed good agreement with the system flow set points.

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 analyser under test on the day of the audit as well as the measured total flow for the 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 Calibraton. If a deviation greater than the uncertainty associated with the respective factors exists, investigate the underlying reason and implement suitable data management actions.

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 6509 or at ian.roberts@aeat.co.uk

Yours sincerely

Ian Roberts
Air Pollution Monitoring

AEA

CERTIFICATE OF CALIBRATION

551-11 Harwell, Didcot, Oxfordshire OX11 0QJ. Telephone 0870 1906509 Fax 0870 1906318

UKAS CALIBRATION
0401

Approved Signatories: B. Stacey, S. Eaton, I. Roberts, D. Hector

Signed: Date: 09/10/2012

Cert No: 02679

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

Description: Calibration factors for Huntingdonshire Pathfinder House air monitoring station.

AEA Identification Number: 20645084/October 2012

Site / Date Test Carried Out	Species	Analyser Serial No	Zero Response[1]	Uncertainty (ppb)	Calibration Factor[2]	Uncertainty (%)	Converter eff. (%)[3]
Pathfinder House 02 October 2012	NO_x	426606503	0.24	2.6	1.127	3.5	99.1
	NO	426606503	0.06	2.6	1.127	3.5	na
	O_3	606615007	1.125	3.0	0.958	3.1	na

Site / Date Test Carried Out	Species	Analyser Serial No.	Parameter	Specified Value	Measured Value	Deviation %
Pathfinder House 02 October 2012	PM_{10}	CM9510077	Main Flow[4]	16.67	16.64	-0.2
	$PM_{2.5}$	CM9510083	Main Flow[4]	16.67	16.43	-1.4

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.

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.

[1]The 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.

[2]The 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, SO_2, O_3 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:

Concentration = F (Output - 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

[3]Converter eff. is the measured efficiency of the NO_2 to NO converter within the oxides of nitrogen analyser under test.

[6]The 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.

Appendix 3 Monthly Raw Diffusion Tube Results

Site Name	Address	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov/Dec
St Neots 1	The Paddocks	20.6	20.5	17.4	11.6	10.2	9.9	15.2	12	11.3	18.4	18.8
St Neots 2	The High Street	30.5	29.6	23.8	20.1	23	22	21.9	23.2	24.2	22.8	20.9
St Neots 3	Avenue Road	19.2	15	14.8	10	7.6	8	7.3	8.4	10	14.7	19.6
St Neots 4	Harland Road	15.8	16.6	13.5	7.3	7.3	8.3	8.7	8.2	9.6	4.1	16
St Neots 5	The High Street	35.6	30.3	29.1	22.1	19.4	15.7		17.8	18.4	23.7	23.1
Eynesbury	17 Arundel Cres	20.6	20.8	17.7	13.5	10	11.1	11.5	11.3	12.7	16.6	16.6
Eaton Socen	5 Duchess Close	25.6	24.4	15.6	15.5	15.5	13.9	17	14.1	17.8	20.6	23.6
Southoe	2 Lees Lane	16.2	15.4	16.2	13.3	11.4	9.1	9.2	9.2	9.7	12.4	12.9
Buckden	Taylors Lane	17.2	19.3	15.2	10.7	9.8	12.1	9.4	8.6	12.2	13.5	18
Buckden 2	4 High Street	18.6	0.7	24.7	12.5	12.6	13.7	15	17.1	19.4	15.1	20.1
Brampton 1	Laws Crescent	20.7	22	23.6	18.3	17	12.9	15	12.6	15.8	18.3	19.8
Brampton 2	7 Hansell Road		17.6	13.7	8.2	8.5	9	8.7	9.5		11.5	10.8
Brampton 3	Grafham Rd Cot	13.2	14.9	10.9	13.5	10.1	7.7	7.2	9.3	8.5	13.8	14.6
Brampton 4	RAF Brampton	15.8	16.1	8.7	6.8	6.7	6.9	9.7	7.1	3.9	10.9	11.3
Catworth	1 Thrapston Rd	19.5	18.4	15.3	10.2	10.3	13.6	13.8	14.3	10.8	27.4	11.4
Alconbury	Manor Lane	18	18.4			10.7	10.8	10.1	10.6	7.4	23.2	16.1
Sawtry	Fen Lane	16.3	16.9	15.9	11.8	11.5	10.4	8.3	9.4	6.1	22.4	14.3
Stibbington	7 Great North Rd	26	22.1	21.3	13	13.7	19.1	17.6	20.1	13.2		
Huntingdon 1	17 Nursery Rd	21.8	21.1	16.2			14	12.5	13.2	21.2	10.1	15.3
Huntingdon 2	George Street	34.9	33.8	28.6	27.5	24	29.4	32.9	28.5	29.2	27.7	28.2
Huntingdon 3	St Peters Road	27	16.8	20.3	14.1	14	14.6	14.9	16.4	19.4	22.2	24
Huntingdon 4	Blethan Drive	26.5	24.6	20.1	17.5	14	16.5	16.9	16.6	17.2	23	19.3
Huntingdon 5	Tennis Court Av	24.1	23.6	15.4	10.4	11.9	15.1	15.8	17.3	29.7	10.7	18.8
Huntingdon 6	Lodge Close	15.2	16.3	14.5	13.7	13.1	9.6	15.4	9.4	10.5	15.2	14
Godmanchester	Cambridge Villas	18.1	21.3	17.7	16.6	22.3	11.5	11.1	11	14.1	17.1	16.2
PFH1	Pathfinder Hse	34.7	33.2	33.2	29.2	32.5	34.5	43.7	43	27.3	26.5	21.9
PFH2	Pathfinder Hse	34.2	34.5	35.3	30.6	23.7	32.1	40.6	43.9	19.6	35.4	27.3
PFH3	Pathfinder Hse	36.1	34.9	29.3	31.6	19.5	40.6	28.6	43.5	26.9	38	24.7
Fenstanton 1	Hilton Road	29.9	26.5	25.6	20.5	17.6	22.2	21.8	19.2	24.7	23.7	26.8

Site Name	Address	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov/Dec
Fenstanton 2	20 Conington Rd	22.3	17.5	17.1	14.5	12.5	15.2	14.5	13.7	16.8	14.4	20
St Ives	Ramsey Road	19.3	16.3	11.8	9.5	8.5	8.5	8.8	9.9	14.7	13.8	16.4
Ramsey	Blenheim Road	14.8	16.1	13.2	10	9.2	8.3	7.3	8.7	10.1	14.6	13
Buckden 3	34 High Street		25.9	20.2	17.7	18.2	22.3	16.5	21.4	22	21.9	21.4
Buckden 4	6 Perry Road	18.8	18.3	18.5	19.1	11.6	15.1	11.3	13.8	13.8	16.9	15.7

Local Authority:	**Huntingdonshire District Council**
Reference:	**APPR-PRG-227B-13**
Date of issue	**May 2013**

Action Plan Progress Report Appraisal Report

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.

The Review and Assessment Progress Report includes the majority of the minimum requirements for reporting on monitoring and new local developments. It covers **some of the recommended additional elements including** information on recent planning applications and the Local Development Framework.

On the basis of the information provided by the local authority, the report is **accepted for monitoring data and new local developments**.

The report also includes an update on progress of the Air Quality Action Plan for Huntingdon. Progress on the five measures in the plan have been limited, for example on the A14 upgrade and development of air quality planning policies. Although this section is limited, the update is also **accepted.**

Following the completion of this report, Huntingdonshire District Council should submit a Progress Report by the end of April 2014.

Local Authority:	**Huntingdonshire District Council**
Reference:	**APPR-PRG-227B-13**
Date of issue	**May 2013**

Commentary

The report well structure and covers all of the minimum requirements and the majority 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. It is recommended that the local authority note these items for future reporting purposes and amend their current report where required.

1. Page 17 states under the section on automatic monitoring data states *"No exceedences of objectives were observed during 2012."* However, the annual mean concentration measured at the automatic monitoring site was 55.5 $\mu g/m^3$ which is above the objective. This sentence should be revised or removed.

2. It is noted that exceedences of the 24 hourly PM_{10} objective were recorded in 2012. The local authority has analysed the data in detail and concluded that the reasons were likely due to the wind conditions and sources from domestic coal burning. The local authority should continue to monitor PM_{10} during 2013 and report on findings in their next Progress Report. It is recommended that if exceedences continue, then they should investigate this source further as part of a Detailed Assessment.

3. The section on progress on the action plan is brief and little or no progress has been made on some measures, however the reasons for these are provided in the report. As annual mean NO_2 concentrations in Huntingdon remain above the objective, the local authority should consider how best to take the action plan forward, for example whether they need to consider alternative measures and revise the action plan.

4. Table 8.1 provides a summary of the changes in traffic flow following the introduction of the A14 Guided Bus way. The data show that traffic flows have declined on all sections of the road. The local authority should consider the relevance of this decline to air quality concentrations as it is noted that NO_2 concentrations at the automatic monitoring site close to the A14 increased in 2012.

5. It is recommended that the local authority should consider providing an update on action plan progress in a tabular format similar to that provided in the Guidance in future progress reports.

Local Authority:	**Huntingdonshire District Council**
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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:	**APPR-PRG-227B-13**
Date of issue	**May 2013**

Appraisal Response Comment Form

Contact Name:	
Contact Telephone number:	
Contact email address:	

Comments on appraisal/Further information:

Area 2C
Nobel House
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Telephone 020 7238 1676
Website www.defra.gov.uk

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

Department for Environment
Food and Rural Affairs

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

22 September 2014

Dear Mr Lewis

LOCAL AIR QUALITY MANAGEMENT: 2013 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 comments on the report attached.

The report provides update with respect to air quality management in the Borough. The Council has examined the results from monitoring. The report states that there were no exceedences of any objectives outside of the existing AQMAs. The Council has concluded that the reasons for the 24 hour PM_{10} exceedences recorded were likely due to the wind conditions and sources from domestic coal burning. We recommend that the Council continue to monitor PM_{10} during 2013 and report findings in the next Progress Report. If exceedences continue then the council should consider investigating this source further as part of a Detailed Assessment.

The only exceedences of the annual mean NO_2 objective were within the Huntingdon AQMA. The report states that the NO_2 concentrations in Laws Crescent Brampton, the monitoring indicator for the Brampton AQMA has been consistently well below the annual mean objective since 2010. The report further states that if monitoring results remain low in 2013 then further studies to support a possible revocation will be considered. Table 8.1 of the Progress Report provides a summary of the changes in traffic flow following introduction of the A14 Guided Bus way. The data show that traffic flows have declined on all sections of the road. The Council may wish to consider the relevance of the decline to air quality concentrations as the NO_2 concentrations at the automatic monitoring site close to the A14 increased in 2012.

The Progress Report includes a brief update on progress of the Air Quality Action Plan. It is noted that little or no progress has been made on some of the measures. Reasons for these are provided in the report. The Council may wish to consider how to take the Action Plan forward including whether alternative measures should be considered.

On the basis of the evidence provided the conclusions of the Progress Report are accepted. We look forward to receiving the Council's 2014 Progress Report.

Yours sincerely

Tutu Aluko
RESOURCE ATMOSPHERE AND SUSTAINABILITY