



2013 Air Quality Progress Report for Dacorum Borough Council

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

April, 2013

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Report Reference number	2013 Progress Report
Date	April 2013

Executive Summary

The 2013 Progress Report provides an update in the air quality issues affecting Dacorum, including the results of pollutant monitoring and information on new residential, industrial and transport developments that might affect air quality in the borough.

The review of air quality monitoring data for 2012 indicated that the annual mean air quality objective for NO₂ was exceeded at five of the 42 monitoring locations within the borough. With the exception of Watford Road Kings Langley (DC54), all other exceedances identified were situated within the three AQMAs. The Watford Road Kings Langley (DC54) site is not representative of relevant exposure. Following the guidance/calculation outlined in Box 2.3 of LAQM.TG(09), the annual average NO₂ concentration at the nearest receptors/sites of relevant exposure to the DC54 monitoring site was calculated to be 29.8µg/m³, and therefore below the relevant air quality objective.

No exceedance of the annual mean air quality objective for NO₂ was observed at the other diffusion tube monitoring sites in 2012.

The data presented for the five year period (2008 to 2012) shows a slight decline in annual mean NO₂ concentrations at background, roadside and kerbside sites during this period. Within each of these settings, in general, highest annual mean NO₂ concentrations were identified in 2010 and lowest in 2012. Traffic data in general mirrors this trend; however it must be noted that significant increases/reductions in traffic volume are required before a measureable increase/decrease in NO₂ concentrations will be identified. This evidence is therefore not considered significant. There may have been some decline in NO₂ emissions from traffic sources as a result of improvements in engine technologies introduced by successive Euro Standards. However, it is now recognised that the expected reductions in NO₂ concentrations, that the Government predicted would be associated with the Euro Standard technologies, were over optimistic.

A review of major planned developments for the Dacorum area highlighted a number of sites with potential for air quality impacts. These included sites where the development itself may be the source of the air quality impact, for example large developments that result in increased traffic flows to the area, as well as developments being built close to busy road junctions or roads with high traffic flows, which could potentially expose the residents to air quality exceedances.

The review and assessment for 2012 has not identified the need to proceed to a Detailed Assessment for NO₂ at any new locations outside of the current AQMA boundaries. In reference to the recently completed Further Assessment; for the High Street, Northchurch AQMA, there was a modelled exceedance outside of the AQMA boundary. It was advised that the boundary of this AQMA be revised accordingly to potentially incorporate any other residential locations within the area predicted >36µg/m³. The Council intends to amend this AQMA boundary imminently.

The Council is considering deploying further automatic monitoring stations within the Lawn Lane, Hemel Hempstead and London Road, Apsley AQMAs; due to budgetary constraints this will be subject to a successful application for Defra funding.

The need to address cumulative impact of developments was identified. This is where a number of developments planned for an area, which on their own may be considered insignificant in terms of their air quality impact but taken together may result in poor air quality. This situation will be addressed via the planning system. The feasibility of introducing an Air Quality Supplementary Planning Document for Dacorum (or a joint document for the Hertfordshire and Bedfordshire Air Quality Network) is currently being considered.

The next stage of the on-going assessment of air quality in Dacorum will be the submission of an Air Quality Action Plan, the deadline for which is 1 December 2013.

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1 Introduction

1.1 Description of Local Authority Area

Dacorum borough comprises a mix of urban and rural land uses situated on the western edge of Hertfordshire. Located approximately 30 miles northwest of central London, the borough has a population of approximately 144,847¹, which is predominantly centred on the towns of Berkhamsted, Hemel Hempstead and Tring.

Major roads within the area include the M1, which crosses the eastern side of the borough, the M25, which is located near the southern boundary of the borough, and the A41, which closely bypasses Berkhamsted, Hemel Hempstead and Tring, linking Aylesbury to the west with Watford to the east. The area is well connected to London and the midlands via a major rail link that traverses the borough and terminates at London Euston.

1.2 Purpose of Progress Report

This report fulfils the requirements of the Local Air Quality Management process as set out in Part IV of the Environment Act (1995), the Air Quality Strategy for England, Scotland, Wales and Northern Ireland 2007 and the relevant Policy and Technical Guidance documents. The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where exceedences are considered likely, the local authority must then declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

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

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

¹ Population at 2011 census - Office of National Statistics 2013

1.3 Air Quality Objectives

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

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

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 $\mu\text{g}/\text{m}^3$	Running annual mean	31.12.2003
	5.00 $\mu\text{g}/\text{m}^3$	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 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.50 $\mu\text{g}/\text{m}^3$	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
Particulate Matter (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

1.4 Summary of Previous Review and Assessments

Dacorum Borough Council has undertaken and completed the following rounds of LAQM review and assessment, as summarised in **Table 1.2** and discussed below.

Table 1.2 Key Findings of Previous Review and Assessment Reports

Report	Date	Outcomes
Updating and Screening Assessment	2003	No exceedances of the specified pollutants. No requirement for progression to detailed assessment.
Progress Report	2005	Report not available.
Updating and Screening Assessment	2006	Identified potential breaches of 2005 annual mean air quality objective for NO ₂ at 3no. locations. Proceed to Detailed Assessment.
Detailed Assessment	2007	Detailed assessment of NO ₂ concentrations in 3no. locations. Concluded that 3no. AQMAs should be declared.
Updating and Screening Assessment	2009	Annual mean NO ₂ concentrations continue to exceed the relevant air quality objective at three previously identified AQMAs.
Progress Report	2010	Annual mean NO ₂ concentrations continue to exceed the relevant air quality objective at three previously identified AQMAs.
Progress Report	2011	Annual mean NO ₂ concentrations continue to exceed the relevant air quality objective at three previously identified AQMAs.
Updating and Screening Assessment	2012	Annual mean NO ₂ concentrations continue to exceed the relevant air quality objective at three previously identified AQMAs. Formal declaration imminent.
Declaration of AQMAs	2012	Formal declaration of the three AQMAs took place on 1 June 2012.
Further Assessment	2013	Current boundaries of the Lawn Lane and London Road AQMAs to remain in place and High Street Northchurch AQMA boundary to be revised / extended. Ambient background concentrations contributed the largest individual proportion to existing nitrogen dioxide concentrations, followed by emissions from cars and LGVs on local roads. Reductions in vehicle emissions from local traffic of around 60%, 53% and 28% would be required to achieve the annual mean nitrogen dioxide objective at the worst-case locations within Lawn Lane, London Road and High Street respectively.

The first round of review and assessment in 2003 did not highlight any exceedances of the specified pollutants and therefore there was no requirement to proceed to a Detailed Assessment.

The 2005 Progress Report, which covered the period 2003 to 2004, was not available at the time of writing.

The 2006 Updating and Screening Assessment (USA) indicated that detailed assessments for NO₂, PM₁₀ and other important pollutants were, at the time, not required. However, diffusion tube monitoring data did indicate that the 2005 annual mean air quality objective for NO₂ would potentially be breached at three locations within the borough (London Road, Apsley; Lawn Lane, Hemel Hempstead and High Street, Northchurch).

In 2007, a Detailed Assessment of air quality was carried out for properties located alongside the A4251 London Road in Apsley, Lawn Lane in Hemel Hempstead and the A4251 High Street in Northchurch. It was recommended that AQMAs should be declared for the NO₂ annual mean air quality objective for residential properties along these roads, and that additional monitoring and traffic counts be undertaken for future assessments.

The required April 2008 Progress Report (covering the 2007 period) was not produced by the Council. It was intended that the 2009 Updating and Screening Assessment would provide an update on air quality monitoring and highlight any significant changes since the previous Updating and Screening Assessment produced in 2006.

The 2009 Updating and Screening Assessment (USA) undertaken by RSK Group indicated that annual mean nitrogen dioxide (NO₂) concentrations continued to exceed the relevant air quality objective in the three previously identified areas of exceedance. Annual mean nitrogen dioxide concentrations greater than the relevant air quality objective were also observed at other areas within the borough, however, it was determined that there was no relevant exposure at these locations and therefore no requirement to proceed to detailed assessment.

In addition to the 2009 USA, Dacorum Borough Council commissioned RSK Group to undertake a detailed dispersion modelling assessment of particulate matter (PM₁₀) emissions along London Road Apsley, Lawn Lane in Hemel Hempstead and the High Street in Northchurch. The results of the modelling study indicated that both long and short term

concentrations of PM₁₀ are anticipated to meet relevant air quality objectives in the study areas assessed.

The 2010 Progress Report undertaken by RSK Group identified that annual mean NO₂ concentrations continued to exceed the relevant air quality objective at the three previously identified areas. The report concluded that it was not considered necessary to proceed to a detailed assessment for any other pollutants or to consider the declaration of additional AQMAs at other locations within the borough.

The 2011 Progress Report again undertaken by RSK Group drew the same conclusions as the 2010 Progress Report.

The 2012 Updating and Screening Assessment indicated that annual mean nitrogen dioxide concentrations continued to exceed the relevant air quality objective in the three areas previously identified as requiring declaration as AQMAs. Since 2009, annual mean nitrogen dioxide concentrations greater than the relevant air quality objective have also been recorded outside of these areas. However, as there is no relevant exposure at these locations there was no requirement to proceed to a detailed assessment for annual mean nitrogen dioxide.

AQMAs for Lawn Lane, Hemel Hempstead; London Road, Apsley and High Street, Northchurch were formally declared on 1 June 2012. **Figures 1.1, 1.2 and 1.3** below show the extent of the AQMA boundaries.

Figure 1.1 AQMA Order No. 1 – Lawn Lane, Hemel Hempstead

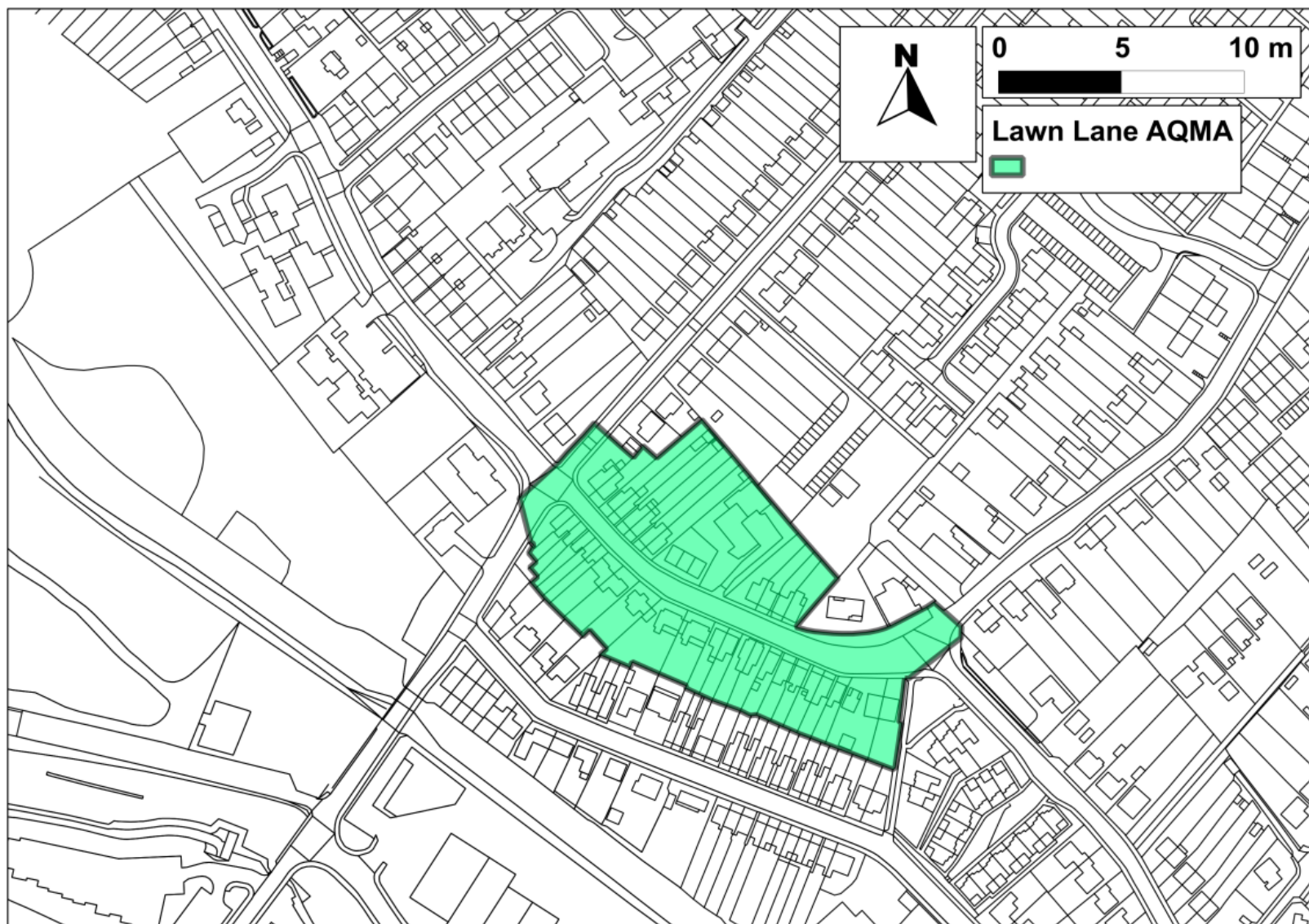


Figure 1.2 AQMA Order No. 2 – London Road, Apsley

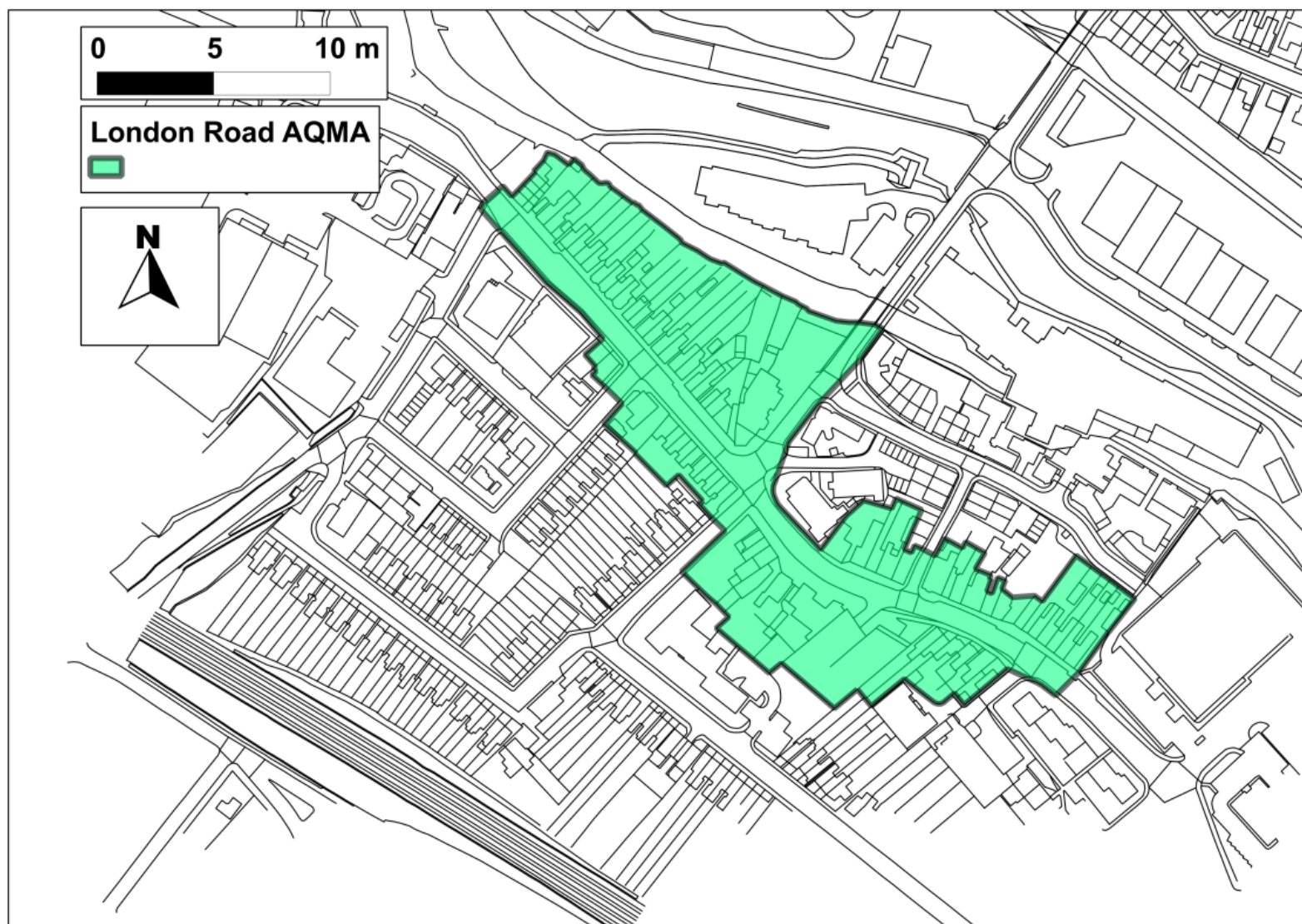


Figure 1.3 AQMA Order No. 3 - High Street, Northchurch



Following the formal declaration of the three AQMAs, Dacorum Borough Council commissioned Air Quality Consultants Ltd to undertake a Further Assessment; this report was published in March 2013. For the purposes of the Further Assessment Nitrogen dioxide concentrations within the three AQMAs were assessed through diffusion tube monitoring and dispersion modelling. The model outputs were verified against the diffusion tube measurements for 2011 (due to low data capture for 2012). The results indicated that the annual mean nitrogen dioxide objective continued to be exceeded within all three AQMAs. Within both the Lawn Lane and London Road AQMAs there were no exceedances of the objective outside of the current AQMAs, as such it was considered that the current boundaries of the AQMAs should remain in place. For the High Street, Northchurch AQMA, there was a modelled exceedance outside of the AQMA boundary. It was advised that the boundary of this AQMA be revised accordingly to potentially incorporate any other residential locations within the area predicted $>36\mu\text{g}/\text{m}^3$. In terms of source apportionment; ambient background concentrations contributed the largest individual proportion to existing nitrogen dioxide concentrations, followed by emissions from cars and LGVs on local roads.

It was indicated that reductions in vehicle emissions from local traffic of around 60%, 53% and 28% would be required to achieve the annual mean nitrogen dioxide objective at the worst-case locations within Lawn Lane, Hemel Hempstead, London Road Apsley and High Street Northchurch respectively.

Dacorum Borough Council is currently in the process of amending the High Street, Northchurch AQMA boundary and drafting the Air Quality Action Plan based on the findings of the Further Assessment.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

The following section provides information on ambient air quality monitoring undertaken in the borough during 2012.

2.1.1 Automatic Monitoring Sites

The automatic monitoring station at High Street Northchurch has been operational since 13 November 2012; it is not affiliated to the national network. The site is situated adjacent to a busy road (Northchurch High Street - A4251). The location of the automatic monitoring station is shown in **Figure 2.1**.

NO₂ is measured using a Monitor Labs chemiluminescent NO_x analyser which is housed in an air conditioned cabin. Data is collected remotely using a GSM modem link. The data is uploaded to the London Air Quality Network website (www.londonair.org.uk) on an hourly basis.

Data validation and ratification is carried out by Kings College London Environmental Research Group (ERG) to the London Air Quality Network standard.

LSO duties are undertaken by Kings College London Environmental Research Group (ERG), with routine calibrations carried out on a fortnightly frequency. Audits are to be undertaken twice yearly and supplied by NPL.

The analyser is covered by a service and maintenance contract with Enviro Technology Services Plc. The analyser is maintained following manufacturers' instructions. Servicing of the analyser is to be undertaken on a twice yearly frequency. As the analyser is new, only one service has been scheduled for year 1, this was undertaken in April 2013.

As the automatic monitoring station has only been operational since 13 November 2012, it did not collect enough data (minimum of 75 per cent) for reporting in 2012, however the data capture was 14 per cent and annual mean NO₂ based on this time period was 38.6µg/m³. Monitoring data from this automatic monitoring station will be reported in future LAQM reports.

Figure 2.1 Location of Automatic Monitoring Station



Table 2.1 Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Inlet Height (m)	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)	Distance to Kerb of Nearest Road (m) (N/A if not applicable)	Does this Location Represent Worst-Case Exposure?
CM1	High Street Northchurch	Roadside	497295	208901	2.0	NO ₂	Y	NOx Monitor Labs (chemiluminescence)	N(10m)	3.0	Y

Hertfordshire and Bedfordshire Automatic Monitoring Sites

Dacorum Borough Council is a member of the Hertfordshire and Bedfordshire Air Quality Network, which benefits from the co-ordinated monitoring of air pollutants across the region. The Hertfordshire and Bedfordshire Air Quality Network is managed and co-ordinated by Air Quality Data Management (AQDM), on behalf of the Hertfordshire and Bedfordshire Air Quality Network, and they provide data calibration and ratification of results. There were fifteen automatic air quality monitoring stations operational within Hertfordshire and Bedfordshire during 2012. These are listed in **Table 2.2** below. See <http://www.hertsbedsair.net> for data. Data obtained from the High Street Northchurch automatic monitoring station is currently only available via the London Air Quality Network website.

Table 2.2 Hertfordshire and Bedfordshire Air Quality Network Automatic Monitoring Stations operational during 2012

Site Name	Pollutants	Environment	Start	End
Bedford Lurke Street	NO ₂	Roadside	01/05/2010	
Bedford Prebend Street	NO ₂	Roadside	06/01/2009	
Central Beds Marston Vale	O ₃	Rural	01/07/2008	
Dacorum Northchurch High Street	NO ₂	Roadside	13/11/2012	
East Herts Anstey	O ₃	Rural	17/05/2011	
East Herts Sawbridgeworth Background	NO ₂ PM ₁₀	Urban Background	30/06/1998	
East Herts Sawbridgeworth Roadside	NO ₂ PM ₁₀	Roadside	10/10/2001	
Luton Airport	PM ₁₀	Airport	16/10/2003	
Luton Challney Community College	NO ₂ O ₃ PM ₁₀	Urban background	22/03/1999	
North Herts Baldock Roadside	NO ₂	Roadside	22/09/2009	11/09/2012
North Herts Hitchin Library	NO ₂ PM ₁₀	Roadside	26/02/2010	
Sandy Roadside	NO ₂ PM ₁₀ PM _{2.5}	Roadside	28/07/2008	
Stevenage Luton Way	NO ₂ PM ₁₀	Roadside	24/01/2002	
Watford Town Hall	NO ₂ PM ₁₀	Roadside	29/04/1997	
Welwyn Hatfield Council Offices	NO ₂ O ₃	Urban background	01/11/2000	

2.1.2 Non-Automatic Monitoring Sites

Dacorum Borough Council measures ambient NO₂ concentrations using passive diffusion tubes at a number of kerbside, roadside and background locations. The diffusion tube monitoring network was augmented in October 2012 with a further 4 diffusion tubes monitoring sites (DC86 to DC89). Monitoring sites DC86, DC87 and DC88 (Northchurch 1, 2 and 3) were situated within the caging of the automatic analyser inlet for co-location study purposes and DC89 at High Street Markyate (a narrow high street, off which a large mixed use redevelopment is currently under construction 'Hicks Road'). In total, NO₂ was measured at 42 different sites across the borough during 2012. These locations are listed in **Table 2.2** and shown in **Figures A1 to A25** in **Appendix A**.

The NO₂ diffusion tubes are supplied and analysed by Environmental Services Group (ESG), Didcot, Oxfordshire, and are prepared using the 50:50 (acetone:triethanolamine) method. ESG follow the procedures set out in the Practical Guidance document and, according to the QA/QC Framework webpage of the Defra website². In the Workplace Analysis Scheme for Proficiency (WASP) inter-comparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, ESG currently holds the highest rank of a Satisfactory laboratory.

Annual average NO₂ concentrations presented in this report have been bias adjusted by a factor of 0.79, which was obtained from the latest (March 2013) version of the national bias adjustment spreadsheet available from the DEFRA website³. This factor was derived from 26 co-location studies. For future LAQM reports, it is hoped to utilise Dacorum Borough Council's own co-location study data to generate a locally derived bias adjustment factor; this was not possible for the current reporting year due to insufficient data.

No other air pollutants are monitored using either automatic or non-automatic techniques within the local authority area.

² <http://laqm.defra.gov.uk/diffusion-tubes/qa-qc-framework.html>

³ <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>

Table 2.3 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	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?
DC40	Sawyers Way, Hemel Hempstead	Background	506780	207180	2.33	NO ₂	N	N	Y (5m)	2m	N
DC42	Wood Lane End, Hemel Hempstead	Background	508177	207934	2.60	NO ₂	N	N	Y (12m)	1m	N
DC43	Roman Way, Markyate	Background	506197	216506	2.36	NO ₂	N	N	N (10m)	58m	N
DC46	High Street, Bovingdon	Kerbside	501541	203659	2.53	NO ₂	N	N	Y (13m)	N/A	N
DC47	High Street, Berkhamsted	Roadside	499365	207724	2.50	NO ₂	N	N	N (20m)	N/A	N
DC48	Prince Edwards Street, Berkhamsted	Background	499207	207754	2.52	NO ₂	N	N	N (12m)	35m	N
DC50	High Street, Northchurch	Roadside	497346	208835	2.30	NO ₂	Y	N	Y (1m)	N/A	Y
DC51	Brook Street, Tring	Kerbside	492552	211824	2.45	NO ₂	N	N	Y (8m)	N/A	N
DC52	High Street, Tring	Roadside	492335	211386	2.32	NO ₂	N	N	N (30m)	N/A	N
DC53	Charles Street, Tring	Background	492195	211159	2.43	NO ₂	N	N	N (2m)	50m	N
DC54	Watford Road, Kings Langley	Roadside	507606	201624	2.27	NO ₂	N	N	N (34m)	1.60m	N
DC55	High Street, Kings Langley	Roadside	507184	202690	2.53	NO ₂	N	N	N (15m)	N/A	N
DC57	Lawn Lane 1 Hemel Hempstead	Roadside	505923	205761	2.40	NO ₂	Y	N	Y (2m)	N/A	N
DC58	Gammons Close, Hemel Hempstead	Background	507058	206727	2.45	NO ₂	N	N	N (6m)	22m	N
DC59	Wadley Close, Hemel Hempstead	Background	506981	206829	2.34	NO ₂	N	N	N (10m)	11m	N
DC60	Field Road, Hemel Hempstead	Background	507483	206898	2.36	NO ₂	N	N	Y (1m)	17m	N
DC61	St Agnells Lane, Hemel Hempstead	Roadside	507121	209252	2.37	NO ₂	N	N	Y (10m)	1m	N
DC62	New Road, Northchurch	Roadside	497335	208860	2.45	NO ₂	Y	N	Y (1m)	N/A	Y
DC63	Darrs Lane, Northchurch	Roadside	497264	208927	2.65	NO ₂	Y	N	Y (5m)	1m	N
DC64	Lawn Lane 2, Hemel Hempstead	Roadside	505969	205726	2.86	NO ₂	Y	N	Y (8m)	1m	N
DC65	Lawn Lane 3, Hemel Hempstead	Roadside	505930	205740	2.30	NO ₂	Y	N	Y (1m)	1m	Y
DC66	London Road, Apsley	Roadside	505674	205514	2.55	NO ₂	Y	N	Y (1m)	1m	Y
DC67	Allandale	Roadside	505948	207814	2.42	NO ₂	N	N	N (16m)	1m	Y
DC68	Belswains Sappi	Roadside	507005	204677	2.43	NO ₂	N	N	N (3m)	1m	Y
DC69	Lawn Lane, Belswains	Background	506053	205664	2.47	NO ₂	N	N	Y (8m)	25m	N

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	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?
DC70	Lawn Lane 4, Hemel Hempstead	Roadside	505888	205801	2.55	NO ₂	N	N	Y (6m)	2m	Y
DC71	Orchard Street	Kerbside	505636	205504	2.53	NO ₂	N	N	N (3m)	1m	Y
DC73	Durrants Hill Road	Roadside	505734	205519	2.51	NO ₂	Y	N	Y (1m)	2m	Y
DC74	Avia Close	Roadside	505841	205395	2.36	NO ₂	Y	N	N (6m)	1m	Y
DC75	The Meads	Roadside	497472	208730	2.58	NO ₂	N	N	N (10m)	2m	Y
DC76	The Cotterells	Kerbside	505355	206504	2.59	NO ₂	N	N	Y (5m)	1m	Y
DC77	Cotterells 1	Roadside	505331	206350	2.29	NO ₂	N	N	Y (3m)	2m	Y
DC78	Cotterells 2	Roadside	505331	206411	2.45	NO ₂	N	N	N (3m)	1m	Y
DC79	Cotterells 3	Roadside	505338	206594	2.52	NO ₂	N	N	Y (2m)	2m	Y
DC81	Sappi 2	Roadside	507122	204470	2.54	NO ₂	N	N	N (10m)	1m	Y
DC83	Briar Way	Background	499626	207031	2.07	NO ₂	N	N	Y (8m)	1m	N
DC84	AQ Machine	Kerbside	497290	208904	2.46	NO ₂	Y	N	N (10m)	1m	Y
DC85	Health Centre, London Road	Kerbside	505663	205528	2.44	NO ₂	Y	N	Y (4m)	1m	Y
DC86	Northchurch 1	Roadside	497295	208901	1.73	NO ₂	Y	Y	N (10m)	3m	Y
DC87	Northchurch 2	Roadside	497295	208901	1.73	NO ₂	Y	Y	N (10m)	3m	Y
DC88	Northchurch 3	Roadside	497295	208901	1.73	NO ₂	Y	Y	N (10m)	3m	Y
DC89	High Street, Markyate	Roadside	506227	216317	2.52	NO ₂	N	N	Y(0m)	1.67m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

The following section compares NO₂ diffusion tube monitoring results with relevant air quality objectives. Only annual average NO₂ data are presented, as no other parameters/averaging periods were monitored/assessed in Dacorum borough in 2012.

2.2.1 Nitrogen Dioxide (NO₂)

Automatic Monitoring Data

The automatic monitoring station at High Street Northchurch has been operational since 13 November 2012, so it did not collect enough data (minimum of 75 per cent) for reporting in 2012, however the data capture was 14 per cent and annual mean NO₂ based on this time period was 38.6µg/m³. Monitoring data from this automatic monitoring station will be reported in future LAQM reports.

Diffusion Tube Monitoring Data (2012)

Table 2.4 below presents annual mean NO₂ concentrations as measured at the 42 diffusion tube monitoring sites in 2012. Annual mean concentrations for 2012 have been bias adjusted by applying the factor of 0.79 referenced above in section 2.1.2. Exceedances of the NO₂ annual mean air quality objective of 40µg/m³ have been highlighted in bold.

Due to low data capture (<75 per cent) apparent at each monitoring site for the 2012 calendar year, the measured mean NO₂ concentrations were adjusted to estimate an annual mean concentration ('annualised') using the methodology outlined in Box 3.2 of LAQM.TG(09). Specifically, mean annual mean/period ratios were derived from 2012 measurement data from the three urban background continuous monitoring stations within the Hertfordshire and Bedfordshire Air Quality Network (all situated within 50 miles of the diffusion tube sites) and were applied to the measure NO₂ concentrations prior to bias adjustment. The three long-term, continuous monitoring stations utilised were East Hertfordshire Sawbridgeworth Background, Luton Challney Community College and Welwyn Hatfield Council Offices. The annual data capture (NO₂) for each of these monitoring sites during 2012 was good; with 99.8, 98.8 and 94.0 per cent respectively.

Based on available historical monitoring data, the following monitoring locations were highlighted as sites suspected to exceed the annual mean NO₂ concentration in 2012 due to exceedances identified in previous years:

- Monitoring locations situated within the 3no. AQMAs

- High Street, Berkhamsted (DC47)
- Watford Road, Kings Langley (DC54)
- Sappi 2 (DC81)

The diffusion tube measurement data for 2012 indicates that the annual mean air quality objective for NO₂ was exceeded at five of the 42 monitoring locations within the borough. Specifically, High Street Northchurch (DC50), Watford Road Kings Langley (DC54), Lawn Lane 1 Hemel Hempstead (DC57), Lawn Lane 3 Hemel Hempstead (DC65) and London Road Apsley (DC66) with annual mean NO₂ concentrations of 42.2µg/m³, 46.9µg/m³, 48.9µg/m³, 57µg/m³ and 55.9µg/m³ respectively. With the exception of Watford Road Kings Langley (DC54), all other exceedances identified are situated within the three AQMAs.

As indicated in **Table 2.3**, no relevant exposure is apparent at the Watford Road Kings Langley (DC54) site. Following the guidance/calculation outlined in Box 2.3 of LAQM.TG(09), the annual average NO₂ concentration at the nearest receptors/sites of relevant exposure to the DC54 monitoring site is estimated to be 29.8µg/m³, and therefore below the relevant air quality objective.

No exceedance of the annual mean air quality objective for NO₂ was observed at the other diffusion tube monitoring sites in 2012.

Annual mean NO₂ concentrations of 39.9µg/m³, 39.2µg/m³ and 37.4µg/m³ (i.e approaching the relevant air quality objective) were recorded at New Road Northchurch (DC62), Avia Close (DC74) and Health Centre London Road (DC85). As identified by **Table 2.3**, these monitoring sites are situated within the High Street Northchurch and London Road Apsley AQMAs. Annual mean NO₂ concentrations of 37.2µg/m³, 38.9µg/m³ and 37.7µg/m³ were recorded at High Street Berkhamsted (DC47), High Street Tring (DC52) and Sappi 2 (DC81) respectively. However, as identified in **Table 2.3**, no relevant exposure is apparent at any of these sites. With the exception of the High Street Tring (DC52) monitoring site, all those monitoring sites exhibiting exceedance of (or approaching) the annual mean NO₂ objective in 2012 had been identified as sites of suspected exceedance based on available historical monitoring data and associated exceedances of the annual mean NO₂ objective in previous years.

Section 2.34 of LAQM.TG(09) indicates that if annual mean NO₂ concentrations are 60µg/m³ or above, then it is likely that exceedances of the 1-hour mean air quality objective for NO₂ will occur. Annual mean NO₂ concentrations at all the 42 monitoring sites were below 60µg/m³ in

2012. The annual mean NO₂ concentration at Lawn Lane 3 Hemel Hempstead (DC65) was highest in 2012 at 57µg/m³.

Appendix A presents monthly mean NO₂ measurement data for each diffusion tube monitoring site in 2012 and the short-term to long-term data adjustment 'annualisation'.

Table 2.4 Results of NO₂ Diffusion Tubes 2012

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) ^a	2012 Annual Mean Concentration (µg/m ³) - Bias Adjustment factor = 0.79 ^b
DC40	Sawyers Way, Hemel Hempstead	Background	N	N	7	20.3
DC42	Wood Lane End, Hemel Hempstead	Background	N	N	8	22.6
DC43	Roman Way, Markyate	Background	N	N	7	16.0
DC46	High Street, Bovington	Kerbside	N	N	8	19.1
DC47	High Street, Berkhamsted	Roadside	N	N	8	37.2
DC48	Prince Edwards Street, Berkhamsted	Background	N	N	8	19.5
DC50	High Street, Northchurch	Roadside	Y	N	8	42.2
DC51	Brook Street, Tring	Kerbside	N	N	7	24.3
DC52	High Street, Tring	Roadside	N	N	5	38.9
DC53	Charles Street, Tring	Background	N	N	8	15.0
DC54	Watford Road, Kings Langley	Roadside	N	N	8	46.9
DC55	High Street, Kings Langley	Roadside	N	N	6	29.9
DC57	Lawn Lane 1 Hemel Hempstead	Roadside	Y	N	8	48.9
DC58	Gammons Close, Hemel Hempstead	Background	N	N	8	25.1
DC59	Wadley Close, Hemel Hempstead	Background	N	N	8	27.4
DC60	Field Road, Hemel Hempstead	Background	N	N	8	25.2
DC61	St Agnells Lane, Hemel Hempstead	Roadside	N	N	8	28.2
DC62	New Road, Northchurch	Roadside	Y	N	8	39.9
DC63	Darrs Lane, Northchurch	Roadside	Y	N	8	28.3
DC64	Lawn Lane 2, Hemel Hempstead	Roadside	Y	N	8	35.6
DC65	Lawn Lane 3, Hemel Hempstead	Roadside	Y	N	8	57.0
DC66	London Road, Apsley	Roadside	Y	N	8	55.9
DC67	Allandale	Roadside	N	N	8	27.7
DC68	Belswains Sappi	Roadside	N	N	8	35.4
DC69	Lawn Lane Belswains	Roadside	N	N	8	21.4
DC70	Lawn Lane 4, Hemel Hempstead	Roadside	N	N	8	39.1
DC71	Orchard Street	Kerbside	N	N	8	25.4
DC73	Durrants Hill Road	Roadside	Y	N	8	30.1
DC74	Avia Close	Roadside	Y	N	8	39.2
DC75	The Meads	Roadside	N	N	8	25.3
DC76	The Cotterells	Kerbside	N	N	8	28.0
DC77	Cotterells 1	Roadside	N	N	8	28.5
DC78	Cotterells 2	Roadside	N	N	7	25.9
DC79	Cotterells 3	Roadside	N	N	8	33.5
DC81	Sappi 2	Roadside	N	N	8	37.7
DC83	Briar Way, Berkhamsted	Background	N	N	8	13.1

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2012 (Number of Months or %) ^a	2012 Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) - Bias Adjustment factor = 0.79 ^b
DC84	AQ Machine	Kerbside	Y	N	8	28.1
DC85	Health Centre, London Road	Kerbside	Y	N	8	37.4
DC86	Northchurch 1	Roadside	Y	Triplicate and Co-located	3	22.7
DC87	Northchurch 2	Roadside	Y	Triplicate and Co-located	3	24.0
DC88	Northchurch 3	Roadside	Y	Triplicate and Co-located	3	22.4
DC89	High Street, Markyate	Roadside	N	N	3	18.3

Diffusion Tube Monitoring Data (2008 to 2012)

Table 2.5 below presents annual mean NO₂ concentrations for each diffusion tube site between 2008 and 2012. Exceedances of the annual mean air quality objective for NO₂ are highlighted in bold. The annualisation and bias adjustment procedures/calculations for the previously reported data are detailed in the 2009 Updating and Screening Assessment, 2010 and 2011 Progress Reports and the 2012 Updating and Screening Assessment.

Summary of 2008 Diffusion Tube Monitoring Results

The annual mean air quality objective for NO₂ was exceeded at five of the 22 monitoring locations within the borough in 2008. Four of the five locations; High Street Northchurch (DC50), Lawn Lane 1 Hemel Hempstead (DC57), Lawn Lane 3 Hemel Hempstead (DC65) and London Road, Apsley (DC66) were situated within the areas previously identified in the 2007 Detailed Assessment as requiring declaration of air quality management areas (AQMAS) for the NO₂ annual mean objective.

The annual mean NO₂ objective was also exceeded at Watford Road, Kings Langley (DC54). However, this monitoring site is not representative of public exposure. Following the guidance/calculation methodology outlined in Box 2.3 of LAQM.TG(09), the annual average NO₂ concentration at the nearest receptor was estimated to be approximately 32µg/m³, and therefore below the relevant air quality objective.

Annual mean NO₂ concentrations at all 22 diffusion tube measurement locations were below 60µg/m³ in 2008.

Summary of 2009 Diffusion Tube Monitoring Results

The annual mean air quality objective for NO₂ was exceeded at six of the 21 monitoring locations within the borough in 2009. Five of the six locations; High Street Northchurch (DC50), New Road, Northchurch (DC62), Lawn Lane 1 Hemel Hempstead (DC57), Lawn Lane 3 Hemel Hempstead (DC65) and London Road, Apsley (DC66) were situated within the (to be declared) AQMAS.

The annual mean NO₂ objective was also exceeded at Watford Road, Kings Langley (DC54). However, this monitoring site is not representative of public exposure. Following the guidance/calculation methodology outlined in Box 2.3 of LAQM.TG(09), the annual average

NO₂ concentration at the nearest receptor was estimated to be approximately 30µg/m³, and therefore below the relevant air quality objective.

An annual mean NO₂ concentration of 40µg/m³ was recorded at Lawn Lane 2 Hemel Hempstead (DC64) and at High Street Berkhamsted (DC47) in 2009. However, as identified in Table 2.3, no relevant exposure is apparent at the High Street Berkhamsted (DC47) monitoring site. The Lawn Lane 2 Hemel Hempstead (DC64) monitoring site was located within the (to be declared) Lawn Lane AQMA.

The annual mean NO₂ concentration at Lawn Lane 1 Hemel Hempstead (DC57) in 2009 was 60µg/m³. However, this was considered to be a minor exceedance of the 'guideline value' and therefore well within the typical diffusion tube measurement uncertainty of 25 per cent referenced in Section A1.40 of LAQM.TG(09). Annual mean NO₂ concentrations at all other monitoring sites were below 60µg/m³ in 2009.

Summary of 2010 Diffusion Tube Monitoring Results

The annual mean air quality objective for NO₂ was exceeded at seven of the 22 monitoring locations within the borough in 2010. Five of the seven locations; High Street Northchurch (DC50), New Road, Northchurch (DC62), Lawn Lane 1 Hemel Hempstead (DC57), Lawn Lane 3 Hemel Hempstead (DC65) and London Road, Apsley (DC66) were situated within the (to be declared) AQMAs.

The annual mean NO₂ objective was also exceeded at High Street Berkhamsted (DC47) and Watford Road, Kings Langley (DC54). However, as identified in Table 2.3, no relevant exposure is apparent at these two sites. Following the guidance/calculation methodology outlined in Box 2.3 of LAQM.TG(09), annual average NO₂ concentrations at the nearest receptors/sites of relevant exposure to the DC47 and DC54 monitoring sites were estimated to be 37µg/m³ and 38µg/m³ respectively, and therefore below the relevant air quality objective.

An annual mean NO₂ concentration of 38µg/m³ (i.e approaching the relevant air quality objective) was recorded at Lawn Lane 2, Hemel Hempstead (DC64). This monitoring site was located within the (to be declared) Lawn Lane AQMA.

The annual mean NO₂ concentration at Lawn Lane 3, Hemel Hempstead (DC65) in 2010 was 62µg/m³. However, this was considered to be a marginal exceedance of the 'guideline value' and therefore well within the typical diffusion tube measurement uncertainty of 25 per cent referenced in Section A1.40 of LAQM.TG(09). Annual mean NO₂ concentrations at all other monitoring sites were below 60µg/m³ in 2010.

Summary of 2011 Diffusion Tube Monitoring Results

The annual mean NO₂ objective was exceeded at seven of the 41 monitoring locations within the borough in 2011. Five of the seven locations: New Road, Northchurch (DC62), Lawn Lane 1, Hemel Hempstead (DC57), Lawn Lane 3, Hemel Hempstead (DC65), London Road, Apsley (DC66) and Avia Close (DC74) were located within the (to be declared) AQMAs.

The annual mean NO₂ objective was also exceeded at Watford Road, Kings Langley (DC54) and Sappi 2 (DC81). However, as identified in **Table 2.3**, no relevant exposure is apparent at either of these sites. Following the guidance/calculation outlined in Box 2.3 of LAQM.TG(09), annual average NO₂ concentrations at the nearest receptors/sites of relevant exposure to the DC54 and DC81 monitoring sites were estimated to be 31.6µg/m³ and 34.8µg/m³ respectively, and therefore below the relevant air quality objective.

Annual mean NO₂ concentration of 39.3µg/m³ and 39.9µg/m³ (i.e. approaching the relevant air quality objective) were recorded at Lawn Lane 2 Hemel Hempstead (DC64) and Lawn Lane 4 Hemel Hempstead (DC70) respectively. As identified in **Table 2.3**, Lawn Lane 2 Hemel Hempstead (DC64) was located within the (to be declared) Lawn Lane AQMA. Lawn Lane 4 Hemel Hempstead (DC70) was located just outside of the (to be declared) Lawn Lane AQMA. An annual mean NO₂ concentration of 39.2µg/m³ was recorded at High Street Berkhamsted (DC47). However, as identified in **Table 2.3**, no relevant exposure is apparent at this site. An annual mean NO₂ concentration of 38.2µg/m³ was recorded at Belswains Sappi (DC68) and 37.2µg/m³ at Sappi 1 (DC80).

Annual mean NO₂ concentrations at all the 41 monitoring sites were below 60µg/m³ in 2011. The annual mean NO₂ concentration at London Road, Apsley (DC66) in 2011 was highest at 59.2µg/m³.

Table 2.5 Results of NO₂ Diffusion Tubes (2008 to 2012)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m ³) - Adjusted for Bias ^a				
			2008 (Bias Adjustment Factor = 0.79)	2009 (Bias Adjustment Factor = 0.82)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.84)	2012 (Bias Adjustment Factor = 0.79)
DC40	Background	N	18.7 (21.9)	No data	24	24.2	20.3
DC42	Background	N	26.1	27	28	24.7	22.6
DC43	Background	N	20.7* (19.1)	20	21	18.5	16.0
DC46	Kerbside	N	23.7	24	25	22.4	19.1
DC47	Roadside	N	38.9	40	43	39.2	37.2
DC48	Background	N	18.9* (18.8)	21	23	20.8	19.5
DC50	Roadside	Y	39.7 (41.6)	42	45	35.8	42.2
DC51	Kerbside	N	28.7	29	31	27.4	24.3
DC52	Roadside	N	33.8* (34.2)	32	36	33.6	38.9
DC53	Background	N	16.1	18	17	15.7	15.0
DC54	Roadside	N	48.5	48	52	46.7	46.9
DC55	Roadside	N	30.9* (31.7)	32	36	34.0	29.9
DC57	Roadside	Y	56.4	60	59	53.2	48.9
DC58	Background	N	30.4	29	31	28.6	25.1
DC59	Background	N	30.3	34	35	35.2	27.4
DC60	Background	N	25.3	25	25	25.3	25.2
DC61	Roadside	N	31.6	30	29	30.6	28.2
DC62	Roadside	Y	38.3	42	42	46.2	39.9
DC63	Roadside	Y	28.6	33	33	30.0	28.3
DC64	Roadside	Y	37.5	40	38	39.3	35.6
DC65	Roadside	Y	54.4	56	62	57.2	57.0
DC66	Roadside	Y	56.3	57	54	59.2	55.9
DC67	Roadside	N				28.1	27.7
DC68	Roadside	N				38.2	35.4
DC69	Roadside	N				22.8	21.4
DC70	Roadside	N				39.9	39.1
DC71	Kerbside	N				28.6	25.4
DC72	Roadside	N				35.8	
DC73	Roadside	Y				33.4	30.1
DC74	Roadside	Y				42.1	39.2
DC75	Roadside	N				27.1	25.3
DC76	Kerbside	N				36.0	28.0
DC77	Roadside	N				27.6	28.5
DC78	Roadside	N				30.0	25.9
DC79	Roadside	N				29.8	33.5
DC80	Roadside	N				37.2	
DC81	Roadside	N				52.3	37.7
DC82	Roadside	N				36.6	
DC83	Roadside	N				13.7	13.1
DC84	Roadside	Y				29.9	28.1

Site ID	Site Type	Within AQMA?	Annual Mean Concentration ($\mu\text{g}/\text{m}^3$) - Adjusted for Bias ^a				
			2008 (Bias Adjustment Factor = 0.79)	2009 (Bias Adjustment Factor = 0.82)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.84)	2012 (Bias Adjustment Factor = 0.79)
DC85	Kerbside	Y				33.0	37.4
DC86	Roadside	Y					22.7
DC87	Roadside	Y					24.0
DC88	Roadside	Y					22.4
DC89	Roadside	N					18.3

Note:

In bold, exceedance of the NO₂ annual mean AQS objective of 40 $\mu\text{g}/\text{m}^3$

Underlined, annual mean > 60 $\mu\text{g}/\text{m}^3$, indicating a potential exceedance of the NO₂ hourly mean AQS objective

* Values in parenthesis are concentrations annualised due to data capture <90 per cent, following guidance provided in Box 3.2 of LAQM.TG(09)

All results for 2009 and 2010 were annualised due to low data capture (<90 per cent)

2011 data annualised where data capture <75 per cent

All results for 2012 were annualised due to low data capture (<75 per cent)

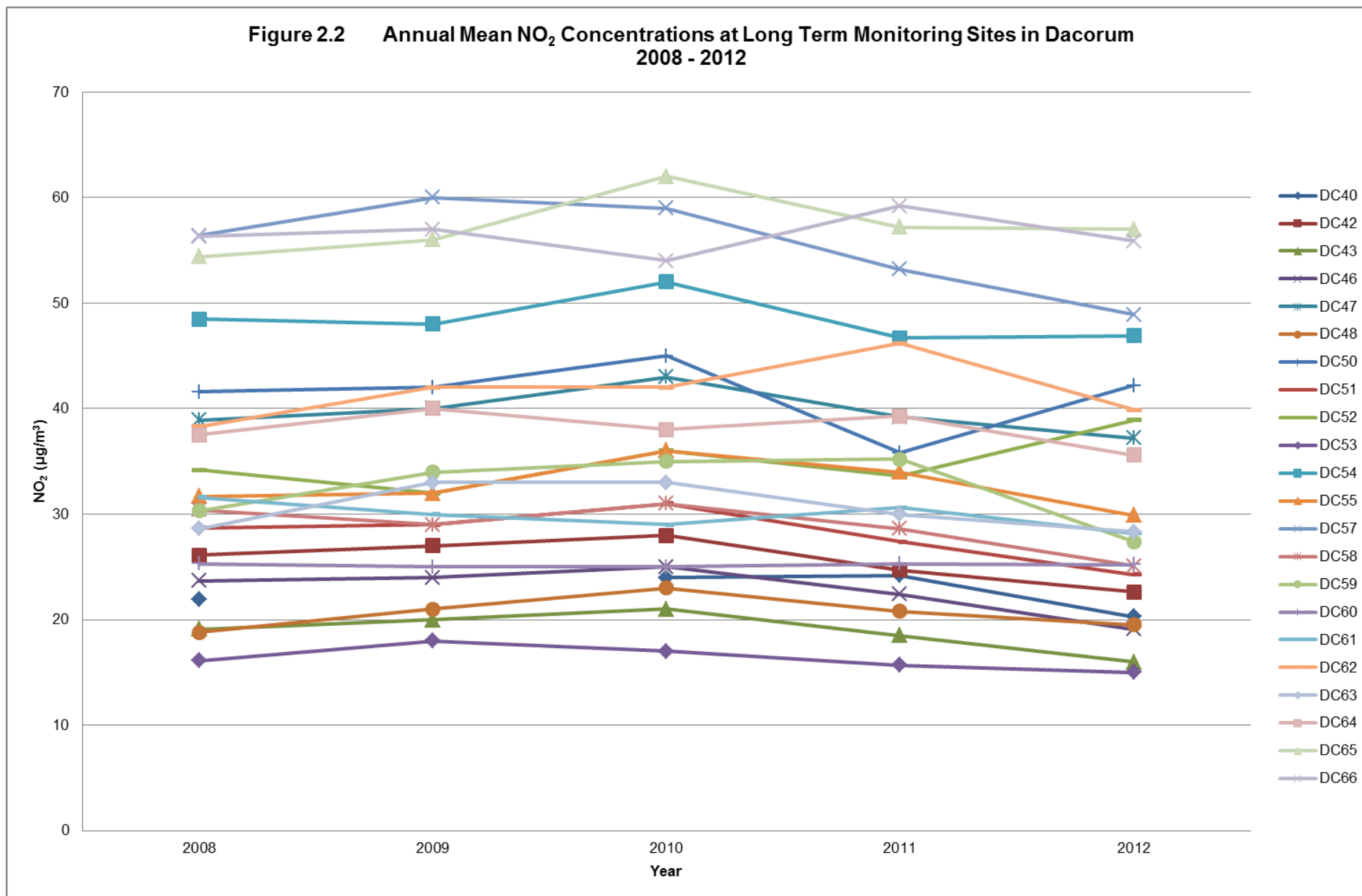
Potential Trends in Diffusion Tube Monitoring Results 2008 to 2012

Annual mean NO₂ concentrations over the last five years have been presented graphically for all the long term monitoring sites DC40 to DC66 (22 in total) across Dacorum in **Figure 2.2**. Furthermore, **Figure 2.3, 2.5** and **2.7** show annual mean NO₂ concentrations over the last five years for the background, roadside and kerbside sites separately. Graphs showing the trends for this period are also presented in **Figure 2.4, 2.6** and **2.8**.

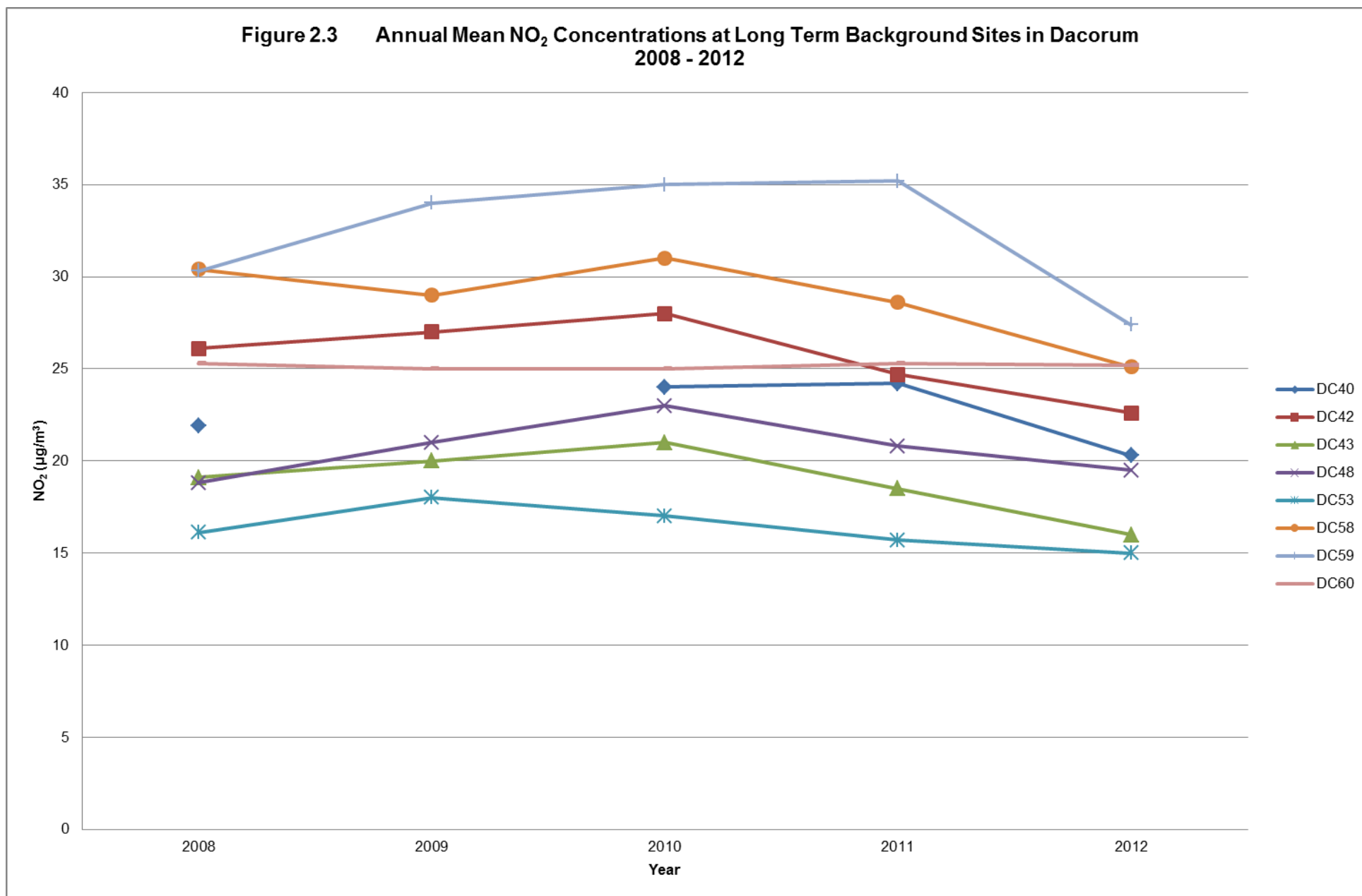
Five years data is usually considered the minimum necessary to identify a significant trend. In December 2010 a further 10 diffusion tube monitoring sites (DC67 to DC76) were deployed, mostly in, or within the immediate vicinity of the (to be declared) AQMA boundaries in Hemel Hempstead and Apsley. A further 9 diffusion tube monitoring sites were also deployed in Hemel Hempstead in 2011; DC77 to DC82 were commissioned in May 2011; DC83 and DC84 in June 2011 and DC85 in September 2011. 3no. monitoring sites (DC77 to DC79) were positioned at various locations on Cotterells, Hemel Hempstead to access any potential air quality impact following the redevelopment of the former Kodak site (4/0279/09/MFA). 3no. monitoring sites (DC80 to DC82) were positioned at various locations on Lower Road, Nash Mills to access air quality within the vicinity of the former Sappi Graphics site, undergoing redevelopment under planning permission 4/01382/09/MFA (residential / mixed end use). Since two years monitoring data is insufficient to accurately assess trends the results are presented below for comparison only (**Figure 2.9**). The following monitoring locations have been omitted from this comparison exercise due to an insufficient quantity of data (<2 years); DC72, DC80 and DC82. The further 4 diffusion tubes monitoring sites (DC86 to DC89) added in October 2012 have also been omitted for this reason.

Figures 2.10, 2.12 and **2.14** show the location of diffusion tube monitoring sites within and in close proximity to the Lawn Lane, Hemel Hempstead, London Road, Apsley and High Street Northchurch AQMAs respectively. **Figure 2.11, 2.13** and **2.15** show the annual mean NO₂ concentrations at the diffusion tube monitoring locations within and close to the three AQMAs over the last five years, (where applicable).

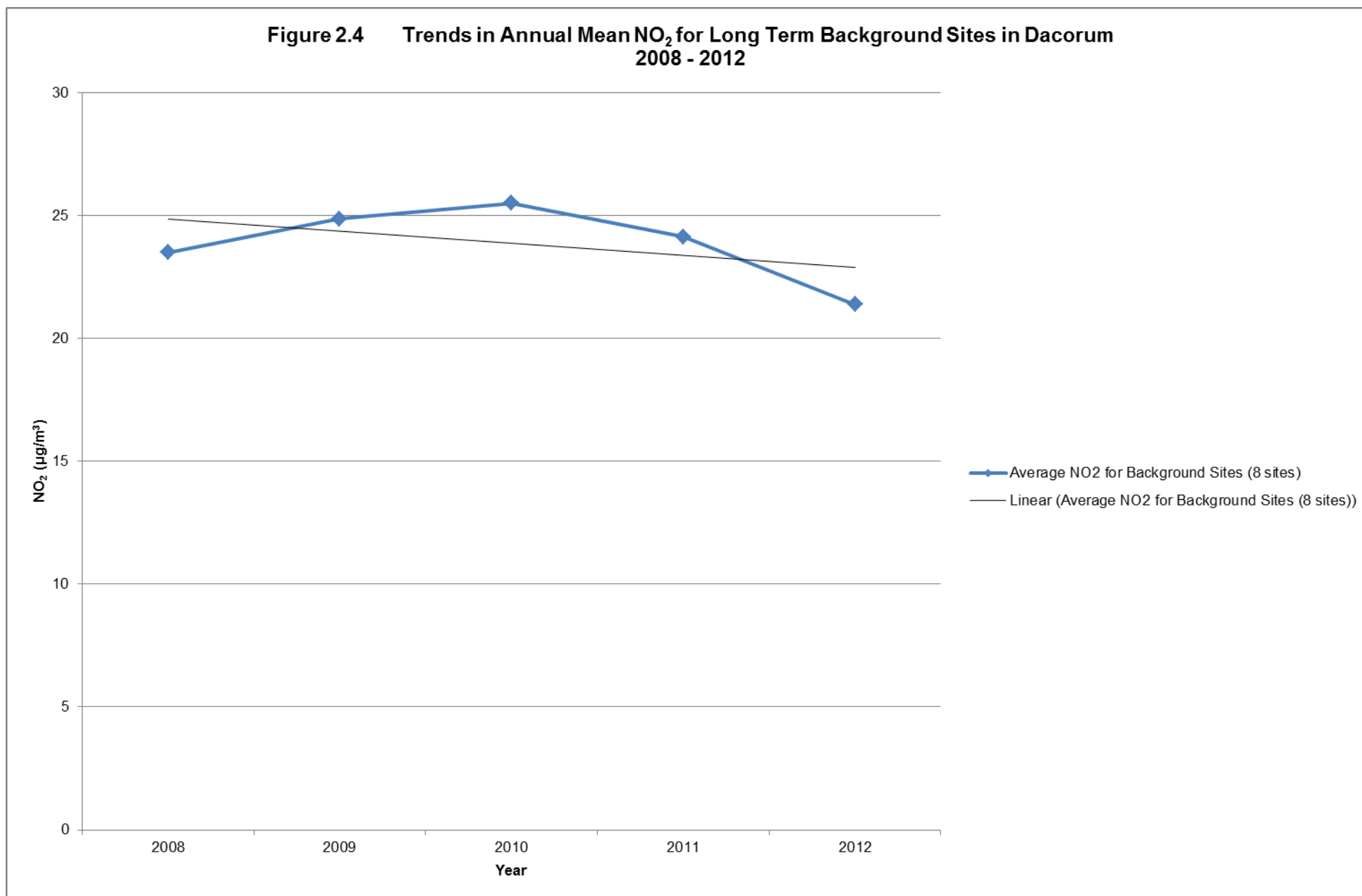
**Figure 2.2 Annual Mean NO₂ Concentrations at Long Term Monitoring Sites in Dacorum
2008 - 2012**



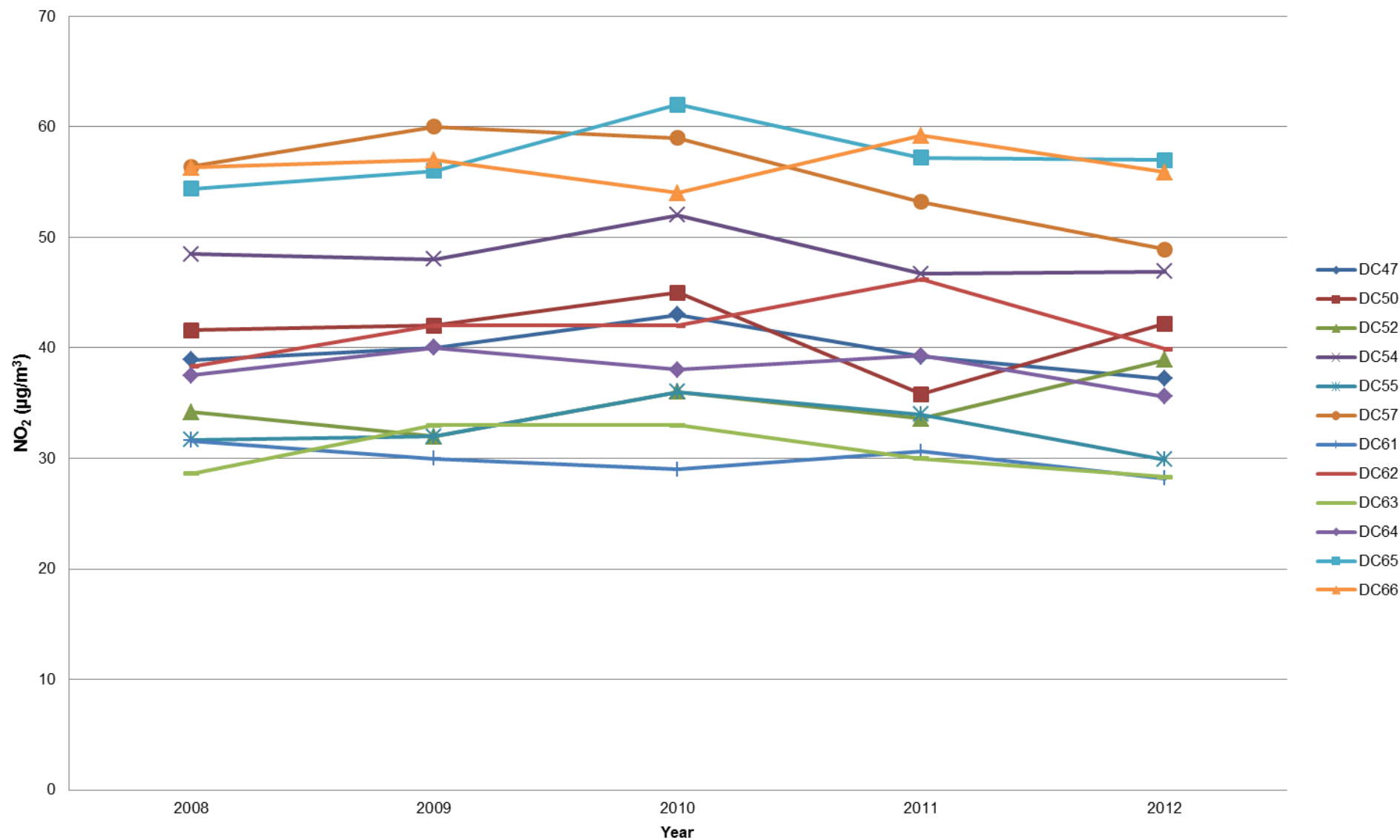
**Figure 2.3 Annual Mean NO₂ Concentrations at Long Term Background Sites in Dacorum
2008 - 2012**



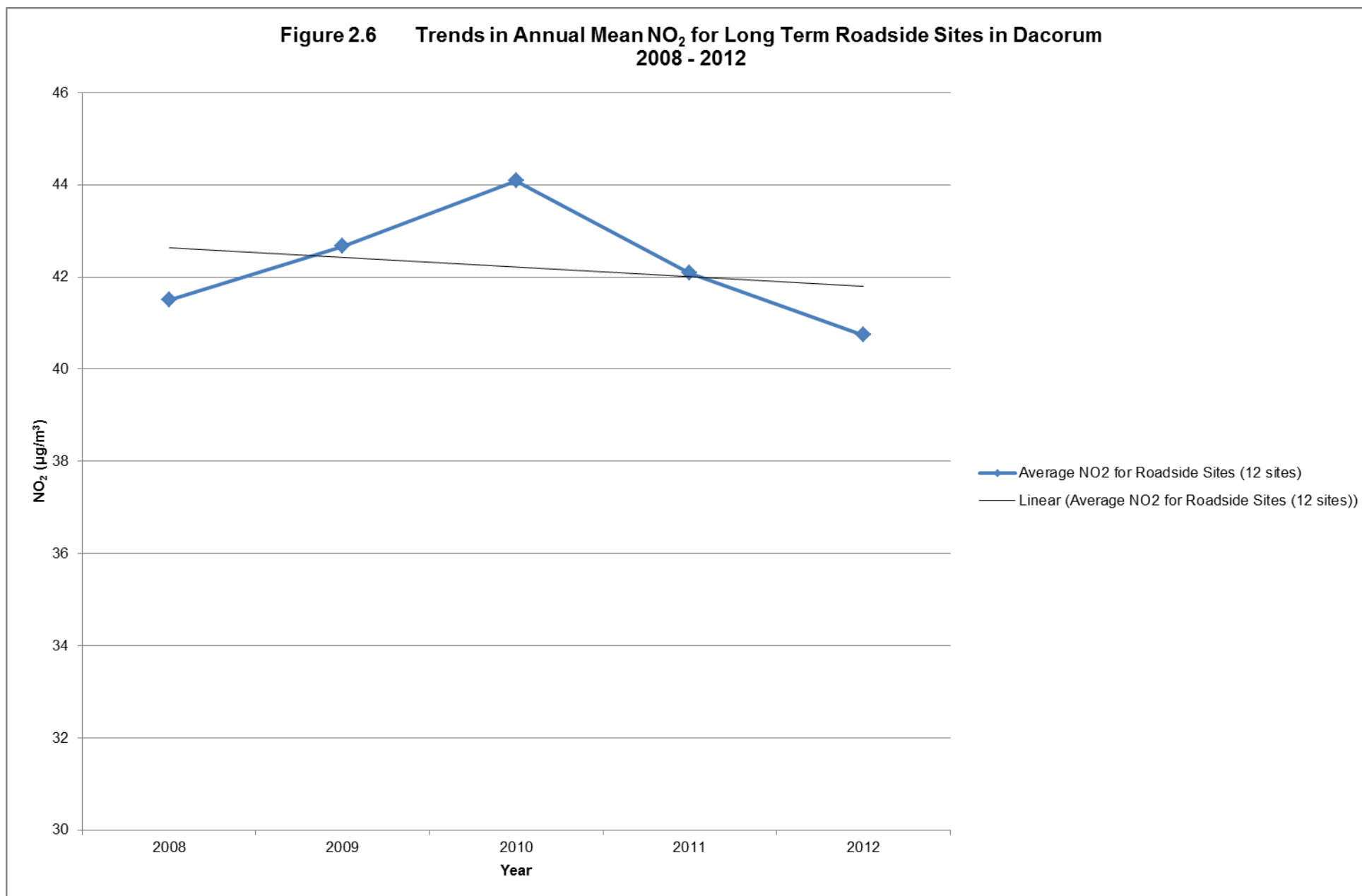
**Figure 2.4 Trends in Annual Mean NO₂ for Long Term Background Sites in Dacorum
2008 - 2012**



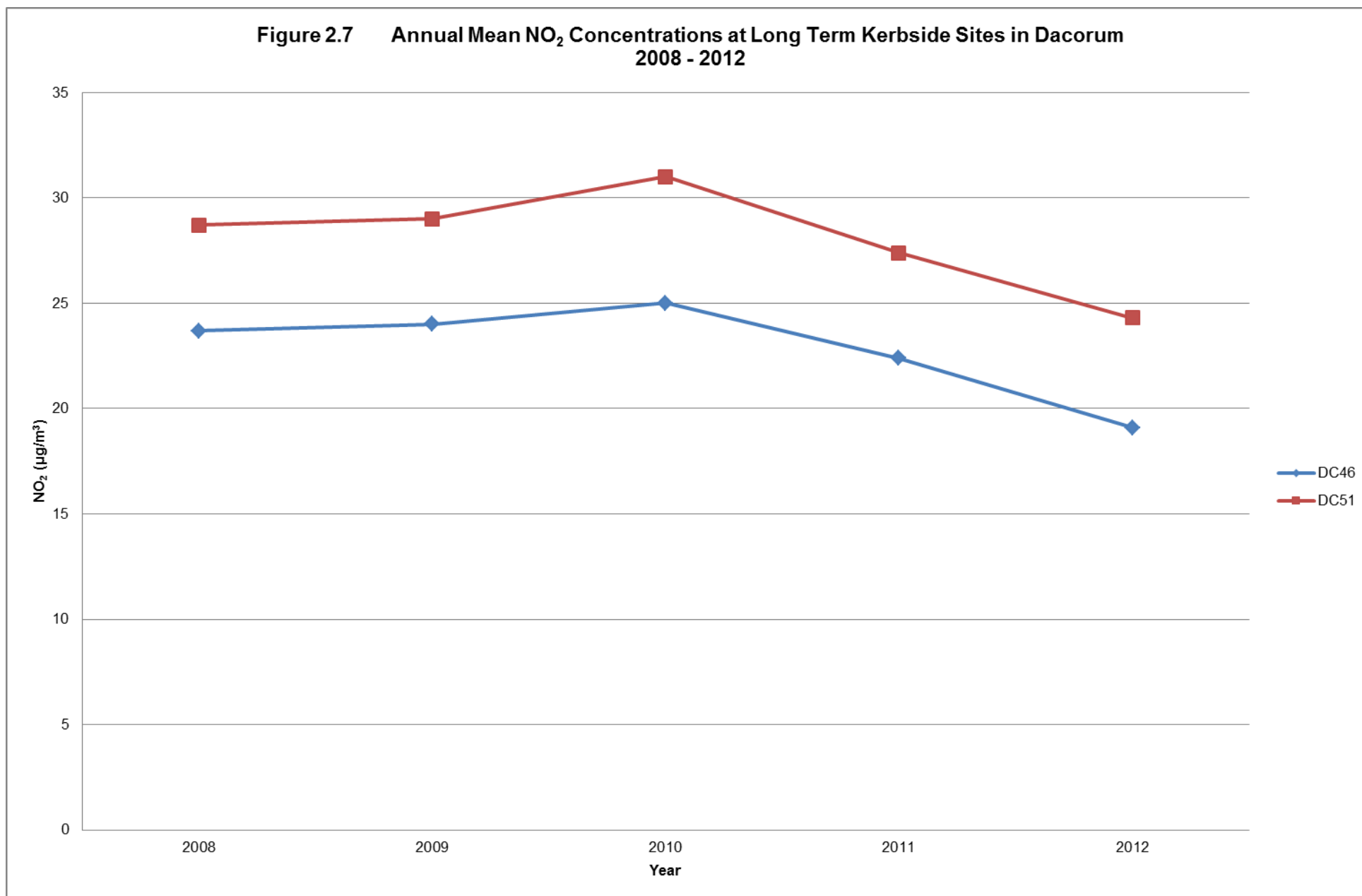
**Figure 2.5 Annual Mean NO₂ Concentrations at Long Term Roadside Sites in Dacorum
2008 - 2012**



**Figure 2.6 Trends in Annual Mean NO₂ for Long Term Roadside Sites in Dacorum
2008 - 2012**



**Figure 2.7 Annual Mean NO₂ Concentrations at Long Term Kerbside Sites in Dacorum
2008 - 2012**



**Figure 2.8 Trends in Annual Mean NO₂ for Long Term Kerbside Site in Dacorum
2008 - 2012**

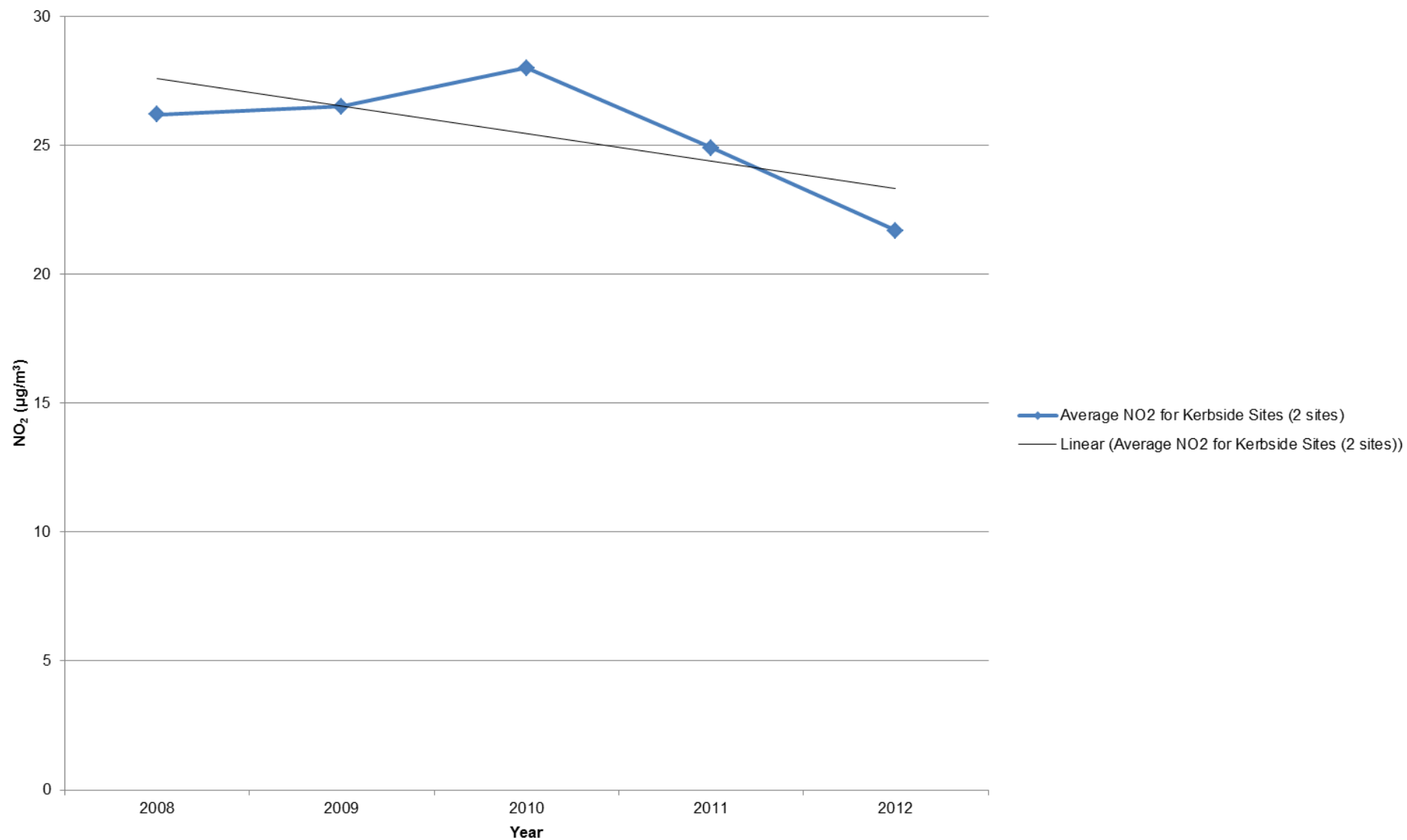


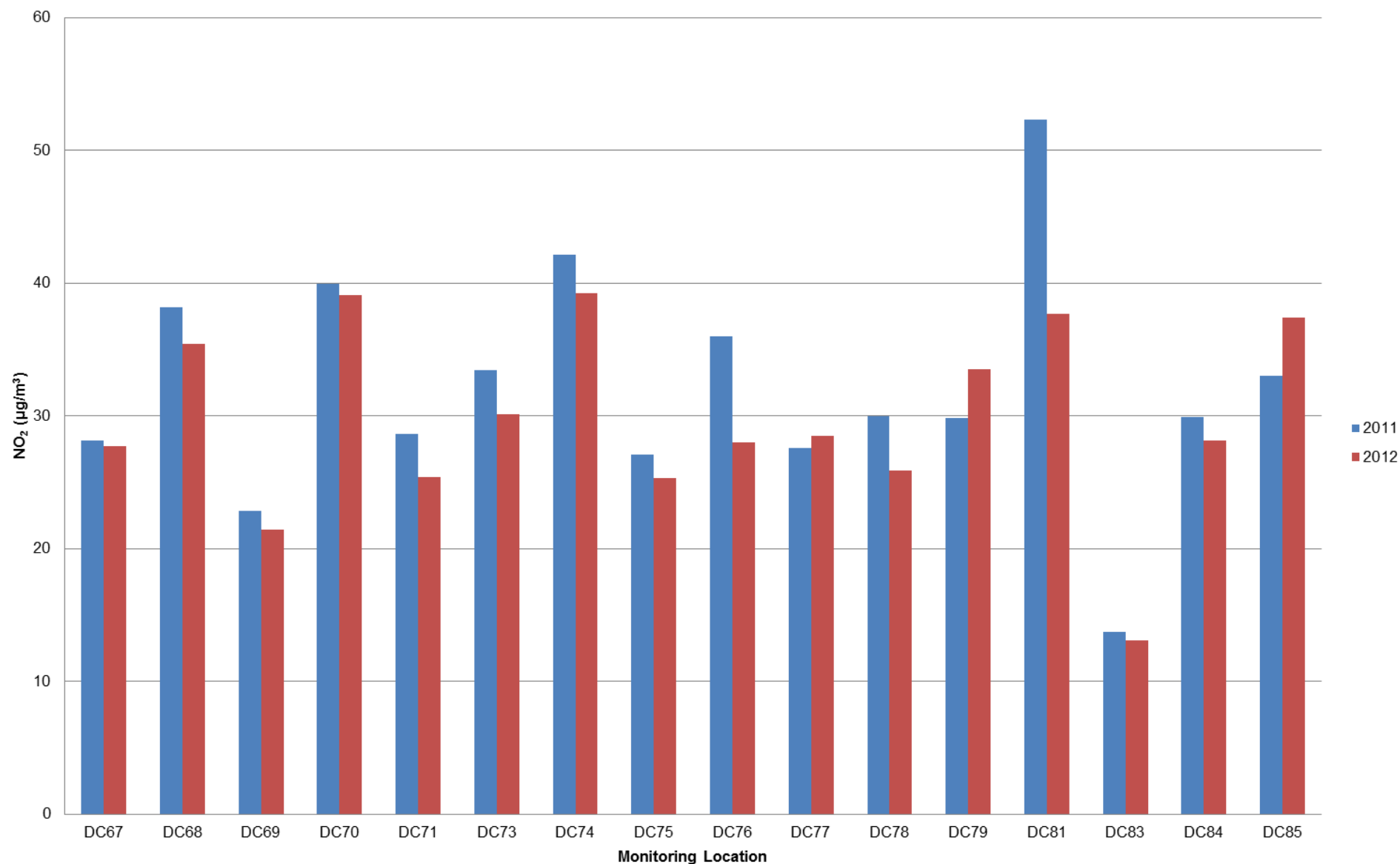
Figure 2.9 Annual Mean NO₂ Concentrations at New Monitoring Locations in Dacorum 2011 - 2012

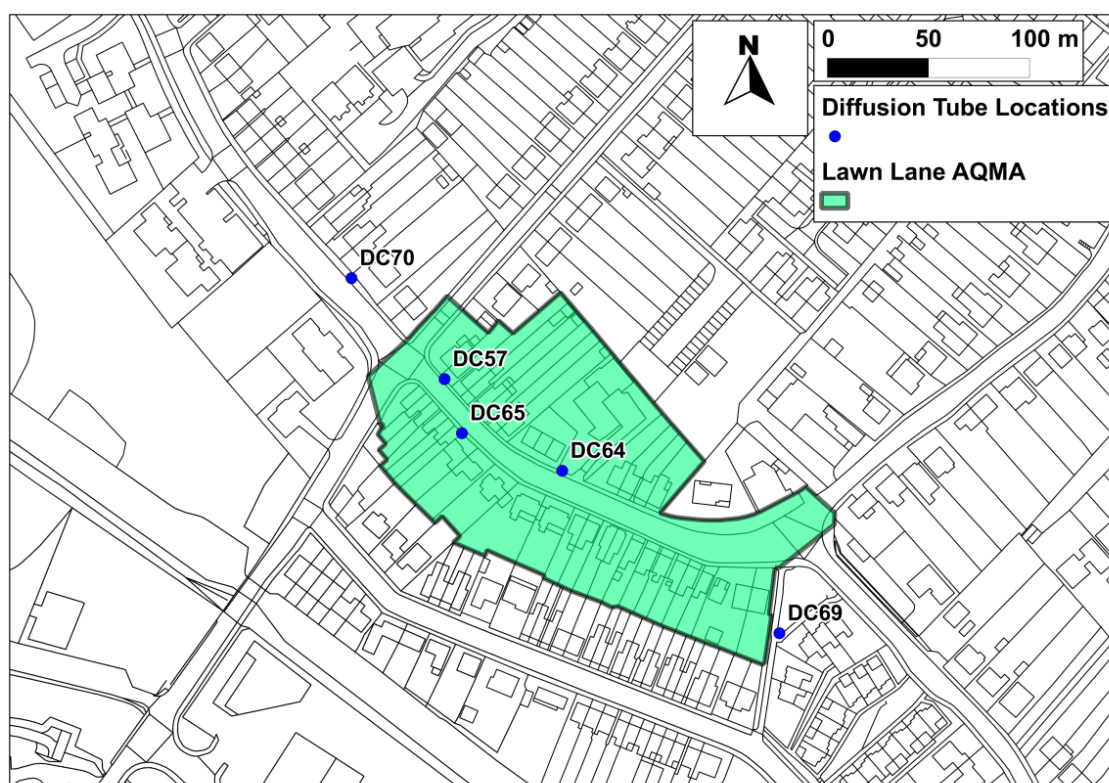
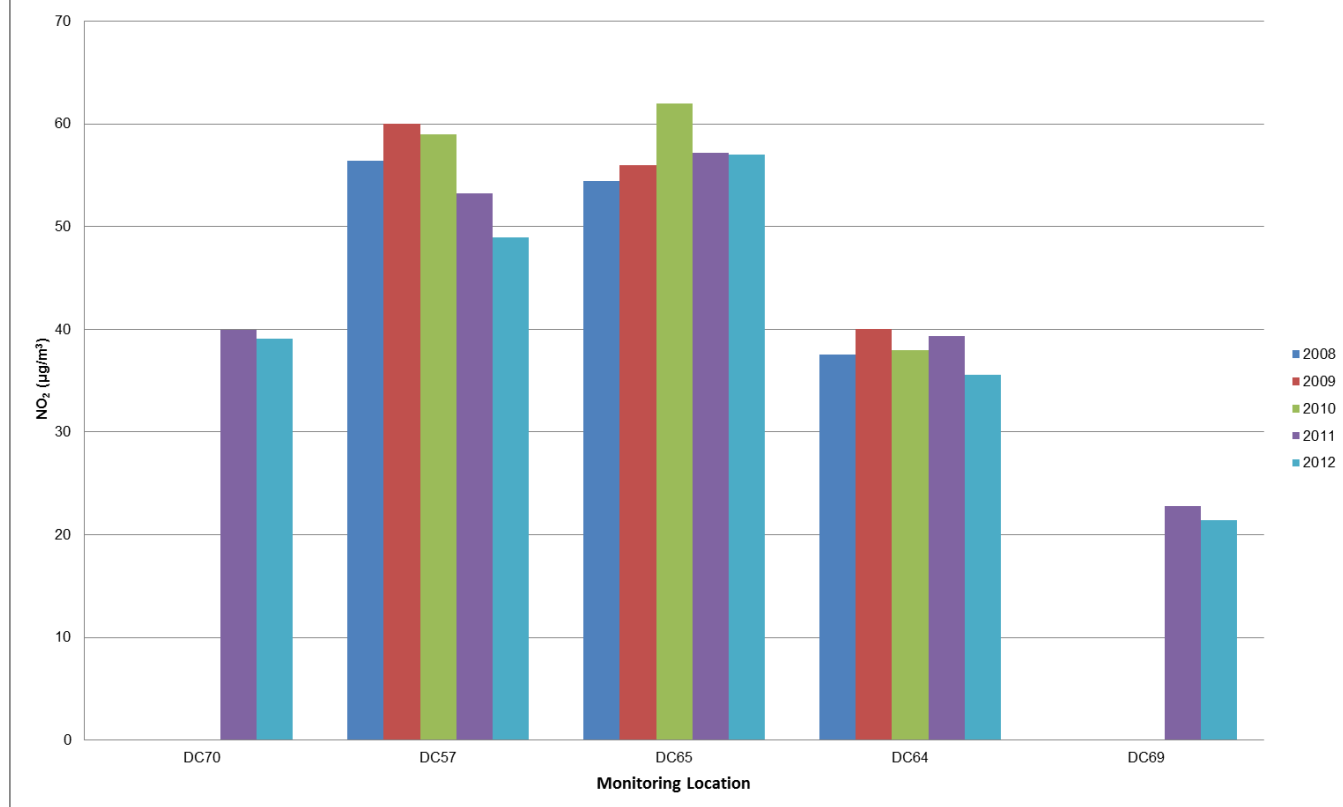
Figure 2.10 Diffusion Tube Monitoring Locations, Lawn Lane AQMA**Figure 2.11 Annual Mean NO₂ Concentrations at Monitoring Locations within and close to AQMA 1 Lawn Lane Hemel Hempstead 2008 - 2012**

Figure 2.12 Diffusion Tube Monitoring Locations, London Road Apsley AQMA

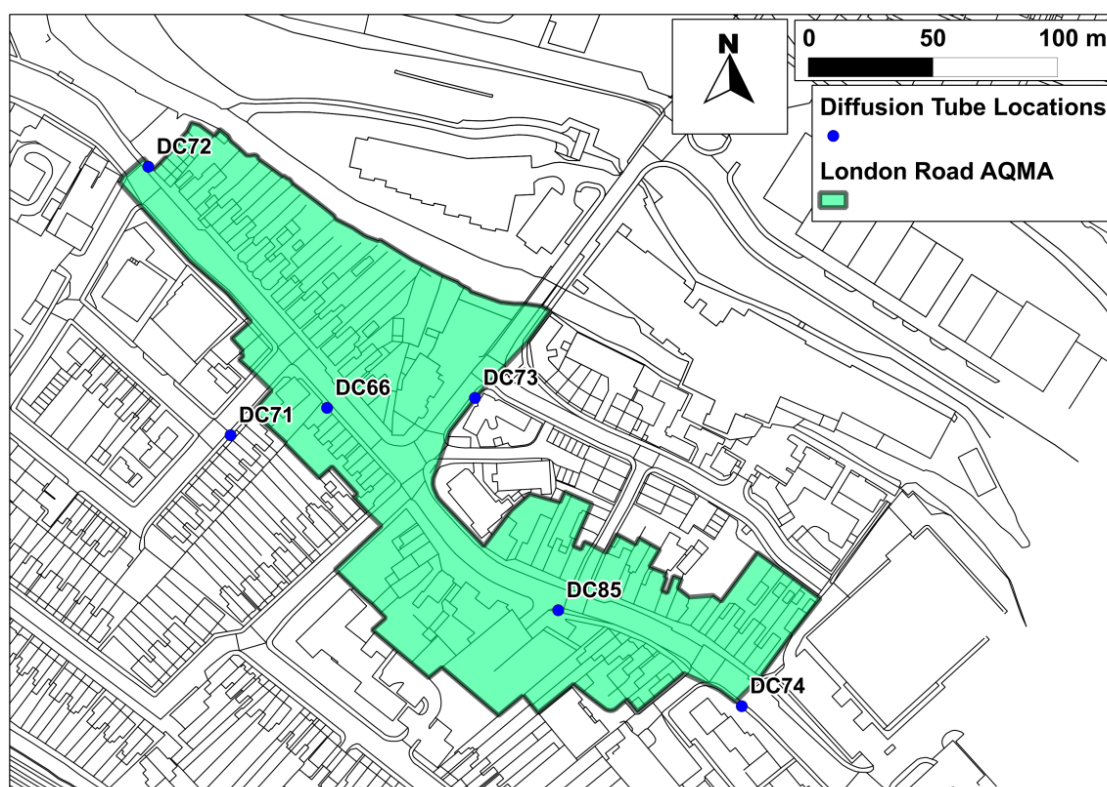


Figure 2.13 Annual Mean NO₂ Concentrations at Monitoring Locations within and close to AQMA 2 London Road Apsley 2008 - 2012

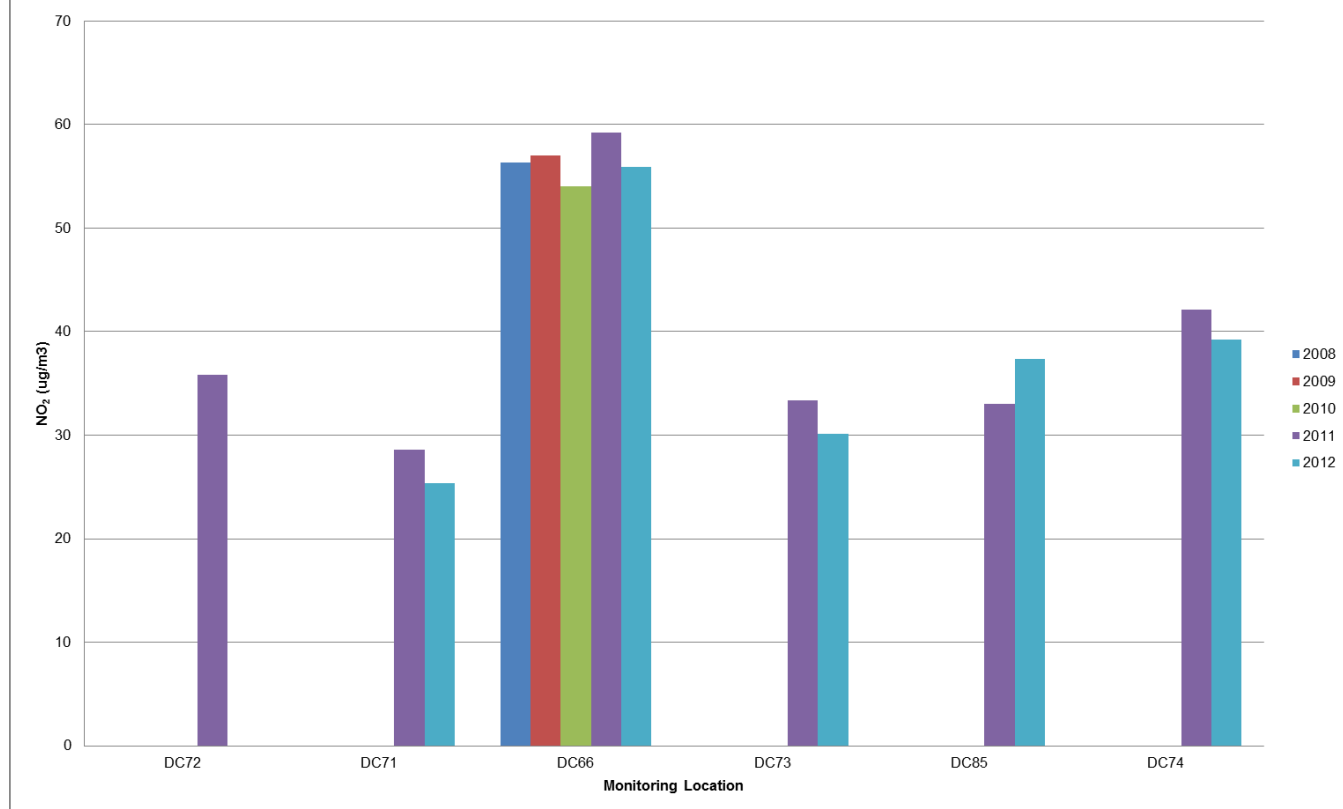
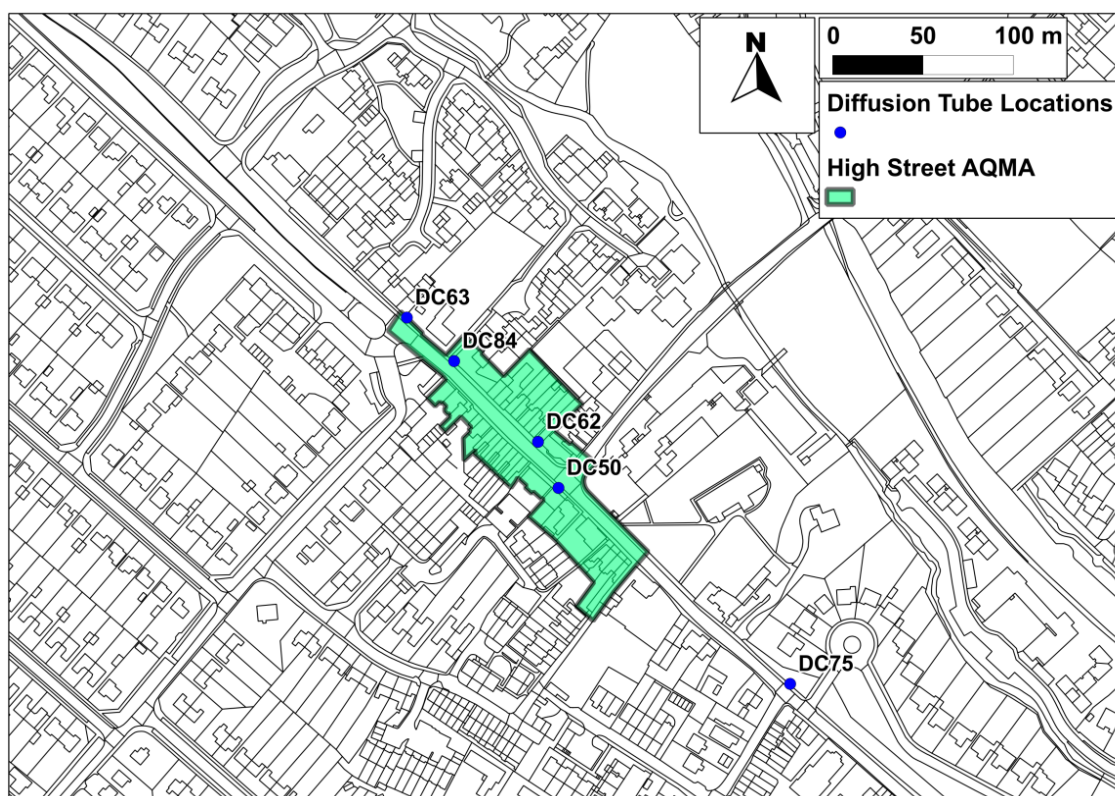
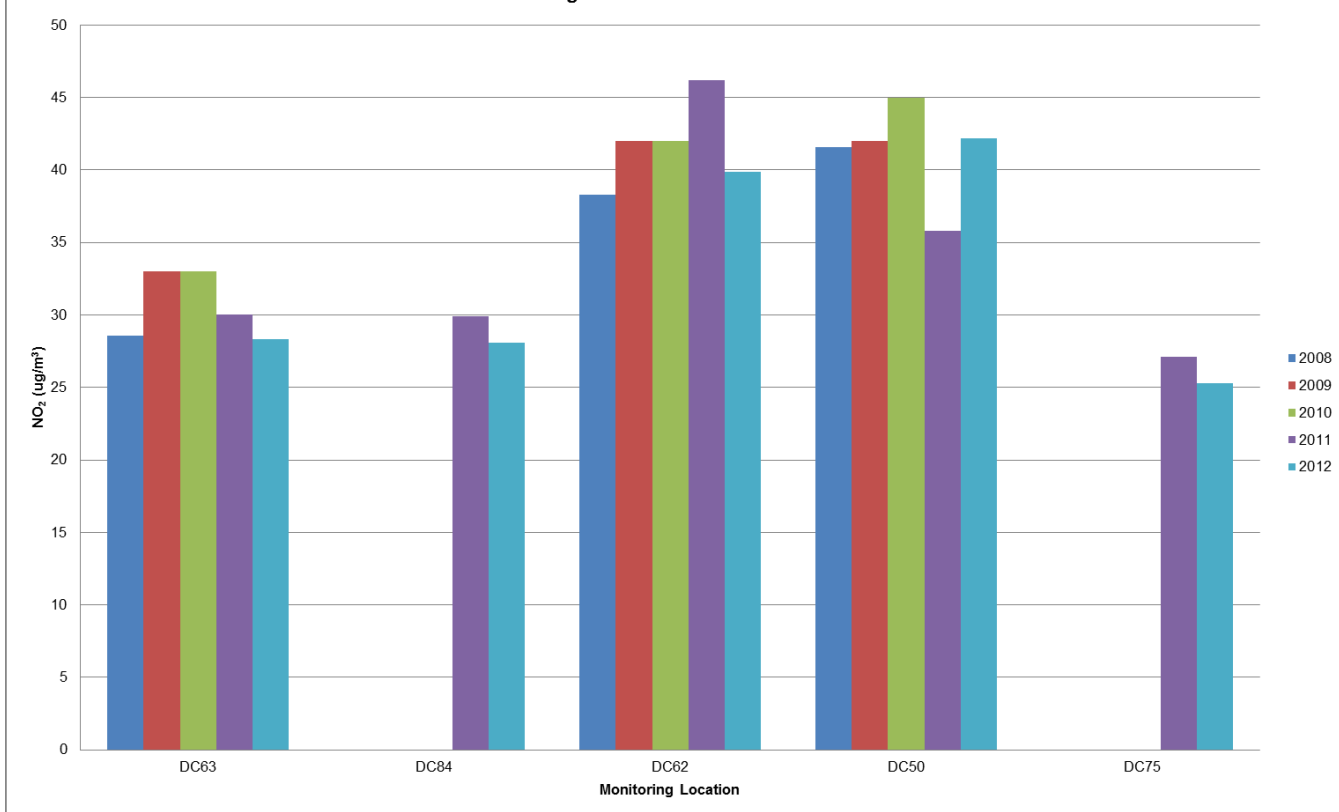


Figure 2.14 Diffusion Tube Monitoring Locations, High Street Northchurch AQMA**Figure 2.15 Annual Mean NO₂ Concentrations at Monitoring Locations within and close to AQMA 3 High Street Northchurch 2008 - 2012**

Potential Trends – Long-Term Background Sites:

- Annual mean NO₂ concentrations at the background sites appear to have slightly declined over the past 5 years.
- No exceedance of the annual mean NO₂ objective has been noted at any of the 8no. background locations over the past five years.
- In general, annual mean NO₂ concentrations were highest in 2010 (4 of the 8no. monitoring locations).
- In general, annual mean NO₂ concentrations were lowest in 2012 (6 of the 8no. monitoring locations).

Potential Trends – Long-Term Roadside Sites:

- Annual mean NO₂ concentrations at the roadside sites appear to have slightly declined over the past 5 years.
- Over the past five years, the annual mean NO₂ objective has been consistently exceeded year on year at 4no. of the roadside locations; DC54, DC57, DC65 and DC66. DC54 is located at Watford Road, Kings Langley, DC57 and DC65 are located within the Lawn Lane, Hemel Hempstead AQMA and DC66 the London Road, Apsley AQMA.
- In general, annual mean NO₂ concentrations were highest in 2010 (8 of the 12no. monitoring locations).
- In general, annual mean NO₂ concentrations were lowest in 2012 (6 of the 12no. monitoring locations).

Potential Trends – Long-Term Kerbside Sites:

- Annual mean NO₂ concentrations at the kerbside sites appear to have slightly declined over the past 5 years.
- No exceedance of the annual mean NO₂ objective has been noted at either of the 2no. long term kerbside locations over the past five years.
- At both kerbside monitoring locations, the annual mean NO₂ concentration was seen to increase year on year from 2008 to 2010, followed by a decrease year on year from 2010 to 2012.
- At both kerbside monitoring locations, the annual mean NO₂ concentration was lowest in 2012.

New Monitoring Locations 2011 – 2012:

- Annual mean NO₂ concentrations were seen to decrease from 2011 to 2012 at 13 of the 16no. new monitoring sites deployed in 2011.
- Annual mean NO₂ concentrations were seen to increase from 2011 to 2012 at the remaining 3no. new monitoring sites deployed in 2011 (DC77, DC79 and DC85). DC77 and DC79 are located on Cotterells and DC85 within the London Road, Apsley AQMA.

Potential Trends – AQMA 1 Lawn Lane, Hemel Hempstead

- 3no. long-term monitoring sites are located within the Lawn Lane Hemel Hempstead AQMA (DC57, DC64 and DC65). The remaining 2no. monitoring sites (DC69 and DC70) were deployed in 2011, both of which are located outside of the AQMA boundary.
- Between 2008 and 2009; all 3no. monitoring locations exhibited an increase in annual mean NO₂ concentrations.
- Annual mean NO₂ concentrations were seen to decrease from 2009 to 2010 at 2 of the 3no. monitoring locations (DC57 and DC64), whereas DC65 exhibited an increase.
- Annual mean NO₂ concentrations were seen to decrease from 2010 to 2011 at 2 of the 3no. monitoring locations (DC57 and DC65), whereas DC64 exhibited an increase.
- All monitoring locations (5no.) exhibited a decrease in annual mean NO₂ concentrations between 2011 and 2012.
- With the exception of DC65, annual mean NO₂ concentrations were lowest at all monitoring locations in 2012.
- Annual mean NO₂ concentrations were highest at DC57 and DC64 in 2009, at DC65 in 2010 and at DC69 and DC70 in 2011.
- Over the past five years, the annual mean NO₂ objective has been consistently exceeded year on year at both DC57 and DC65, both of which are located within the AQMA boundary.
- Over the past five years, the annual mean NO₂ objective has never been exceeded at DC64, which is also located within the AQMA boundary. Although no exceedances have been identified, the annual mean NO₂ concentration at this monitoring location regularly comes close to the 40µg/m³ objective.

- Since deployment in 2011, the annual mean NO₂ objective has not been exceeded at either of the monitoring locations situated outside of the AQMA boundary (DC69 and DC70). However, annual mean NO₂ concentrations at DC70 in both 2011 and 2012 have been exceptionally close to the 40µg/m³ objective (39.9 and 39.1µg/m³ respectively).

Potential Trends – AQMA 2 London Road, Apsley

- DC66 represents the only long-term monitoring site within the London Road Apsley AQMA. The remaining 5no. monitoring sites were deployed in 2011. With the exception of DC71, all monitoring sites are located within the AQMA boundary. DC72 has been omitted from this comparison exercise due to insufficient data capture.
- Between 2008 and 2009 DC66 exhibited an increase in the annual mean NO₂ concentration, followed by a decrease between 2009 and 2010 and subsequent increase between 2010 and 2011.
- With the exception of DC85, all monitoring locations exhibited a decrease in annual mean NO₂ concentrations between 2011 and 2012.
- Annual mean NO₂ concentrations were lowest at DC66 in 2010, at DC85 in 2011 and at DC71, DC73 and DC74 in 2012.
- Over the past five years, the annual mean NO₂ objective has been consistently exceeded year on year at DC66.
- The annual mean NO₂ objective was also exceeded at DC74 in 2011.
- No other exceedances have been identified. However, the annual mean NO₂ concentration at DC85 in 2012 came close to the 40µg/m³ objective (37.4µg/m³).

Potential Trends – AQMA 3 High Street, Northchurch

- 3no. long term monitoring sites are located within the High Street Northchurch AQMA (DC50, DC62 and DC63). The remaining 2no. monitoring sites (DC75 and DC84) were deployed in 2011; DC84 is located within the AQMA boundary and DC75 outside of the AQMA boundary.
- Between 2008 and 2009; all monitoring locations (DC50, DC62 and DC63) exhibited an increase in annual mean NO₂ concentrations.
- Annual mean NO₂ concentrations were seen to remain stable from 2009 to 2010 at 2 of the 3no. monitoring locations (DC62 and DC63), whereas DC50 exhibited an increase.
- Annual mean NO₂ concentrations were seen to decrease from 2010 to 2011 at 2 of the 3no. monitoring locations (DC50 and DC63), whereas DC62 exhibited an increase.

- Annual mean NO₂ concentrations were seen to decrease from 2011 to 2012 at 4 of the 5no. monitoring locations (DC62, DC63, DC75 and DC84), whereas DC50 exhibited an increase.
- Annual mean NO₂ concentrations were lowest at DC62 in 2008, at DC50 in 2011 and at the remaining 3no. monitoring locations (DC63, DC75 and DC84) in 2012.
- Annual mean NO₂ concentrations were highest at DC63 in 2009 and 2010, at DC50 in 2010 and at the remaining 3no. monitoring locations (DC62, DC75 and DC84) in 2011.
- The annual mean NO₂ objective has been consistently exceeded at DC50 over the last five years, with the exception of 2011 (35.8µg/m³).
- The annual mean NO₂ objective was also exceeded in 2009, 2010 and 2011 at DC62. Although exceedances were identified in 2008 and 2012, the annual mean NO₂ concentration was extremely close to the 40µg/m³ objective (38.3 and 39.9µg/m³ respectively).
- Over the past five years, the annual mean NO₂ objective has never been exceeded at the remaining 3no. monitoring locations (DC63 and DC84 within the AQMA boundary and DC75 outside of the AQMA boundary).

Discussion

There are 22no. long-term diffusion tube monitoring sites across Dacorum (DC40 to DC66), of which 8no. are background sites, 12no. are roadside sites and 2no. are kerbside sites. The data presented for the five year period (2008 to 2012) clearly shows a slight decline in annual mean NO₂ concentrations at background, roadside and kerbside sites during this period. Within each of these settings, in general, highest annual mean NO₂ concentrations were identified in 2010 and lowest in 2012.

Although five years data is usually considered the minimum necessary to identify a significant trend, the data presented in Figure 2.9 representing the 16no. monitoring sites deployed in 2011 with 2 years data capture, supports the above identified trend, with 13 of the 16no. monitoring locations (approximately 81 per cent) exhibiting a decrease in annual mean NO₂ concentrations between 2011 and 2012.

In reference to the AQMAs, the data and identified trends relating to these monitoring locations has been incorporated in the discussion above.

The *Hertfordshire Traffic and Transport Data Report 2011* (based on 2011 data) produced by Hertfordshire County Council was published in August 2012. Key findings of the 2011 report are as follows:

- There has been a slight decrease in traffic levels between 2010 and 2011 of 0.3%, following a slight increase between 2009 and 2010.
- Between 2010 and 2011 traffic flows within Hertfordshire districts have remained generally stable (an increase of 0.43 per cent was noted within Dacorum)
- Over recent years traffic flows in Hertfordshire have largely mirrored the UK economy with decreases in 2008 & 2009, subsequent slight increases in 2010 and relatively static flows during 2011.

Hertfordshire County Council operates 35no. automatic traffic count sites (ATC) within Dacorum; data has been provided for the period 2006 to 2011. This data is presented in AAWD (Annual Average Weekday Data) and is Hertfordshire County Council's equivalent of AADT (Annual Average Daily Traffic). AAWD takes into consideration seasonal variations so is generally more robust. For each of the 35no. ATCs, Hertfordshire County Council have calculated a percentage change in AAWD for the period 2006 to 2011. The percentage change appears highly variable between the automatic traffic count sites (ranging from a 17.1 per cent reduction at Northchurch Common, Northchurch to a 6.4 per cent increase at Wingrave Road, Tring); however, a 4 per cent reduction in AAWD was calculated within Dacorum for this period as an average. None of the automatic traffic count sites are located within the 3no. AQMAs. The full data set can be found in **Appendix B**.

Whilst the above data in general supports the trends identified in the diffusion tube data; it must be noted that significant increases/reductions in traffic volume are required before a measureable increase/decrease in NO₂ concentrations will be identified. This evidence is therefore not considered significant.

There may have been some decline in NO₂ emissions from traffic sources as a result of improvements in engine technologies introduced by successive Euro Standards. This may account for the slight decline in NO₂ concentrations at background, roadside and kerbside sites seen over this five year period. However, it is now recognised that the expected reductions in NO₂ concentrations, that the Government predicted would be associated with the Euro Standard technologies, were over optimistic.

2.2.2 Summary of Compliance with AQS Objectives

Dacorum Borough Council has examined the results from monitoring in the borough.

Concentrations within the 3no. AQMAs still exceed the annual mean objective for NO₂ at Lawn Lane, Hemel Hempstead, London Road, Apsley and High Street Northchurch and the AQMAs should remain.

Concentrations outside of the 3no. AQMAs are all below the objectives at relevant locations, therefore there is no need to proceed to a Detailed Assessment.

3 New Local Developments

Any location where there has been a change or new development with the potential to affect air quality in the Dacorum area has been considered in order to identify locations that need to be taken into consideration in the next Updating and Screening Assessment in 2015. These include transport sources, industrial sources and any other commercial or domestic sources.

Only those developments that are currently under construction or that have been granted planning permission or issued with a permit to operate under the Environmental Permitting Regulations (England and Wales) 2010 are considered. Future developments and new planning applications are considered under section 5.

Dacorum Borough Council has identified the following new or previously unidentified residential and commercial developments, which may impact on air quality in the local authority area:

Those with planning permission:

- **4/01115/12/MFA** New Lodge, Bank Mill Lane, Berkhamsted, HP4 2NS - New residential development (net gain 53 units)
- **4/00692/09/MOA** Land between Buncefield Lane and Green Lane and Westwick Row, Green Lane, Hemel Hempstead – New residential development (net gain of 88 units).
- **4/00647/12/MFA** Land opp. Cavendish Court, London Road, Apsley, Hemel Hempstead – New residential development (net gain 58 units)
- **4/00152/12/MOA** Former MFI Site, Redbourn Road, Hemel Hempstead, HP2 7BA – Discount foodstore
- **4/01211/12/MFA** Berkhamsted Delivery Office, 300 High Street, Berkhamsted, HP4 1ZZ – Mixed Retail Development

Those subject to S.106 Planning Agreement:

- **4/01477/09/MOA** Land at NE Hemel Hempstead (adj. Nicky Line), Three Cherry Trees Lane, Hemel Hempstead – New residential development (net gain 357 units)
- **4/01836/09/MOA** 175-189 London Road, Apsley, Hemel Hempstead, HP3 9SQ – Mixed-use residential and retail development (33 apartments and up to 530 sqm retail floorspace)
- **4/01173/11/MFA** Land at, Hicks Road, Markyate, St. Albans, AL3 – Large mixed commercial / residential development

An air quality assessment was undertaken by Entran Limited to assess both construction and operational impacts of the proposed redevelopment of the Hicks Road Industrial Estate. A qualitative assessment of the potential impacts during the construction phase showed that during this phase of the proposed development releases of dust and PM₁₀ were likely to occur during site activities. It was considered that through good site practice and the implementation of suitable mitigation measures, the impact of dust and PM₁₀ releases may be effectively mitigated. Concentrations of NO₂ and PM₁₀ were predicted using DMRB and compared with relevant air quality objectives. The assessment showed that emissions from traffic associated with the proposed development were likely to have an insignificant impact on local air quality. Predicted concentrations were well below the objectives at worst-case receptor locations. No adverse air quality impacts were predicted in relation to the operation of the site.

These will be taken into consideration in the next Updating and Screening Assessment scheduled for 2015.

3.1 Road Traffic Sources

Dacorum Borough Council has not identified any new road traffic sources since the 2012 Updating and Screening Assessment.

3.2 Other Transport Sources

Dacorum Borough Council has not identified any other new transport sources since the 2012 Updating and Screening Assessment.

3.3 Industrial Sources

No new Part A(1), A(2) or B Installations have been permitted within the borough since the 2012 Updating and Screening Assessment.

Appendix C contains a list of all permitted Part A(1), A(2) and B Installations within Dacorum borough in 2012.

An LAPPC Part B application has recently been submitted by Trieste Group Partners LLP (trading as 'Spacestor') for a wood manufacturing installation (covered by the description in section 6.6 Part B a (ii) of Part 2 to Schedule 1 of the EPR). Spacestor are currently relocating their process to Noble House, Eaton Road, Hemel Hempstead. Due to expansion and success in the market place Spacestor have increased their level of operation (in excess

of 1000m³ of timber processed per 12 month period) and as such now require an environmental permit under the Environmental Permitting Regulations 2010. The application is currently being processed.

Dacorum Borough Council is unaware of any new or proposed industrial installations in neighbouring authorities near to the borough boundary for which planning approval has been granted since the 2012 Updating and Screening Assessment.

There are no existing industrial installations within the borough of Dacorum where emissions have increased substantially or where new relevant exposure has been introduced.

There are no new or significantly changed industrial installations within the borough of Dacorum or nearby in a neighbouring authority with no previous air quality assessment.

The Buncefield Oil Storage Depot site is located approximately 2km north east of Hemel Hempstead town centre off Green Lane. The site is operated by a number of different companies including Hertfordshire Oil Storage Ltd (HOSL), British Petroleum (BP) and West London Pipeline and Storage Ltd (WLPS). The WLPS facility is operated by the British Pipeline Agency (BPA). BPA intend to re-instate their operational facilities following the incident in December 2005, which occurred on the HOSL West site, resulting in destruction of the HOSL East site, the WLPS site and damage to other surrounding oil storage facilities and properties. The BP Oil (UK) Ltd site was closed for approximately 3 years as a result of damage incurred during the explosion. This site has been fully operational since 2009. For clarity, **Figure D1** in **Appendix D** shows the site layout and ownership of the Buncefield Oil Storage Depot.

The WLPS site comprises two sections, bisected by Cherry Trees Lane, Site A (2.1ha), to the south, and Site B (3.1ha), to the north. Site A is situated within the borough of Dacorum and Site B within the district of St Albans City and District Council. A full planning application was submitted to St Albans City and District Council (application reference: 5/09/0906) and Dacorum Borough Council (application reference: 4/00893/09/MFA) in May 2009 for the redevelopment of the WLPS site on a like-for-like basis (for the storage and distribution of Jet A1 aviation kerosene). Conditional planning permission was granted by St Albans City and District Council in December 2009 and Dacorum Borough Council in February 2011. Construction works are scheduled to commence on-site in July / August 2013 and will take approximately 2 to 2.5 years to complete.

An Environmental Statement was submitted accompanying the planning application. This considered the potential impacts on air quality during the key phases of the proposed rebuild:

- Construction dust and other fugitive emissions during the construction phase; and
- Emissions of Jet A1 Aviation Kerosene vapours via storage tank vents during operation

Following assessment, it was concluded that with an Environmental Management Plan in place, any impact on air quality during construction would be negligible. In terms of any operational impact on air quality, adverse effects due to operational emissions would also be negligible. In terms of any operational impact on air quality, adverse effects due to operational emissions would also be negligible. Furthermore, diffusion tube measurements of benzene carried out by St Albans City and District Council between August 2004 and January 2005 indicated a monthly maximum concentration of $1.2\mu\text{g}/\text{m}^3$, suggesting that annual mean concentrations of benzene are likely to have been below the $5\mu\text{g}/\text{m}^3$ objective. The proposed tanks are the same type and quantity as those on the BPA site during this monitoring period, it is expected that, as before, the resulting benzene emission will have no significant air quality impact.

In reference to the Hertfordshire Oil Storage Terminal (HOSL) site; planning permission was granted on 1 July 2010 for its redevelopment (ref: 4/01704/09/MFA). This redevelopment was known as the South East Terminal (SET) scheme. However, the SET scheme will now not go ahead and the permission is to be formally withdrawn within the next few weeks. As yet, no proposals for an alternative development on this site have been received by Dacorum Borough Council.

There are 18no. petrol filling stations within Dacorum borough, all of which are permitted and regulated by Dacorum Borough Council under the Environmental Permitting Regulations 2010. All are fitted with Stage 1b Vapour Recovery Systems (as Stage II where necessary). No new petrol stations have opened in Dacorum borough since the 2012 Updating and Screening Assessment.

Petrol stations permitted by Dacorum Borough Council under the Environmental Permitting Regulations 2010 are listed in **Table C3b** within **Appendix C**.

Several poultry farms are present with the borough; however all fall below the threshold of the Environmental Permitting Regulations 2010 (as specified in Section 6.9 Part A(1)) and as such do not require an environmental permit. A review of the Environment Agency's IPPC public register (as directed in the technical guidance) confirms that there are currently no

poultry farms regulated by the Environment Agency within the local authority area. It is assumed, therefore, that there are no poultry farms within Dacorum borough that meet the significance criteria outlined in the technical guidance.

3.4 Commercial and Domestic Sources

In November 2012 a planning application was received by Dacorum Borough Council for a biomass boiler installation at the former Desoutter building, Maxted Corner, Eaton Road, Hemel Hempstead, HP2 7DR (planning application reference: 4/02109/12/FUL). The application was made on behalf of Spacestor. As stated in section 3.3 above, an LAPPC Part B application has recently been made by Spacestor in respect of the wood manufacturing process at this (their new) site.

The process involves the manufacture of timber and wood-based products in conjunction with the combustion of the wood waste in an appliance with a net rated thermal input of less than 0.4MW (Ranheat MSU300 automatic wood fuel fired boiler).

Environmental Health was consulted in respect of this planning application and the following comments were provided:

'I have reviewed the proposals and have no comments to make in respect of Environmental Health matters. The proposed activity does not require an Environmental Permit from the Local Authority or the Environment Agency; however the applicant is advised to contact the Environment Agency to register an exemption ('U4 Burning of waste as a fuel in a small appliance'). This can be done online.'

Planning permission was granted on 22 January 2013 and the aforementioned comments included as an informative.

This installation will be considered in the next Updating and Screening Assessment scheduled for 2015.

There are no significant domestic burning of coal or oil in boilers >5 MW within the borough.

There are no areas within the borough where there is a high density of housing and service sector biomass combustion appliances which, when combined, could lead to unacceptably high PM₁₀ concentrations.

3.5 New Developments with Fugitive or Uncontrolled Sources

Dacorum Borough Council can confirm that since the 2012 Updating and Screening Assessment, none of the following are new or newly identified:

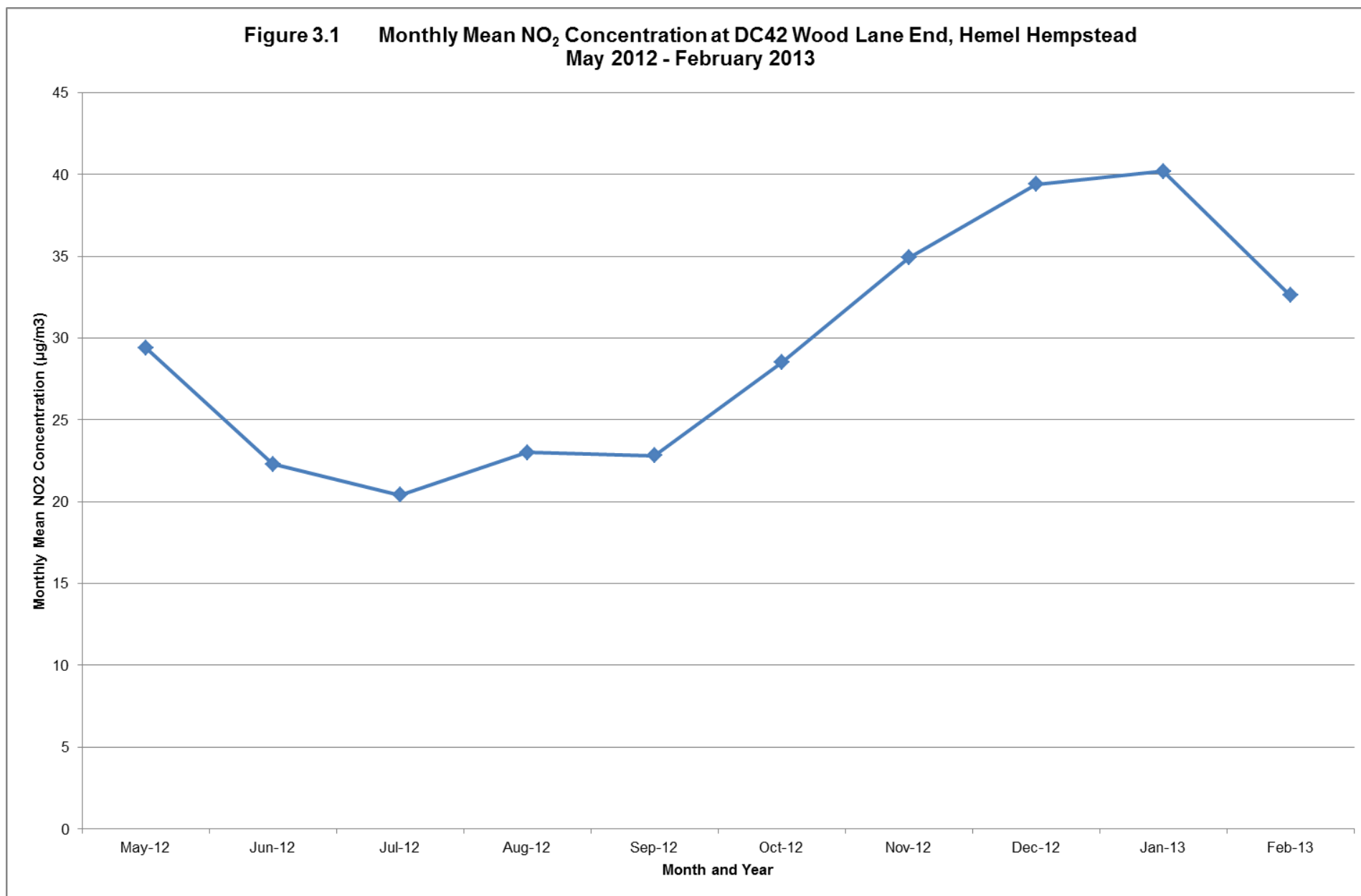
- Landfill Sites
- Quarries
- Unmade haulage roads on industrial sites
- Waste transfer stations

In reference to other potential sources of fugitive or uncontrolled emissions; the following incident occurred within a neighbouring local authority area, which resulted in the generation of air quality related complaints within Dacorum. In November 2012 a serious fire occurred at a wood chipping and waste composting facility operated by Woods Recycling Services Ltd (WRSL) in Potters Crouch, St Albans. The fire remained alight for several months, and was officially declared out on 8 February 2013. This facility is situated within the St Albans City and District Council area, close to the Dacorum Borough Council boundary. WRSL held two environmental permits for composting and for chipping waste wood; however these were revoked by the Environment Agency on 22 March 2013 following non-compliance. As a result WRSL are now required to return the site to a satisfactory state and to avoid any pollution risks. They must monitor, store and handle the waste remaining on site in accordance with the steps specified in the revocation notices. WRSL must also remove all the waste remaining on site following the schedule specified in the revocation notices. As there is still a large quantity of waste on site, the Environment Agency has set staged deadlines for them to remove the waste by. The final deadline for WRSL to remove all composting and wood waste is the end of October 2013. The incident generated a number of complaints from Dacorum residents living close to the St Albans/Dacorum boundary. Complaints were logged and directed to the Environment Agency; being the regulatory body responsible for the site.

In respect of any potential negative air quality impact seen within Dacorum as a result of this incident, the monthly mean NO₂ concentrations at the closest diffusion tube monitoring location (DC42 Wood Lane End, Hemel Hempstead), located approximately 3.75km to the northwest were looked at. **Figure 3.1** below illustrates the monthly mean NO₂ concentrations measured at this location for the period May 2012 to February 2013 (results for March 2013 have not yet been received). This indicates an increase in the monthly mean NO₂ concentration during the months the fire was burning (November 2012 to February 2013); however this correlation cannot be proven as there are numerous other factors such as diffusion tube precision, location of the monitoring site in relation to the facility (distance and

orientation), meteorological conditions (wind direction – predominately west or south-westerly, wind speed, high/low pressure systems etc.), that would also need to be taken into account.

**Figure 3.1 Monthly Mean NO₂ Concentration at DC42 Wood Lane End, Hemel Hempstead
May 2012 - February 2013**



As reported in the 2012 Updating and Screening Assessment; complaints had been received from residents and businesses relating to dust generation associated with activities at the waste transfer site operated by J F Bishop & Son Ltd, located at Bishop House, Mark Road, Hemel Hempstead. This site is permitted and regulated by the Environment Agency as a waste operation under the Environmental Permitting Regulations 2010. (Permit reference: EAWML80606). As the release of dust from the site is prohibited under the permit, dust mitigation measures were imposed by the Environment Agency in 2010, including damping down and the erection of a screen across the top of the boundary fence.

The Environment Agency's Ambient Air Monitoring Team, on behalf of Environment Agency South East Region, carried out a study to investigate ambient air quality in the vicinity of Mark Road. The study involved a programme of monitoring carried out between 29 March 2012 and 19 September 2012 (175 days). The Ambient Air Monitoring Team's Mobile Monitoring Facility (MMF7) was used to measure the ambient concentrations of pollutants. The reported pollutants were PM₁₀, PM_{2.5} and NO_x and NO₂. The overall objective of the study was to identify the local sources of air pollution and to quantify the environmental impact of the emissions from these sources on the surrounding area and the local community. Within this objective, the following individual aims were identified:

- To assess the general air quality of the area relative to the AQS objectives
- To quantify the impact of surrounding pollution sources on local air quality
- To identify specific sources causing an appreciable impact on air quality
- To identify and understand the conditions that give rise to episodes of poor air quality

Comparing the collected data from the monitoring undertaken with the AQS objectives showed that the monitoring location was subject to concentrations of PM₁₀, PM_{2.5} and NO₂ that were likely to meet their respective AQS objectives. However directional analysis suggested that JF Bishop & Son Ltd was contributing to elevated particulate concentrations at the monitoring location, as such, the Environment Agency intend to continue their programme of improvements and routine supervision to ensure the site does not contribute to any failures of local air quality.

No new waste operations have been permitted by the Environmental Agency in Dacorum borough since the 2012 Updating and Screening Assessment.

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

New local developments with planning permission:

- **4/01115/12/MFA** New Lodge, Bank Mill Lane, Berkhamsted, HP4 2NS - New residential development (net gain 53 units)
- **4/00692/09/MOA** Land between Buncefield Lane and Green Lane and Westwick Row, Green Lane, Hemel Hempstead – New residential development (net gain of 88 units).
- **4/00647/12/MFA** Land opp. Cavendish Court, London Road, Apsley, Hemel Hempstead – New residential development (net gain 58 units)
- **4/00152/12/MOA** Former MFI Site, Redbourn Road, Hemel Hempstead, HP2 7BA – Discount foodstore
- **4/01211/12/MFA** Berkhamsted Delivery Office, 300 High Street, Berkhamsted, HP4 1ZZ – Mixed Retail Development

New local developments subject to S.106 Planning Agreement:

- **4/01477/09/MOA** Land at NE Hemel Hempstead (adj. Nicky Line), Three Cherry Trees Lane, Hemel Hempstead – New residential development (net gain 357 units)
- **4/01836/09/MOA** 175-189 London Road, Apsley, Hemel Hempstead, HP3 9SQ – Mixed-use residential and retail development (33 apartments and up to 530 sqm retail floorspace)
- **4/01173/11/MFA** Land at, Hicks Road, Markyate, St. Albans, AL3 – Large mixed commercial / residential development
- Biomass boiler installation at Eaton Road, Hemel Hempstead

These will be taken into consideration in the next Updating and Screening Assessment.

4 Local / Regional Air Quality Strategy

The National Air Quality Strategy recognises that every Local Authority can make a contribution to continued improvements in air quality by the development of their own strategies. By developing and implementing local air quality strategies an integrated approach to air quality can be achieved. A local/regional air quality strategy for Hertfordshire does not currently exist, since a number of Local Authorities within Hertfordshire have declared AQMAs and have developed (or are in the process of developing) an Air Quality Action Plan, the need for a local air quality strategy is less so.

In January 2013 Hertfordshire County Council published the following document '*Protocol for supporting districts with Air Quality Related Issues*'. This protocol sets out how the County Council will work with district/boroughs in terms of providing air quality monitoring data and other support around air quality management areas, thus encouraging an integrated approach to dealing with air quality issues across the county.

5 Planning Applications

New development which could impact upon local air quality or for which an Environmental Impact Assessment is being provided, are listed below. The information provided comprises of the following:

- Planning applications for new developments which have not yet been approved;
- Outstanding allocations that have been identified in the Dacorum Local Plan;
- Future developments opportunities in the Annual Monitoring Report 2011/12; and
- Local allocations and Strategic Sites in the Core Strategy (not yet formally adopted).

This will help give a picture of areas where changes may occur and also where combined impacts of several developments may become important. These will be taken into consideration in the next Updating and Screening Assessment scheduled for 2015.

Planning application received but not yet determined:

- **4/00585/13/MFA** Pilling Motor Group, London Road, Boxmoor, Hemel Hempstead, HP3 9AA – Discount foodstore
- **4/01450/12/MFA** Former Royal Mail Site, Park Lane, Hemel Hempstead, HP2 – Mixed use re-development comprising 86 dwellings, self-storage facility etc.
- **4/00053/13/MOA** Land Corner of Buncefield Lane and, Wood Lane End, Hemel Hempstead, HP2 – New residential development (101 dwellings)
- **4/01813/12/SCO** West Herts College and Civic Centre, Marlowes, Hemel Hempstead, HP1 – New college, food superstore, and petrol filling station – Request for scoping opinion under Regulation 13. (EIR undertaken and comments provided in respect of air quality)

A revised planning application for the mixed use development proposed at 175-189 London Road, Apsley, Hemel Hempstead is soon to be submitted to Dacorum Borough Council (current planning reference: 4/01836/09/MOA). The revised proposals are to comprise approximately 36 to 38no. residential units and 2no. retail units with 26no. parking spaces. The site is located within the London Road Apsley AQMA. As part of pre-application discussions, Environmental Health was asked to provide informal comments in respect of noise, air quality etc. The following initial comments were provided in respect of air quality issues: *‘The properties that are due to be facing the road are going to require mechanical ventilation that will enable suitable air exchange, in accordance with the building regulations, therefore the residents will not be required to open windows to achieve suitable ventilation.*

This requirement is necessary due to the fact that the NO₂ annual mean AQS objective is exceeded in this area.'

Housing allocations within the Core Strategy are referred to as 'Local Allocations' and are sites anticipated as not coming forward until 2021 onwards. The following 'Local Allocations' have been identified as follows:

Hemel Hempstead:

- LA1: Marchmont Farm (around 300 new homes, extend Margaret Lloyd Park)
- LA2: Old Town (around 80 new homes)
- LA3: West Hemel Hempstead (up to 900 new homes, shop, doctors surgery and additional social and community provision, including new primary school)

Berkhamsted:

- Proposal LA4: Land at and to the rear of Hanburys, Shootersway, Berkhamsted (around 60 new homes)

Tring:

- Proposal LA5: Icknield Way, west of Tring (around 150 new homes, playing fields and open space, extension to the employment area in Icknield Way Industrial Estate, potential extension to the cemetery)

Bovingdon:

- Proposal LA6: Chesham Road/Molyneaux Avenue (around 60 new homes, open space)

The Core Strategy also identifies two 'Strategic Sites' (i.e. sites within the urban area which could come forward in the short-term) as follows:

- Proposal SS1: Land at Durrants Lane / Shootersway, Berkhamsted (Egerton Rothesay School) (mixed use scheme incorporating 180 new homes, remodelling and extension of existing school, dual use playing fields and community playing fields, informal leisure space); and
- Proposal SS2: Land at Hicks Road, Markyate (mixed use scheme incorporating business, light industrial (Class B1c) and storage and distribution units (Class B8), 90 residential units, replacement surgery, new public space, small A1/A2/A3/A4 units, replacement public car parking and residential care home). [Planning permission granted 04.07.2012 (4/01173/11)].

The Annual Monitoring Report 2011/12 (*'Delivering Success: Annual Monitoring Report & Progress on the Dacorum Development Programme 2011/12 (January 2013)'*) looks at long-term future housing land supply over the lifetime of the Core Strategy (i.e. until 2031). It comprises information contained within the Council's published land position statements and other future sources of housing development (e.g. the Strategic Housing Land Availability Assessment (SHLAA)).

SHLAA sites identified in the Annual Monitoring Report 2011/12 with the potential to impact upon local air quality include:

- Three Cherry Tree Lane (2nd phase) (537 units) estimated 2019/20 onwards
- London Road (gas holder site/Haven House) (115 units) estimated 2017 - 2020
- Ebbens Road (33 units) estimated 2016 - 2018
- London Road (Apsley Paper Trail) (22 units) estimated 2018/19
- High Street/Water Lane, Berkhamsted (49 units) estimated 2018-2020
- Hillfield Road (Hospital), Hemel Hempstead (mixed use redevelopment of hospital site - 200 units and new school) 100 units estimated 2019/20 and 100 units 2020/21
- Marlowes, Hemel Hempstead (800 units)
- Martindale Primary School, Boxted Road, Hemel Hempstead (60 units) estimated 2013-2015
- Land around Hemel Hempstead Train Station (approximately 200 units)
- Maylands (incl. Heart of Maylands – 270 units) (400 units)

6 Air Quality Planning Policies

The land use planning system is recognised as playing an integral part in improving air quality. Dacorum Borough Council has developed its planning policies and procedures to help ensure that planning applications that may have impacts on air quality are assessed appropriately against these policies.

National policy

The National Planning Policy Framework (NPPF), adopted in March 2012, sets out the Government's planning policies for England and how these are expected to be applied. The NPPF replaces over a thousand pages of national policy (including 'PPG 23: Planning and Pollution Control'). The NPPF must be taken into account in the preparation of local and neighbourhood plans, and is a material consideration in planning decisions. Planning policies and decisions must reflect and where appropriate promote relevant EU obligations and statutory requirements.

The framework on air quality contained within the NPPF is stated in paragraph 124 as follows:

'Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.'

Local policy

The Adopted Dacorum Local Plan (DBLP) covered the period 1991 – 2011. This was formally adopted in April 2004. Policy 11 of this Local Plan makes specific reference to the potential impact of development proposals on air quality. Specifically, criterion (j) of policy 11 states the following:

Development will not be permitted unless it avoids harm arising from pollution in all its forms, including air, water, noise and light pollution. In particular there should be no detrimental effect on air quality in sensitive areas (especially where traffic related pollution problems arise).

The DBLP policies are currently being reviewed through the Local Development Framework (LDF). Currently, the Council is progressing the Core Strategy, which has reached an

advanced stage; it anticipates adoption of the plan by autumn 2013. However, as an overarching spatial document, the Core Strategy does not contain detailed development control policies; these remain as 'saved' policies in the existing Local Plan.

As the plan has progressed through the examination stage and Hearing in Public, the Council has put forward a number of proposed amendments to it. The relevant wording referred to below is taken from the latest published version of the Core Strategy (September 2012).

Policy CS32 within the Core Strategy relates to the control/reduction of air pollution through planning/development control mechanisms:

Policy CS32: Air, Soil and Water Quality

Development will be required to help:

- a) Support improvements in identified Air Quality Management Areas and maintain air quality standards throughout the area;**
- b) Maintain soil quality standards and remediate contaminated land in line with Environment Agency, Defra and Natural England guidance; and**
- c) Improve water quality standards in line with the Water Framework Directive, Environment Agency and Natural England guidance.**

Any development proposals which would cause harm from a significant increase in pollution (into the air, soil or any water body) by virtue of the emissions of fumes, particles, effluent, radiation, smell, heat, light, noise or noxious substances, will not be permitted.

Advice on the storage and handling of hazardous substances will be taken from the Health and Safety Executive.

The background to policy CS32 is set out in the paragraphs below (only those paragraphs referring specifically to air quality have been included):

Extract from the 'Pre-Submission Core Strategy (October 2011) incorporating the 'List of Proposed Amendments', June 2012:

18.35 *The planning system plays a key role in the location and standard of development. Together with other consent regimes and processes, it can limit the impact of (and prevent) polluting emissions – i.e. noise, light, fumes, chemicals, noxious and hazardous substances and waste in general. Standards set nationally should continue to be achieved. When standards become more stringent, efforts must be made to enhance the quality of the air, water and/or soils.*

18.36 *In Dacorum special consideration needs to be given to:*

- *the quality of the groundwater supplying the chalk aquifer;*
- *protecting the habitat and biodiversity of chalk streams;*
- *the maintenance of higher quality agricultural areas and the sand and gravel belt;*
- *limiting the effects of noise and air pollution along major routes (i.e. road, rail and aircraft from Luton Airport);*
- *retaining tranquil parts of the Chilterns Area of Outstanding Natural Beauty and Boarscroft Vale; and*
- *the risks associated with Buncefield Oil Terminal.*

18.39 *Air quality within Dacorum is generally good, with the main source of air pollution being from traffic emissions, specifically nitrogen dioxide. In 2012 three areas were designated as Air Quality Management Areas (AQMA) because levels of nitrogen dioxide exceeded air quality standards: i.e.*

- *Lawn Lane, Hemel Hempstead;*
- *London Road, Apsley, Hemel Hempstead; and*
- *High Street, Northchurch.*

The number and extent of AQMA will change as a result of mitigation measures and continued monitoring of air quality.

18.42 *Action plans will highlight mitigation measures for each AQMA. The planning system will be used to support these action plans. It does not necessarily follow that development would be harmful in an area of poor air quality or that it should be banned in an AQMA. Here, the type, scale and location of development and its traffic generation will be managed sensitively. Greater weight will be given to the consideration and removal of air pollutants.*

Although the trend for NO₂ has slightly declined across the borough over the last five years, the annual mean NO₂ objective of 40µg/m³ is still being exceeded year on year within the 3no. AQMA. Exceedences of the annual mean NO₂ objective have also been noted over the last five years at several sites within the borough which are not considered to be representative of relevant exposure.

With intense pressure on the Council to provide its housing and commercial development targets, there is the possibility that existing policies and programmes may not deliver sufficient reduction in emissions from transport sources to meet the air quality objectives for nitrogen dioxide in the future.

EU Limit Values and National Exceedance Areas

Two separate frameworks are currently in place in respect of the regulation of air quality. Local Authorities have to work towards achieving the air quality objectives, but these only apply where there is relevant exposure. The Government has a responsibility to achieve limit values (as specified within the EU Air Quality Directive (2008/50/EC⁴)), everywhere in the UK where the public have access. EU limit values are legally binding EU parameters that must not be exceeded. In respect of the annual mean limit value for NO₂ (40µg/m³), the date for this to be achieved (and maintained) was 1 January 2010 (an application has been made by the Government for a time extension). Member States must report any exceedances of the EU limit values to the European Commission. For the purposes of national air pollution monitoring; the UK has been divided into zones and agglomerations (43no. in total). To assess compliance with the EU limit values the UK uses monitoring data from the Automatic Urban and Rural network (AURN) supplemented by modelling data. Exceedances of the EU limit values (in terms of zones and agglomerations) are reported to the European Commission annually. Annual reporting (for the 2010 reporting year) indicated that 40 of the 43 zones/agglomerations exceeded the NO₂ annual mean limit value in the UK.

EU limit values are legally binding on Member States and, in the UK are enforced through two main mechanisms:

- European enforcement action
- UK planning law

The European Commission can take enforcement ('infraction' or 'infringement') action against Member States who fail to meet the limit values. The Commission can impose an unlimited lump sum and daily fines on Member States, which the Localism Act 2011 allows the Government to pass to the Mayor of London and/or Local Authorities subject to certain protections. However, the current situation is unclear.

The NPPF considers both air quality objectives and EU limit values, as such; the EU limit values are a material consideration in the planning system. Developments should not

⁴ EU air quality policies are currently under review

proceed if they are likely to cause or contribute to a breach, or the worsening of a breach, of a limit value unless the impacts are fully mitigated. This is the first time EU limit values have been integrated into the UK planning system.

The national air quality modelling work has been used to characterise limit value exceedences along roads in each local authority area. This national exceedence area data will be made available soon. The new data should enable better decision making with regard to national exceedences and how they might be affected by planning decisions. Any proposed development within a national exceedence area (should any be identified within the borough), will require an assessment in terms of its air quality impact (EIA) as is currently the case for developments within (and in the vicinity of) the 3no. AQMAs. It must be noted that the national model does not take into account local conditions (e.g. congestion etc.) so may conflict with local air quality monitoring data.

In 2010, EPUK carried out a major review of its guidance document related to development control and air quality. The document has been widely used and frequently cited at planning inquiries. Since then, the planning regime has changed significantly, with the introduction of the NPPF and revocation of PPS 23. Furthermore, a number of local authorities have developed their own guidance relating to air quality and development control. EPUK intends to issue a 2013 update to the guidance, after consulting with stakeholders in May 2013.

The introduction of an Air Quality Supplementary Planning Document is currently being considered by the Council. It has been proposed that a joint Air Quality Supplementary Planning Document is produced for the Hertfordshire and Bedfordshire Air Quality Network, to be adopted by each of the Local Authorities within this network. Whilst this would enable a more co-ordinated and consistent approach across the Hertfordshire and Bedfordshire local authorities; this document would be subject to Dacorum Borough Council approval.

7 Local Transport Plans and Strategies

The third Local Transport Plan (LTP3) for Hertfordshire was published in April 2011, and covers the period 2011-2031. LTP3 sets out the transport strategy for Hertfordshire (over the next 20 years), the goals and challenges to be met, and outlines a programme of transport schemes and initiatives (interventions). The various interventions are to be delivered over the short, medium and longer term. Targets have also been set so that progress towards meeting the strategy objectives can be measured.

The goals set out in LTP3 include:

- Support economic development and the planned dwelling growth;
- Improve transport opportunities for all and achieve behavioural change in mode choice;
- Enhance quality of life, health and the natural environment for all Hertfordshire residents;
- Improve the safety and security of residents using the network; and
- Reduce transport's contribution to greenhouse gas emissions and improve its resilience.

To achieve these goals Hertfordshire County Council has identified 13 of challenges and has put forward proposals to address these. All of these challenges will have an impact on uptake of sustainable transport or transport in general and therefore will impact on air pollutant emissions.

Challenge 1 Keep the county moving through efficient management of the road network to improve journey time, reliability and resilience and manage congestion to minimise its impact on the economy.

Challenge 2 Support economic growth and new housing development through delivery of transport improvements and where necessary enhancement of the network capacity.

Challenge 3 Improve accessibility for all and particularly for non car users and the disadvantaged (disabled, elderly, low income etc).

Challenge 4 Achieve behavioural change as regards choice of transport mode increasing awareness of the advantages of walking, cycling and public transport, and of information on facilities and services available.

Challenge 5 Achieve further improvements in the provision of public transport (bus and rail services) to improve accessibility, punctuality, reliability and transport information in order to provide a viable alternative for car users

Challenge 6 Improve journey experience for transport users in terms of comfort, regularity and reliability of service, safety concerns, ability to park and other aspects to improve access.

Challenge 7 Improve the health of individuals by encouraging and enabling more physically active travel and access to recreational areas and through improving areas of poor air quality which can affect health.

Challenge 8 Maintain and enhance the natural, built and historic environment managing the streetscape and improving integration and connections of streets and neighbourhoods and minimising the adverse impacts of transport on the natural environment, heritage and landscape.

Challenge 9 Reduce the impact of transport noise especially in those areas where monitoring shows there to be specific problems for residents.

Challenge 10 Improve road safety in the county reducing the risk of death and injury due to traffic accidents.

Challenge 11 Reduce crime and the fear of crime on the network to enable users of the network to travel safely and with minimum concern over safety so that accessibility is not compromised.

Challenge 12 Reduce greenhouse gas emissions from transport in the county to meet government targets through the reduction in consumption of fossil fuels.

Challenge 13 Design new infrastructure and the maintenance of the existing network in the light of likely future constraints and threats from changing climate, including the increasing likelihood of periods of severe weather conditions.

LTP3 specifically sets out that the county council will seek to:

- Reduce the levels of emissions from road traffic which affect human health and local flora and fauna.
- Reduce the volume of traffic in areas and in time periods where emission levels are causing locally poor air quality.
- Encourage the through traffic to use the Primary Route Network which where possible to avoid major urban areas.
- Work with District / Borough councils to monitor and assess air pollution levels. Where a District / Borough council declares an Air Quality Management Area as a result of its' review and assessment process, the county council will work in partnership with the District / Borough councils to create and deliver action plans.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

The automatic monitoring station at High Street Northchurch has been operational since 13 November 2012, so it did not collect enough data (minimum of 75 per cent) for reporting in 2012, however the data capture was 14 per cent and annual mean NO₂ based on this time period was 38.6µg/m³. Monitoring data from this automatic monitoring station will be reported in future LAQM reports. The Council is considering deploying further automatic monitoring stations within the Lawn Lane, Hemel Hempstead and London Road, Apsley AQMAs; due to budgetary constraints this will be subject to a successful application for Defra funding.

The non-automatic (diffusion tube) monitoring results for the 2012 calendar year indicate exceedance of the annual mean NO₂ objective at five monitoring locations, these are:

- High Street, Northchurch (DC50)
- Watford Road, Kings Langley (DC54)
- Lawn Lane 1, Hemel Hempstead (DC57)
- Lawn Lane 3, Hemel Hempstead (DC65)
- London Road, Apsley (DC66)

With the exception of Watford Road, Kings Langley (DC54), all the above monitoring locations are situated within the current AQMA boundaries. The Watford Road, Kings Langley monitoring site is not representative of relevant exposure. Following adjustment for fall off with distance from the road, the NO₂ concentration at the nearest residential receptor was 29.8µg/m³ and therefore below the annual mean NO₂ objective.

No exceedances of the short-term 'indicator concentration' of 60µg/m³ were measured at any of the monitoring locations in 2012.

Furthermore, the following monitoring sites were identified as 'approaching' the annual mean NO₂ objective in 2012:

- New Road, Northchurch (DC62)
- Avia Close (DC74)
- Health Centre, London Road (DC85)
- High Street Berkhamsted (DC47)

- High Street Tring (DC52)
- Sappi 2 (DC81)

DC62, DC74 and DC85 are situated within the current AQMA boundaries. DC81 and DC47 are not representative of relevant exposure; in cases where exceedances of the annual mean NO₂ objective at these monitoring locations have been identified, after adjustment for fall off with distance from the road, the NO₂ concentration at the nearest residential receptor has always fallen below the annual mean NO₂ objective.

DC47, DC62, DC74 and DC81 have exceeded the annual mean NO₂ objective in previous years.

The High Street Tring (DC52) site has never previously been identified as exceeding or approaching the annual mean NO₂ objective.

Of the five monitoring locations exhibiting exceedance of the annual mean NO₂ objective in 2012, historical monitoring data indicates that (with the exception of DC50 in 2011), all have consistently exceeded the annual mean NO₂ objective year on year since 2008.

Trend graphs for the long-term background, roadside and kerbside sites across Dacorum indicate a slight decline in annual mean NO₂ concentrations between 2008 and 2012. Monitoring results indicate that, in general, highest annual mean NO₂ concentrations were identified in 2010 and the lowest in 2012. Whilst the traffic data in general supports the trends identified in the diffusion tube data; it must be noted that significant increases/reductions in traffic volume are required before a measureable increase/decrease in NO₂ concentrations will be identified. This evidence is therefore not considered significant.

There may have been some decline in NO₂ emissions from traffic sources as a result of improvements in engine technologies introduced by successive Euro Standards. This may account for the slight decline in NO₂ concentrations at background, roadside and kerbside sites seen over this five year period. However, it is now recognised that the expected reductions in NO₂ concentrations, that the Government predicted would be associated with the Euro Standard technologies, were over optimistic.

Despite this decline, the annual mean NO₂ objective continues to be exceeded at monitoring locations within the existing 3no. AQMA boundaries.

No actual or potential exceedances of the annual mean NO₂ objective have been identified at relevant locations outside existing AQMAs.

Although no monitoring was undertaken for the other pollutants in the NAQS; screening criteria identified no likelihood of exceedances of the objectives for any of these pollutants.

The monitoring data has indicated that there is no requirement to proceed to a detailed assessment for NO₂.

8.2 Conclusions relating to New Local Developments

A review of the major developments within the borough, which have received planning permission and in some cases are currently under construction, has highlighted a number of sites with potential air quality impacts. These include sites where the development itself may be the source of the air quality impact resulting in increased traffic flows to the area. Of particular relevance in this case are those developments situated within (and in the vicinity of) the London Road, Apsley AQMA, namely; the mixed use residential and retail development at 175 – 189 London Road, Apsley (4/01836/09/MOA) and the new residential development at land opposite Cavendish Court, London Road, Apsley. The mixed retail development at 300 High Street Berkhamsted (4/01211/12/MFA) is also likely to generate increased traffic in an area which is currently congested and has previously exceeded (and repeatedly approaches) the annual mean NO₂ objective. The large mixed commercial/residential development at Hicks Road, which is situated off a narrow high street, is also likely to generate increased traffic in a potential 'street canyon' location. However, the air quality assessment undertaken in respect of the Hicks Road development showed that emissions from traffic associated with the proposed development were likely to have an insignificant impact on local air quality, furthermore; no adverse air quality impacts were predicted in relation to the operation of the site. The review also considered developments being built close to busy road junctions or roads with very high traffic flows, which could potentially expose the residents to air quality exceedances.

Local assessment of these areas provided a clear indication of those new developments that will require further air quality monitoring and eliminated others as having relatively little significance in terms of relevant exposure. However, the effect of some new developments, whilst not effecting residential receptors in the near vicinity may contribute to reducing air quality from the combined effect of a number of traffic generating schemes in the area. In addition to relevant exposure, EU limit values and associated national exceedance areas will also need to be taken into consideration in the future.

In response, the Council is in the process of reviewing its current monitoring network, and expanding this where necessary to accommodate locations with the potential for exceedance and looking at ways to assess the impact of cumulative effects of development within the borough.

Monitoring commenced in October 2012 at High Street Markyate, identified as having potential for NO₂ exceedances with relevant exposure. Additional monitoring sites will follow shortly.

Planning permission was granted in January 2013 for a biomass boiler installation at Eaton Road, Hemel Hempstead.

No new developments with fugitive or uncontrolled emissions were identified within the borough; however, a fire at a wood chipping and waste composting facility operated by Woods Recycling Services Ltd (WRSL) in Potters Crouch, St Albans was identified. The fire was extinguished in February 2013 and the removal of the remaining waste from the site is being managed by the Environment Agency.

There are no major planned developments for the borough which require Dacorum Borough Council to proceed immediately to a detailed assessment.

8.3 Other Conclusions

New applications or proposed developments which may impact on air quality or have an accumulated effect on air quality in the borough were identified.

In identifying future developments planned for Dacorum it was possible to see that the cumulative impacts of developments needs to be assessed. Small developments that are not required to produce an impact statement or larger developments where the impact assessment delivers an 'insignificant impact on concentrations' conclusion, can result in an area of poor air quality when the combined emissions are considered. These will be taken into account in the next Updating & Screening Assessment scheduled for 2015.

Where planned developments are considered likely to have an air quality impact or the combined impacts of several developments is predicted, it may be appropriate to recommend

planning conditions to address the impact, or to require mitigation measures to offset the air quality impacts through the Community Infrastructure Levy (CIL) or Section 106 agreements.

8.4 Proposed Actions

Assessment of the monitoring data for 2012 has not identified the need to proceed to a Detailed Assessment for NO₂ at any new locations outside of the current AQMA boundaries. In reference to the recently completed Further Assessment; for the High Street, Northchurch AQMA, there was a modelled exceedance outside of the AQMA boundary. It was advised that the boundary of this AQMA be revised accordingly to potentially incorporate any other residential locations within the area predicted >36µg/m³. The Council intends to amend this AQMA boundary imminently.

Dacorum Borough Council would like to deploy further automatic monitoring stations within the Lawn Lane, Hemel Hempstead and London Road, Apsley AQMAs; due to budgetary constraints this will be subject to a successful application for Defra funding.

The next stage of the on-going assessment of air quality in Dacorum will be the submission of an Air Quality Action Plan. The deadline for submission is 1 December 2013⁵.

The Progress Report has identified that, trends in NO₂ over the past 5 years have slightly improved. The Council will continue its monitoring programme at background sites and at locations where there is the potential for exceedances. Additional sites will be set up where necessary.

The review of new developments and those planned for the future in Dacorum has identified a need for additional diffusion tube monitoring to measure NO₂ concentrations at new residential sites close to busy roads.

The review has raised the question of cumulative impacts of developments. The Council will investigate how these impacts can be effectively measured and consider the feasibility of introducing an Air Quality Supplementary Planning Document for Dacorum (or a joint document for the Hertfordshire and Bedfordshire Air Quality Network).

⁵ 18 months following the formal declaration of the 3no. AQMAs, which took place on 1 June 2012

The Council is also mindful of forthcoming changes to the regulatory framework for air quality, as both regulatory frameworks are currently under review (EU air quality policies and also LAQM).

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