

Fareham Borough Council

FAREHAM

BOROUGH COUNCIL

2010 Combined Air Quality Progress Report for Fareham Borough Council

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

May 2010


Fareham Borough Council

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Executive Summary

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government Guidance when undertaking such work. This Progress Report is a requirement of the Fourth Round of Review and Assessment and is a requirement for all local authorities. The report is submitted within the permitted schedule of reporting - end of April 2010. The Report has been undertaken in accordance with the Technical Guidance LAQM.TG (09) and associated tools (as updated in 2010).

This Progress Report considers all new monitoring data and assesses the data against the Air Quality Objectives. It also considers any development changes that may have an impact on air quality as well as updating on any relevant strategy and policy changes.

Having considered the latest monitoring data and development updates, it is concluded that the air quality objectives for benzene, 1, 3-butadiene, carbon monoxide, lead, PM₁₀ and sulphur dioxide will be met. There is no requirement to undertake a detailed assessment for these pollutants.

Having considered the latest monitoring data and development updates, it is concluded that the air quality objectives for NO₂ will be met at locations relevant of public exposure outside the Fareham Air Quality Management Areas (AQMA). NO₂ levels within the AQMA are still exceeding the annual mean Air Quality Strategy objective of 40µg/m³.

Proposed actions arising from this Progress Report are as follows:

- Continue with current continuous automatic monitoring programme for NO₂ at Elms Road in Fareham;
- Continue with NO₂ diffusion tube monitoring in the Borough, especially in the Portland Street and Gosport Road AQMAs and along other parts of Gosport Road outside the AQMA.
- Progress to a 2011 Annual Progress Report, to be completed by April 2011.

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1 Introduction

1.1 Description of Local Authority Area

The Borough of Fareham lies on the Solent coastline between the cities of Southampton and Portsmouth covering an area of almost 30 square miles with a population of 108,000 people. It is made up of five main urban areas namely Fareham, Portchester, Stubbington, the Western Wards and Whiteley.

Although rapid development has occurred over the past 50 years, approximately 60% of the Borough remains as countryside. Fareham remains the largest town in the Borough but the Western Wards (comprising Locks Heath, Sarisbury, Park Gate, Warsash and Titchfield Common) are now almost as large. Portchester and Stubbington/Hill Head have grown from small villages to large residential suburbs containing over 6,000 dwellings in each.

Fareham is highly accessible with mainline rail stations linked with Portsmouth, Southampton and London. The M27 motorway runs east to west through the northern part of the Borough, providing easy access by car and bus to the two neighbouring cities. Two international sea ports lie close to the Borough: Portsmouth European Ferryport and Southampton cruise liner and container port. The Solent corridor's regional international airports are also close by at Southampton Eastleigh Airport and Bournemouth Airport.

The main source of air pollution in the Borough is road traffic emissions, notably along the M27, the A27 Eastern Way/Western Way and the A32 Gosport Road going through Fareham town centre. Other pollution sources, including commercial, industrial and domestic sources, also make a contribution to background pollution concentrations.

Two Air Quality Management Areas (AQMA) have been declared in Fareham at the junction of Gosport Road and Newgate Lane, and in Portland Street near the Quay Street roundabout, where exceedences of the annual mean Air Quality Strategy (AQS) objective for nitrogen dioxide (NO₂) were identified, mainly due to traffic congestion.

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 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 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 microgrammes per cubic metre $\mu\text{g}/\text{m}^3$ (for carbon monoxide the units used are milligrammes per cubic metre, mg/m^3). Table 1.1 includes the number of permitted exceedences in any given year (where applicable).



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

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



Summary of Previous Review and Assessments

Between 1998 and 2001, Fareham Borough Council undertook its First Round of review and assessments of air quality which assessed the sources of seven air pollutants of concern to health: carbon monoxide, benzene, 1,3 butadiene, lead, nitrogen dioxide, sulphur dioxide and fine particulates (PM₁₀). The First Round assessments (Stages 1, 2 and 3) concluded that all AQS objectives were expected to be met by the target dates, based on the available information at that time.

The Second Round of Review and Assessment began with a USA in 2003. Fareham Borough Council completed this stage in August 2003. The report concluded that all AQS objectives were expected to be met, and therefore no Detailed Assessment of air quality was required.

Fareham Borough Council completed an air quality Progress Report in May 2004. The report provided an update regarding air quality monitoring with new data from 2003, and concluded that several diffusion tubes were exceeding the NO₂ AQS annual objective at Osborne Road, Hartlands Road and Gosport Road (A32), South Fareham.

The Council therefore proceeded to a Detailed Assessment in these areas. The assessment was carried out using detailed dispersion modelling based on traffic data provided by Hampshire County Council, and comparing results with 2004 monitoring data.

The report was completed in June 2005 and concluded that the NO₂ annual mean AQS objective for 2005 would be met at Osborne Road. The modelling predicted no exceedence of the NO₂ AQS objectives in Hartlands Road, although diffusion tube results at the location were showing concentrations above the annual mean AQS objective; no clear conclusion was drawn for that site.

Monitoring and dispersion modelling results showed that the NO₂ annual objective would be exceeded in both 2005 and 2010 in Gosport Road, at the junction with Newgate Lane and Redlands Lane. It was recommended that the Council install a continuous analyser to monitor NO_x and NO₂ concentrations in the area for a minimum period of 6 months, to confirm whether an AQMA should be declared. However, Defra required the Council to declare an AQMA without waiting for the monitoring results. Consequently, an AQMA was declared in April 2006, and NO_x / NO₂ concentrations were monitored between December 2005 and July 2006.

The Third Round of Review and Assessment began with a new USA in 2006, based on updated monitoring data for 2005. The report was completed in June 2006 and showed that several diffusion tubes results were above the NO₂ annual mean AQS Objective of 40µg/m³, at the following locations, all outside the current boundaries of the Gosport Road AQMA in Fareham:

- Portland Street (PS1)
- 31 Hartlands Rd (Y/HR1)
- Junction of Earl's Road and Gosport Road (G1)
- Gosport road (G3)

As the Council was required to proceed to a Further Assessment of the AQMA in Gosport Road, it was suggested that the assessment of the G1 and G3 locations should be incorporated in the Further Assessment.

As the diffusion tubes in Portland Street and Hartlands Road were not representative of public exposure, the USA concluded that a Detailed Assessment was not required at these locations. However, the previous Detailed Assessment in 2005 highlighted that monitored



concentrations consistently exceeded the annual mean objective in Hartlands Road for the past three years. Moreover, it was recognised that the roads are used by a significant number of buses, due to the bus station located in Hartlands Road. Therefore, it was recommended at the time that an updated traffic count be undertaken before taking any decision. Based on these new traffic data, it was decided to proceed to a new Detailed Assessment in Hartlands Road / Portland Street.

The Further Assessment of Gosport Road AQMA was carried out in 2007 together with the Detailed Assessment of Portland Street. The report concluded that the AQMA was still required in Gosport Road, although there was no need to extend the AQMA further.

The report also concluded that a new AQMA was required for NO₂ in Portland Street, following exceedences of the annual mean objective. A new AQMA was therefore declared in December 2007 in Portland Street for NO₂. As the report concluded that the AQS objectives were unlikely to be breached along Hartlands Road, this road was not included in the new AQMA.

Based on updated monitoring data, the Progress report completed in March 2008 confirmed that the NO₂ annual mean objective was still exceeded in the AQMAs.

The Further Assessment of Portland Street AQMA was completed in April 2009. Updated monitoring data and modelled results confirmed that the AQMA was still required, as the NO₂ annual mean AQS objective was still likely to be exceeded in this area. The results confirmed that the extents of the AQMA were appropriate, as no exceedence was monitored or predicted at locations representative of public exposure in the vicinity of the AQMA. Source apportionment showed that local traffic accounts for 55% to 60% of the overall NO₂ annual mean concentration in Portland Street (including a 30% contribution from HDVs), while local background contributes to 30%. It also concluded that a reduction of 70µg/m³ in NO_x concentration (equivalent to a 16µg/m³ reduction in NO₂) should be required to meet the NO₂ annual mean AQS objective.

In parallel with the Detailed and Further Assessments, the Council developed a joint Air Quality Action Plan for both AQMAs in 2008, which presented the mitigation measures that could be implemented to help reduce NO₂ levels along Gosport Road and Portland Street.

The Fourth Round of Review and Assessment started in 2009 with a new Updating and Screening Assessment. The USA 2009 concluded that, although updated NO₂ monitoring showed the annual mean AQS objective was still exceeded at a number of sites in the Borough, these exceedences were monitored either at sites within the Air Quality Management Areas declared in Fareham for NO₂, or at sites that are not representative of public exposure. An exceedence of the NO₂ annual mean AQS objective was however measured at site G10, north of the AQMA in Gosport Road. As this site was located at the façade of a property, a Detailed Assessment was required in this area. The Detailed Assessment is currently underway.

Figure 1.1 Gosport Road AQMA, Fareham

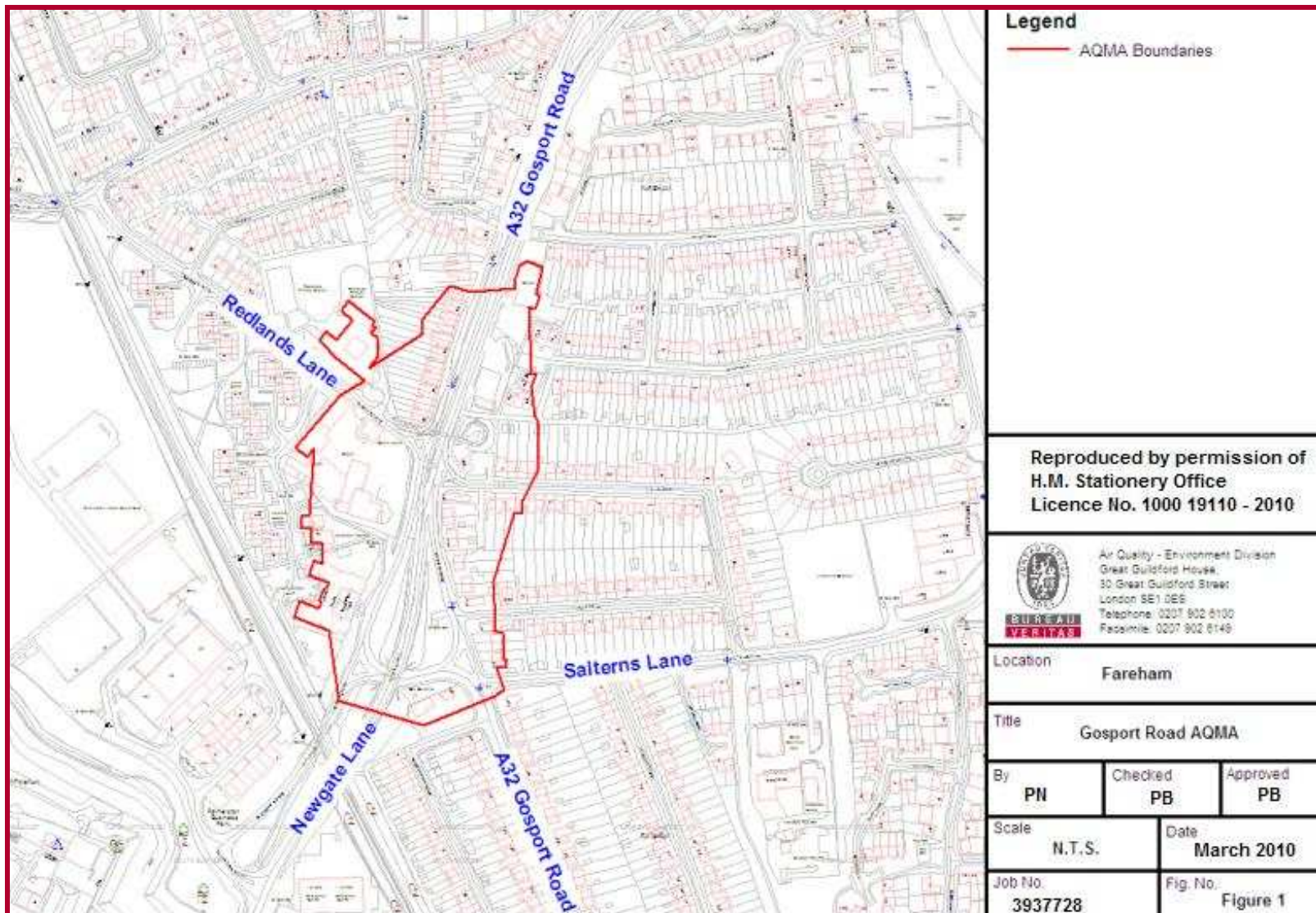
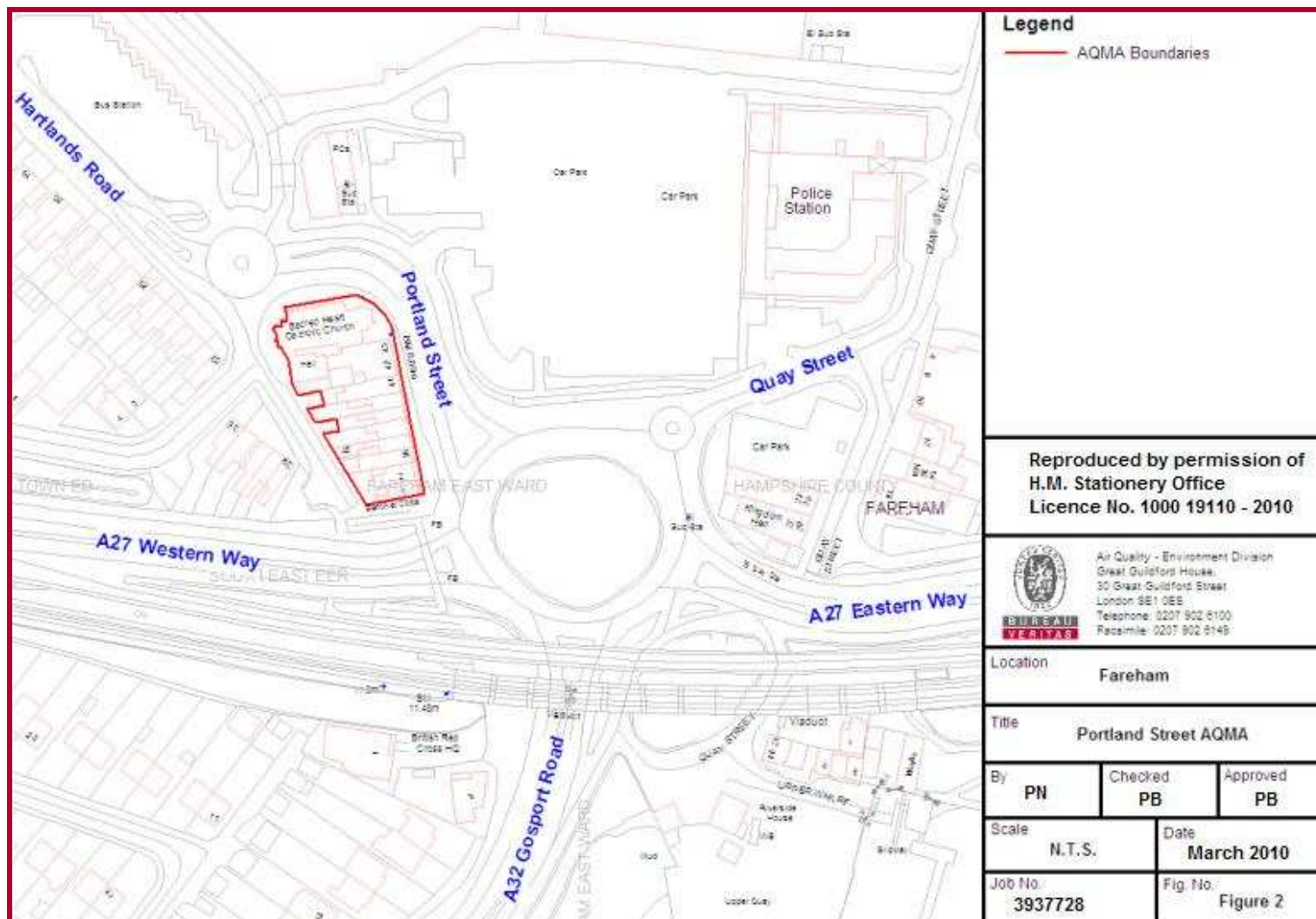


Figure 1.2 Portland Street AQMA, Fareham



2 New Monitoring Data

Section 2 reviews and assesses all new monitoring data in order to determine whether the air quality objectives are at risk of exceedence.

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

This section provides details of automatic air quality monitoring carried out in 2009.

There is currently automatic monitoring of nitrogen dioxide (NO₂) undertaken by Fareham Borough Council at Elms Road, Fareham, within the Gosport Road AQMA. The monitoring station is located at the junction with the A32 Gosport Road, and has been operating since 24th June 2008. It comprises a chemiluminescence NO_x / NO₂ analyser.

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	OS Grid Ref (x,y)	Pollutants Monitored	In AQMA ?	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Worst-case Location?
Elms Road, Fareham	Roadside	457594, 105280	NO _x , NO ₂ ,	Yes	No but property façade 3.5m from kerb on Gosport Road further south	1.5m	Yes

2.1.2 Non-Automatic Monitoring

This section provides details of non-automatic monitoring carried out in 2009.

The Council monitors NO₂ at 43 sites in the Borough, based on passive diffusion tubes. The vast majority of the monitoring sites are located in Fareham, including a set of triplicate tubes co-located with the continuous monitoring analyser in Elms Road. Six sites are located in the Gosport Road AQMA, and three other sites are within the Portland Street AQMA, (including a set of triplicate tubes). Three new sites were installed in 2009:

- Site G12 in Two Saints, 101 Gosport Road, Fareham (close to site G10)
- Site T2, 19 Mill Street, in Titchfield
- Site DC1, Maytree Drive opposite Delme Court, Fareham

Details of the diffusion tube monitoring sites are given in Table 2.2.

Figure 2.1 Automatic Monitoring Sites in the Borough of Fareham

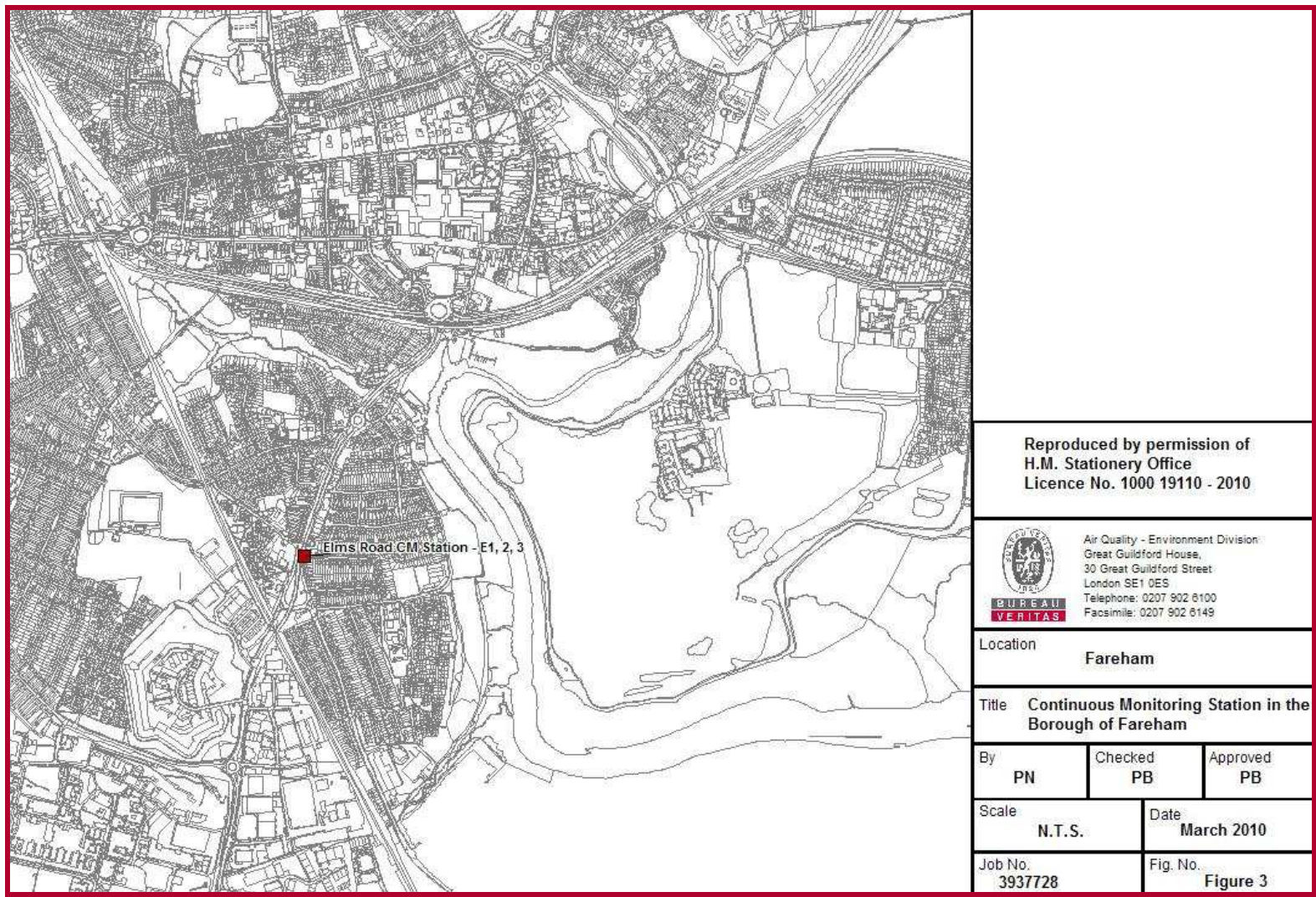


Figure 2.2 Non-Automatic Monitoring Sites in the Borough of Fareham

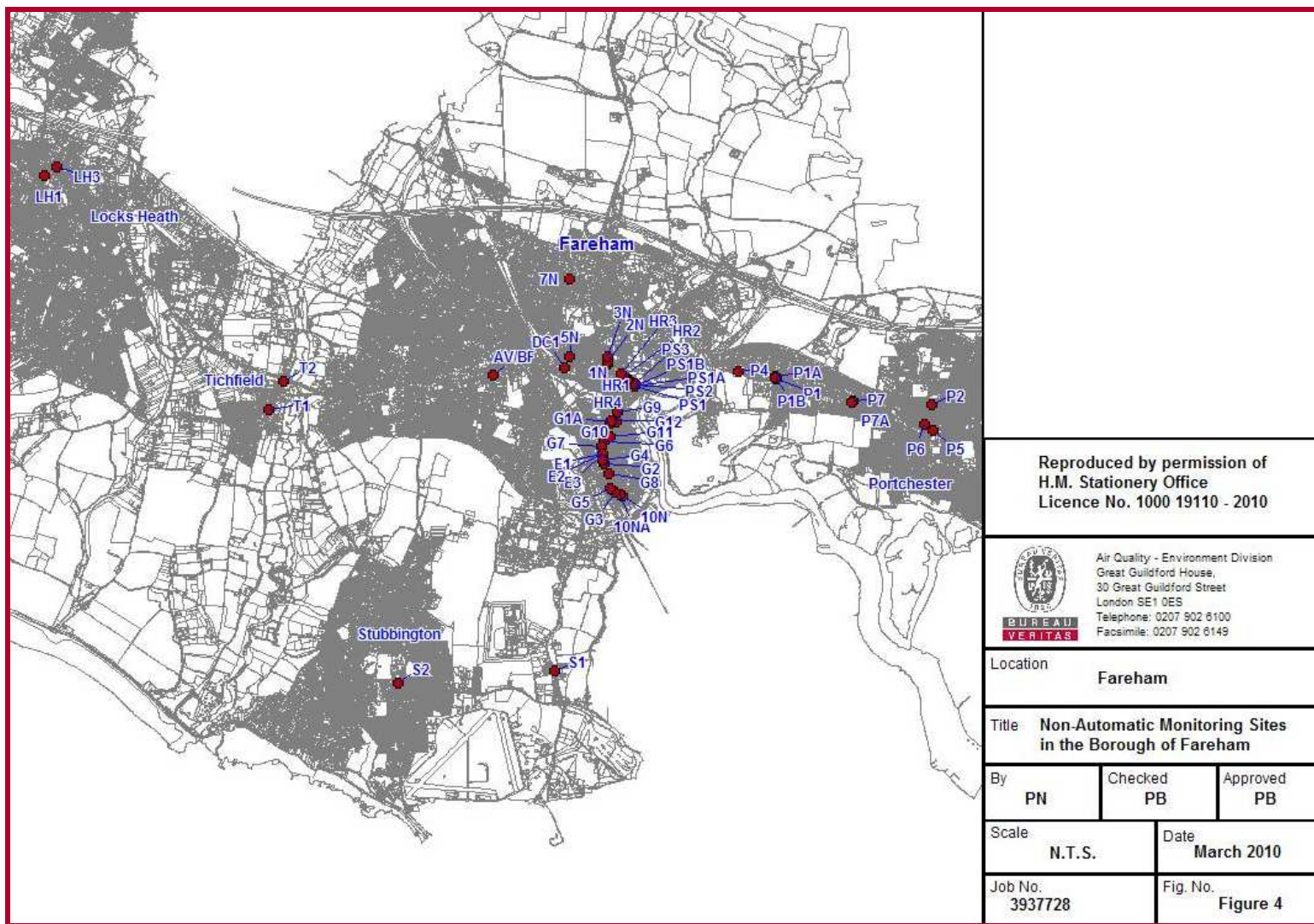


Figure 2.3 Non-Automatic Monitoring Sites in Fareham town centre

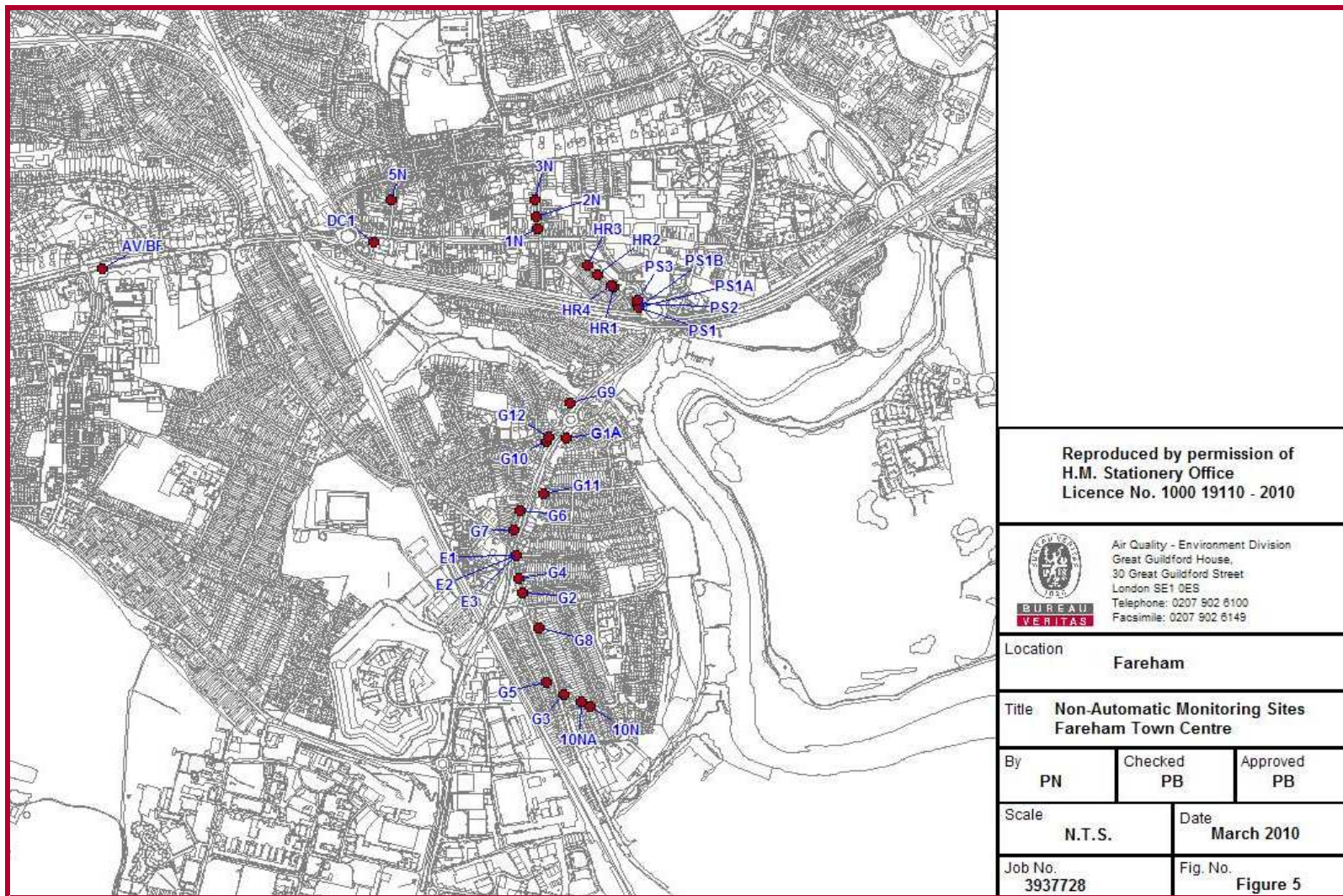


Table 2.2 Details of Non- Automatic Monitoring Sites – NO₂

Site No.	Location	Site Type	X	Y	Pollutant Monitored	In AQMA ?	Relevant Exposure ? (Y/N With Distance (m) to Relevant Exposure)	Distance to Kerb of Nearest Road (N/A if not applicable)	Worst-Case Location ?
10N	Farrier Way	B	457792	104831	NO ₂	N	Y - 8m	0.4m	Y
10NA	3 Farrier Way	R	457775	104853	NO ₂	N	Y - 0m	9.5m	Y
1N	145 Osborne Road South	R	457650	106257	NO ₂	N	Y - 1.5m	2.4m	Y
2N	2 Osborne Road South	R	457646	106258	NO ₂	N	Y - 0m	3m	Y
3N	14 Osborne Road	R	457643	106328	NO ₂	N	Y - 0m	6m	Y
5N	Grove Road	R	457235	106327	NO ₂	N	Y - 4.5m	0.5m	Y
7N	Norton Road	B	457400	107100	NO ₂	N	Y - 6m	0.5m	Y
Av/Bf	Avenue/Bishopfields Road	R	456402	106127	NO ₂	N	N	2.2m	Y
G10	107 Gosport Road	R	457674	105617	NO ₂	N	Y - 0m	14m	Y
G11	2 Earls Road	R	457670	105458	NO ₂	N	Y - 0m	5m	Y
G1A	30 Old Gosport Road	R	457733	105625	NO ₂	N	Y - 0m	10m	Y
G2/N11	130 Gosport Road	K	457608	105165	NO ₂	Y - Gosport AQMA	Y - 8.5m	1.75m	Y
G3	202 Gosport Road	R	457727	104865	NO ₂	N	Y - 0m	9m	Y
G4	122 Gosport Road	R	457596	105216	NO ₂	Y - Gosport AQMA	Y - 0m	6m	Y
G5	275 Gosport Road	R	457680	104909	NO ₂	N	Y - 0m	13m	Y
G6	171 Gosport Road	R	457598	105408	NO ₂	Y - Gosport AQMA	Y - 0m	6m	Y
G7	193 Gosport Road	R	457582	105352	NO ₂	Y - Gosport AQMA	Y - 0m	6.5m	Y
G8	152 Gosport Road	R	457649	105066	NO ₂	N	Y - 0m	8m	Y
G9	11 Eden Rise	R	457756	105733	NO ₂	N	Y - 0m	13m	Y
HR1	1 HartLands Road	K	457878	106056	NO ₂	N	Y - 6m	2.5m	Y
HR2	17 Hartlands Road	R	457823	106106	NO ₂	N	Y - 0m	11m	Y
HR3	9 HartLands Road	R	457794	106133	NO ₂	N	Y - 0m	7m	Y
HR4	25 Hartlands Road	R	457858	106077	NO ₂	N	Y - 0m	6.5m	Y
LH1	41 Bridge Road	R	451586	108272	NO ₂	N	Y - 5m	2m	Y
LH2	36 Botley Road	R	451719	108355	NO ₂	N	Y - 3m	1.5m	Y
LH3	36 Botley Road	R	451718	108361	NO ₂	N	Y - 0m	5m	Y
P1	Portchester Road/Downend Road	R	459422	106086	NO ₂	N	Y - 20m	3m	Y
P1B (formerly P1A)	3 The Ridgeway	R	459445	106109	NO ₂	N	Y - 0m	20m	Y
P2	141 The Crossways	R	461141	105805	NO ₂	N	Y - 10m	1m	Y
P4	22 Cams Hill	R	459059	106161	NO ₂	N	Y - 24m	2m	Y
P5	Silvermist Porchester	R	461070	105552	NO ₂	N	Y - 20m	1.5m	Y
P6	169 West Street	R	461047	105593	NO ₂	N	Y - 3.5m	1.5m	Y

Site No.	Location	Site Type	X	Y	Pollutant Monitored	In AQMA ?	Relevant Exposure ? (Y/N With Distance (m) to Relevant Exposure)	Distance to Kerb of Nearest Road (N/A if not applicable)	Worst-Case Location ?
P7	77 West St Portchester	R	461438	105548	NO ₂	N	Y - 5m	1.5m	Y
PS1	1 Sentinel Cottages	R	457939	106014	NO ₂	Y - Portland Street AQMA	Y - 0m	6.5m	Y
PS1A									
PS1B									
PS2	2 Sentinel Cottages	R	457938	106018	NO ₂	Y - Portland Street AQMA	Y - 0m	6.5m	Y
PS3	38 Portland Street	R	457936	106033	NO ₂	Y - Portland Street AQMA	Y - 0m	3.5m	Y
S1	Albert Road/Newgate Lane	R	457057	102975	NO ₂	N	Y - 12m	2m	Y
S2	Stubbington Lane (Eric Road)	R	455398	102809	NO ₂	N	Y - 14m	2m	Y
T1	South St Dental Health-Titchfield	R	453998	105762	NO ₂	N	Y - 0m	1.5m	Y
E1	Co-located with Continuous Monitoring Station on Elms Road, Fareham	R	457594	105280	NO ₂	Y - Gosport AQMA	No but property façade 3.5m from kerb on Gosport Road further south	1.5m	Y
E2									
E3									
G12	Two Saints, 101 Gosport Road	R	457684	105630	NO ₂	Y - Gosport AQMA	Y-1m	1.1m	Y
T2	19 Mill Street, Titchfield	R	454158	106060	NO ₂	N	Y-2.2	1.6	Y
DC1	Maytree Drive (lamppost) opposite Delme Court	R	457182	106203	NO ₂	N	Y-40	Y-0.5	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Nitrogen dioxide results for 2009 at Elms Road continuous monitoring station are presented in Table 2.3 and Table 2.4 below. The station was installed late June 2008, the data for the 6-month period were annualised to estimate the annual mean 2008. Annualisation was based on data from Bournemouth and Portsmouth AURN (Automatic Urban and Rural UK air quality monitoring network) Urban Background continuous monitoring stations. The annualisation factor was 1.02. Data capture for the 6-month monitoring period was 100%. The Elms Road station continued monitoring throughout 2009 and achieved good data capture for the year.

The results show that the annual mean NO₂ AQS objective was not breached at the site in 2009.

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

Site ID	Location	Within AQMA?	Data Capture for monitoring period (2009) %	Data Capture for full calendar year 2009 %	Annual mean concentrations (µg/m ³)		
					2007	2008	2009
A1	Elms Road AQM Station (Fareham)	N	99.7	99.7	-	33.7	35.9

With regard to the short-term objective, no exceedences were recorded during 2009. Fareham Borough Council has met the objective for NO₂.

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

Site ID	Location	Within AQMA?	Data Capture for monitoring period (2009) %	Data Capture for full calendar year 2009 %	Number of Exceedences of Hourly Mean (200 µg/m ³) (If the period of valid data is less than 90% of a full year, the 99.8 th percentile of hourly means is shown in brackets)		
					2007	2008	2009
A1	Elms Road AQM Station (Fareham)	N	99.7	99.7	-	0	0

Diffusion Tube Monitoring Data

The nitrogen dioxide diffusion tube data are summarised in Table 2.5 below. The full data set (monthly mean values) are included in Appendix B.

A bias adjustment factor has been applied to the data, which is an estimate of the difference between diffusion tube concentrations and continuous monitoring concentrations, the latter assumed to be a more accurate method of monitoring. For 2007 and 2008 data, the bias adjustment factors have been taken from the Council's previous LAQM annual reports, which relied on the bias factors provided by the UK NO₂ diffusion tube survey¹, as no local monitoring data were available for Fareham at the time. However, as a full year of monitoring data was available for 2009 at the Elms Road monitoring station, diffusion tube results were corrected using a local derived bias adjustment factor from this site. Details of the bias adjustment are given in Appendix A.

Diffusion tube sites that did not meet the 75% data capture criterion in 2009 sites have been annualised to estimate the annual mean for 2009. The details of annualisation are given in Appendix A. Results at these sites are subject to greater uncertainty.

As December results were exposed for longer than the national 5 week exposure period, 2009 overall results are shown with and without this month's data.

The 2009 diffusion tube results have shown that 3 sites have exceeded the annual mean NO₂ objective of 40 µg/m³. Site G12 is not taken into account as it was installed late 2009, and only 1-month worth of data was available which is not sufficient to estimate an annual mean. The 3 sites exceeding the objectives are:

- Site G2/N11 in Gosport Road AQMA, Fareham,
- Site PS3 in Portland Street AQMA, Fareham,
- Site P1 in Porchester

These sites also exceeded the objective in 2007 and 2008.

Site P1 - which is the only site outside the AQMAs - has consistently exceeded the NO₂ annual mean AQS objective over the past few years. However, as mentioned in previous LAQM reports, this is a kerbside site not representative of public exposure, with the nearest property being about 23m further back from the kerb. The estimated fall-off in NO₂ from kerbside to façade has been determined using the updated methodology described in technical guidance LAQM.TG(09)². Based on an NO₂ annual mean background of 21.6µg/m³ for 2009 (estimated from the background maps for this location) and the distances provided in Table 2.2, the estimated NO₂ at the façade of the nearest property is 32.0µg/m³. This is below the AQS objective, and therefore, a Detailed Assessment is not required at this junction.

Overall, results for year 2009 show much lower NO₂ concentrations than in previous years. This is mainly due to the fact that the local bias factor used to adjust the tube results is significantly lower in 2009 (0.84) than the bias factors derived for previous years from UK wide surveys (1.05 in 2008, 0.96 in 2007).

With regards to site G10, for which a Detailed Assessment is underway following the exceedences monitored in 2007 and 2008, the annual mean concentration for 2009 is below the objective (35.5µg/m³). Detailed dispersion modelling, which is part of the Detailed Assessment, will provide further information with regards to the potential need for an AQMA in the area.

¹ Spreadsheet of Bias Adjustment Factors – Available at www.uwe.ac.uk/aqm/review/

² NO₂ with Distance from Roads Calculator – Available at www.airquality.co.uk/laqm/tools.php

With respect to the hourly NO₂ objective, there could be a potential risk of exceedence of this short term objective, where the annual mean NO₂ concentration is >60 µg/m³. There are no sites which approach the short-term objective.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes

Site No.	Location	Within AQMA ?	Data Capture for monitoring period (inc Dec)	Data Capture for full calendar year 2009%	NO ₂ Annual Mean Concentration (µg/m ³) - Bias Adjusted			
					2007 (Bias Factor: 0.96)	2008 (Bias Factor: 1.05)	2009 (Bias Factor 0.84)	2009 bias corrected (Excl Dec)
10N	Farrier Way	N	83	83	25.1	25.8	22.2	22.2
10NA	3 Farrier Way	N	100	92	NI	25.9	21.5	21.3
1N	145 Osborne Road South	N	92	83	39.3	45.2	29.5	29.2
2N	2 Osborne Road South	N	100	92	30.6	32.2	26.6	25.8
3N	14 Osborne Road	N	92	83	25.4	28.6	23.5	23.5
5N	Grove Road	N	100	92	34.7	32	25	24.9
7N	Norton Road	N	100	92	18.9	21.6	17.7	17.1
Av/Bf	Avenue/Bishopfields Road	N	83	83	26.6	29.2	21.8	21.8
G10	107 Gosport Road	N	100	92	41.5	47.6	35.5	35.4
G11	2 Earls Road	N	100	92	25.7	34	25.9	25.4
G1A	30 Old Gosport Road	N	83	75	35.4	39.2	30.7	30.7
G2/N11	130 Gosport Road	Y – Gosport AQMA	100	92	44.7	49.4	40.6	40.4
G3	202 Gosport Road	N	83	75	38.7	33.9	26.4	26.1
G4	122 Gosport Road	Y – Gosport AQMA	83	75	31.3	34.8	26.4	26.4
G5	275 Gosport Road	N	92	83	30.1	31.7	25.4	24.8
G6	171 Gosport Road	Y – Gosport AQMA	100	92	32.5	36.3	28.3	27.8
G7	193 Gosport Road	Y – Gosport AQMA	100	92	38.1	39.8	33.2	32.5
G8	152 Gosport Road	N	100	92	30.9	37	25.7	25.7
G9	11 Eden Rise	N	100	92	28	33.3	25.1	24.9
HR1	1 HartLands Road	N	75	67	42.3	48.7	38.2	37.6*
HR2	17 Hartlands Road	N	100	92	33.3	37.2	28.2	27.5
HR3	9 HartLands Road	N	100	92	29.5	32.5	25.2	24.9
HR4	25 Hartlands Road	N	100	92	NI	38.6	26.4	26.1
LH1	41 Bridge Road	N	100	92	29.3	29.5	23.8	23.8
LH2	36 Botley Road	N	50	50	41.3	44.2	31.4*	31.4*
LH3	36 Botley Road	N	83	75	NI	39	31.3	31.6
P1	Portchester	N	100	92	43.8	52	41.6	42

Site No.	Location	Within AQMA ?	Data Capture for monitoring period (inc Dec)	Data Capture for full calendar year 2009%	NO ₂ Annual Mean Concentration (µg/m ³) - Bias Adjusted			
					2007 (Bias Factor: 0.96)	2008 (Bias Factor: 1.05)	2009 (Bias Factor 0.84)	2009 bias corrected (Excl Dec)
	Road/Downend Road							
P1A	3 The Ridgeway	N	100	92	NI	25.6	20.8	20.5
P2	141 The Crossways	N	100	92	25.7	24.3	21.2	20.8
P4	22 Cams Hill	N	100	92	28.2	31.8	26	25.5
P5	Silvermist Porchester	N	92	92	32.2	31.1	24.5	24.5
P6	169 West Street	N	100	92	25.2	30.2	22.5	21.7
P7	77 West St Portchester	N	75	75	32.5	35.1	27.7	27.7
PS1	1 Sentinel Cottages	Y – Portland Street AQMA	92	83	39.9*	46.6	36.1	35.9
PS1A			100	92	27.1*	46.5	35.3	35.1
PS1B			100	92	29.4*	47.3	36.7	36.1
PS2	2 Sentinel Cottages	Y – Portland Street AQMA	100	92	38	48.3	38.7	38.6
PS3	38 Portland Street	Y – Portland Street AQMA	83	75	45.3	55.9	42	41.7
S1	Albert Road/Newgate Lane	N	75	67	32.4	31.9	25.4	27.5*
S2	Stubbington Lane (Erice Road)	N	75	67	24.4	28.9	22.3	22.0*
T1	South St Dental Health-Titchfield	N	83	75	29.8	29.8	20.6	21.3
E1/E2/E3	Elms Road AQMS (triplicate)	Y - Gosport AQMA	89	81	NI	44.4	36.5	36.2
G12	Two Saints, 101 Gosport Road	Y - Gosport AQMA	8	8	-	-	44.3‡	44.3‡
T2	19 Mill Street, Titchfield	N	33	25	-	-	23.5*	25.5*
DC1	Maytree Drive (lamppost) opposite Delme Court	N	25	17	-	-	25.3*	30.4*

* Data capture less than 75%, data have been annualised

‡ Data consists of 1-month and could not be annualised

2.2.2 Summary of Compliance with AQS Objectives

Fareham Borough Council have undertaken monitoring for NO₂. The 2009 data for these pollutants have shown compliance with the Air Quality Standards Objectives at all but three sites, where exceedence of the annual mean NO₂ objective has been monitored. Two of these sites are within Fareham AQMAs. The remaining site in Portchester is not relevant of public exposure and projection of concentration to the façade of the nearest property is below the objective.

Fareham Borough Council has measured concentrations of NO₂ above the annual mean objective at one relevant location outside of the AQMAs, in Portchester. This location was already identified in previous Local Air Quality Management reports, but the nearest property is 20m further back from the road and projected concentration shows that NO₂ levels at the façade of the property is below the objective. Therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

3.1 Road Traffic Sources

Fareham Borough Council confirms that no new sources have been identified. However, plans remain in place for the conversion of the Quay Street roundabout to a "throughabout" with the planned food retail development which should result in lower nitrogen dioxide levels in the nearby Portland Street AQMA resulting in the revocation of the same.

3.2 Other Transport Sources

Fareham Borough Council confirms that no new transport sources have been identified.

3.3 Industrial Sources

This section should identify new or proposed industrial installations for which an air quality assessment has been carried out, existing installations where emissions have increased substantially or new relevant exposure has been introduced, or new or significantly changed installations with no previous air quality assessment. New or proposed major fuel storage depots storing petrol, petrol stations and poultry farms should also be considered.

Fareham Borough Council confirms that no installations matching the above criteria have been identified.

3.4 Commercial and Domestic Sources

Fareham Borough Council confirms that there are no new or newly identified commercial or domestic sources which may have an impact on air quality within the Local Authority area.

3.5 New Developments with Fugitive or Uncontrolled Sources

Since the 2009 USA the following Part B process applications, regulated by the Council, have been granted:

- Harfields Trucks Ltd applied for a permit for the operation of a mobile concrete crusher at the waste management facility at Sharlands Road, Fareham. Licence was granted in May 2009.

Moreover, the following Part A1 process applications, regulated by the Environmental Agency, have been granted:

- Part A1: Veolia Environmental Services (UK) Ltd for the waste transfer station in Down End Road, Fareham, PO16 8TR. Licence was granted in November 2009.
- Part A1: A licence variation was granted in March 2010 for the Rentokil Initial Services Ltd mixed waste transfer facility at Crompton Way, Fareham, PO15 5SP.

An application for Speciality Flexibility Ltd which was pending in 2009 was declined.

Fareham Borough Council has identified the following new or previously unidentified local developments local developments which may impact on air quality in the Local Authority area:

- Harfields Trucks Ltd mobile concrete crusher, Fareham
- Veolia Environmental Services (UK) Ltd waste transfer station, Fareham
- Rentokil Initial Services Ltd facility, Fareham

These will be taken into consideration in the next Updating and Screening Assessment, scheduled for 2012.

4 Planning Applications

Fareham Borough Council confirms they have received an application for the demolition of a public house and the redevelopment of the site into residential units. The site is at the junction of Highlands Road and Fareham Park Road which has AADT in excess of 10,000 vehicles, close to the road and in the vicinity of a pedestrian crossing, two junctions and commercial activities. An air quality assessment has been requested by Fareham Borough Council. Another application related to the development of an aged persons complex within the Gosport Road AQMA. An air quality assessment was requested and on site monitoring was undertaken over a few months. An 8 metre buffer between the pavement and the development was included in the plans. The assessment concluded that future occupiers would not be subject to nitrogen dioxide levels above the AQS.

5 Air Quality Planning Policies

The Regional Spatial Strategy (RSS) for the South East (covering the period up to 2026) identified the Borough of Fareham as a Strategic Development Area (SDA). Specifically, that 10,000 new dwellings north of M27 motorway in the borough comprising of a mixture of types and sizes and development should proceed with a co-ordinated and integrated manner. A focus is placed on attention to securing quality public transport, social, economic and leisure facilities and opportunities without breaching the national air quality standards and respecting the individuality of existing settlements.

The specifics of the form and location of the SDA will be established in the local Development Plan Documents. However, the RSS also placed a requirement of areas of open land to be left between Fareham and Wickham, Funtley and Knowle. The SDA is outlined to be 121,000m² of Greenfield land. A master plan should be developed between Fareham and developers early in the process and identify infrastructure needs and a programme of implementation.

For Fareham the RSS identified the need to maximise sustainable movement between the existing conurbation and the SDA; and sensitivity with regard to the area east of Portsdown Hill; and the provision of green infrastructure. The RSS also stressed the need assess the impacts of these SDAs so the national air quality standards are not breached.

Local Transport Plans and Strategies

The Regional Spatial Strategy (RSS) for the South East (current up to 2026) identified issues within the region which require long term solutions:

- Congestion on several sections including the M27, A27, A32 especially in peak time with predictions of 70% over-capacity for some links.
- Capacity constraints on the Fareham – Eastleigh rail link which will only worsen in the next 20 years without investment.
- Measures required to reduce the need for car travel and single occupancy car use especially in new developments where alternative can be planned in the development stage.

Set out within the Core Transport Policies of this Plan is the need to produce a framework around which the Development Plan Documents incorporate policies to:

- Tackle problems at source by implementing measures aimed at reducing the need to travel, e.g. by an area-wide approach to changing travel behaviour and lifestyles, and through encouraging shorter journeys.
- Manage existing networks to make the best use of current road space and public transport.
- Or, where neither of these approaches fully addresses the problems or issues, investment in new services and infrastructure will be proposed to help resolve them.

The RSS identified specific key issue which need to be addressed with the framework:

- Improve capacity and management performance of the M27, M271, M3 and A3(M),
- Sustainable access to major urban areas for trips originating by car,
- The role of high quality public transport routes with associated priority measures and multi-modal interchanges providing high frequency and quality public transport links within the area,
- Development of new buildings around linked infrastructure that encourages cycling and pedestrian travel especially for leisure facilities,
- The relief of traffic pressure on town centres and the need to improve access to regional hubs, particularly by improving local roads and bypasses and favouring development around existing transport hubs,
- The capacity and need for reinstatement of passenger rail services and for additional freight facilities,
- Access to the Strategic Development Area in North Fareham from the existing urban population secured in advance of any development planning and maintaining Fareham as the central hub,
- The need to improve access to and transfer facilities at Portsmouth and at Southampton Airport.

Hampshire County Council published the first Local Transport Plan (LTP) in 2006 covering the period 2006 – 2011. With regard to air quality the LTP strategy is to reduce, manage and invest in three broad areas with particular reference to the A32 between Gosport and Fareham.

Traffic Management

- Management of traffic flow through initiatives such as intelligent signs and transport systems including the re-phasing of traffic lights to encourage flow and reduce queuing
- Management of traffic speed through the enforcement of speed limits and the discouragement of aggressive driving
- Consideration of engineering schemes to reduce congestion and pollution at hot-spot locations e.g. junction improvements.
- Use of signs to steer traffic away from sensitive areas /routes
- Further Development of the Freight Quality Partnerships to manage and ease flow of polluting vehicles especially HGVs

Travel Reduction:

- Reduce congestion through initiatives that encourage fewer journeys
- Measures to encourage more sustainable fuels and less polluting vehicles especially HGVs in sensitive areas
- Provide educational programmes for eco-friendly driving techniques
- Encouraging alternatives to cars for school and work journeys through surveys and School Travel plans especially in area in or adjacent to an AQMA. Work Travel plans are voluntary although there is a target of 15% of people working in Hampshire to be covered by a travel plan by 2011.

Monitoring Air Quality:

- Provide information and raise awareness of air quality issues in the local and on-line media
- Monitor air quality levels
- Demand management measures to address air pollution

The Hampshire LTP stresses the need to incorporate local Air Quality Action Plan into the LTP where the principle sources pollution is traffic. A proposal to cover the year 2009/10 would include the availability of £2.5 million to improve access to Gosport which would include measures to improve air quality.

Climate Change Strategies

In response to Government expectation that local authorities will adequately prepare for climate change, Hampshire County Council formed a Climate Change Commission of Inquiry in partnership with the District and Borough Councils including Fareham Borough Council, to develop a Climate Change Strategy to be implemented up to 2011.

Fareham is a coastal community and the human population would be directly affected by climate change:

- Flooding and storm damage vulnerability increased due to greater incidents of heavy rainfall and high winds,
- Threats to water supplies as water suppliers find difficulty in meeting higher demand in summer months,
- Threats to public health through spoilage and heat-related deaths

Fareham Borough Council produced an Environmental Sustainability Strategy (2010). An Action Plan was developed that incorporated these key areas with a clear remit to the reduction of carbon emissions through 2010 to 2020 and beyond. Its key areas are:

Reducing domestic energy consumption

- Retrofitting existing homes
- Design and building of new homes to meet more stringent energy efficiency targets and coupling development with the Local Development Framework
- Raising public awareness of the energy saving measures

Reducing business and commercial energy consumption

- Retrofitting of lighting, heating and other energy uses in Council buildings
- New design for community buildings,
- Leading by example

Encouraging Sustainable Transport

- Reducing the need to travel and providing alternatives through cycle and pedestrian schemes
- Making travel more sustainable
- Encouraging clean fuels and low emission vehicles
- Leading by example
- Air Quality Action Plan

Encouraging renewable energy

- Working with the County Council to promote heat from waste
- Utilising the Local Development Framework to promote renewable energy in the development phase of buildings

Encouraging sustainable communities

- The Council has joined with the business community in Network Fareham to promote renewable energy
- Working together with other agencies to reduce carbon emissions

- Establishment of community based groups to encourage carbon emission reduction targets

Hampshire County Council is in the consultation stage for the development of the county-wide Climate Change Vision & Strategy. This is expected to focus on individual and joint actions the local authorities can take to implement measures and projects to adapt to and mitigate climate change. The consultation process will also draw a list of targets against which progress can be measured. A conference was scheduled for February 2010 and the new strategy is expected to be in place by the end of 2011.

Implementation of Action Plans

Fareham Borough Council created an Implementation Group after the Air Quality Action Plan (AQAP) was approved in 2008. The implementation is based on five sub-groups: public transport, road network infrastructure, sustainability, promotion, and monitoring.

The Council has applied for grants for the implementation of the AQAP totally £17,000 for the period 2008 to 2010. The sum of £5,000 has been allocated to aid the purchase of two Eco Drive Assistants which will reduce the nitrogen dioxide and carbon emissions from waste collection vehicles. Promotional banners on lamp columns require individual planning permission and the possible strengthening of the columns may prove prohibitively expensive to implement. A letter expressing concerns over the requirements has been sent to Hampshire County Council. Alternative fuel vehicles and charging points for electric vehicles have also been considered.

The plan for the first phase of the Bus Rapid Transit System (BRT) between Gosport, a town that does not have a train station, and Fareham, was initially approved by the County Council but judicial reviews of a series of injunctions since October 2009 have delayed the early stage implementation. A public enquiry was scheduled for the end of March 2010 and any further progress will rest on the findings of an independent inspector and the Court of Appeal. The delays in implementing phase one (due for completion in 2011) have financially impacted the feasibility of future phases.

Table 8.1 Action Plan Progress

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
1	Improve emission standards of Council fleet vehicles	FBC	To replace two refuse vehicles each year with new Euro compliant vehicles	Four new vehicles purchased to Euro V standard since 2008 including two refuse vehicles and two road sweepers.	Four refuse vehicles purchased to meet Euro IV standards. New glass collection vehicle purchased 2009. Two Eco Drive Assistant devices purchased in 2009/10. Report taken to Chief Executive Management Team 2009/10 outlining the potential for energy savings within the vehicle fleet and outcomes include a comprehensive Green Fleet review by the Energy Savings Trust; eco driver training for the FBC fleet drivers; to investigate the use of alternative fuelled vehicles for the parking team; GPS for refuse vehicles; new procurement policy for emission issues etc.	2010/11	POSSIBLE NEW ACTIONS INCLUDE:- Outcome of the Total Employment Package review that is looking at issues such as flexible working, mobile working, mileage, parking permits for staff etc; low emission pool cars for staff and residents; FBC provided electric vehicle charging point - one of the first by a Council in Hampshire; Pool bikes for staff; Eco driver training for all relevant staff including essential and/or casual car users.
2	Reduction in emissions from the local bus fleet	HCC/ Bus operator	To increase the number of Euro III, IV & V vehicles in the local bus fleet	None	In 2009, First Group signed a five year contract with GreenRoad a global pioneer in improving driver behaviour. The technology will be deployed across its fleet of 9000 buses and will improve environmental efficiency and passenger comfort. The Hoeford depot fleet is one of the first to be provided with the technology. It combines in-vehicle technology with integrated web-based	2010/11	Overall from 2011 the BRT scheme will deliver a reduction in emissions from the local bus fleet with the development of a QBP.

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
					<p>applications that continuously rate driving skills. It provides feedback to drivers in the form of red-amber-green LED display. It is a technology-based, automated driver coaching service that increases safety and reduces carbon dioxide and pollutant emissions. Most efficient driver and most improved driver awards will be made on a weekly basis. Trials indicate a 70% decrease in the number of unnecessary driving manoeuvres and carbon dioxide emissions being reduced by 132,000 tons over the next 3 years. The Hoeford bus depot is currently performing very well compared to other depots in the country. The Hoeford bus depot has also offered their staff the Cycle To Work package and the number of people regularly cycling to work has risen from 2 to 50. The provision of CCTV at the bike rack is also assisting in encouraging staff to cycle.</p>		
3	Review the regulation of private hire and hackney carriage emissions	FBC	To raise awareness of air quality amongst professional	There is no practical place to erect "Switch off your engine" signs at the town centre taxi rank and the licensing team confirm that	Article in taxi newsletter	2010/11	POSSIBLE NEW ACTION: The issue of reduced licensing fees for low emission taxis could be considered in the next report on licensing fees to the Licensing Committee.

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
			<p>I drivers in the Borough</p>	<p>idling taxi engines are not an issue. However, such a sign will be included in a tariff sign if this is provided at this location in the future. Regular articles on air quality in the taxi newsletters. Response to this included a comment regarding allowing taxis to use the Access Only route by the taxi rank rather than going around Hartlands Road and so adding to the pollution issues in the area close to the Portland Street AQMA.</p>			
4	Continue to implement the FBC sustainable travel plan	FBC	To deliver those measures identified in the Council's Sustainable Travel Plan Action Plan	Cycle allowance now offered to staff using their bikes for work. Another bike shop added to the Fareham Leisure Card.	Five employees have purchased discounted travel tickets from local travel companies. Membership of the FBC car share scheme is now 5.5% of all staff. 15 bike loans have been given to employees.	2010/11	Sustainable Travel Plan currently being reviewed after the completion of the Job Evaluation process as part of the Total Employment Package for staff

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
5	To pursue voluntary or VOSA vehicle emission testing in or near the AQMAs	FBC	To undertake an air quality promotional type activity in conjunction with the police, EA and/or VOSA in 2009/10	None	VOSA no longer undertake roadside emission testing as so few vehicles were failing to meet the minimum MOT standard. They have no portable calibrated equipment so therefore there will be no operations of this nature. However, the local police have agreed to contact FBC regarding any future operations involving the stopping of vehicles so that a green awareness message could be passed on in the form of a leaflet.	2010/11	POSSIBLE NEW ACTIONS: To investigate the use of remote sensing/vehicle recognition equipment to identify polluting vehicles on the highway; idling engine enforcement.
6	Reduce emissions from badly maintained vehicles by continuing to promote the smoky diesel hotline	FBC	To maintain the link to the Smoky Diesel hotline on the FBC website	Completed. Publicise Smoky Diesel hotline and other pollution regulations via the website and the display of leaflets in the Civic Offices.	An article in the Autumn edition of Fareham Today 2009 highlighted the existing FBC website link.	2008/09	
7	Signing of waiting areas/bus station/bus stops/taxi ranks etc instructing drivers to "Turn off engines".	FBC/ Bus operator	To raise awareness of air quality amongst professional drivers in the Borough	Completed	First Group have displayed "Improve local air quality - switch off your engine" signs in each bus bay of Fareham bus station.	2009/10	POSSIBLE NEW ACTION: To investigate the purchase of in-car/cab/rear window stickers from Bristol City Council with the FBC logo and artwork possibly designed by school children etc.

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
8	To examine the feasibility of erecting signs to identify the AQMAs	FBC	To raise awareness of air quality amongst drivers and other users of the A32 Gosport Road Fareham	FBC, HCC and GBC discuss a joint approach to the sustainable travel/air quality signage on the A32. Grant money from Defra could be used to contribute to the cost.	Ongoing progress in respect of meetings with HCC and GBC. Artwork completed; to seek planning permission for columns; to work with PFI contractor with regard to strengthening the new columns as they are fitted in GBC and FBC.	2010/11	POSSIBLE NEW ACTIONS:-Use of Variable Message Signs in association with BRT development; use of developed artwork on variety of locations including buses, bus shelters, car parks, bottle banks etc; billboards; posters in GP surgeries, community boards etc; a letter on behalf of the PPPDR panel to be sent to HCC regarding the problems associated with the display of banners on lamp columns on A32; a letter on behalf of the AQAP implementation group to the Leader of GBC describing the duties of FBC under the Environment Act 1995 and asking for their cooperation in pursuing the AQAP improvement actions.
9	To assess the outcomes of the Gosport commuter study and the Gosport Transport and Sustainability Partnership and their impact on the AQMAs	GBC	Gosport Partnership Sustainable Community Strategy priority of reducing traffic congestion in Gosport by December 2009	Completed		2010/11	Congestion and delay is an attribute of commuting out and into Gosport; main pinch points on the road network that need to be improved are in Fareham; information and recommendations will be of assistance in developing the Gosport Peninsula Transport Strategy and the supporting Fareham and Gosport LDF policies and site specific proposals that will seek to reduce the volume and type of traffic causing the air quality problems on the A32.

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
10	To implement road network measures detailed in HCC's LTP2 to assist in reducing congestion/ improving air quality in the AQMAs	HCC	To not exceed 1% annual growth rate of all motor traffic (HCC LTP2 target) in the AQMAs		Unfortunately, it has not been possible with Government and developer funding to deliver all of these proposals. A key transport intervention which has the potential to provide an alternative to certain journeys presently made by private car through the A32 AQMA is the BRT system. The government funding for the first phase of the route from Military Road to Redlands Lane has been secured and planning permission has been given. A public enquiry is to be held towards the end of March 2010 regarding the two village green applications that have been made for parts of the BRT scheme. The detailed air quality assessment undertaken in respect of the BRT suggests an improvement of air quality in the AQMA. The Quay Street retail development has still not received planning permission. However, one of the section 106 agreements will result in funding for a continuous nitrogen dioxide monitor in the vicinity of the Portland Street AQMA for a period of up to 3 years both before and after development of the site and the Quay Street thoroughabout. The detailed air quality report in respect of this development suggests that the thoroughabout will result in a revocation of the Portland Street AQMA. A Strategic Access to Gosport report is being prepared and is almost complete. The final report will identify transport interventions required to regularise journey times on the strategic access roads to the Gosport peninsula (A32 Fareham and Gosport Road, B3385 Newgate Lane and the B3334 Titchfield Road, Gosport Road and Rowner Road). The report will serve many purposes and the measures proposed will affect the traffic flow on the A32 and consequently air quality.	2008/11	

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
11	To implement those ITS improvements within FBC as detailed in the LTP2 to reduce congestion and improve air quality in the AQMAs	HCC	As for action 10	Ongoing	Ongoing	2008/11	<p>Dependent on implementation of BRT. Following the introduction of reduced "green time" from Salterns Lane traffic onto the Gosport Road it may be possible to adopt a similar policy at other signalised road junctions. However, this may lead to more traffic on the A32. The ITS strategy for the Gosport peninsula will reflect the fact that there is no spare capacity on the A27 corridor junctions during peak periods. Consequently the ITS strategy can be considered to be a "demand management" strategy which seeks to ensure that traffic uses the most appropriate route thereby regularising journey time reliability. Such a strategy may reduce the volume of traffic passing through the "affected" section of the A32 with air quality management problems but would result in the peak spreading and more traffic using the B3334 corridor.</p>
12	To undertake appropriate improvements to the Quay Street roundabout in conjunction with the nearby retail development	HCC/ FBC/ Devel oper	As for action 10	Ongoing	Ongoing	2010/11	<p>The highway improvement to the Quay Street roundabout will provide full signalisation of the roundabout thereby allowing the Highway Authority to control traffic flows on the A32 approach which may help to reduce congestion on the A32. The detailed air quality assessment</p>

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
	and negotiate with the developer a financial contribution for future air quality monitoring in the area						indicates that the Portland Street air quality will be improved but there might be a slight negative effect on the Gosport Road air quality. The development has yet to receive planning permission but assuming all legal agreements are eventually signed, a contribution of £50,000 towards air quality monitoring will be made by the developer prior to the store opening.
13	To develop the climbing lanes between junctions 11 and 12 of the M27	HA	Completion of works	Completed		2008	
14	Develop a Quality Bus Partnership for the A32 including a reduction in emissions from local buses	HCC/ Bus operator	To increase journeys by passenger transport by 2% by 2010/11 above a 2003/4 baseline in Hampshire (HCC LTP2 target)	None	None	2008/11	The BRT scheme will deliver an Operator Agreement with quality thresholds for vehicles. These buses serve other parts of the Borough. The majority of bus services will move away from the A32 to use the BRT track with a consequent reduction in emissions along the A32

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
15	Provide a bus/rail interchange facility at Fareham rail station	HCC/ TfSH (Transport for South Hampshire)	As for action 14	None	None	2010/11 (Subject to Community Infrastructure Bid)	<p>Subject to future funding availability, HCC to develop a transport interchange at Fareham rail station. The proposed interchange at Fareham Station is still a fundamental part of the wider BRT scheme. After initial feasibility work by Mott/Gifford which is due for completion shortly, this will need to be looked at in conjunction not only with FBC LDF work but also the redesign of the Quay Street roundabout and links to the railway/BRT route and the town centre. Communication with South West Trains and National Rail will be vital particularly in respect of the proposed bridge over the main line.</p> <p>The provision of the bus/rail interchange and measures to provide bus priority between the bus/rail interchange and the Fareham bus station will make BRT an even more attractive option to the private car user for certain trips to/from the Gosport peninsula thereby reducing traffic flow through the AQMA.</p>
16	To provide a suitable alternative to the light rapid transit system linking Fareham,	HCC/ TfSH	As for action 14	Planning permission granted	Groundworks commenced	2010/11 (Subject to Community Infrastructure Bid)	Dependent on implementation of BRT

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
	Gosport and Portsmouth						
17	To monitor the progress of providing real time bus information at bus stops in Fareham and Gosport	HCC	As for action 14	None	None	2011	A system for Fareham & Gosport will need to be developed. The BRT team will lead on development to be implemented as part of Phase I
18	To provide bus priority measures as part of the Vision for West Street	TfSH	As for action 14	None	None	2011	To be progressed by HCC - See action 15
19	To work with local bus operators to provide improved services for people working in Whiteley via the now complete Yew Tree Drive bus link	HCC	As for action 14	HCC is continuing to work with First, WCC, FBC and the major employers to improve services.		2009/10	

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
20	To continue to subsidise bus travel beyond the statutory minimum to further encourage bus usage	FBC	To provide statutory responsibility for bus subsidies.	Completed. There has been a 28% increase in the number of bus journeys.		2009/10	However, wording of this action is now inaccurate as from April 2009 FBC no longer provides beyond the statutory minimum
21	To review progress in respect of the FBC Cycle Strategy 2005-11 and the LTP2 and implement those measures likely to have an impact on air quality in the AQMAs	FBC/ HCC	To increase the levels of cycling by 2010 to those experienced in 2004 (HCC LTP2 target)		Ongoing	2008/11	a)HCC building new cycleways from Whiteley to Swanwick station and from Segensworth to Southampton Road; b)Cycleways and cycle racks are planned at the new Quay Street retail development; c) Provision for cycling to be included in BRT route and d) Publication of new cycle maps for Fareham in progress. POSSIBLE NEW ACTION: Pool bikes for staff
22	To continue to promote public transport and alternative travel arrangements such as the Gosport Ferry and local bus services on the FBC website	FBC	As for action 14		Completed	2008/9	These website links have been checked. Links made from the air quality pages to these pages and other sustainable transport type information added to the air quality pages. Climate change and air quality articles in Autumn edition 2009 of Fareham Today. Possible links to the development of the Environmental Sustainability Strategy once approved. POSSIBLE NEW ACTION: To develop a Travel Fareham website

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
							similar to the new Travel Gosport with it's car share scheme for Gosport residents.
23	Promote the development and implementation of work travel plans amongst companies that use the roads in and around the AQMAs particularly through the use and enforcement of planning conditions	FBC/ HCC	15% of people working in Hampshire to be covered by a travel plan by 2011 (HCC LTP2 target)	The County Council has been reviewing latest Guidance for the Development Related Work Travel Plans and this Guidance states that travel plans should be provided for any development located in or near an AQMA		2010/11	The next stage is to define "near" more precisely and for FBC to ensure that the Guidance is implemented. With regard to the enforcement of travel plans already submitted, the County Council is developing a monitoring/enforcement strategy. Target being pursued through consultation on the Environmental Sustainability Strategy that should be approved March 2010 with the Economic Development Partnership and various Business Forums. The only travel plan of significance in the area of the AQMAs is the one associated with the proposed Quay Street retail development.
24	To continue to work with schools in Fareham close to the AQMAs for the development, implementation and the annual	HCC	100% of students in full time education (5-16 years) to be covered by a travel plan by		Ongoing	2008/11	73% of school children are currently covered by a school travel plan in Hampshire. Redlands Primary School is located within the Gosport Road AQMA and Neville Lovett is relatively close. As a result, there are likely to be quite a lot of pupil/parent movements on the A32. Both schools have a travel plan and both

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
	review of School Travel Plans		2008/9 from a 36.5% base in 2004/5 (HCC LTP2 target)				<p>have Healthy School status. Both schools are in the 2009/10 Safer Routes to School programme for works. The County Council's work has become integrated with the Sustainable Modes of Travel Strategy which seeks to inform parents and schools of the infrastructure and services available to access each school and thereby enabling those travelling to the school to choose the most sustainable mode of travel available to them. The only school that is close to Portland Street AQMA is Wykeham House School (an independent school) and they have now reached Level 1 of the school travel plan assessment criteria, that is, they are working towards a school travel plan. It appears that there are only two schools within the Borough without any school travel plan progress and these are the Fairways in Swanwick and West Hill Park Titchfield; these are both independent schools and neither are near the AQMAs.</p>

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
25	To implement the Town Access Plan proposals where they have an impact on air quality in the AQMAs	HCC/ FBC	Accessibility target (% of people with access to town centre) (HCC LPT2 target to be developed for Fareham)		HCC is currently drafting a Fareham Town Access Plan. It is anticipated that a draft will be published for consultation in Spring 2010	2010/11	
26	To continue to inspect premises and take appropriate enforcement action in respect of the Environmental Permit risk assessment regime	FBC	To ensure that premises are inspected in accordance with the risk assessment regime	All petrol stations have been inspected by Hampshire County Council trading standards petroleum officers under contract from FBC. Website explanatory information and public registers recently updated and held up as a good example by Defra.	All due inspections undertaken in 2008/9 including the first round of inspections of dry cleaners. First round of biannual inspections for 2009/10 of medium risk installations eg crematorium, foundry in Warsash etc, undertaken in October/November 2009. All other due inspections will be undertaken by the end of March 2010.	Annual	
27	To use Environmental Permit inspections to encourage the provision of alternative fuels at petrol stations forecourts	FBC	To provide petrol station operators during EP inspections with a leaflet regarding		Completed	2009/10	Liaised with HCC who are currently undertaking permit inspections of petrol stations for FBC and other local authorities in HIOW. Sustainable transport information added to the air quality pages on the website. Possible links to the development of the Environmental Sustainability Strategy once it is

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
			the benefits of providing alternative fuels at their premises.				approved. Letter to all petrol stations in 2009 regarding their supply of alternative fuels.
28	Promote the use of planning policies, alongside other planning and transport measures, to promote sustainable transport choices and reduce reliance on the car	FBC/ GBC	Examples of where FBC requires higher provision of cycle facilities or lower car parking facilities than the HCC standards for new developments		Ongoing	2010/11	Work is still ongoing on the development of LDF Core Strategy in consultation with PUSH. Public consultation now unlikely to be until later in 2010.
29	To ensure that the new LDF incorporates planning policy that will not adversely impact on air quality but furthermore enhances air	FBC	Member of the pollution team to continue to attend the LDF officers' meetings		Ongoing	2010/11	

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
	quality where possible						
30	Regulatory Services will continue to work with the Development Control section to ensure that air quality is taken into account in the planning development process	FBC	Planning development control to continue to liaise with the pollution team	Work is ongoing. Examples include the Quay Street retail development; the BRT scheme; a residential development at Delme Court Fareham; possible redevelopment of a factory site for residential use in the Gosport Road AQMA; redevelopment of the Hampshire Rose site on Highlands Road Fareham		2010/11	
31	To review the new FBC parking strategy and implement any measures that may result in reduced congestion in the AQMAs	FBC	Development of resident parking schemes possibly affecting the AQMAs	The strategy was reviewed and actions are being implemented. The actions are ongoing but the strategy was updated to reflect changes that have taken place this year. Also Parking charges were introduced in April 2009 on Sundays in all short stay car parks which supports the promotion of sustainable travel. The Residential Parking review in Fareham town centre started and has the aim of seeking to stop commuters parking for free in residential roads around Fareham town centre. The proposals include residents permits and other measures which will give greater priority for parking by residents. The scheme is expected to be implemented in the summer of 2010. During busy shopping periods, queuing regularly takes place on the approach to Market Quay car park which may contribute to		2010/11	POSSIBLE NEW ACTION: The Parking Strategy Review due July 2010 could include reference to the AQAP and the Environmental Sustainability Strategy and could possibly investigate such measures as reduced parking fees for low emission vehicles.

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
				the air pollution to Portland Street AQMA. A review of the payment system and access to the car park is being undertaken which aims to reduce this queuing. Outcomes of this work are expected later this year. Ongoing Park and Ride between Lysses long stay car park and Fareham town centre on the busiest shopping days, Mondays and Saturdays.			
32	To continue to review and consult on air quality in the Borough in line with statutory requirements	FBC	To ensure compliance with the DEFRA timetable	Defra approved AQAP in November 2009. The further assessment of Portland Street AQMA was sent to Defra in June 2009 with a recommendation for the AQMA to remain in place. This was approved by DEFRA in November 2009. The USA 2009 for the whole Borough was also sent to Defra and recommended a detailed assessment of the air quality between the two AQMAs by April 2010 possibly resulting in the declaration of one larger AQMA. This report was also approved by Defra in November 2009		2010/11	Detailed assessment for the area between the two existing AQMAs under way 2010.
33	To enhance the nitrogen dioxide monitoring network by providing continuous nitrogen dioxide monitors in the AQMAs	FBC	To provide continuous monitoring information for the Gosport Road AQMA and to assess whether or not the annual mean objective for NO2 is not being exceeded		The continuous monitor on the Gosport Road continues to work satisfactorily and results from this were used in the further assessment of the Portland Street AQMA and the USA 2009 and will be used in the future reports for computer modelling purposes. Further diffusion tubes have been located on the facades of houses as recommended in the Progress Report 2008. The section 106 agreement with the Quay Street retail developer will hopefully provide a continuous nitrogen dioxide monitor at Portland Street for a period of approximately 3 years.	2010/11	

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
			so as to allow for the revocation of the AQMA				
34	To continue to work in partnership with neighbouring authorities and others for the control of air pollution and continued improvement of air quality eg to attend HIOW air quality group	FBC	The HIOW air quality officers' group to meet twice a year as a sub group of the HIOW Environmental Control Advisory Committee (ECAC)	The USA 2009 was sent to adjacent local authorities for comment and they similarly consulted with FBC. An officer of Regulatory Services continues to attend the HIOW Environmental Control Advisory Committee (ECAC) which meets every 4 months to discuss common pollution issues in the County. The regional AQAP group with representatives from Hampshire County Council, Southampton City Council, Portsmouth City Council, New Forest District Council, Eastleigh Borough Council, Rushmoor Borough Council and Fareham Borough Council met on 20 October 2009 to discuss recent consultation from Defra on the EU compliance date for nitrogen dioxide levels and the entire local authority Air Quality Review & Assessment process. Continued attendance to FBC and GBC LSP transport group meetings.		2010/11	POSSIBLE NEW ACTIONS: A letter on behalf of the PPPDR panel sent to HCC regarding the problems associated with the display of banners on lamp columns on A32; a letter on behalf of the AQAP implementation group to the Leader of GBC describing the duties of FBC under the Environment Act 1995 and asking for their cooperation in pursuing the AQAP improvement actions.
35	To monitor the performance of the AQAP and review actions having regard to the air quality objectives and implement additional actions where necessary	FBC	To revoke the AQMAs for both locations	The diffusion tube and continuous monitoring data were used in the compilation of the further assessment of Portland Street and the USA 2009 and will be used in future reports. Diffusion tube data has also been used by consultants dealing with the Quay Street development, the BRT and the possible redevelopment of the factory site in the Gosport Road AQMA. An AQAP implementation group has been established to pursue the AQAP actions as recommended by the Executive in December 2008. The group has now met 4 times. The AQAP actions have been divided into 5 sub groups that report to the implementation group on a regular basis. These updates will form the basis of the AQAP annual		Annual progress reports to DEFRA	

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
				progress report to Defra.			
36	To continue to educate and enforce in respect of domestic, agricultural and industrial smoke nuisances and dark/black smoke	FBC	Completed	Completed		2010/11	The CSC continues to initially respond to statutory nuisance complaints regarding smoke. In 2008-9, the Council dealt with 50 complaints of this nature. Certain planning permissions have a condition attached preventing the lighting of bonfires on site during development
37	To monitor as a Council data in respect of NI 194 and implement actions to achieve target set	FBC	To set a target for Fareham Borough Council	NI 194 data for 2008/09 is now available (5.97 tonnes of NOx and 0.31 tonnes of PM10). A reduction of 10% by 2011 is a proposed target.		2010/11	
38	To continue to place air quality reports on the FBC website	FBC	To ensure that all appropriate bodies are kept aware of LAQM progress	Progress report 2008, AQAP and the further assessment of Portland Street and USA 2009 (all approved by Defra in November 2009) now on FBC website. AQAP referred to in the draft Environmental Sustainability Strategy and as part of the Council's submission to the Audit Commission in respect of the Use of Natural Resources KLOE.		2010/11	

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
39	To investigate the most effective method of disseminating air quality information to the public and assess the feasibility of employing this method for FBC	FBC	To raise awareness of local and national air quality matters	Live information and reports on website		2010/11	POSSIBLE NEW ACTIONS: Use of variable message signing for air quality information in association with BRT development; development of a local air quality alert system for Fareham.
40	To promote awareness via the FBC website of other air quality information web sites	FBC	To raise awareness of local and national air quality matters	Completed	Live information from the continuous monitor on the website. Website with links from air quality pages to public transport and cycling and walking sites and to information relating to sustainable modes of transport. Possible links to the development of the draft Environmental Sustainability Strategy.	2010/11	POSSIBLE NEW ACTION: Consultation with residents of GBC; a letter to be sent on behalf of the AQAP implementation group to the Leader of GBC describing the duties of FBC under the Environment Act 1995 and asking for their cooperation in pursuing the AQAP improvement actions.
41	Support locally, national campaigns to raise awareness of air quality, alternative transport choices etc	FBC	To support where appropriate, a national air quality campaign at least once a year via the FBC website	The Council supported the national Bike to Work Week (13-21 June 2009) by encouraging employees to ride their bikes to work. Since the publication of the AQAP, a cycle mileage allowance for work trips is now payable to staff and an additional cycle shop has been added to the Fareham Leisure Card		2010/11	Other initiatives could include an air quality day; Civic offices foyer display; regular newsletter; ride your bike campaign; alternative fuel campaign; radio campaign; CATs presentation

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
42	To promote the use of alternative fuels eg LPG, hybrid	FBC	To increase awareness of alternative fuels	Completed	A letter was sent to all petrol stations in the Borough regarding their existing or possible future provision of alternative fuels or electric charging points for vehicles with very little response. Article on air quality in Autumn edition of Fareham Today 2009 mentioned use of alternative fuels in vehicles. Sustainable transport information added to the air quality pages on the FBC website.	2009/10	POSSIBLE NEW ACTION: FBC provided electric vehicle charging point for public use - one of the first by a Council in Hampshire; purchase of an alternative fuel Council vehicle; eco driver training for all FBC drivers including those in receipt of essential or casual car user allowances; low emission pool cars for staff and residents; pool bikes for staff.
43	To produce a leaflet on the AQAP and distribute to libraries, GP surgeries etc	FBC	To raise awareness of the link between poor air quality and ill health	None	None	2010/11	No progress to date but information on air quality is placed on the FBC website and further information was included in an air quality article in the Autumn edition of Fareham Today 2009. Possible links to the development of the draft Environmental Sustainability Strategy. To further liaise with the FBC LSP Health & Well being Partnership.
44	To liaise closely with the PCT in respect of identifying any linkage between areas with poor air quality and ill health	FBC/ HCC/ PCT	To understand more fully the relationship between poor air quality and ill health locally in	Completed	Council met with the PCT but they do not feel that there is any need to undertake any local monitoring of health effects associated with air quality in the AQMAs.	2009/10	

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
			Fareham				
45	To continue to promote energy awareness and efficiency in the Borough	FBC	To progress the Fareham Home Improvement Energy Conservation Strategy 2006-9	Specific targets achieved. Partnership work with Environment Centre ongoing. A report has concluded that FBC is likely to achieve a target of 30% improvement in energy efficiency over a 15 year period		2010/11	
46	To reduce car dependency and facilitate transport choice by encouraging alternatives to the car alongside changes in working arrangements through the Smarter Choices regime of the LTP2	HCC	HCC's targets for Hampshire's Smarter Travel Choices Strategy shown in Table 8 of section 10.7.1 of the AQAP	See comments for Actions 21 and 28		2008/11	POSSIBLE NEW ACTION: Similar to Portsmouth City Council's One in Five challenge of encouraging staff to leave their car at home/ work from home once a week.

No	Measure	Lead Authority	Indicator	Progress to Date	Progress in Last 12 Months	Estimated Completion Date	Comments
47	To continue to promote cycling and walking as healthier alternatives to the car on the FBC website	FBC	As for action 46		See comments for Actions 21, 28 and 46. FBC Sustainable Travel Plan is currently being reviewed after the completion of the Job Evaluation process as part of the Total Employment Package for staff.	2008/11	POSSIBLE NEW ACTION: Pool bikes for staff
48	To implement Environmental Sustainability Strategy (ESS) and ensure that NO2 is considered in the development of the FBC Sustainability Strategy	FBC	To implement FBC's ESS		(a) Appointment of Sustainability Co-ordinator has been slightly delayed and is now expected in 2010 (b) Following the LSP Board in December 2009, the remit of the Climate Change Strategy has been widened and has been renamed ESS and will be considered by the Executive in March 2010. The Action Plan will have actions on all greenhouse gas emissions. c) Executive agreed to sign the Nottingham Declaration; d) A sustainability officers group has been set up with regular meetings taking place on energy efficiency and sustainability issues; e) An officer workshop on sustainability issues was arranged for 22 July 2009; f) Article in Autumn Edition of Fareham Today 2009; g) Fareham has one Greening Campaign which is based in Stubbington - looking to expand on this to up to five other areas.	2010/11	

9 Conclusions and Proposed Actions

9.1 Conclusions from New Monitoring Data

Fareham Borough Council have undertaken monitoring for NO₂. Results at the continuous monitoring site in Elms Road show that the annual mean NO₂ air quality objective is being met. The 2009 diffusion tube results show that 3 sites have exceeded the annual mean NO₂ objective of 40 µg/m³, two of these in Fareham AQMAs. The only site showing exceedence outside the AQMAs, located in Portchester, has already been identified in previous air quality reports. The site is not representative of public exposure and the nearest property lies more than 20m further back from the kerb. Projected concentrations to the façade of the property show that it is unlikely that the objective would be breached, and therefore a Detailed Assessment is not required at this junction.

With regards to site G10, for which a Detailed Assessment is underway following the exceedences monitored in 2007 and 2008, the annual mean concentration for 2009 is below the objective. Detailed dispersion modelling, which is part of the Detailed Assessment, will provide further information with regards to the potential need for an AQMA in the area.

9.2 Conclusions relating to New Local Developments

Three new or modified industrial installations were identified in Fareham; including a mobile concrete crusher and waste transfer facilities. All these will be taken into consideration in the next Updating and Screening Assessment, scheduled for 2012.

9.3 Proposed Actions

- Continue with current continuous automatic monitoring programme for NO₂ at Elms Road in Fareham;
- Continue with NO₂ diffusion tube monitoring in the Borough, especially in the Portland Street and Gosport Road AQMAs and along other parts of Gosport Road outside the AQMA.
- Progress to a 2011 Annual Progress Report, to be completed by April 2011.

References

- Local Air Quality Management Technical Guidance LAQM.TG(09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland
- Local Air Quality Management Policy Guidance LAQM.PG(09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland
- Diffusion Tubes for Ambient NO₂ Monitoring: Practical Guidance for Laboratories and Users, Report to Defra and the Devolved Administrations , Feb 2008
- Fareham Borough Council – Local Air Quality Management – Progress Report - March 2008
- Fareham Borough Council - Local Air Quality Management - Air Quality Action Plan 2008
- Fareham Borough Council - Local Air Quality Management - Further Assessment of Portland Street AQMA 2009
- Fareham Borough Council - Local Air Quality Management - USA 2009
- Fareham Borough Council – Air Quality Action Plan Update – March 2010
- Fareham Borough Council – Draft Executive Air Quality Action Plan Progress Report April 2010
- Fareham Borough Council – Environmental Sustainability Strategy 2010: Towards a Greener Fareham – March 2010
- The South East Plan – Regional Spatial Strategy for the South East: 2009-2026. Sec State HMSO



Appendices

Appendix A: QA:QC Data

Diffusion Tube Bias Adjustment Factors

The diffusion tubes are supplied and analysed by Gradko International Limited. Before 2009 Fareham exposed diffusion tubes prepared using the 50% TEA in water method. In February 2008, practical guidance was issued by Defra and the Devolved Administrations to harmonise the different steps in UK diffusion tube methodology. As a result of the publication only two methods of tube preparation remained: 20% TEA in water and 50% TEA in acetone. Rather than switching tube preparation methodology during the year, the laboratory have commenced supplying Fareham with 20% TEA in water from January 2009 exposure period.

Factor from Local Co-location Studies (if available)

The Council operated a co-location monitoring site throughout 2009 at Elms Road Roadside site in Fareham. The Bias factor calculated for 2009 is 0.84.

Table A 1 – Bias Adjustment Details

Elms Road (based on 12 periods of data)	
Bias factor A	0.84 (0.77 – 0.93)
Bias B	19% (7% - 30%)
Diffusion Tubes Mean:	44 µg/m ³
Mean CV (Precision):	7
Automatic Mean:	37 µg/m ³
Data Capture for periods used:	100
Adjusted Tubes Mean:	37 (34 – 41) µg/m ³

Discussion of Choice of Factor to Use

With regard to the application of a bias adjustment factor for the diffusion tubes, the technical guidance LAQM.TG (09) and Review and Assessment Helpdesk recommend use of a local bias adjustment factor where available and relevant to diffusion tube sites. The Elms Road local factor has been used to correct the diffusion tubes.

For comparison, the UK-wide bias correction factor for 2009 is 0.90 for this laboratory and preparation method³, which is in line with the local bias, although slightly higher. The local bias factor has been used as it is deemed more relevant for Fareham.

PM₁₀ Monitoring Adjustment

There was no monitoring of PM₁₀ during 2009.

Short-term to Long-term Data adjustment

A number of diffusion tubes showed data capture for the 2009 less than 75%, either due to missing tubes or because monitoring sites were installed part way through the year. These sites were annualised using the method outlined in LAQM.TG (09) to correct short-term monitoring data and estimate the annual average. A summary of the reference sites and the annualisation factors for each site are summarised in Table A.1. Site G12 at Two Saints, 101 Gosport Road in Fareham has only 1 month's data which is insufficient for reliable annualisation. Consequently the data from this site have not been annualised.

³ Based on Spreadsheet number 03/10 available at www.uwe.ac.uk/agm/review

Table A 2 Summary of Annualisation Factors

Site	Uncorrected Raw Concentration ($\mu\text{g}/\text{m}^3$)	Annualisation Factor (From Closest AURN Monitoring Sites)				Uncorrected Annualised Concentration ($\mu\text{g}/\text{m}^3$)
		Bournemouth	Portsmouth	Southampton	Average	
T2	30.7	0.931	0.896	0.905	0.911	28.0
LH2	39.7	0.892	0.949	0.979	0.940	37.4
DC1	31.2	0.967	0.938	0.994	0.966	30.2
S1	28.8	1.174	1.157	1.076	1.136	32.7
S2	25.5	1.051	1.027	1.012	1.030	26.2
HR1	45.4	0.987	0.986	0.982	0.985	44.7

QA/QC of Automatic Monitoring

The Quality Assurance/Quality Control is carried out by AEA using the exact methodologies of the AURN air quality monitoring network. Calibrations are carried out every via auto-cal AQ Web Auto calibration System every 3 days. In addition samples are compared with reference NO_2 . Services are conducted every 6 months similar to the AURN.

QA/QC of Diffusion Tube Monitoring

Gradko International participates in the Workplace Analysis Scheme for Proficiency (WASP) for NO_2 diffusion tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. In 2009 the laboratory was rated as "Good". The laboratory follows the procedures set out in the Harmonisation Practical Guidance.

Appendix B: Nitrogen Dioxide Diffusion Tubes Monthly Concentrations

Site	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
P1	51.61	60.18	60.36	55.61	48.14	45.57	42.44	34.1	44.06	52.17	55.29	44.12
P1A	32.51	32.07	25.45	24.08	20.89	23.53	19.49	19.41	20.68	24.91	25.48	27.95
P2	37.89	38.46	28.34	24.28	18.33	21.34	16.2	17.05	21.05	25.19	24.55	30.36
P4	38.1	33.59	36.96	32.6	24.36	31.3	22.81	22.96	28.09	31.05	31.42	37.96
P5	38.92	42.29	37.47	30.26	18.42	29.9	19.94	21.34	29.07	31.91	21.79	
P6	36.74	37.63	30.83	28.09	18.22	22.51	14.58	18.48	23.3	26.85	26.67	37.41
P7	42.2	41.71	41.65	34.56			21.85	22.19	29.69	33.47	29.68	
G1A	42.1	51.59	38.62	34.64	29.95	26.33	32.06			38.22	35.12	36.33
G2	68.73	52.82	47.93	43.73	42.41	48.79	44.29	37.67	48.48	44.83	49.77	49.76
G3	39.22	42.16		31.65	28.62	13.91	28.83	25.72	33.7	35.32		34.66
G4	36.81	42.2	36.59	28.3	26.18	30.36	27.44	24.47			30.53	31.75
G5	42.41	41.76	34.97	33.17	24.05	28.03	12.63	18.75	28.46	30.99		37.29
G6	41.1	31.54	37.98	34.68	29.64	35.59	27.19	22.9	35.5	34.24	32.91	41.04
G7	47.72	53.86	44.45	39.68	36.32	35.25	27.74	25.32	41.32	37.1	36.69	49.21
G8	37.86	35.11	39.35	33.17	26.39	33.42	31.43	30.92	31.04	36.05	1.02	30.67
G9	44.38	29.8	32.49	30.67	28.95	33.06	13.6	26.52	25.18	29.52	32.27	31.84
G10	52.88	53.35	44.98	43.32	35.7	47.82	20.88	35.87	39.52	43.63	44.97	43.33
G11	37.78	37.5	38.72	27.23	23.58	27.52	24.26	24.49	30.06	31.24	29.73	37.14
G12											42.08	
Elms Road (triplicate)	57.5	52.6	48.2		34.6	39.6	34.5	35.2	44.2	42.2	42.1	47.9
10N	30.1	38.39	35.42	23.3	18.82	21.57		20.43	25.27	26.94	23.46	
10NA	42.24	31.81	33.17	25.8	20.34	20.4	11.16	18.59	22.34	26.94	26.24	28.64

Site	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
S1	37.08		26.99		24.78	31.74	20.78	21.15	32.84	35.03		41.28
S2	36.68	32.91		32.96			15.72	17.25	27.52	20	20.72	35.33
T1	33.15	41.06			17.28	24.21	18.26	17.49	25.27	28.73	22.29	17.49
T2									29.77	30.8	24.55	37.74
LH1	33.25	36.05	50.82	28.09	18.39	26.73	16.95	17.38	27.93	29.52	26.71	28.33
LH2	46.79	37.99	36.77	37.96	34.45	44.42						
LH3	43.36	40.4	38.41	34.85	27.76	36.61	27.87		54.71	34.21		34.29
AV/BF	33.68	26.86	30.49	27.23	19.01	23.63	16.2		28.26	29.08	24.55	
5N	38.33	43.43	31.24	27.93	24.72	27.94	23.26	22.69	26.33	32.55	28.03	30.47
7N	31.62	29.89	25.43	20.13	13.79	18.52	11.98	12.83	17.81	23.35	18.26	28.84
DC1								24.95	29.77			38.89
3N	34.73		48.71	27.6	21.8	26.07	20.68	19.21	22.34	29.91	28.37	28.83
2N	35.69	36.51	31.76	29.16	25.26	29.6	13.06	25.27	30.51	37.2	43.44	42.64
1N		30.23	30.12	35.34	34.35	41.94	25.29	32.94	36.28	49.3	32.27	38.2
PS1	50.51	42.88		45.04	38.44	56.39	38.96	37.03	37.1	43.06	37.37	45.15
PS1A	49.58	44.93	46.19	42.67	35.31	47.84	33.37	34.53	40.79	44.72	40.09	44.33
PS1B	51.04	45.39	45.78	54.75	39.54	47.48	38.35	34.15	37.51	43.51	35.46	50.45
PS2	53.01	54.7	49.96	52.29	38.54	46.52	42.3	40.39	41.6	46.34	39.96	47.08
PS3	57.26	53.2	49.04	41.69	43.24		52.91		44.96	51.28	53.55	53.24
HR1	56.1	50.54	49.16	45.49	38.01		38.86			43.95	40.89	46.39
HR2	44.36	36.07	37.45	32.23	28.81	38.41	31.31	26.86	27.19	24.52	33.21	42.88
HR3	42.5	38.92	24.77	28.91	24.54	31.06	24.28	23.55	28.38	30.64	28.45	33.26
HR4	38.54	35.39	37.02	35.42	26.01	34.86	22.32	22.05	30.34	32.87	27.35	34.42