2010 Air Quality Progress Report for *Slough Borough Council*

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

April 2010

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Report Reference number	AEAT/ENV/R/3153
Date	March 2011

Executive Summary

Slough Borough Council has undertaken an Air Quality Progress Report as required by the Air Quality Review and Assessment process. 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.

Analysis of NO_2 data for 2009, presented in this report, shows that within the existing AQMA there continues to be exceedances of the AQS objectives. There are also exceedances within the area that Slough is currently in the process of declaring a third and fourth AQMA. There is an exceedance measured at two locations, one automatic site and one diffusion tube.

The automatic site (SHL4 - Slough Salt Hill) is not positioned at a relevant receptor, but indicates that there could be a possible exceedence at nearby residential receptors although there is a large amount of uncertainty. It is therefore recommended that following assessment of the 2010 monitoring results further diffusion tube monitoring is undertaken if required.

The diffusion tube site (SL4 Windsor Road 1N) is also outside of the existing or proposed AQMAs, but this location is not near any relevant receptors for the annual NO_2 AQS objective.

Therefore, Slough Borough Council is not required to proceed to a Detailed Assessment for NO_2.

Assessment of the trend of NO_2 measurements from both automatic and non-automatic monitoring, indicate that annual mean NO_2 concentrations have remained relatively unchanged.

Analysis of PM_{10} data for 2009 shows that there continues to be no exceedance of AQS objectives for this pollutant, therefore Slough Borough Council is not required to proceed to a Detailed Assessment for PM_{10}.

Monitored Benzene concentrations also remain below the AQS objective; therefore Slough Borough Council is not required to proceed to a Detailed Assessment for this pollutant.

A review of traffic, commercial, industrial and domestic developments has identified that there are no new or existing developments that are likely to lead to a new exceedance of the AQS objectives for any pollutant.

The review of new monitoring data and new developments available for 2009 and contained within this report concludes that Slough Borough Council is not required to proceed to a Detailed Assessment and that the existing and proposed AQMAs are still required.

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1 Introduction

1.1 Description of Local Authority Area

Slough is situated in Berkshire, in the south–east of England, close to the West of London. The borough is an urban area located in the Thames Valley and is surrounded by countryside, which forms part of the Metropolitan Green Belt. Slough has excellent communication links and is in close proximity to Heathrow airport and the Greater London conurbation. Slough is integrated into the heart of the UK transport and communications network. It is located between the M4, M40 and the M25. There is also a rail link into the centre of London, with onward links from there that go to the rest of the country. The town in an important commercial centre and includes both industrial and residential areas.

1.2 Purpose of Progress Report

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

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

Pollutant	Concentration	Measured as	Date to be achieved by
Benzene	16.25 $\mu g/m^3$	Running annual mean	31.12.2003
	5.00 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

1.4.1 First Round of Review and Assessment

Slough Borough Council completed their first round of Review and Assessments in 1998/99 and 2002/03 and concluded that emissions of carbon monoxide, benzene, 1,3-butadiene, lead and sulphur dioxide and there was therefore no requirement to proceed to a Detailed Assessment for these substances. Emissions of PM_{10} were assessed in more detail but no areas were anticipated to exceed the AQS Objective for annual mean PM_{10} for 2004. When considering nitrogen dioxide, an area alongside the M25 in Poyle was identified as likely to exceed the AQS Objective of annual mean NO_2 (40 $\mu g/m^3$). However, when considering the exceedance area, there were no areas of relevant public exposure and hence it was recommended that Slough Borough Council did not declare any Air Quality Management Areas (AQMAs). Although the council proposed not to declare an AQMA, as part of their commitment to sustainable development and improving air quality, an air quality strategy was produced.

1.4.2 Second Round of Review and Assessment

Updating and Screening Assessment (USA), 2003

Slough Borough Council carried out an Updating and Screening Assessment (USA) in 2003. It concluded that the AQS Objectives for CO, benzene and 1,3 butadiene would be achieved in all areas of Slough. The AQS Objectives for annual mean concentrations of lead and SO_2, along with the AQS Objective for hourly mean concentrations of NO_2 and the AQS Objective for 24-hour mean concentrations of PM_{10}, were predicted to be achieved in most areas. However, it was recommended that a future study of areas surrounding the new S. Grundon waste facility (when operational in 2008) was undertaken with respect to these pollutants. In terms of the annual mean objectives for NO_2 and PM_{10}, the 2003 USA predicted that these would be exceeded close to motorways, major roads and junctions and hence, it recommended that a Detailed Assessment be conducted for annual mean NO_2 and annual mean and 24 hour mean PM_{10} for five areas in Slough, located primarily around busy roads and junctions where is relevant public exposure.

Further Assessment, 2004

The first Further Assessment (2004*)* provided a focused consideration of road traffic in the Borough and provided source contribution estimates for major roads and motorways, and estimated percentage improvements required to meet air quality objectives. The major causes of air quality exceedances were found to relate mainly to road traffic. In most cases the majority of road contributions came from motorways, however, there were instances when major roads were found to be the main source.

Progress Report, 2005

Exceedances of the annual mean objective for NO_2 were predicted at several locations in Slough. As a result, Slough Borough Council declared two Air Quality Management Areas (AQMAs) in June 2005, which relate primarily to stretches of the M4 (M4 AQMA) and the A4 (Brands Hill AQMA). The Slough Local Transport Plan 2006-2011 (March 2006) contains the air quality action plan for the M4, A4 and also general actions for the Town Centre to

improve air quality. The designation of the two AQMAs was supported by the conclusions reached in the first Progress Report (2005).

Further Assessment, 2005

The Further Assessment (2005) identified a number of sites showing exceedances of the NO_2 annual mean objective that were not currently in the designated Air quality Management Areas: Tuns Lane, Lansdowne Avenue and Princess Street. These sites are close to the A4 in the Town Centre. However, the 2005 Further Assessment concluded that there was no requirement to declare an AQMA in the Town Centre along the A4 main road as the Tuns Road monitoring site was affected by construction works close by and the other two sites were borderline when adjusted to the nearest public exposure.

1.4.3 Third Round of Review and Assessment

Updating and Screening Assessment (USA), 2006

Based on the findings of the 2005 Further Assessment the Updating and Screening Assessment (2006), recommended that the new, 2007, NO_2 monitoring sites in the Town Centre (placed where there was relevant public exposure) and the existing sites be closely and regularly reviewed to highlight quickly any need to declare an AQMA in the Town Centre.

Progress Report, 2007

The Progress Report (2007) highlighted the fact that NO_2 concentrations at Town Centre sites found to be in exceedance of the NO_2 annual mean objective within the Further Assessment (2005), remained the same in 2006. It was suggested that four new diffusion tube sites: namely, Wexham Road, Wellington Street – Stratfield, Blair Road – Victoria Court and Wellesley Road, would help to verify these town centre concentrations during 2007. The 2007 Progress Report recommended that the situation in the Town Centre should be reconsidered in detail in the next round of Review and Assessment.

Detailed Assessment, 2008

The recent Detailed Assessment (2008) considered NO_x and NO_2 concentrations in the Town Centre of Slough; assessing the 2007 monitoring data from existing and new diffusion tube sites as well as undertaking modelling of NO_x and NO_2 in order to assess the likelihood of the annual mean NO_2 Air Quality Strategy Objective (40 $\mu g\ m^{-3}$) being exceeded in the area. It recommended that Slough Borough Council should consider the declaration of an AQMA along Tuns Lane from the junction with the M4 up to the junction with Bath Road. Slough Borough Council was also advised to consider declaring an AQMA in the Town Centre along the A4 stretching from William Street roundabout to the Uxbridge Road roundabout.

It also recommended that any future developments in the vicinity of those areas that are likely to impact levels of road traffic should be carefully considered, particularly in the context of the 'Heart of Slough' project that would bring about changes to the Town Centre infrastructure. In addition, it was recommended that the impact on annual mean NO_2

concentrations as a result of the Great Western Railway line running through the Town Centre should be assessed further and monitored carefully in the future.

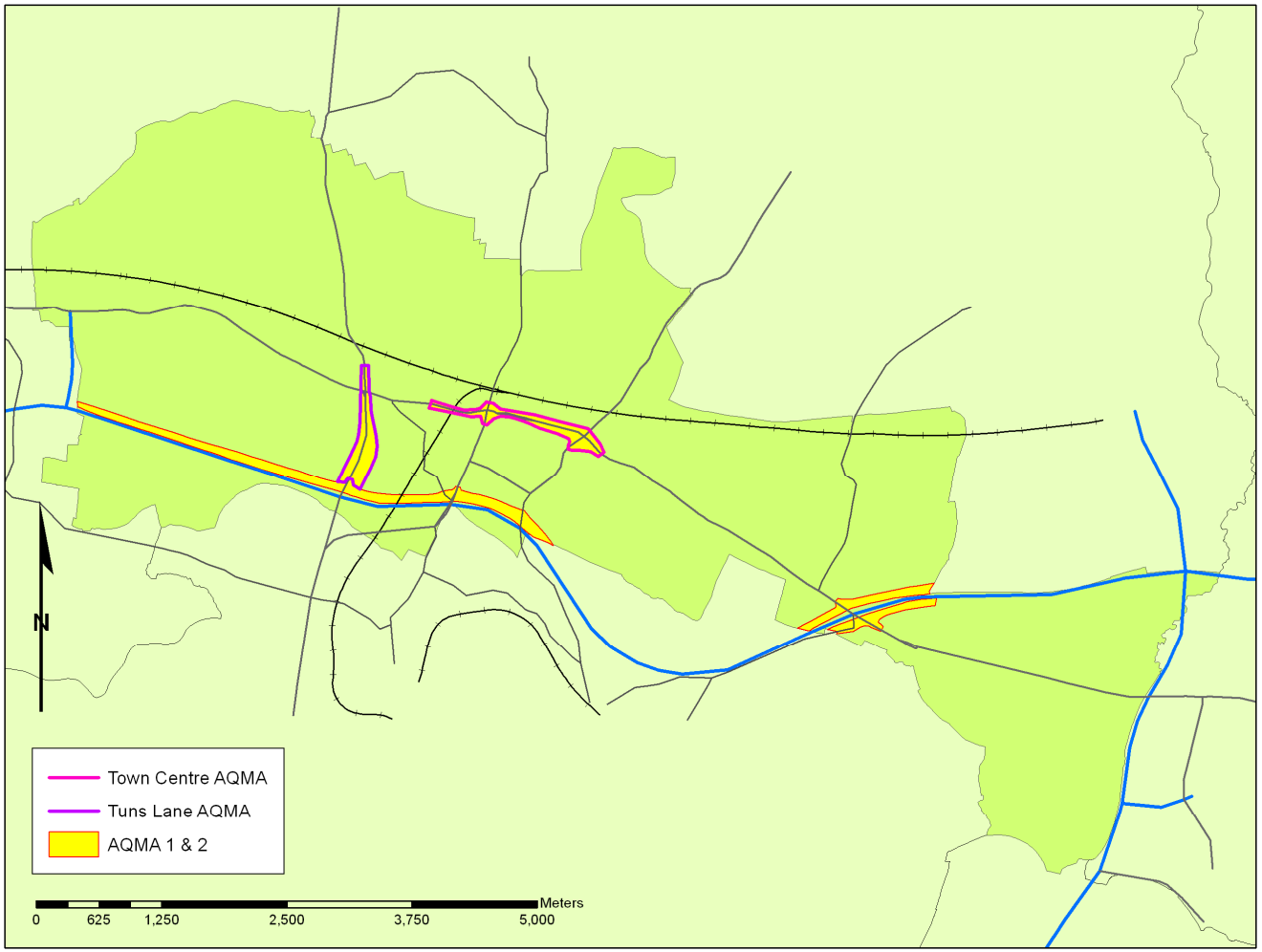
Updating and Screening Assessment, 2009
Monitoring in 2008 identified exceedances of the annual mean NO_2 objective Chalvey automatic monitoring site and at seven diffusion tube monitoring locations, two of which where newly identified exceedances. Five exceedances were within the existing AQMA's, the other two will be within the new Town Centre AQMAs, therefore justifying the existence of all the borough's AQMA's.

Based on 2008 monitoring results the 2009 USA recommended, as a result of updated guidance, that the council should proceed to a Detailed Assessment of NO_2 emission at residential properties that are located within 30m of the Great Western Line. The report also concluded that the council should maintain monitoring at existing sites within the borough and to implement the measures outlined in the Air Quality Action Plan.

AQMA Declaration
Following the 2008 Detailed Assessment Slough Borough Council are currently in the process of implementing a third and fourth AQMA area.

It was recommended that Slough Borough Council should consider the declaration of an AQMA along Tuns Lane from the junction with the M4 up to the junction with Bath Road. Slough Borough Council were also advised to consider declaring an AQMA in the Town Centre along the A4 stretching from William Street roundabout to the Uxbridge Road roundabout.

Figure 1.1 Map of AQMA Boundaries



2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

Slough Borough Council currently undertakes ambient monitoring of the following pollutants covered by the AQS:

- Nitrogen dioxide (NO_2)
- Particulate matter (PM_{10})
- Benzene

Slough Borough Council also monitors $PM_{2.5}$ and PM_1. While these particulate size fractions are not currently included in the Air Quality Regulations for England and Wales, they may become part of future Regulations.

Slough Borough Council continues to monitor radiation as well as continuing with its Carbon Management Plan.

2.1.1 Automatic Monitoring Sites

Five automatic monitoring sites are now operational in the borough. These sites comprise four NO_x/NO_2 analysers, two TEOM PM_{10} analysers, three Osiris PM monitors and one BAM PM monitor.

One site, Slough Lakeside 2, is located at Lakeside Road, Colnbrook. This is north of the new clinical incinerator and the energy from waste plant (EfW). Nitrogen dioxide is monitored and as well as a BAM there is an Osiris PM monitor located at this site.

These sites are not affiliated to Defra's Automatic Urban and Rural Monitoring Network (AURN), but are part of the National Automatic Monitoring Calibration Club, whereby monitoring data are managed to the same procedures and standards as AURN sites.

Table 2.1 & Figure 2.1 below provide further details about the current automatic monitoring sites within the borough and their location.

Figure 2.1 Map of Automatic Monitoring Sites

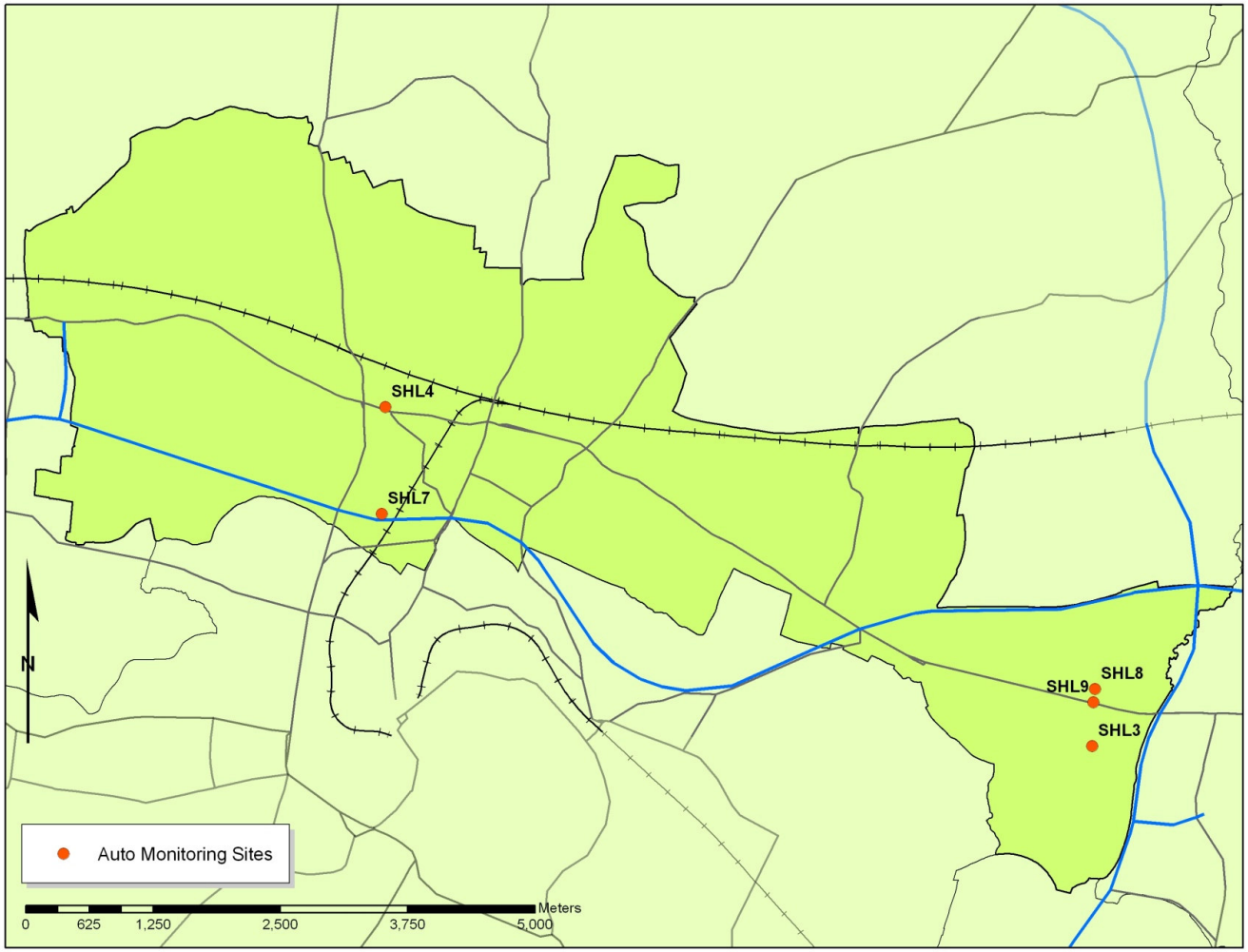


Table 2.1 Details of Automatic Monitoring Sites

Site Code	Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
SHL4	Salt Hill (Slough town centre, A4)	Intermediate (Residential)	496599	180156	NO_x, NO_2 and PM_{10} (TEOM)	N	Y	10m	Y
SHL3	Slough Colnbrook (Pippins)	Urban Background (Residential)	503542	176827	NO_x, NO_2 PM_{10}, $PM_{2.5}$ & $PM_{1.}$ (TEOM and Osiris)	N	Y	>50m	N
SHL7	Slough Chalvey, M4	Intermediate- Motorway (Residential)	496562	179109	NO_x and NO_2	Y (M4 AQMA)	Y	45m from M4	Y
SHL9	Slough Colnbrook (Lakeside, Tan House Farm)	Urban Background (Industrial)	503551	177258	PM_{10}, $PM_{2.5}$ & $PM_{1.0}$ (Osiris)	N	Y	>50m	N
SHL8	Slough Lakeside 2 (run by Lakeside Energy from Waste Ltd)	Urban Background (Industrial)	503569	177385	NOx, NO_2 and PM_{10} (BAM) PM_{10}, $PM_{2.5}$ and PM_1 (Co-located Osiris)	N	N	10m	N

2.1.2 Non-Automatic Monitoring

Diffusion tube monitoring of NO_2 and benzene is carried out at a number of locations in the borough. NO_2 monitoring is currently undertaken at thirty six sites across the borough. For 2008, two newly established diffusion tubes have been installed at Rogans, close to the Colnbrook bypass and Yew Tree Road, in the Town Centre, and one new one in 2009 in a residential area at India Road close to the main railway. Benzene monitoring is currently undertaken at four sites across the borough, with monitoring now also being undertaken at Spackmans Way.

In January 2010 the diffusion tube supplier was changed from Gradko to ESG. They are still prepared with 50% v/v TEA in acetone.

Details of the diffusion tube monitoring locations are provided in Table 2.2 and Figure 2.2. The locations include kerbside, intermediate and urban background sites.

Figure 2.2 Map of Non-Automatic Monitoring Sites

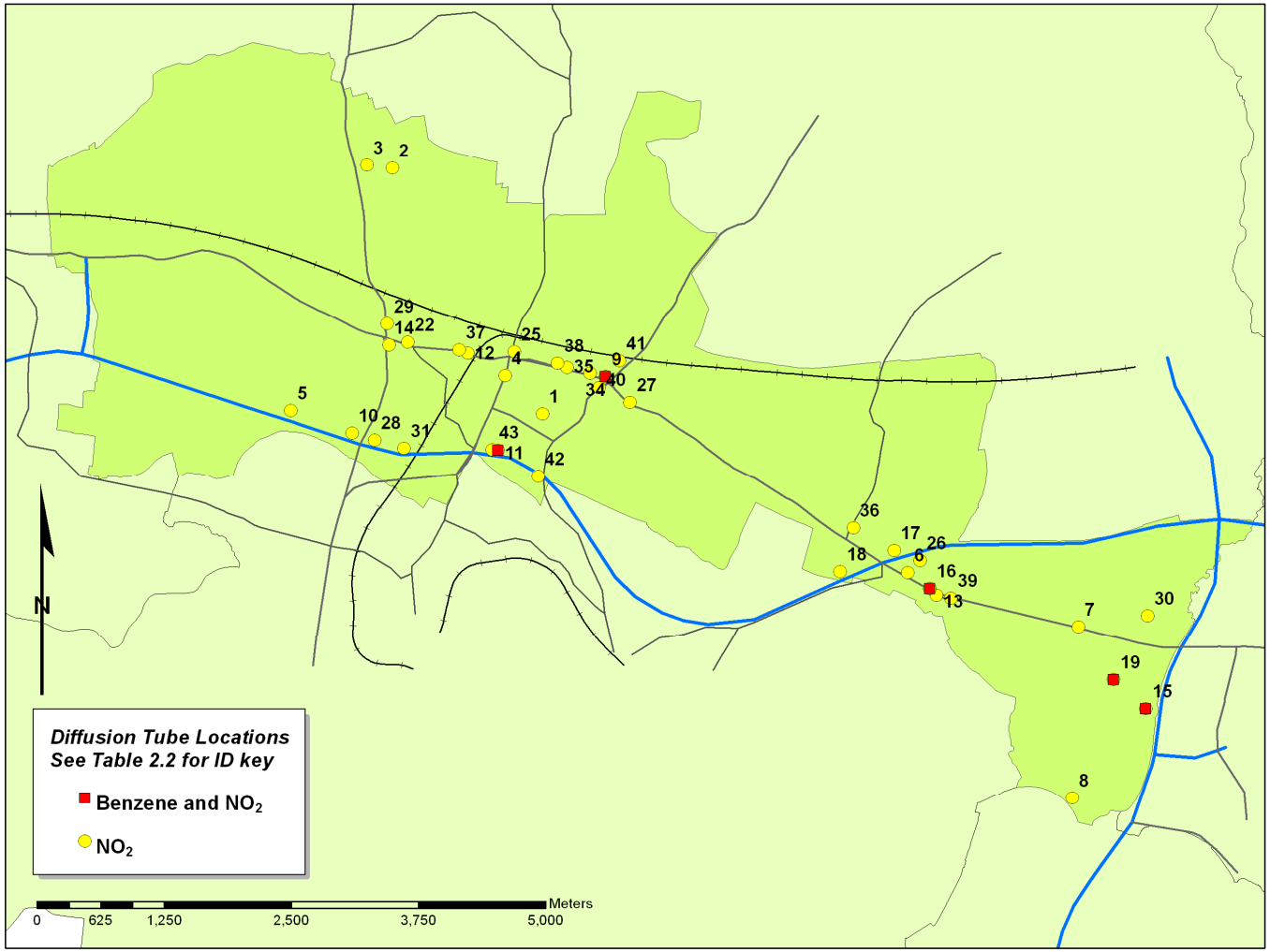


Table 2.2 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case Location?
1	Hencroft Street 6N	UB	497925	179450	NO_2	N	Y	N/A	Y
2	Kent Avenue 5N	UB	496450	181875	NO_2	N	Y	N/A	Y
3	Essex Avenue	I	496200	181900	NO_2	N	Y	1-5m	Y
4	Windsor Road 1N	K	497557	179825	NO_2	N	Y	1-5m	Y
5	Mitchell Close	I(M)	495450	179480	NO_2	Y	Y	90m	Y
6	Tweed Road	I	501518	177882	NO_2	Y	Y	15m	Y
7	Colnbrook By-pass	K	503196	177349	NO_2	N	N	5m	N
8	Horton Road (Caravan Park)	I	503136	175654	NO_2	N	Y	17m	Y
9	Princess Street[#]	I	498541	179815	NO_2, Benzene	N	Y	17m	Y
10	Paxton Avenue	I(M)	496050	179258	NO_2	Y	Y	66m	Y
11	Winvale[#]	K(M)	497488	179090	NO_2, Benzene	Y	Y	15m	Y
12	Lansdowne Avenue	I	497188	180050	NO_2	N	Y	14m	Y
13	Brands Hill	K	501798	177659	NO_2	Y	Y	3m	Y
14	Tuns Lane	I	496416	180126	NO_2	N	Y	20m	Y
15	Elbow Meadows[#]	UB(M)	503856	176538	NO_2, Benzene	N	Y	119m	Y
16	London Road[#]	K	501733	177725	NO_2, Benzene	Y	Y	3m	Y
17	Grampian Way	UB	501382	178101	NO_2	Y	Y	51m	Y
18	Ditton Road	I(M)	500851	177890	NO_2	Y	Y	60m	Y
19 - 21	**Pippins *[#]**	UB	503542	176827	NO_2, Benzene	N	Y	N/A	Y
22 - 24	**Salt Hill ***	I	496599	180156	NO_2	N	Y	10m	Y
25	William Street roundabout	K	497646	180064	NO_2	N	N	9m	N
26	Torridge Road	I (M)	501637	177999	NO_2	Y	Y	95m	Y
27	Sussex Place	K	498784	179560	NO_2	N	Y	6m	Y
28	Spackmans Way	I(M)	496272	179187	NO_2	Y	Y	40m	Y
29	Farnham Road (2)	I	496397	180341	NO_2	N	Y	20m	Y
30	Lakeside Road *	UB	503877	177459	NO_2	N	N	N/A	N

Site ID	Site Name	Site Type	OS Grid Ref		Pollutants Monitored	In AQMA?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case Location?
31-33	**Chalvey (CAS) ***	I(M)	496562	179109	NO_2	Y	Y	45m	Y
34	Wexham Road	K	498394	179849	NO_2	N	Y	4m	Y
35	Wellington Street - Stratfield	I	498168	179907	NO_2	N	Y	13m	Y
36	Shelley Close	I	500981	178319	NO_2	N	Y	20m	Y
37	Blair Road- Victoria Court	I	497105	180081	NO_2	N	Y	13m	Y
38	Wellesley Road	I	498071	179949	NO_2	N	Y	12m	Y
39	Rogans (Colnbrook by pass) §	K	501941	177633	NO_2	Y	Y	5m	Y
40	Yew Tree Road §	K	498483	179707	NO_2	N	Y	3m	Y
41	India Road	R	498681	179972	NO_2	N	Y	2m	Y
43	The Myrke	(M)	497881	178831	NO_2	N	Y	18m	Y
44	Winvale	(M)	497430	179094	NO_2	Y	N	21m	Y

* Diffusion tube co-located with automatic monitor
\# NO_2 Diffusion tube co-located with Benzene Diffusion Tube
§ New for 2008
Bold Triplicate diffusion tubes

K	Kerbside	1.5m from the kerb of a busy road - residential
I	Intermediate	Between 20-30m from a busy road - residential
UB	Urban Background	More than 50m from a busy road - residential
K(M)	Kerbside Motorway	Between 20-50m from Motorway Centre - residential
I(M)	Intermediate Motorway	Between 50-100m from Motorway centre - residential
UB(M)	Urban Background Motorway	Between 100-200m from Motorway centre - residential

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 NO_2

Automatic Monitoring Data

Table 2.3a presents the annual mean concentrations of NO_2 for 2007, 2008 and 2009 at each of the automatic monitoring sites within Slough. In 2009 the annual mean NO_2 objective is exceeded at 2 sites with in the Borough; SHL4 Salt Hill (40.1 µg m^{-3}) and SHL7 Slough Chalvey M4 (44.4 µg m^{-3}).

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

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2009 %	Annual mean concentrations (µg/m^3)		
				2007	2008	2009
SHL4	Salt Hill (Slough Town Centre A4)	N	90.3	37	39*	**40.1**
SHL3	Slough Colnbrook (Pippins)	N	95.7	33	31	39.24
SHL7	Slough Chalvey M4	Y	88.1	**51***	**44**	**44.4**
SHL8	Slough Lakeside 2	N	96.5	-	36**	35.45

* Adjusted due to poor data capture

** Data may be subject to further quality control

Red Measured concentration exceeds the AQS objective

SHL7 Slough Chalvey site is within the current M4 AQMA. There is no requirement to progress to a Detailed Assessment for this location is it is within the existing AQMA.

The automatic sampler SHL4 Salt Hill is not within an existing AQMA. The site is not positioned at a relevant receptor, although there are residential receptors as close to Bath road and Windmill road as the monitoring location. This indicates that there could be a possible exceedence at receptors along Bath road although there is a large amount of uncertainty. It is therefore recommended that following assessment of the 2010 monitoring results further diffusion tube monitoring is undertaken if required.

Figure 2.3 plots the trend in annual mean NO_2 concentrations at automatic Monitoring Sites in Slough since 2000. This indicates that the overall trend across these monitoring stations has remained steady.

Figure 2.3 Trends in Annual Mean NO_2 Concentration Measured at Automatic Monitoring Sites

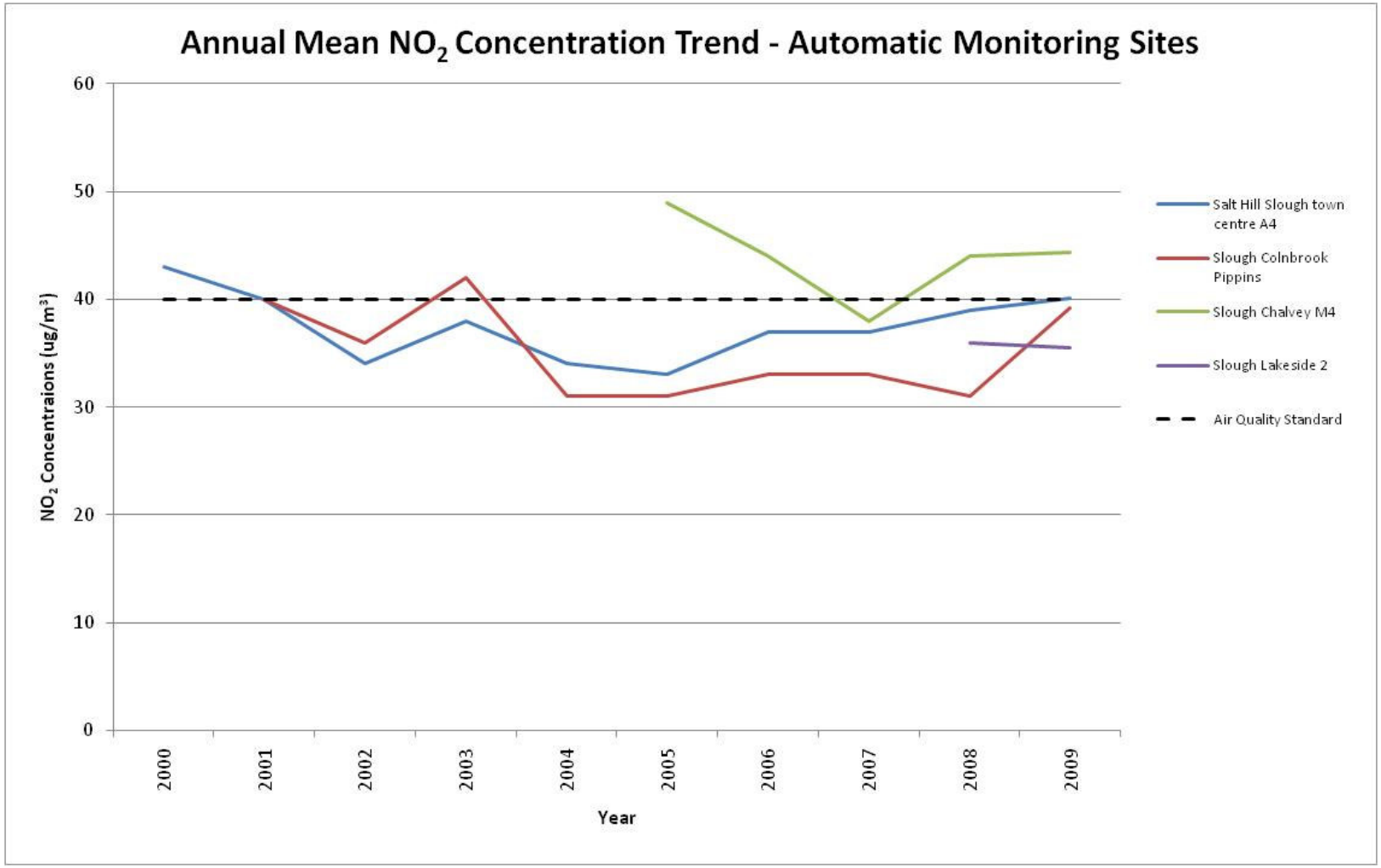


Table 2.3b presents information on all 1-hourly mean NO_2 objective at the continuous automatic monitoring sites over the last 3 years (see also Appendix B). In 2009, the hourly objective was achieved at all sites. At Slough Chalvey (SHL&) there was one exceedance of the hourly mean, this remains well within the air quality objective of 18 exceedances. There were no exceedances of the hourly NO_2 objective at the other automatic monitoring sites in the borough.

Table 2.3b Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture for 2009 %	Number of Exceedances of hourly mean (200 µg/m^3)		
				2007	2008	2009
SHL4	Salt Hill (Slough Town Centre A4)	N	90.3	0	0 (111)*	0
SHL3	Slough Colnbrook (Pippins)	N	95.7	0	0	0
SHL7	Slough Chalvey M4	Y	88.1	0 (243)*	13	1 (128)*
SHL8	Slough Lakeside 2	N	96.9	-	0**	0

* Data capture less than 90%, 99.8th percentile of hourly mean provided in brackets

** Data are provisional and may be subject to further quality control

Red Measured concentration exceeds the AQS objective

Diffusion Tube Monitoring Data

Table 2.4 contains the ambient diffusion tube monitoring data sites within the Borough for the last 2 years. The table shows the estimated annual mean concentrations following adjustment for bias.

Bias Adjustment

The diffusion tubes deployed by the Slough Borough Council's are supplied and analysed by Gradko using a preparation mixture of 50% triethanolamine (TEA) in acetone. Gradko comply with the WASP scheme and achieved 'good' performance based on old and new criteria for the October 2008 – October 2009 period. In January 2010 the supplier was changed to ESG. They are still prepared with 50% v/v TEA in acetone.

Diffusion tubes may systematically under or over-read NO_2 concentrations when compared to reference chemiluminescence's analyser (automatic monitoring). This is described as "bias" and can be corrected for to improve the accuracy of diffusion tube results, using a suitable bias-adjustment factor. A bias adjustment factor of 0.98 was calculated based on an average of the bias adjustment factors from the three co-locations sites with in the Borough: Salt Hill (0.97), Slough Colnbrook (Pippins) (1.00) and Slough Chalvey M4 (0.98). Details of this calculation for 2009 are available in Appendix 1.

The two Highways Agency diffusion tube sites with in the Borough are diffusion tubes supplied and analysed by Gradko using a preparation mixture of 20% triethanolamine (TEA) in water.
As a there are no co-located diffusion tubes with in the Borough that use the preparation mixture of 20% TEA in water the national bias adjustment factor of 0.90, based on an average of 33 co-location studies across the UK, was applied for these sites.

Table 2.4 Results of NO_2 Diffusion Tubes

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2009 %	Annual mean concentrations (µg/m^3)		
				2007	2008	2009
1	Hencroft Street 6N	N	91.7	31	29	29.7
2	Kent Avenue 5N	N	100	26	25	26.7
3	Essex Avenue	N	91.7	34	30	33.5
4	Windsor Road 1N	N	100	**43**	**43**	**44.9**
5	Mitchell Close	Y	91.7	36	33	34.4
6	Tweed Road	Y	100	39	37	36.4
7	Colnbrook By-pass	N	100	**43**	39	39.5
8	Horton Road (Caravan Park)	N	100	33	31	30.9
9	Princess Street	Y#	100	39	38	39.0
10	Paxton Avenue	Y	75.0	**42**	38	**40.0**
11	Winvale	Y	91.7	**44**	**44**	**42.1**
12	Lansdowne Avenue	Y#	91.7	38	38	**40.4**
13	Brands Hill	Y	100	**60**	**58**	**57.9**
14	Tuns Lane	Y#	91.7	37	34	35.8
15	Elbow Meadows	N	83.3	36	34	34.1
16	London Road	Y	91.7	**50**	**47**	**48.9**
17	Grampian Way	Y	100	**41**	**41**	**42.1**
18	Ditton Road	Y	66.7	39	39	38.6
19	**Pippins ***	N	91.7	30	28	28.6
20	**Pippins ***	N	100	30	28	28.7
21	**Pippins ***	N	100	29	28	28.9
22	**Salt Hill ***	N	91.7	33	33	34.7
23	**Salt Hill ***	N	91.7	34	33	35.2
24	**Salt Hill ***	N	91.7	33	31	34.7
25	William Street roundabout	Y#	100	**50**	**48**	**49.6**
26	Torridge Road	Y	100	**41**	38	36.6
27	Sussex Place	N	100	38	36	37.6
28	Spackmans Way	Y	100	40	37	39.6
29	Farnham Road (2)	Y#	91.7	37	36	36.2
30	Lakeside Road *	N	100	39	39	35.3
31	**Chalvey (CAS) ***	Y	100	39	39	**42.1**
32	**Chalvey (CAS) ***	Y	100	39	37	**40.4**
33	**Chalvey (CAS) ***	Y	91.7	39	37	**41.8**
34	Wexham Road	Y#	100	**46**	**42**	**47.1**
35	Wellington Street - Stratfield	Y#	100	38	38	37.6
36	Shelley Close	N	-	36	33	-
37	Blair Road- Victoria Court	Y#	100	**42**	**40**	**44.2**
38	Wellesley Road	Y#	100	40	37	**40.4**
39	Rogans (Colnbrook by pass) §	Y	83.3	-	**45**	**46.2**
40	Yew Tree Road §	Y#	66.7	-	**49**	**49.2**

41	India Road	N	91.7	-	-	37.0
43	The Myrke (HA site)	N	83.3	**48**	39	31.8
44	Winvale (HA site)	Y	91.7	38	39	**42.0**

Bold Measured concentration exceeds the AQS objective
Bold Triplicate diffusion tubes
* Diffusion tube co-located with automatic monitor
§ New for 2008
# Located within new AQMAs

After the bias adjustment factor has been applied to the 2009 annual mean concentrations the NO_2 objective is exceeded at 15 locations, with 1 of these exceedances are at the new Highways Agency monitoring sites. This is an increase from 10 exceedances in 2008.

The diffusion tube sites where measured concentrations where over the annual mean objective include:

- SL4 Windsor Road 1N
- SL10 Paxton Avenue
- SL11 Winvale
- SL12 Lansdowne avenue
- SL13 Bands Hill
- SL14 Tunes Lane
- SL17 Grampian Way
- SL25 Williams Street Roundabout
- SL31-33 Chalvey (CAS)
- SL34 Wexham Road
- SL37 Blair road-Victoria Court
- SL38 Wellesley Road
- SL39 Rogans
- SL40 Yew Tree Road
- SL44 Winvale (HA site)

Of these sites, 14 fall within the boundary of the existing AQMAs or the new AQMA in the town centre. Therefore, at these sites there is not a requirement to proceed to a Detailed Assessment.

Six of the sites that are outside the existing AQMAs but fall within the new AQMA, these are:

- SL12 Lansdowne avenue
- SL25 Williams Street Roundabout
- SL34 Wexham Road
- SL37 Blair road-Victoria Court
- SL38 Wellesley Road
- SL40 Yew Tree Road

The remaining one monitoring site measure an exceedance of the NO_2 objective whilst not within a current or proposed AQMA is:

- SL4 Windsor Road 1N

The Windsor Road 1N (SL4) monitoring site is not near any relevant receptors for the annual NO_2 air quality standard, therefore there is no requirement to proceed to a Detailed Assessment in this location.

The exceedances recorded at Lansdowne Avenue, Blair Road-Victoria Court and Yew Tree Road support the case for the proposed AQMA and its extent.

Figures 2.4a to 2.4c demonstrate the trend in Annual Mean NO_2 concentrations measured at diffusion tube sites since 1993. Figure 2.4a contains the sites where measurements have been undertaken for the longest period of time. The overall trend for Slough appears that concentrations have remained relatively stable, apart from a general spike in measured concentrations between 2001 and 2003. Although here appears to be a slight downward trend at sites SL2 and SL5.

Although representing a shorter period of time figures 2.4b and 2.4c also show an overall stable trend for NO_2 concentrations in Slough. Figure 2.4b also mirrors the spike in measured concentrations seen in Figure 2.4b. SL31 appears to be on an upwards trend, with measured concentrations around or above those recorded during the 2003 spike.

It should be noted that the results in Figure .4c only represent 4 years of data so any trend should not be considered significant.

Figure 2.4a Trends in Annual Mean NO_2 Concentration Measured at Diffusion Tube Monitoring Sites SL1 to SL25

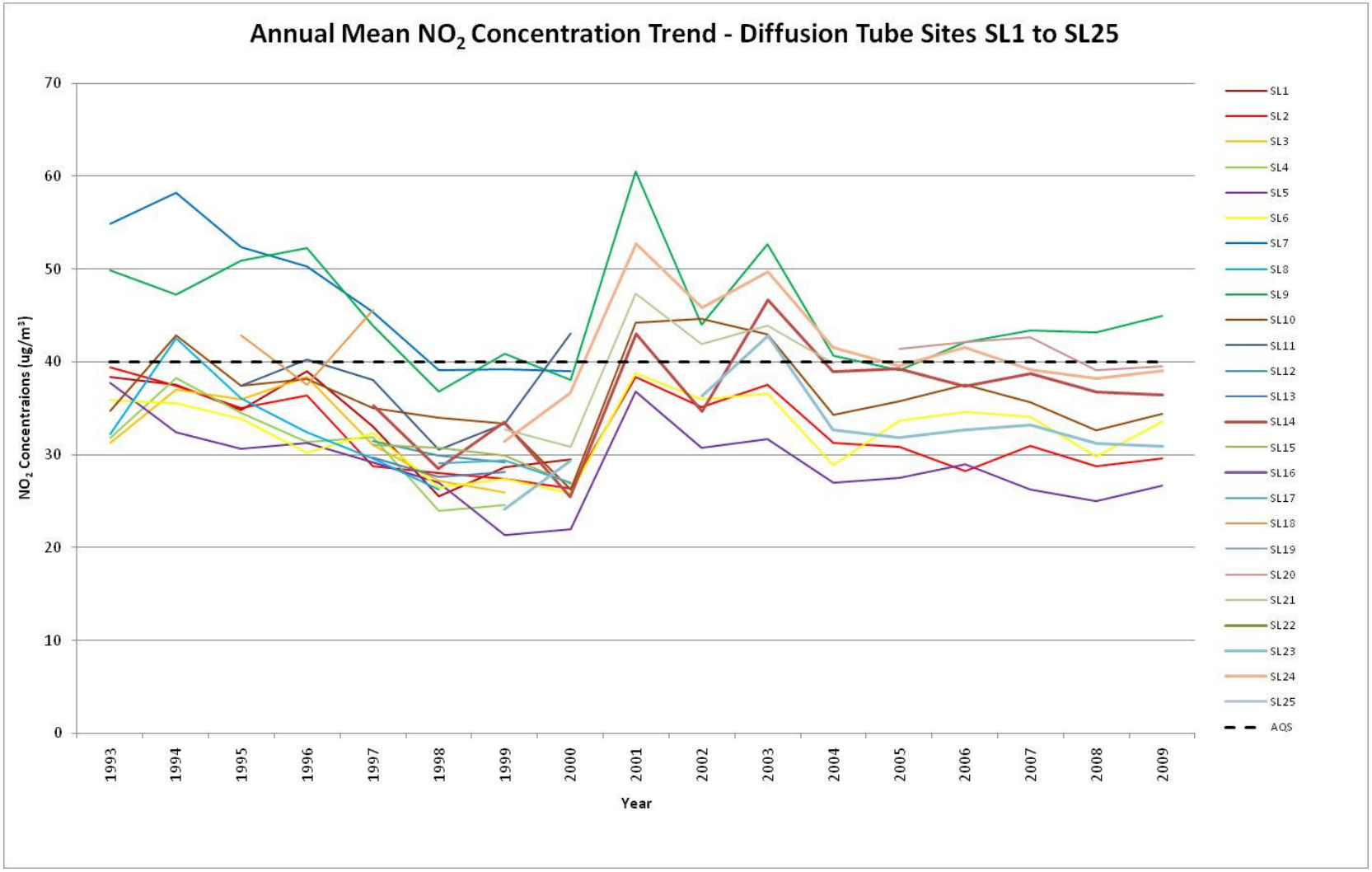


Figure 2.4b Trends in Annual Mean NO_2 Concentration Measured at Diffusion Tube Monitoring Sites

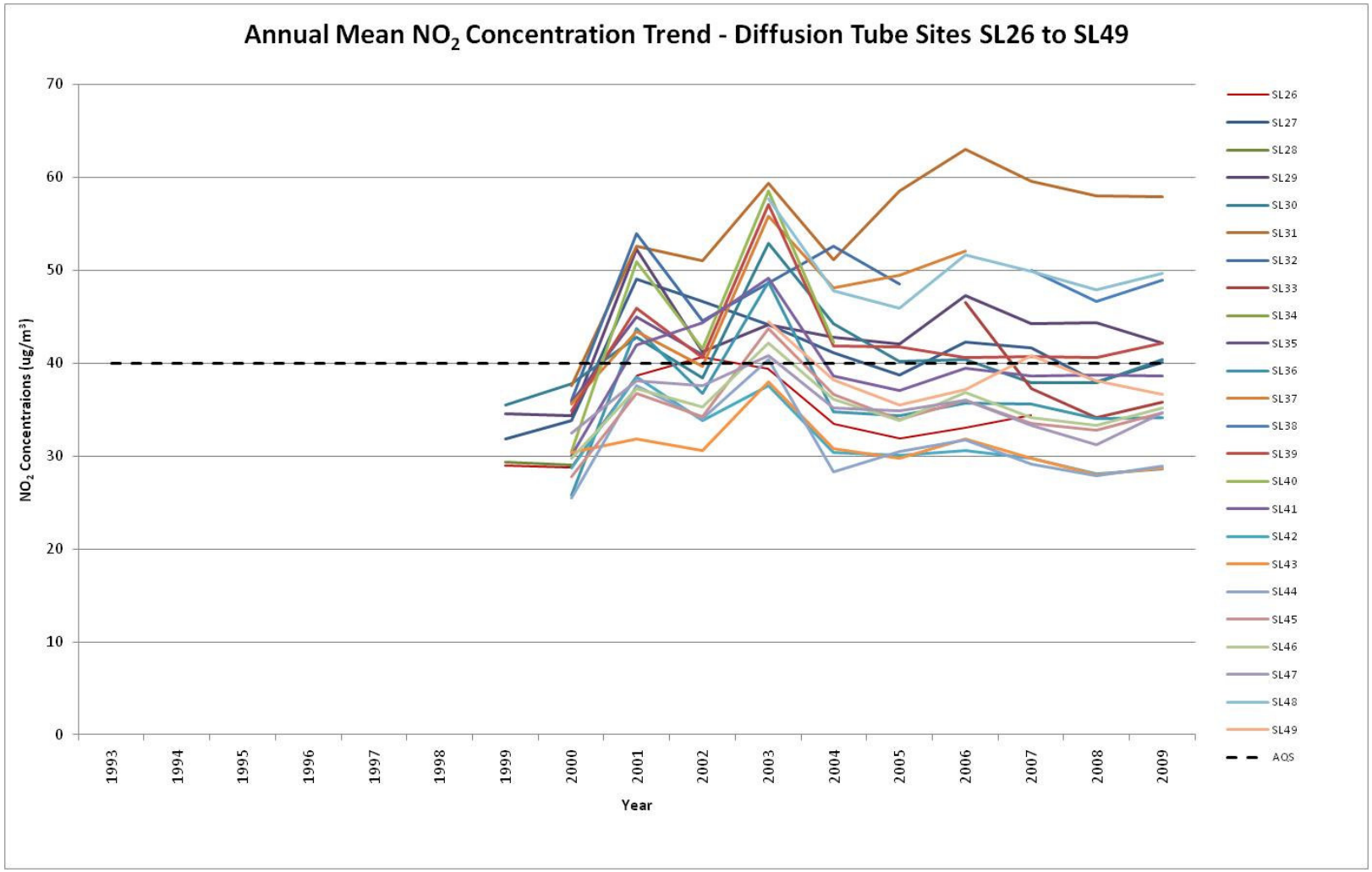
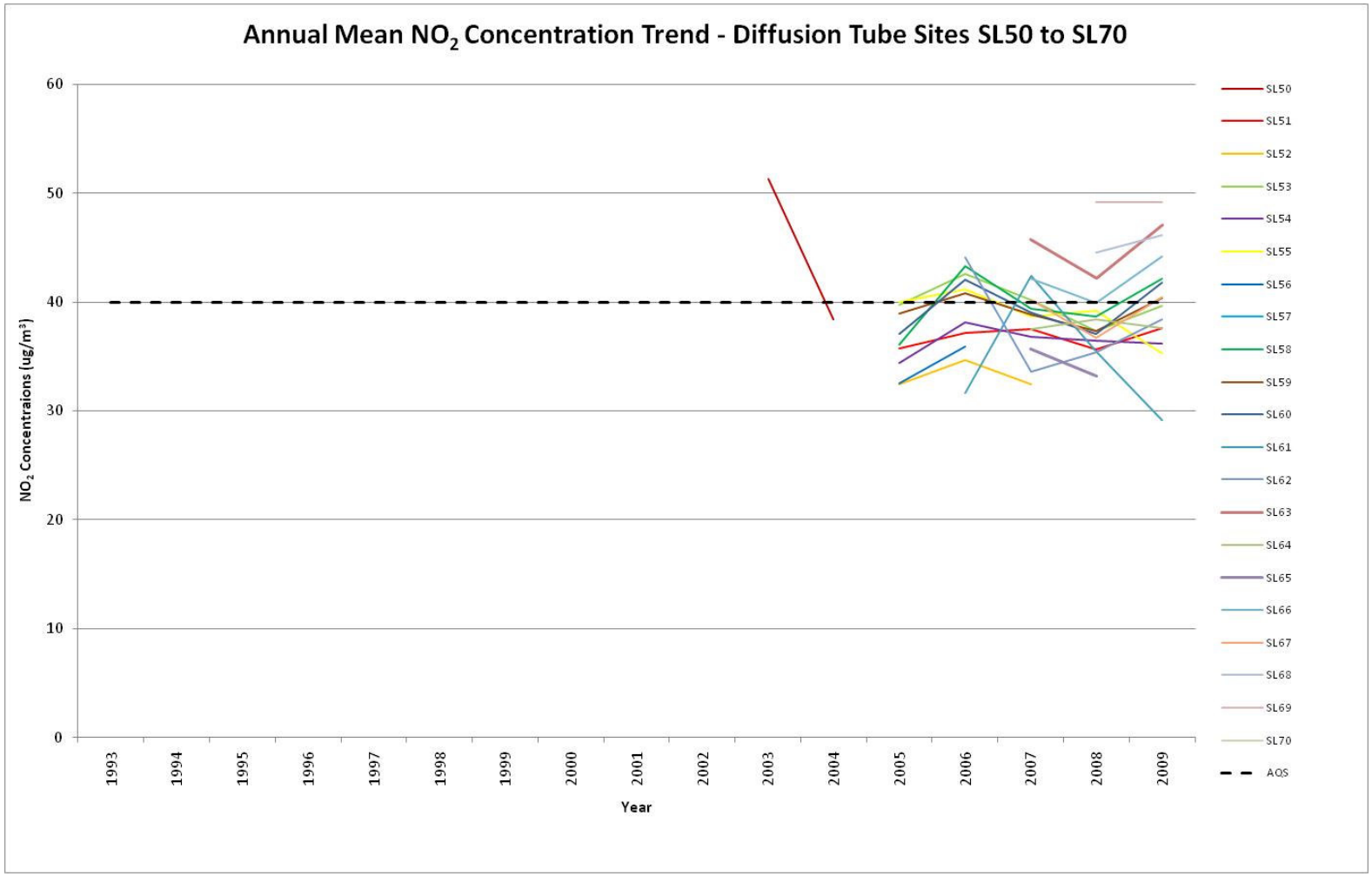


Figure 2.4c Trends in Annual Mean NO_2 Concentration Measured at Diffusion Tube Monitoring Sites



2.2.2 PM_{10}

Table 2.5a displays the annual mean PM_{10} monitoring results from the automatic monitoring sites in the borough across the time series 2007 - 2009. All statistics have been ratified according to QA/QC procedures outlined in appendix A.

Table 2.5a Results of PM_{10} Automatic Monitoring: Comparison with Annual Mean Objective

Site ID	Location	Within AQMA?	Data Capture for full calendar year 2009 [b] %	Annual mean concentrations (µg/m^3)		
				2007	2008	2009
A1	Salt Hill (Slough town centre, A4) – TEOM	N	88.5%	24[§]	24[#]	20.7[#]
SHL3	Slough Colnbrook (Pippins) – TEOM	N	91.9%	23[§]	20[#]	19.6[#]
SLH6	Slough Colnbrook (Pippins) – Osiris	N	94.43	20	19	21.74
SHL9	Slough Lakeside 2 – Osiris	N	87.53	16	23	24.31
SHL8	Slough Lakeside 2 - BAM	N	96.51	-	26 [†]	22.76

§ PM_{10} measured by TEOM has been converted to indicative gravimetric equivalent, using correction factor of 1.3
# PM_{10} measured by TEOM has been converted to indicative gravimetric equivalent, using the Volatile Correction Model
† PM_{10} measured by BAM has been corrected for slope by dividing concentrations by a correction factor of 1.21

When assessing the 2007, 2008 and 2009 annual mean PM_{10} concentrations against the AQS Objective of 40 µg/m^3; no exceedances were measured at any of the automatic monitoring sites.

Table 2.5b details the number of exceedances of the 24hr mean for PM_{10} AQS objectives, measured at the automatic monitoring sites over the same period.

Table 2.5b Results of PM_{10} Automatic Monitoring: Comparison with 24-hour Mean Objective

Site ID	Location	Within AQMA?	Data Capture 2009 (%)	Number of Exceedances of daily mean objective (50 µg/m^3)		
				2007	2008	2009
A1	Salt Hill (Slough town centre, A4) – TEOM	N	88.5%	9	(42)	4[#] (36.3)
SLH3	Slough Colnbrook (Pippins) – TEOM	N	91.9%	13	21[#]	5[#]
SLH6	Slough Colnbrook (Pippins) – Osiris	N	94.43	(36)	(31)	14
SLH9	Slough Lakeside – Osiris	N	87.53	(32)	(39)	18 (38.3)
A5	Slough Lakeside - BAM	N	96.51	-	21[†]	17

§ PM_{10} measured by TEOM has been converted to indicative gravimetric equivalent, using correction factor of 1.3
# PM_{10} measured by TEOM has been converted to indicative gravimetric equivalent, using the Volatile Correction Model
† PM_{10} measured by BAM has been corrected for slope by dividing concentrations by a correction factor of 1.21

As with the Annual mean, there was no exceedance of the 24hr mean for PM_{10} concentrations. The AQS objective requires that a 24 hour mean of 50 µg/m^3 is not exceeded more than 35 times per year.

2.2.3 Benzene

Benzene was monitored by diffusion tube at 4 sites in 2009 within the borough. Table 2.6 displays the diffusion tube monitoring results for Benzene across the time series 2006 – 2009, including those sites where monitoring is no longer undertaken.

Table 2.6: Results of Benzene diffusion tubes

Site ID	Location	Within AQMA?	Annual mean concentrations (µg/m^3)		
			2007	2008	2009
B1	Elbow Meadows	N	1.0	1.0	n/a
B2	Princess	N	1.3	1.4	1.2
B3	Pippins School	N	0.9	1.0	1.0
B4	Salt Hill Park	N	0.9	1.2	n/a
B5	London Road	Y	1.6	1.4	1.1
B6	Winvale	Y	1.0	0.8	n/a
B7	Spackmans Way	Y	n/a	n/a	1.1

When assessing the 2007, 2008 and 2009 annual mean Benzene concentrations against the AQS Objective of 16.25 µg/m^3; no exceedances are evident at any of the diffusion tube sites.

2.2.4 Other pollutants monitored

No monitoring is currently undertaken in the Slough Borough Council area for 1,3-butadiene, carbon monoxide, lead and SO_2. Based upon the findings of the previous assessments, the concentrations of these other pollutants are unlikely to be in excess of the air quality objectives at any location.

2.2.5 Summary of Compliance with AQS Objectives

Slough Borough Council has examined the results from monitoring in the borough. Concentrations outside of the AQMA are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

3.1 Road Traffic Sources

There are no new or newly identified road traffic sources within the Borough of Slough since the previous round of the Review and Assessment process.

3.2 Other Transport Sources

No new transport sources have been identified sine the last Updating and Screening Assessment.

3.3 Industrial Sources

There are no new or newly identified industrial sources within the Borough of Slough since the previous round of the Review and Assessment process. The Energy from Waste facility in Colnbrook has been fully operational since August 2009.

3.4 Commercial and Domestic Sources

There are no new or newly identified commercial or domestic sources within the Borough of Slough since the previous round of the Review and Assessment process.

3.5 New Developments with Fugitive or Uncontrolled Sources

There are no new or newly identified commercial or domestic sources within the Borough of Slough since the previous round of the Review and Assessment process.

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

4 Local / Regional Air Quality Strategy

Slough Borough Council has made the following progress in implementing its Air Quality Action Plans;

LATEST TRAFFIC INFORMATION BEAMED ONTO THE A4

Drivers along the A4 are now able to receive the latest traffic information on delays, road closures and events thanks to two new variable message signs installed by Slough Borough Council. The two new electronic signs have been placed alongside the A4 outside B&Q, Bath Road Retail Park and the Marriot Hotel, Langley. The signs are remotely controlled from the council's traffic team and are part of a series of works being undertaken to warn commuters of potential problems affecting the traffic, whether it be a procession, event or accident, improve traffic flow, reduce congestion and improve air quality through a reduction in pollution along the main route through Slough.

A4 JUNCTIONS IMPROVED FOR DRIVERS

Drivers travelling along the A4 in Slough, from the Brunel roundabout to the Huntercombe roundabout, should also find their journeys easier following the introduction of new traffic light phasing. The changes to the traffic lights at these junctions is the first step in a series of improvements designed to make commuters journeys easier, cut down on congestion and make travelling around the borough better – whether it is by car, public transport, bicycle or on foot. One of the major changes has been at the Tuns Lane junction where traffic going in opposite directions no longer goes at the same time. This improves safety for those travellers turning right and also means right-turners have longer to pass through the lights. It will also help cut down on congestion, cut down pollution and improve air quality across the borough. A new computerised traffic light system called SCOOT will also shortly be introduced linking all the junctions to reduce bunching and ensure the road ahead is clear when the lights change to green. Slough is also trialling a state-of-the-art wireless traffic detection system – called magnetometres – which will 'see' traffic approaching red lights and will automatically change the lights to green if possible. If successful, they will be rolled out across the borough.

5 Planning Applications

There were 25 major planning applications made within Slough during 2009. Information on these applications has been included in this Progress report to provide a log of applications for new developments to give a picture of areas where changes may take place and where combined impacts from several developments may be important.

Table 2.7: Summary of Major Planning Applications in Slough

Dwellings		
P/12601/009	Application to vary the siting of the building granted outline planning permission under P/12601/006 for construction of a part three, part four storey building to provide 35 No. Flats, comprising of 4 No. One bedroom, 30 No. two bedroom and 1 No. Three bedroom flats, with 58 No. Parking spaces (retrospective).	Datchet Meadows, (Formerly: New Tithe Court), Datchet Road, Slough, Berkshire, SL3 7PT
P/11425/005	Details of 300 private and affordable dwellings (reserved matters application re previously approved outline application ref P/11425/003)	Land Rear of, 2-78, Castleview Road And Part Of Upton Court Park, Slough, SL3 7NQ
P/08770/064	Construction of 28 No. Dwellings with access road, car parking and landscaping works (access from little chapels way via Banty road).	Land Rear of Marcia Court &, Palace Close, Banty Road, Slough, Berkshire
P/00322/012	Construction of 28 No. Dwellings with access road, car parking and landscaping works (access from little chapels way via Banty road).	Land Rear of Marcia Court &, Palace Close, Banty Road, Slough, Berkshire
S/00132/006	Erection of up to twelve residential units including means of access	Penn Wood Primary & Nursery School, Penn Road, Slough, Berkshire, SL2 1PH
P/13273/004	Submission of reserved matters (means of access, appearance, landscaping, layout, and scale) pursuant to condition 2 of planning ref. P/13273/003. Dated 1st August 2006 for the demolition of two dwellings and the erection of 18 x two bedroom flats	65, 67 And 69, Bradley Road, Slough, Berkshire, SL1 3PL
P/00322/017	Details of ten zero carbon homes (five three bedroom houses; three two bedroom houses; two flats), meeting room and plant room (reserved matters application re first phase of outline permission forty eight homes).	Part of, Southern Electricity Plc, High Street, Chalvey, Slough, SL1 2RX
P/14703/000	Demolition of existing flats (flats 1 - 20, the laurels and nos. 9-16 Jefferson close) and Swabey road garages, change of use of former Swabey road allotments to facilitate erection of fourteen two and two 1/2 storey semi detached and terraced houses with three and four bedrooms, together with access road, car parking and amenity space	Land At: The Laurels-139, High Street, Langley & Land To The East Of: Swabey Road

Industrial & Storage		
P/10650/004	Redevelopment of the site to provide up to a maximum of 6,517 sq. Metres (gross external area) of industrial floor space of light industrial (B1c) or storage and distribution (B8) uses including ancillary office space together with associated car parking, servicing and landscaping (outline application with all matters reserved)	International Catering Ltd, Walford Meadow, Horton Road, Colnbrook, Slough, SL3 0BG
Offices		
P/04303/034	Application to vary the timing of conditions 16, 18, 23, 37 and 41 of planning permission reference P/04303/033 dated 4th february 2008.	Buckingham Gateway, 132-144, High Street, Slough, SL1 1JQ
P/02272/009	Redevelopment of the existing Brunel bus station and public car park on Wellington Street and the construction of a phased office-led mixed use development. Full planning permission for building 1 will comprise of 12,365 sq m (gfa) of office (11,163 sq m gia) and retail (199 sq m gia) floor space with shared basement parking serving buildings 1 & 2 (6,584 sq m gea) and associated landscaping and plant. The application includes vehicular access and egress onto Brunel Way, egress onto William Street and alterations to the entrance to the Wellington Street subway. Outline planning permission for building 2 will comprise of up to 22,223 sq m (gea) of office (20,115 sq m gia) and retail (316 sq m gia) floor space. Matters for approval include access, scale, layout and landscaping. Details of appearance to be reserved.	Brunel Bus Station Site, Wellington Street, Slough, Berkshire, SL1 1XN
Other		
P/10864/002	Change of use of existing building from cold store/warehouse (use class B8) to food preparation and processing, logistics and distribution centre within class B2 including construction of mezzanine floor. Refurbishment of existing office building and demolition of existing vehicle maintenance unit. Construction of decked car park (two levels), reconfiguration of at grade car park, together with access, servicing and landscaping	Former Heathrow Cold Store, Lakeside Industrial Estate, Lakeside Road, Colnbrook, Slough, Berkshire, SL3 0ED
P/02320/032	Removal of condition 12 and 13 of planning permission P/02320/020 dated 11th May 2001. (condition 12 & 13 relate to evening time limits and maximum number of guests)	Baylis House Ltd, Baylis Business Centre, Stoke Poges Lane, Slough, SL1 3PB

P/00864/045	Demolition of nos. 548 and 550 London Road; erection of a part three storey/part four storey / part five storey extension partly above under croft car parking and a new basement parking area and the erection of an additional part floor above the existing hotel building to create an additional 172 hotel bedrooms (total of 300 bedrooms). Internal alterations including the provision of a new reception area, two restaurants and a bar area, four meeting rooms, staff accommodation with changes to the external appearance of the building and provision of an additional 19 car parking spaces within a new basement area	Quality Hotel Heathrow, London Road, Langley, Slough, Berks, SL3 8QB
P/02407/076	Configuration of mini roundabout, alterations to access road, reconfiguration of car park, increased glazing to front of retail units, signage boxes, totem pole, atm's, landscaping, bicycle parking and 2 no. Retail units (class A1/A3)	Bath Road Retail Park, Bath Road, Slough, Berkshire, SL1 4DX
S/00071/045	Demolition of the existing building Compair House and provision of a new slough bus station facility , including a new access road from William Street, ancillary operational facilities, feature canopy, public realm works and associated infrastructure	Compair House, Brunel Way, Slough, Berkshire, SL1 1QD
P/03977/022	Demolition of existing single storey technology block and the construction of a two storey teaching block, with 2 no. Additional parking spaces.	The Westgate School, Cippenham Lane, Slough, SL1 5AH
P/00649/020	Erection of class B2 industrial building with access and parking	Land rear of, 470, Bath Road, Slough, Berkshire, SL1 6DQ
P/00864/047	Variation of conditions 12 (means of access), 13 (sightlines) and 16 (site contamination) of planning permission ref.: P/00864/045 to allow temporary use of existing crossovers off London Road for access during phase 1 of construction and implementation of final access prior to occupation (condition 12), relaxation of condition 13 to allow implementation of sightlines prior to occupation and relaxation of condition 16 to allow submission of details prior to each phase of the development instead of prior to the commencement of development	Quality Hotel Heathrow, London Road, Langley, Slough, Berkshire, SL3 8QB
P/04296/011	Change of use from B8 (storage and distribution), with ancillary offices to B1 (c) light industrial and B8, with ancillary offices.	480, Bath Road, Slough, Berkshire, SL1 6BE
P/10864/003	Variation to condition 04 of planning permission reference P/10864/002 dated 22/01/2009 for minor amendments to the external appearance of the office building and warehousing, a revised access layout and alterations to the car parking arrangements	Former Heathrow Cold Store, Lakeside Industrial Estate, Lakeside Road, Colnbrook, Slough, Berkshire, SL3 0ED
P/14405/000	The redevelopment / reconfiguration of the existing roundabout at the junction of Wellington Street with William Street to create a crossroad layout at this road junction. Plus the removal of the existing pedestrian subway (underneath Wellington Street), and alterations to the footways of Wellington Street, William Street and High	Heart of Slough Redevelopment, Corner of, Wellington & William St., Windsor Rd., Brunel Way, High Street, Slough,

	Street West associated with works to enhance the public realm/landscaping on these streets (full). In addition, the redevelopment of the four quadrant sites adjacent to the roundabout (Thames Valley University; Brunel Bus Station, Slough Public Library; and Slough Day Centre and the Church of Our Lady Immaculate and St Ethelbert) involving demolition of all existing buildings except for the Church of Our Lady Immaculate and St Ethelbert to provide: 1,598 new dwellings; 48,708sqm of (class B1 use) office space; a 120 bed hotel; a new bus station; 6,085sqm of community floor space (class D1 use) including provision of a new library, class A1 retail use and class A3 café / restaurant, class A4 use (pubs/bars), class D2 use (leisure) and associated public realm and parking (outline).	Berkshire
Retail		
P/00362/065	Demolition of existing structure and erection of a new food superstore with associated access arrangements, car parking and landscaping.	(Former Co-Op Superstore), 78, Uxbridge Road, Slough, Berkshire, SL1 1SU
P/00362/064	Erection of three retail units with associated car parking, landscaping and access arrangements	(Former Co-Op Superstore), 78, Uxbridge Road, Slough, Berkshire, SL1 1SU
P/00362/063	Demolition of existing structure and construction of a new superstore with alterations to existing access, car parking and landscaping. (outline).	(Former Co-Op Superstore), 78, Uxbridge Road, Slough, Berkshire, SL1 1SU

6 Air Quality Planning Policies

The progress report provides an ideal location to list air quality planning policy within Slough and how they change over time. Slough Local Development Framework 'Core Strategy 2006 – 2026' sets out the policies and guidance to govern the spatial planning of Slough over the next 20 years. This document therefore determines the relationship between planning and air quality within Slough. The Core Strategy highlights air quality in the following policies/statements;

3.18 *The council has produced its second, five year Local Transport Plan 2006 – 2011 (Doc.14) The vision for Slough's transport system aims to tackle problems such as congestion, air quality and make the transport structure more sustainable in the future. The three key themes for the vision are:*

- *a more balanced local transport system;*
- *an effective public transport hub serving both local and regional journeys and interchange; and*
- *better public transport connectivity to and from Heathrow Airport and west London.*

7.16 *The Spatial Strategy also means that there is no need to build on any land outside of the urban area which has been ruled out for a number of reasons. …Thirdly much of the land is subject to a number of physical or technical constraints. These include the land being subject to flooding, being land filled, having unsuitable access, being in the Public Safety Zone and being subject to excessive noise or poor air quality.*

7.49 *The Sustainability Appraisal Report (Doc.22) identifies the potential adverse environmental effects of the scale of the proposed residential development in the town centre. These include the problems of congestion and air quality….*

7.84 *Office development in the town centre will also be subject to parking restraint which, together with improvements to public transport, should reduce the amount of commuting by the private car. This will help to tackle the problems of congestion and poor air quality in the town centre.*

7.124 *The Slough Local Transport Plan (Doc.14), in accordance with Planning Policy Statement13 – Transport (PPG13), seeks to reduce congestion, improve accessibility, create safer roads, improve air quality and mitigate the impact of the transport system on the environment and ensure that it contributes towards broader social and economic objectives. To effectively tackle congestion the plan seeks to widen travel choices by making public transport, cycling and walking more attractive than the private car….*

7.130 *The Local Transport Plan (Doc.14) has identified a link between the amount of traffic on Slough's roads and an increasing level of pollutants in the town centre, such as carbon dioxide, a contributor to climate change. The plan identifies two Air Quality Management Areas (AQMAs) in Slough and a third may be declared in the town centre that could limit the scope for development there.*

Target: *Annual mean NO2 air quality levels to be 35 ug/m3 by 2021.*

7.141 *The Local Transport Plan (Doc.14) contains a draft Air Quality Action Plan which sets out measures to tackle air quality problems. Further detailed work will have to be carried out to show*

how air quality problems in the town centre can be mitigated in order to allow the planned additional development to take place.

7.153 *There are currently two areas close to the motorways which have been designated as Air Quality Management Areas. They are unsuitable for residential development and other sensitive uses, unless it is practical to incorporate mitigation measures to reduce the effects to acceptable levels. Other areas of the Borough are affected by pollution from noise, dust, and chemicals, which may limit new development.*

7.160 *Relevant planning applications will have to be accompanied by noise, light pollution or odour studies, which demonstrate that the proposed development will not have an unacceptable impact upon adjoining uses. Developers will also have to carry out air quality modelling to show that the site is not affected by poor air quality and that the proposed activity will not make the air quality any worse.*

9.2 *There is a risk that the Spatial Strategy of concentrating development in the town centre with taller, denser buildings, together with increased transport movements, will combine to increase emissions and limit the potential for the concentration of pollutants to be dispersed. This has the potential to create significant localised long term adverse effects.*

9.2 *There is a risk that the Spatial Strategy of concentrating development in the town centre with taller, denser buildings, together with increased transport movements, will combine to increase emissions and limit the potential for the concentration of pollutants to be dispersed. This has the potential to create significant localised long term adverse effects.*

9.3 *The air quality review carried out by the council showed that an area along the A4 in the town centre was close to exceeding the nitrogen dioxide objective primarily as a result of road traffic congestion. An Air Quality Management Area (AQMA) was not declared but this will have to be kept under review in the light of the proposals to build large numbers of residential units in the town centre. Any significant deterioration in air quality could therefore undermine the Spatial Strategy and limit the amount of residential development that can take place there.*

9.4 *As a result, air quality in the town centre will have to be monitored and the effects of any changes to the road system, such as those proposed in the Heart of Slough, will have to be fully assessed. Mitigation measures may also have to be introduced such as reducing congestion and controlling the amount of stationary traffic in critical areas. At the same time, buildings may have to be designed so that non residential uses are located on the most sensitive areas. The council will also continue to implement and develop the air quality action plan in the Local Transport Plan.*

The 'General Development Guidance – Developer's Guide Part 4' is intended to assist developers who are proposing to submit planning applications for residential and commercial schemes in Slough. Air Quality is addressed in Chapter 5. Within this chapter there is a description of the background of Air Quality management in Slough, the existing AQMA's and Action Plan.

7 Local Transport Plans and Strategies

Slough Borough Council are currently in the process of updating their Local Transport Plan, it should be released in the spring of 2011.

In their second Local Transport Plan (Slough Local Transport Plan 2006 – 2011) published in March 2006 Slough Borough Council put forward their strategy for improving transport in the borough and a five-year action programme. They also set a range of targets, which they aim to meet by March 2011. A review of the progress made so far in delivering their action programme and working towards meeting those targets is set out in Slough Local Transport Plan – 2008 Progress Review. The third LTP is in progress and is due to be completed in April 2011. The new AQMAs in the Town Centre will be included in LTP3 along with the Action Plans.

The strategy is to tackle traffic congestion problems and the associated air quality problems in several ways. It includes the following measures:

- better traffic management and control to keep the traffic moving, particularly using new technology;
- improving alternatives to car use (public transport, cycling and walking), particularly for shorter local trips;
- working with schools and employers to help them develop travel plans to tackle congestion;
- parking management and control, particularly to manage long term parking demand in town centre areas; and
- working with the Highways Agency, to improve the management of the M4 and the Slough motorway junctions.

8 Climate Change Strategies

Following consolation Slough Borough Council's Climate Change Strategy and Carbon Management Action Plan documents are due to be published by August 2010.

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

The automatic monitoring sites in the borough measured concentrations that exceeded the NO_2 annual mean objective at 2 sites in 2009. One site is currently outside an existing AQMA, although is not situated next to relevant receptor. The distance from road sources indicates there could be possible exceedences at nearby residential receptors, although there is a large amount of uncertainty. It is therefore recommended that following assessment of the 2010 monitoring results further diffusion tube monitoring is undertaken if required.

The overall trend across the automatic monitoring stations indicates that annual mean concentrations have remained steady.

Based on the automatic monitoring results there is not a requirement to proceed to a Detailed Assessment. They also indicate that the current AQMA is appropriate.

Diffusion tube monitoring in the borough measured exceedances of the annual mean NO_2 objective at 15 sites. Of these 6 are within the proposed new AQMA further indicating its requirement. An exceedance was measured at the Windsor Road 1N (SL4) monitoring site, this location is not near any relevant receptors for the annual NO_2 AQS.

Therefore there is not a requirement to proceed to a Detailed Assessment based on the diffusion tube NO_2 measurements.

The diffusion tube sites where measured concentrations where over the annual mean objective include:

- SL4 Windsor Road 1N
- SL10 Paxton Avenue
- SL11 Winvale
- SL12 Lansdowne avenue
- SL13 Bands Hill
- SL16 London Road
- SL17 Grampian Way
- SL25 Williams Street Roundabout
- SL31-33 Chalvey (CAS)
- SL34 Wrexham Road
- SL37 Blair road-Victoria Court
- SL38 Wellesley Road
- SL39 Rogans
- SL40 Yew Tree Road
- SL44 Winvale (HA site)

The trend in measured results at diffusion tube sites since 1993 does not indicate that there has been a significant improvement in NO_2 concentrations.

PM_{10} concentrations are monitored at 5 automatic monitoring sites across the borough. At each of these sites both the annual mean and daily mean objective were achieved. The PM_{10} concentrations remained relatively stable compared to the concentrations measured in the previous two years.

Benzene is now monitored at 4 diffusion tube sites within the borough. At each of these sites the measured concentration is well below the annual mean objective of 5 $\mu g\ m^{-3}$. At all sites there was a reduction in concentrations from 2008. The trend since 2007 appears to be stable with measured concentrations in each year well below the annual mean objective.

Air Quality objectives were achieved at all monitoring locations outside of the existing AQMAs or the proposed new AQMA at relevant locations, therefore there is no need to proceed to a Detailed Assessment. As NO_2 Air Quality objectives are currently being exceeded at locations within the current AQMAs and proposed new AQMA it demonstrates that they are still required.

9.2 Conclusions relating to New Local Developments

Slough Borough 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.

9.3 Proposed Actions

The NO_2 measured concentrations from 2009 support the proposed third and fourth AQMAs for Slough, the council will therefore continue with its declaration. The measured NO_2 concentrations also continue to support the requirement for the two existing AQMAs.

The council is now required to submit a Progress Report in 2011 and a Detailed Assessment for nitrogen dioxide for the residential areas located along the railway line (Great Western Line).

10 Acknowledgements

This report was prepared in conjunction with Monica Wilsch, Head of Environmental Quality at Slough Borough Council.

11 References

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http://www.uwe.ac.uk/aqm/review/index.html

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Appendices

Appendix A: QA/QC Data

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors and QA/QC

Diffusion tubes may systematically under or over-read NO_2 concentrations when compared to the reference chemiluminescence analyser. This is described as bias and can be corrected for to improve the accuracy of the diffusion tube results, using a suitable bias adjustment factor.

The diffusion tubes deployed by the Slough Borough Council's are supplied and analysed by Gradko using a preparation mixture of 50% triethanolamine (TEA) in acetone. Gradko comply with the WASP scheme and achieved 'good' performance based on old and new criteria for the October 2008 – October 2009 period.

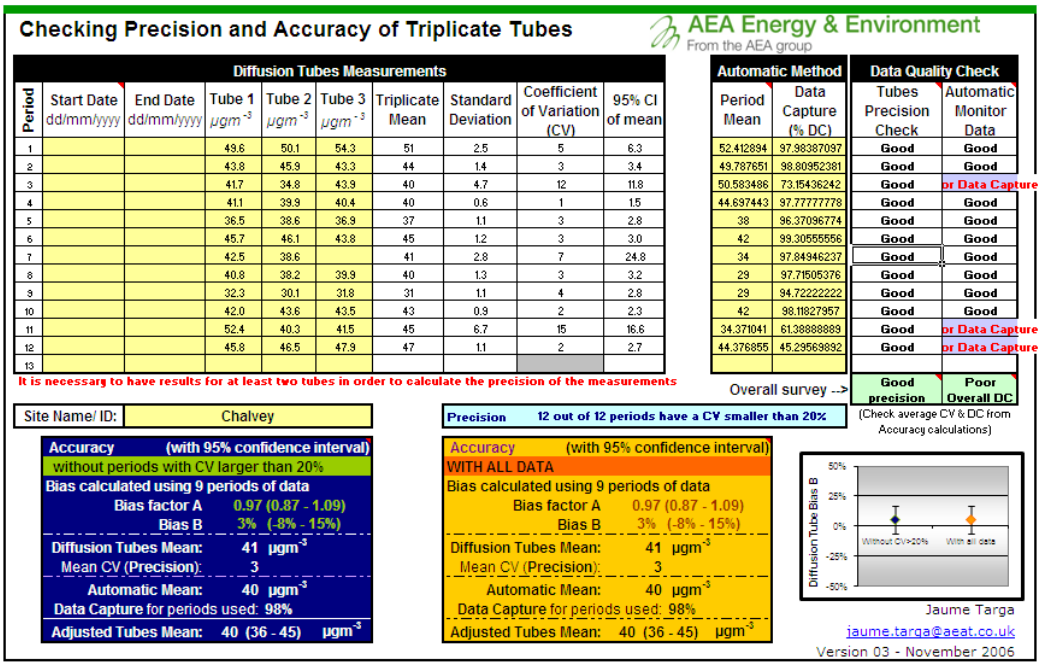
Factor from Local Co-location Studies

There were three local co-location studies between nitrogen dioxide diffusion tubes and continuous monitoring carried out within the borough. Therefore, the bias adjustment factor has been undertaken using these data. The bias adjustment factor of 0.98 was calculated as an average of the three factors calculated from:

- Salt Hill (Slough Town Centre A4)- 0.97;
- Slough Colnbrook (Pippins) – 1.00;
- Slough Chalvey 0.98.

Co-location site	Site Type	Site Bias 2009
Salt Hill (Slough Town Centre A4)	**I**	0.97
Slough Colnbrook (Pippins)	**UB**	1.00
Slough Chalvey M4	**I**	0.98
Average		**0.98**
Gradko Bias		0.99

Figure A.1 - Bias Adjustment Factor for SHL7 – Slough Chalvey M4



Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm⁻³	Tube 2 µgm⁻³	Tube 3 µgm⁻³	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Automatic Method: Period Mean	Automatic Method: Data Capture (% DC)	Data Quality Check: Tubes Precision Check	Data Quality Check: Automatic Monitor Data
1			49.6	50.1	54.3	51	2.5	5	6.3	52.412894	97.98387097	Good	Good
2			43.8	45.9	43.3	44	1.4	3	3.4	49.787651	98.80952381	Good	Good
3			41.7	34.8	43.9	40	4.7	12	11.8	50.583486	73.15436242	Good	or Data Capture
4			41.1	39.9	40.4	40	0.6	1	1.5	44.697443	97.77777778	Good	Good
5			36.5	38.6	36.9	37	1.1	3	2.8	38	96.37096774	Good	Good
6			45.7	46.1	43.8	45	1.2	3	3.0	42	99.30555556	Good	Good
7			42.5	38.6		41	2.8	7	24.8	34	97.84946237	Good	Good
8			40.8	38.2	39.9	40	1.3	3	3.2	29	97.71505376	Good	Good
9			32.3	30.1	31.8	31	1.1	4	2.8	29	94.72222222	Good	Good
10			42.0	43.6	43.5	43	0.9	2	2.3	42	98.11827957	Good	Good
11			52.4	40.3	41.5	45	6.7	15	16.6	34.371041	61.38888889	Good	or Data Capture
12			45.8	46.5	47.9	47	1.1	2	2.7	44.376855	45.29569892	Good	or Data Capture
13													

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Overall survey --> Good precision | Poor Overall DC

(Check average CV & DC from Accuracy calculations)

Site Name/ ID: Chalvey

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%
Bias calculated using 9 periods of data
Bias factor A 0.97 (0.87 - 1.09)
Bias B 3% (-8% - 15%)
Diffusion Tubes Mean: 41 µgm⁻³
Mean CV (Precision): 3
Automatic Mean: 40 µgm⁻³
Data Capture for periods used: 98%
Adjusted Tubes Mean: 40 (36 - 45) µgm⁻³

Accuracy (with 95% confidence interval) WITH ALL DATA
Bias calculated using 9 periods of data
Bias factor A 0.97 (0.87 - 1.09)
Bias B 3% (-8% - 15%)
Diffusion Tubes Mean: 41 µgm⁻³
Mean CV (Precision): 3
Automatic Mean: 40 µgm⁻³
Data Capture for periods used: 98%
Adjusted Tubes Mean: 40 (36 - 45) µgm⁻³

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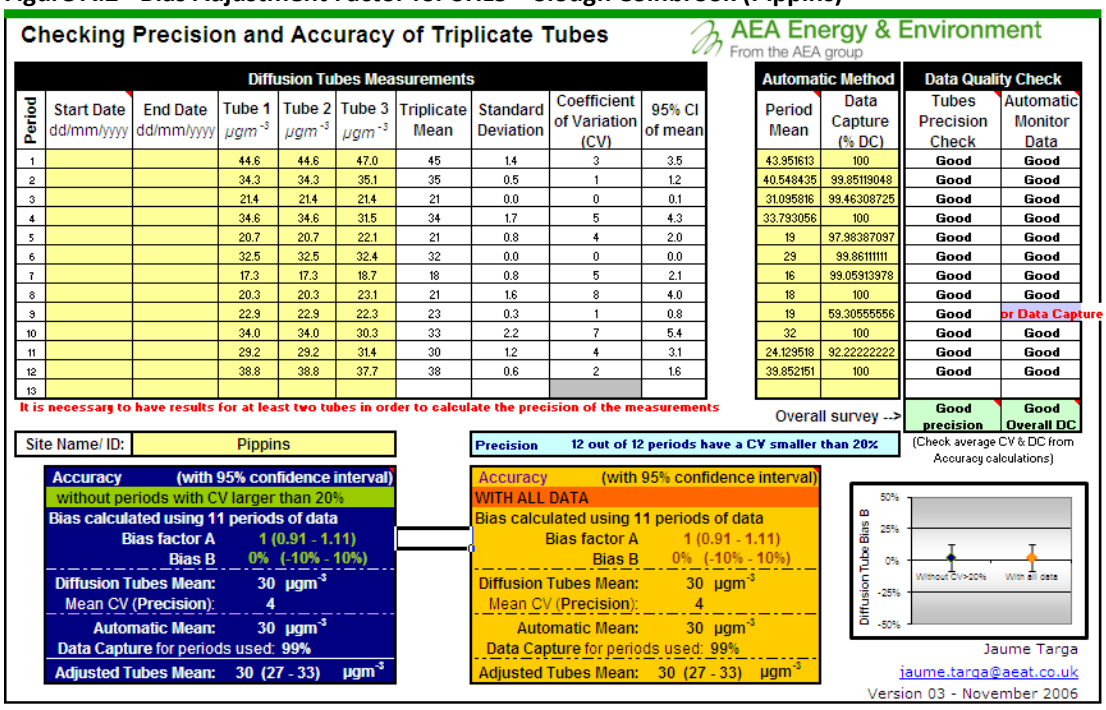
Figure A.2 - Bias Adjustment Factor for SHL3 – Slough Colnbrook (Pippins)



Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm⁻³	Tube 2 µgm⁻³	Tube 3 µgm⁻³	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean	Automatic Method: Period Mean	Automatic Method: Data Capture (% DC)	Data Quality Check: Tubes Precision Check	Data Quality Check: Automatic Monitor Data
1			44.6	44.6	47.0	45	1.4	3	3.5	43.951613	100	Good	Good
2			34.3	34.3	35.1	35	0.5	1	1.2	40.548435	99.85119048	Good	Good
3			21.4	21.4	21.4	21	0.0	0	0.1	31.095816	99.46308725	Good	Good
4			34.6	34.6	31.5	34	1.7	5	4.3	33.793056	100	Good	Good
5			20.7	20.7	22.1	21	0.8	4	2.0	19	97.98387097	Good	Good
6			32.5	32.5	32.4	32	0.0	0	0.0	29	99.86111111	Good	Good
7			17.3	17.3	18.7	18	0.8	5	2.1	16	99.05913978	Good	Good
8			20.3	20.3	23.1	21	1.6	8	4.0	18	100	Good	Good
9			22.9	22.9	22.3	23	0.3	1	0.8	19	59.30555556	Good	or Data Capture
10			34.0	34.0	30.3	33	2.2	7	5.4	32	100	Good	Good
11			29.2	29.2	31.4	30	1.2	4	3.1	24.129518	92.22222222	Good	Good
12			38.8	38.8	37.7	38	0.6	2	1.6	39.852151	100	Good	Good
13													

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Overall survey --> Good precision | Good Overall DC

(Check average CV & DC from Accuracy calculations)

Site Name/ ID: Pippins

Precision: 12 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval) without periods with CV larger than 20%
Bias calculated using 11 periods of data
Bias factor A 1 (0.91 - 1.11)
Bias B 0% (-10% - 10%)
Diffusion Tubes Mean: 30 µgm⁻³
Mean CV (Precision): 4
Automatic Mean: 30 µgm⁻³
Data Capture for periods used: 99%
Adjusted Tubes Mean: 30 (27 - 33) µgm⁻³

Accuracy (with 95% confidence interval) WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A 1 (0.91 - 1.11)
Bias B 0% (-10% - 10%)
Diffusion Tubes Mean: 30 µgm⁻³
Mean CV (Precision): 4
Automatic Mean: 30 µgm⁻³
Data Capture for periods used: 99%
Adjusted Tubes Mean: 30 (27 - 33) µgm⁻³

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Figure A.3 - Bias Adjustment Factor for SHL4 – Salt Hill (Slough Town Centre)

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1			48.5	46.1	43.4	46	2.5	5	6.3
2			40.2	38.0	39.6	39	1.1	3	2.8
3			23.0	20.6	24.2	23	1.8	8	4.5
4			31.4	31.7	33.5	32	1.1	4	2.8
5									
6			33.7	33.6	32.7	33	0.6	2	1.4
7			33.9	32.4	34.2	33	1.0	3	2.4
8			32.7	33.6	34.1	33	0.7	2	1.8
9			27.9	27.6	28.3	28	0.3	1	0.9
10			37.1	41.7	38.3	39	2.4	6	6.0
11			40.5	40.8	39.8	40	0.5	1	1.3
12			39.0	47.1	40.1	42	4.4	10	10.9
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
49.811828	100	Good	Good
48.007452	99.85119048	Good	Good
41.816958	99.46308725	Good	Good
34.66443	100	Good	Good
25	97.98387097		Good
24	99.86111111	Good	Good
24	99.05913978	Good	Good
26	100	Good	Good
24	59.30555556	Good	or Data Capture
33	100	Good	Good
32.411189	92.22222222	Good	Good
40.615591	100	Good	Good
Overall survey -->		Good precision	Good Overall DC

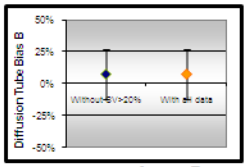
(Check average CV & DC from Accuracy calculations)

Site Name/ ID: Salt Hill

Precision 11 out of 11 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval)
without periods with CV larger than 20%
Bias calculated using 10 periods of data
Bias factor A 0.98 (0.82 - 1.21)
Bias B 2% (-18% - 22%)
Diffusion Tubes Mean: 36 µgm^{-3}
Mean CV (Precision): 4
Automatic Mean: 35 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 35 (30 - 44) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 10 periods of data
Bias factor A 0.98 (0.82 - 1.21)
Bias B 2% (-18% - 22%)
Diffusion Tubes Mean: 36 µgm^{-3}
Mean CV (Precision): 4
Automatic Mean: 35 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 35 (30 - 44) µgm^{-3}



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Factor from National Database of Co-location Studies

A Bias Adjustment factor can also be derived from the national database of co-located studies. This takes an average from co-located studies of diffusion tube that are analysed by the same lab and method. The results from this spreadsheet provided a national bias adjustment factor of **0.99.**

Spreadsheet Version Number: 03/10

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies

This spreadsheet will be updated in late September 2010 on the R&A website

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods

Whenever presenting adjusted data, you should state the adjustment factor used

This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

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Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List. If a laboratory is not shown, we have no data for this laboratory. Analysed By[1]	Step 2: Select a Preparation Method from the Drop-Down List. If a preparation method is not shown, we have no data for this method at this. Method. To undo your selection, choose (All) from the pop-up list	Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data[2]. Year[2]. To undo your selection, choose (All)	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m3)	Automatic Monitor Mean Conc. (Cm) (µg/m3)	Bias (B)	Tube Precision[3]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	50% TEA in Acetone	2009	R	Boston BC	11	45	33	35.2%	G	0.74
Gradko	50% TEA in Acetone	2009	R	East Hampshire DC	12	27	25	8.5%	G	0.92
Gradko	50% TEA in Acetone	2009	B	LB Brent	10	32	31	2.7%	G	0.97
Gradko	50% TEA in Acetone	2009	R	LB Richmond	12	43	43	-0.3%	G	1.00
Gradko	50% TEA in Acetone	2009	S	LB Richmond	12	27	28	-2.4%	G	1.02
Gradko	50% TEA in Acetone	2009	R	Reading BC	11	41	44	-7.8%	G	1.09
Gradko	50% TEA in Acetone	2009	R	Stevenage BC	12	38	29	32.0%	G	0.76
Gradko	50% TEA in Acetone	2009	R	Sandwell MBC	12	45	44	3.0%	G	0.97
Gradko	50% TEA in Acetone	2009	UB	Sandwell MBC	11	17	17	-1.6%	S	1.02
Gradko	50% TEA in Acetone	2009	UB	Sandwell MBC	11	27	28	-6.6%	G	1.07
Gradko	50% TEA in Acetone	2009	R	Sandwell MBC	12	38	40	-3.6%	S	1.04
Gradko	50% TEA in Acetone	2009	UB	Sheffield CC	10	33	38	-12.9%	G	1.15
Gradko	50% TEA in Acetone	2009	UC	Uttlesford DC	9	24	25	-1.7%	G	1.02
Gradko	50% TEA in Acetone	2009	R	West Berkshire Council	12	45	54	-15.9%	P	1.19
Gradko	50% TEA in Acetone	2009	K	AEA Tech Intercomparison	12	106	107	-0.9%	G	1.01
Gradko	50% TEA in Acetone	2009		Overall Factor[3] (15 studies)				Use		0.99

Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Review and Assessment Helpdesk: 0117 328 3668 aqm-review@uwe.ac.uk.

As no co-location study available for the two Highways Agency diffusion tubes in the borough a bias adjustment factor derived from the national data base has been used. The results from this spreadsheet provided a national bias adjustment factor of **0.90**, which can be seen below.

Spreadsheet Version Number: 03/10

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies

This spreadsheet will be updated in late September 2010 on the R&A website

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods

Whenever presenting adjusted data, you should state the adjustment factor used

This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

Published by Air Quality Consultants Ltd on behalf of Defra, the Welsh Assembly Government, the Scottish Government and the Department of the Environment Northern Ireland

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List. If a laboratory is not shown, we have no data for this laboratory. Analysed By[1]	Step 2: Select a Preparation Method from the Drop-Down List. If a preparation method is not shown, we have no data for this method at this. Method. To undo your selection, choose (All) from the pop-up list	Step 3: Select a Year from the Drop-Down List. If a year is not shown, we have no data[2]. Year[2]. To undo your selection, choose (All)	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m3)	Automatic Monitor Mean Conc. (Cm) (µg/m3)	Bias (B)	Tube Precision[3]	Bias Adjustment Factor (A) (Cm/Dm)
Gradko	20% TEA in Water	2009	UC	Belfast CC	10	39	34	14.4%	G	0.87
Gradko	20% TEA in Water	2009	R	Bromsgrove DC	9	53	52	1.9%	P	0.98
Gradko	20% TEA in Water	2009	R	Chelmsford BC	10	39	36	9.5%	G	0.91
Gradko	20% TEA in Water	2009	R	Coventry CC	11	45	44	2.8%	P	0.97
Gradko	20% TEA in Water	2009	R	Coventry CC	11	38	30	25.6%	P	0.80
Gradko	20% TEA in Water	2009	R	Coventry CC	12	37	36	2.1%	G	0.98
Gradko	20% TEA in Water	2009	R	Coventry CC	9	51	65	-22.0%	G	1.28
Gradko	20% TEA in Water	2009	R	Dudley MBC	11	42	37	13.1%	G	0.88
Gradko	20% TEA in Water	2009	B	Dudley MBC	12	30	27	9.4%	G	0.91
Gradko	20% TEA in Water	2009	Rural	Dudley MBC	12	19	17	11.2%	G	0.90
Gradko	20% TEA in Water	2009	R	Dudley MBC	12	44	40	11.3%	G	0.90
Gradko	20% TEA in Water	2009	R	Sandwell MBC	12	47	44	7.1%	S	0.93
Gradko	20% TEA in Water	2009	UB	Sandwell MBC	10	19	16	19.5%	S	0.84
Gradko	20% TEA in Water	2009	UB	Sandwell MBC	12	29	27	5.9%	S	0.94
Gradko	20% TEA in Water	2009	R	Sandwell MBC	11	42	40	5.8%	S	0.95
Gradko	20% TEA in Water	2009	R	Rushmoor BC	10	35	33	6.2%	G	0.94
Gradko	20% TEA in Water	2009	K	AEA Tech Intercomparison	12	121	107	12.6%	G	0.89
Gradko	20% TEA in Water	2009	R	Cheshire West & Chester Council	11	41	37	10.0%	G	0.91
Gradko	20% TEA in Water	2009		Overall Factor[3] (33 studies)				Use		0.90

Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Review and Assessment Helpdesk: 0117 328 3668 aqm-review@uwe.ac.uk.

QA/QC of diffusion tube monitoring

The Workplace Analysis Scheme for Proficiency (WASP) is an independent analytical performance-testing scheme, operated by the Health and Safety Laboratory (HSL). WASP formed a key part of the former UK NO_2 Network's QA/QC, and remains an important QA/QC exercise for laboratories supplying diffusion tubes to Local Authorities for use in the context of Local Air Quality Management (LAQM). The laboratory participants analyse four spiked tubes, and report the results to HSL. HSL assign a performance score to each laboratory's result, based on their deviation from the known mass of nitrite in the analyte.

The outcomes of these QA/QC schemes are evaluated on a regular basis against a set of pre-defined performance criteria. The Performance criteria are based upon the Rolling Performance Index (RPI) statistic.

Gradko Laboratories takes part in the independent Workplace Analysis Scheme for Proficiency and demonstrated good performance in the WASP scheme for analysis of NO2 diffusion tubes, January 2009 – January 2010.

PM Monitoring Adjustment

Volatile Correction Model for Tapered Element Oscillating Microbalance analysers (TEOM) PM analysers

Monitoring concentration of PM in ambient air is not straightforward. This is due to the complex nature and composition of PM. The method selected for the collection and determination of the particle mass thus has an influence upon the mass concentration that is subsequently reported. Two TEOM analysers are used by Slough Borough Council to support Local Air Quality Management (LAQM) work. However, the outcome of recent equivalence tests for various PM_{10} samplers, when compared with the European reference sampler, (Harrison D (2006) UK Equivalence Programme for Monitoring for Particulate Matter, available at www.airquality.co.uk/archive/reports/list.php) means that TEOM analysers cannot strictly be used to measure PM_{10} concentrations for comparison with the air quality objectives.

The UK Government and Devolved Administrators recognise that many local authorities have invested considerable resources in TEOM analysers, and it may not be practical to replace these instruments on the short term. It is therefore considered appropriate that TEOM analysers should remain suitable for use for purpose of LAQM, but wherever possible the data collected should be adjusted using the Volatile Correction Model (VCM) rather than the use of a simple 1.3 multiplication factor.

For the purposes of this Updating and Screening Report, the VCM web portal, www.volatile-correction-model.info/Default.aspx, has been used to download geographically specific correction factors to be applied to the 2009 TEOM PM_{10} data from Salt Hill (Slough town centre, A4) and Slough Colnbrook (Pippins) TEOM PM_{10} analysers.

Correction of Beta Attenuation Monitor (BAM) PM_{10} data

Automatic monitoring of PM_{10} using a BAM, Slough Lakeside 2 automatic monitoring site, commenced in June 2007. The monitor is situated at Lakeside Road, Colnbrook, north of the new clinical waste incinerator and new Energy from Waste facility. The standard BAM analyser meets the equivalence criteria for PM_{10} monitoring providing the results are corrected for slope. For the purposes of this report, the 2009 measured concentrations were divided by a correction factor of 1.21.