



# 2014 Air Quality Progress Report for East Herts Council

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

April 2014

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## Executive Summary

The Environment Act 1995 requires Local Authorities to periodically review and assess local air quality against the air quality objectives contained in the Air Quality Regulations. Local Authorities are currently undertaking the fifth round of the review and assessment. The fifth round is undertaken in two stages. Initially an Updating and Screening Assessment (USA) which is used to evaluate the Local Authorities area and to establish if any areas are likely to exceed the air quality objectives. The Second stage is to conduct, if necessary, a Detailed Assessment of the areas highlighted in the USA. Following on from this a Local Authority is required to undertake a Further Assessment. Annual Progress Reports are required for all authorities between subsequent rounds of reviews and assessments to update on changes within the district. The Progress Report allows those authorities that have declared Air Quality Management Areas to update on actions detailed in the Action Plan.

This document forms the Air Quality Progress Report for East Herts Council. In writing this report the Council has had regard to the Department for Environment Food and Rural Affairs (Defra) publication 'Progress Report Guidance LAQM.PRG(09)'. The report provides the latest monitoring results from the air quality monitoring stations located at Cutforth Road, Sawbridgeworth, Eden's Mount, Sawbridgeworth and the council's network of Nitrogen Dioxide diffusion tubes.

The results from the continuous air quality monitoring stations show that the air quality objectives that Local Authorities are required to meet were achieved at both the Background and Roadside monitors. East Herts Council has a network of 42 diffusion tubes, located at 19 different sites. Diffusion tubes at 11 of these sites recorded an annual mean above the objective of 40µg/m<sup>3</sup>. These have either already been subject to detailed assessment and are awaiting the declaration of an Air Quality Management Area (AQMA), or are located within an existing AQMA. The diffusion tube located on Viaduct Road Ware recorded nitrogen dioxide equal to the Annual Mean Objective.

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# **1 Introduction**

## **1.1 Description of Local Authority Area**

East Herts covers 475 square kilometres, with a population of approximately 137,687. It is characterised by attractive rolling countryside. The small towns and villages stand in an area of great natural beauty, with winding country lanes and shallow valleys through which flow the many rivers and streams that cross the district.

East Herts is the most rural district in the County and has a great deal of natural and built heritage in the combination of villages and market towns in a predominantly rural setting. Although the district's rural character means it has an important agricultural base, the local economy is dominated by the service sector with the majority of the firms being small and medium sized enterprises.

Businesses in East Herts tend to be small or micro enterprises concentrating on the provision of services. However, there is a significant manufacturing base in the District, with an equally significant number of warehousing, distribution and real estate businesses; these are often located in small industrial estates.

The recent growth of Stansted Airport has also led to the creation of many new opportunities. This includes airport related service industries such as food preparation.

To date the main source of air pollution in East Herts is from road traffic.

## **1.2 Purpose of Progress Report**

This report fulfils the requirements of the Local Air Quality Management (LAQM) 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 LAQM process.

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

### **1.3 Air Quality Objectives**

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



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

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Benzene	16.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
	5.00 µg/m <sup>3</sup>	Annual mean	31.12.2010
1,3-Butadiene	2.25 µg/m <sup>3</sup>	Running annual mean	31.12.2003
Carbon monoxide	10 mg/m <sup>3</sup>	Running 8-hour mean	31.12.2003
Lead	0.50 µg/m <sup>3</sup>	Annual mean	31.12.2004
	0.25 µg/m <sup>3</sup>	Annual mean	31.12.2008
Nitrogen dioxide	200 µg/m <sup>3</sup> not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m <sup>3</sup>	Annual mean	31.12.2005
Particulate Matter (PM <sub>10</sub> ) (gravimetric)	50 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 µg/m <sup>3</sup>	Annual mean	31.12.2004
Sulphur dioxide	350 µg/m <sup>3</sup> , not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 µg/m <sup>3</sup> , not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 µg/m <sup>3</sup> , not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

## **Summary of Previous Review and Assessments**

The Council completed the first round of the review and assessment process and declared an Air Quality Management Area (AQMA) for Nitrogen Dioxide (NO<sub>2</sub>) and (PM10). This included a number of residential properties adjacent to the A1184 Cambridge Road in Sawbridgeworth from the junction with Crest North to the junction with Station Road/West Street on both sides of the road, and from the same junction north to 98 Cambridge Road on the east side of the road only.

The air quality monitoring site known as East Herts Roadside (located at Cutforth Road) was installed in 2001 to monitor PM10 and NO<sub>2</sub> levels in this area. As a result of this monitoring the Air Quality Management Area was revoked in September 2004.

Two temporary monitoring sites were installed during 2004 as a result of the findings and recommendations detailed in the Updating Screening Assessment - Netcen (2003), both of these continuously monitored for NO<sub>2</sub>. The first, on Viaduct Road in Ware, was closed at the end of the year as results showed that the objective levels would be achieved in this location. The second, on London Road in Bishop's Stortford continued to operate for approximately 11.5 years.

In August 2005 East Herts District Council submitted an Air Quality Progress Report to Defra. This report included the monitoring undertaken from the temporary continuous monitors in addition to the information submitted in the detailed investigation mentioned above (January 2005). The aim of this investigation was to establish the levels of Nitrogen Dioxide in Viaduct Road, Ware and London Road, Bishop's Stortford to identify if there was a legal requirement to declare Air Quality Management Areas in Ware (Viaduct Road) and Bishop Stortford (Hockerill Street/London Road junction). As a result of this report East Herts Council has declared an AQMA in Bishops Stortford.

In April 2006 East Herts District Council reviewed the air quality across the district to establish if there were any areas previously unidentified that would need further investigation. This report considers the conclusions drawn in previous reporting; any new source of pollution since the last round of Review and Assessment and

establishes the risk of exceedences of the Air Quality Objectives in areas of public exposure. The report concluded there was no need for any further detailed assessments.

The further assessment submitted in April 2008 confirmed that East Herts District Council was right in declaring the crossroads known as Hockerill junction in Bishop Stortford as an AQMA. A source apportionment study concluded that HGVs were mainly responsible for the exceedence in NO<sub>2</sub> at the junction. Proposals to reduce the number of HGVs and other vehicles at the junction are outlined in Hertfordshire County Council's County & District Air Quality Action Plan.

In April 2008, East Herts District Council submitted a Progress Report; the report concluded that the Air Quality Management Area should remain at the Hockerill Junction. The diffusion tube at West Street, Hertford exceeded the objective level. It was therefore recommended that diffusion tubes should be collocated in triplicate at this location. The information gathered should then be reviewed and reported in the Updating Screening Assessment in April 2009, and if necessary proceed to a detailed assessment of the area in 2011.

The 2009 Updating and Screening Assessment required detailed assessments to be carried out at Gascoyne Way, Hertford and Viaduct Road Ware. These assessments concluded that an AQMA needed to be declared at Gascoyne Way (see figure 1.1). However it was noted that the sole diffusion tube on Viaduct Road was located next to a heating vent and therefore the results and conclusions were unreliable. East Herts Council decide to undertake further monitoring at alternative locations to ascertain whether or not the vent was artificially elevating the results at this monitoring point.

The 2010 progress report concluded that a detailed assessment was required in the area of Ware Road and Old Cross, Hertford. It was decided to carry out this work as part of the further assessment on the already declared AQMA at Gascoyne Way. It was also considered necessary to install additional diffusion tubes in the vicinity of EH14 – London Road, Sawbridgeworth. Further monitoring is required to try to

determine why there is such a discrepancy between the diffusion tube data and the roadside continuous monitoring in the area.

In April 2011 East Herts Council commissioned a consultancy known as AQC to carry out a Further Assessment on the Gascoyne Way, Hertford AQMA. This assessment considered the need to expand the AQMA to include the following diffusion tubes located at Old Cross, Hertford and Ware Road, Hertford which failed the annual objective in 2009.

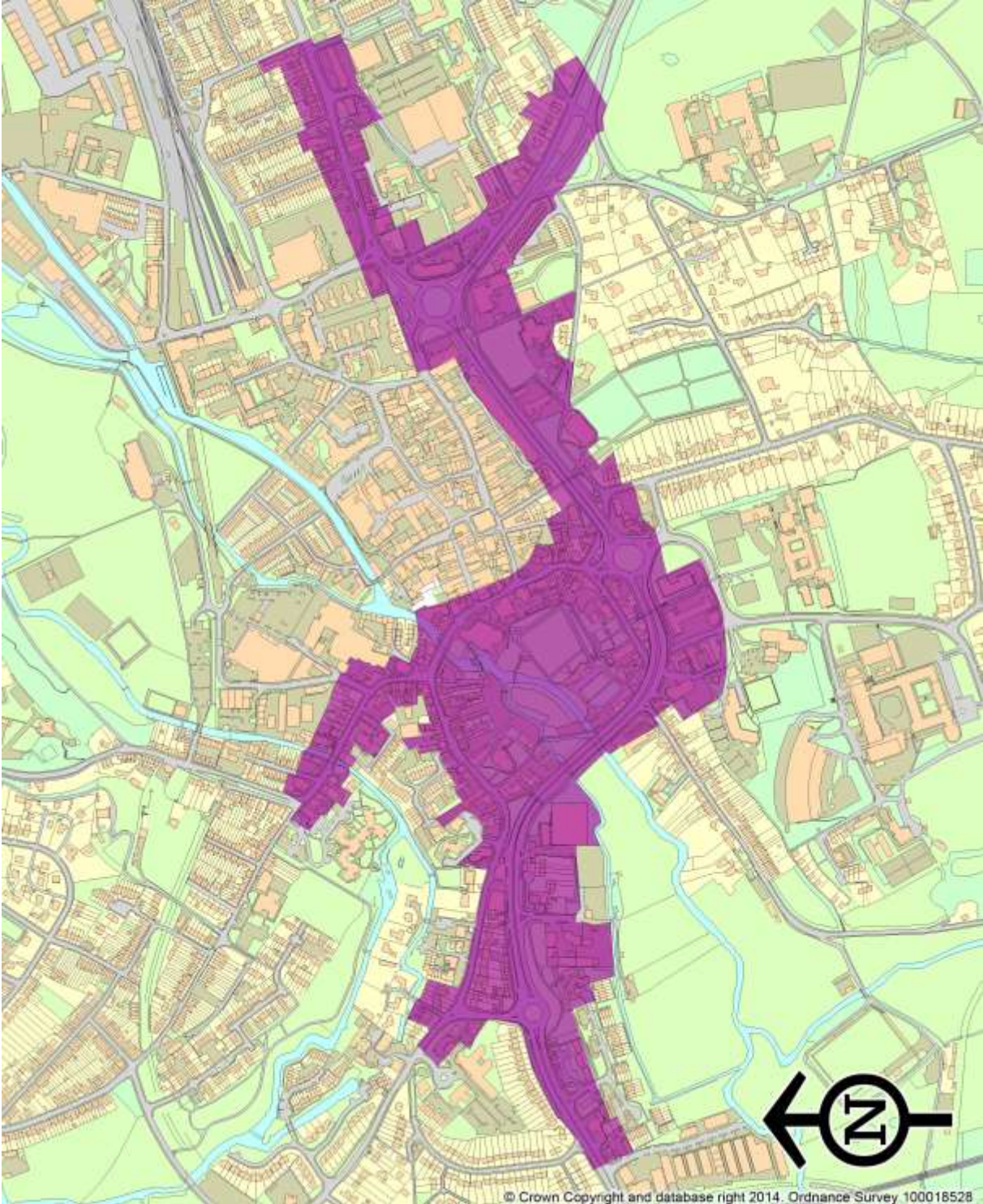
The 2010 results from the continuous air quality monitoring stations showed that the air quality objectives were achieved. Diffusion tube data for this year showed that the air quality objectives were unlikely to be met at 10 locations (27 tubes) in the district, most of which were already subject to detailed assessment or were located within an Air Quality Management Area (AQMA). As a result of the 2011 progress report a detailed assessment was undertaken on London Road, Sawbridgeworth.

The 2011 annual mean concentrations for nitrogen dioxide and PM10s at both continuous monitoring sites were below the 40 µg/m<sup>3</sup> objective. The hourly mean objectives for both pollutants were also met. The annual mean objective of 40µg/m<sup>3</sup> was exceeded at 11 nitrogen dioxide diffusion tube locations, 6 of these are already in an AQMA and 2 are in a proposed extension. A distance from road calculation concluded that the concentration of NO<sub>2</sub> at the nearest relevant receptor at 2 locations was below the 40 µg/m<sup>3</sup> threshold. A detailed assessment was undertaken in respect of London Road, Sawbridgeworth, but not to the same extent as concluded in the Progress Report 2011.

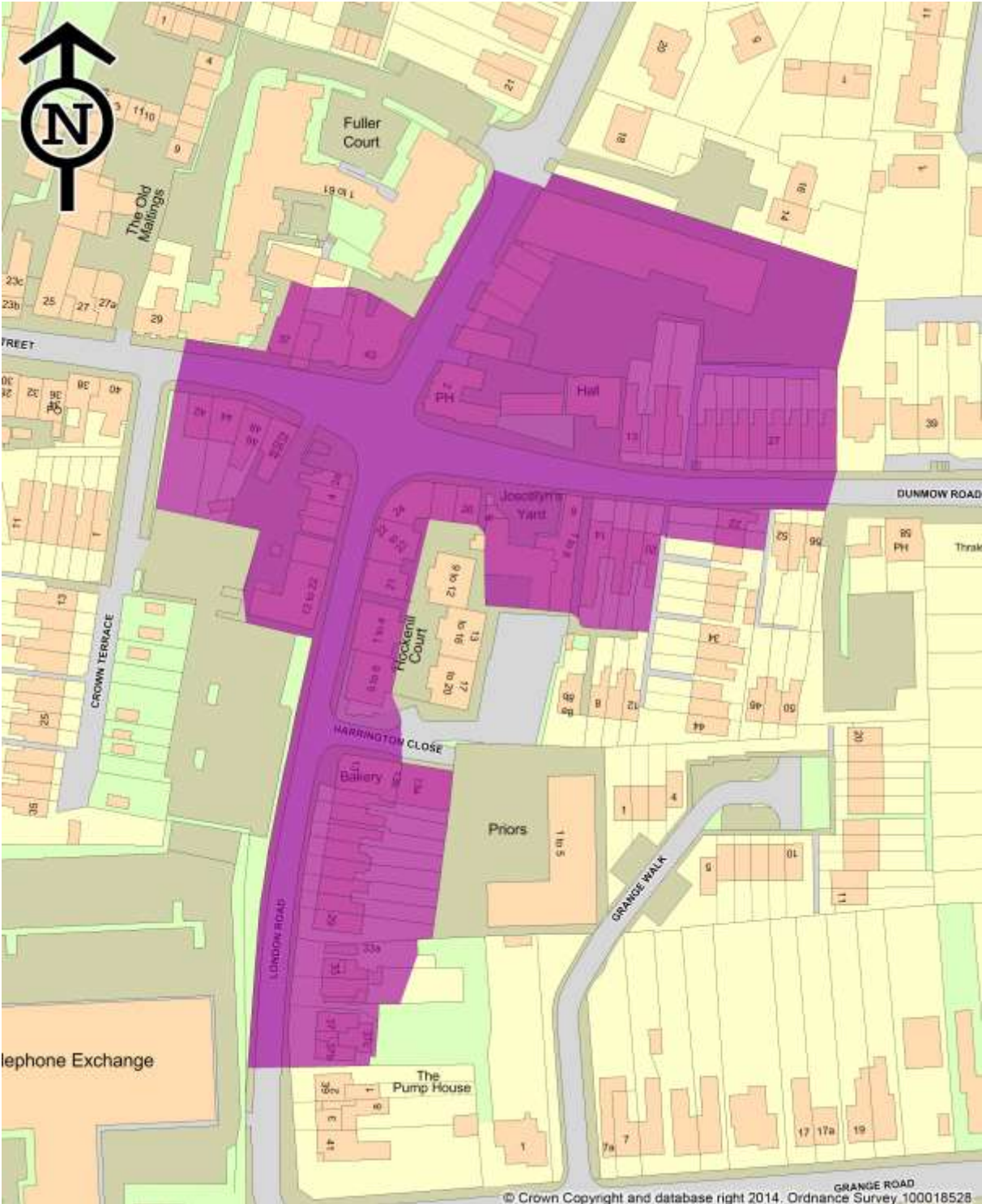
A Detailed Assessment was undertaken for Sawbridgeworth to determine the extent of the area affected by nitrogen dioxide in excess of the objective level. This identified parts of London road, Cambridge road, West road and Station Road as being exposed to elevated levels of nitrogen dioxide. The assessment identified this area as having an annual mean nitrogen dioxide as in excess of 36µg/m<sup>3</sup>. This level was considered appropriate as a precautionary measure. The Council then proceeded to consultation prior to the formal declaration of an Air Quality Management Area here.

The results from the 2013 Progress Report show that the background continuous air quality monitoring station met the required objectives for both nitrogen dioxide and PM10s. Whilst meeting the PM10 objective, the Roadside monitoring station failed the annual objective for Nitrogen Dioxide. Nitrogen dioxide diffusion tubes at 8 of the 16 locations exceeded the annual mean objective of 40µg/m<sup>3</sup>. Most of these have already been subject to detailed assessment or are located within an Air Quality Management Area (AQMA). The remaining diffusion tubes are located at London Road, Sawbridgeworth where AQC have undertaken a detailed assessment on behalf of East Herts Council. A further location at Viaduct road in Ware recorded an annual mean of 40µg/m<sup>3</sup>. It was considered to be appropriate to keep a watching brief on this location as it has tended to fluctuate just below the objective level and many other tubes measured an increase in concentrations in 2013. As this tube recorded 40µg/m<sup>3</sup> at 1.83m from the road, the nearest receptor at 3.1m from the road would not be exposed to nitrogen dioxide levels above the objective level.

Figure 1.1 Maps of AQMA Boundaries



Hertford AQMA, Gascoyne Way



Bishop's Stortford AQMA, Hockerill Junction

## **2 New Monitoring Data**

### **2.1 Summary of Monitoring Undertaken**

#### **2.1.1 Automatic Monitoring Sites**

East Herts Council has two air quality monitoring sites in its district as detailed in table 2.1 below.

#### **Quality Assurance / Quality Control of Automatic Monitoring sites**

The sites are calibrated by the Local Authority (Local Site Operator) on a fortnightly basis. The analysers were covered by a service and maintenance contract with SupportingU.

The data from the Air Quality Management Stations was ratified by a company known as AQDM according to the Automatic Urban Rural Network (AURN) standard. The data undergoes 'daily sensibility' checks 365 days per year. It is then further ratified on a monthly basis, taking Local Site Operator and Engineer visits into account. It is reviewed again as an annual dataset at the end of the year. The data is then compared to data collected from other local network monitoring sites.

#### **Correction of TEOM data**

East Herts Council monitors PM<sub>10</sub> at 2 locations using a Teom monitor. The volatile correction model (VCM) has been used to correct the data. The model allows the correction of TEOM measurements for the loss of volatile components of particulate matter that occur due to the high sampling temperatures employed by this instrument. The resulting corrected measurements have been demonstrated as equal to the gravimetric reference equivalent. AQDM has applied the correction model to all PM10 data listed in this document (see appendix A4).



Figure 2.1 Map of Automatic Monitoring Sites

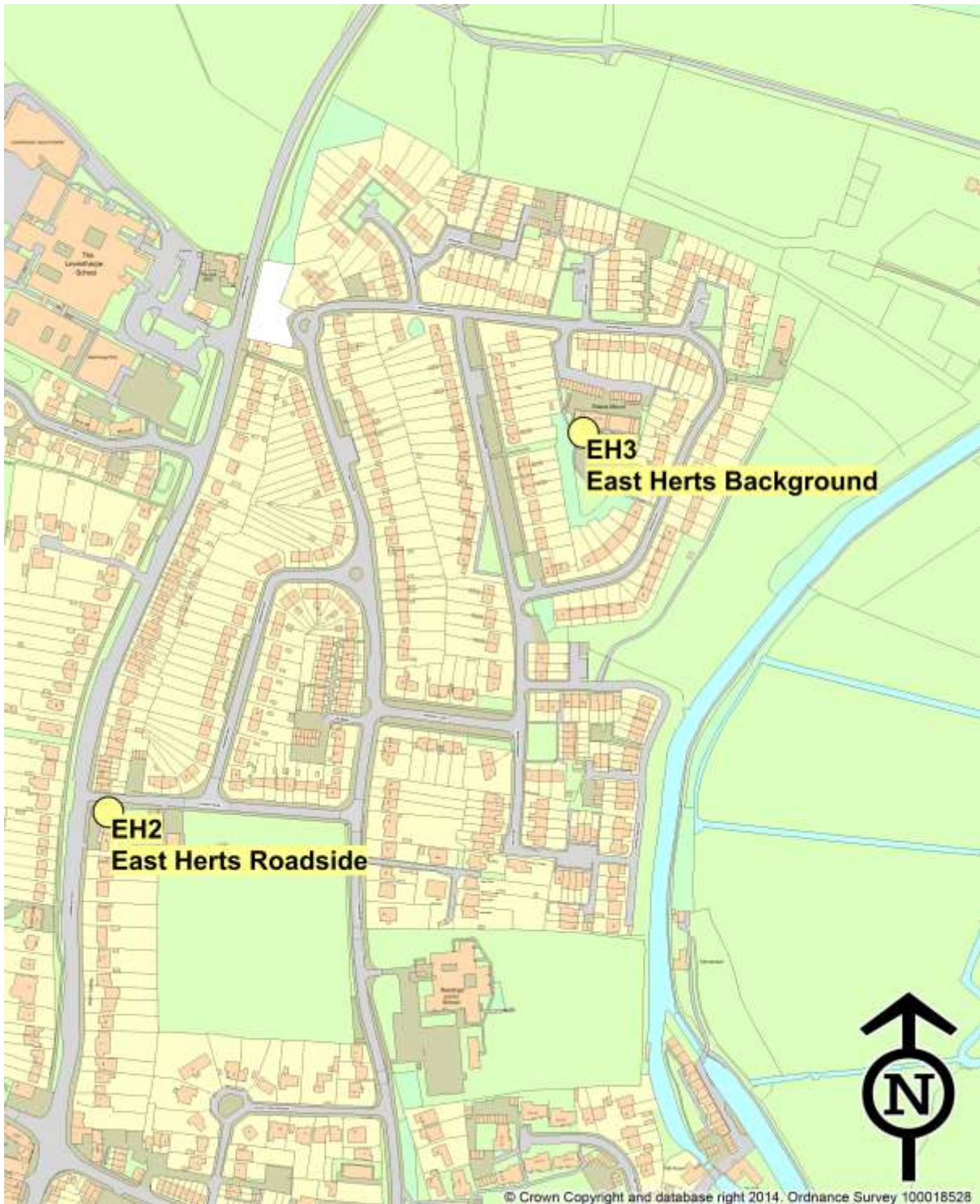


Table 2.1 Details of Automatic Monitoring Sites

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?
EH2	East Herts Roadside	Roadside	548222	215395	2.0	NO <sub>2</sub> PM <sub>10</sub>	N	Chemiluminescence Analysers  TEOM	N	2m	N
EH3	East Herts Background	Urban Background	548550	215646	3.0	NO <sub>2</sub> PM <sub>10</sub>	N	Chemiluminescence Analysers  TEOM	N	N/A	N
EH4	Anstey	Rural	540449	232777	2.0	Ozone	N	Chemiluminescence Analyser	N	N/A	N

### **2.1.2 Non-Automatic Monitoring Sites**

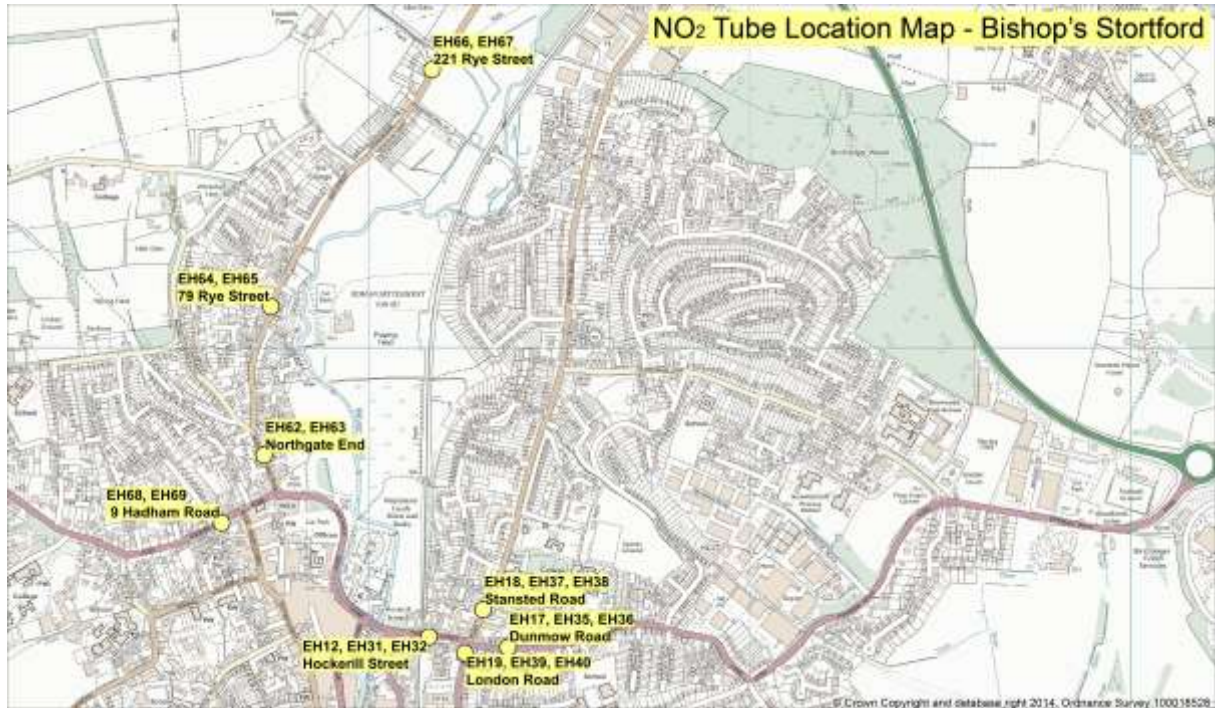
East Herts Council currently has a network of 42 diffusion tubes, a number of which are collocated in duplicate or triplicate as mentioned in Table 2.2. In April 2009 East Herts changed their diffusion tube supplier from Lambeth Scientific Services (using the 50% TEA in acetone method) to Gradko, using the 20% TEA in Water to improve on the precision of the results.

In 2013 Gradko scored a 100% in the all three rounds of the WASP scheme. Gradko were also determined good in the results of the laboratory precision scheme.

#### **Collocation Study and Bias Adjustment**

East Herts undertook a collocation study, in accordance with the reference method at the roadside continuous monitoring site located at Cutforth road, Sawbridgeworth. The Local Bias Adjustment factor was calculated as 0.84 (see Appendix A2). The National Bias Adjustment Factor was calculated as 0.95 (see Appendix A1). As the co-location study at Cutforth Road had not been in operation for the whole of 2013 it was decided to take the precautionary approach and use the National Bias Adjustment factor.

Figure 2.2 Maps of Non-Automatic Monitoring Sites



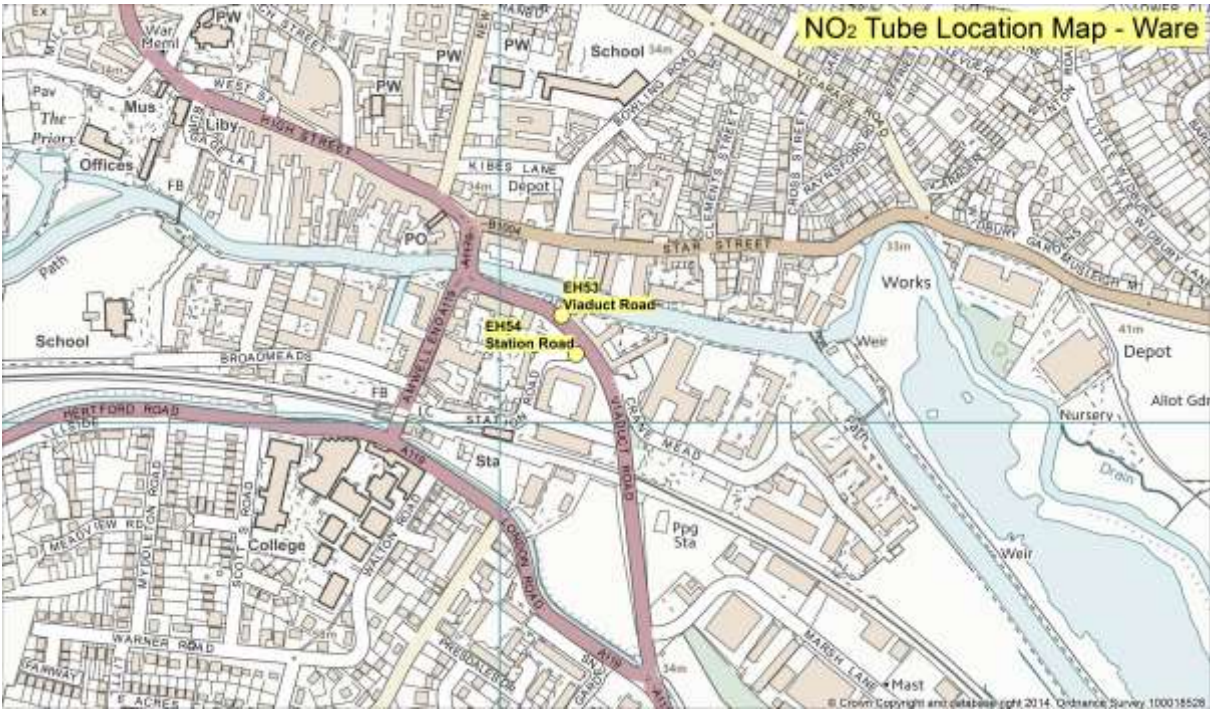
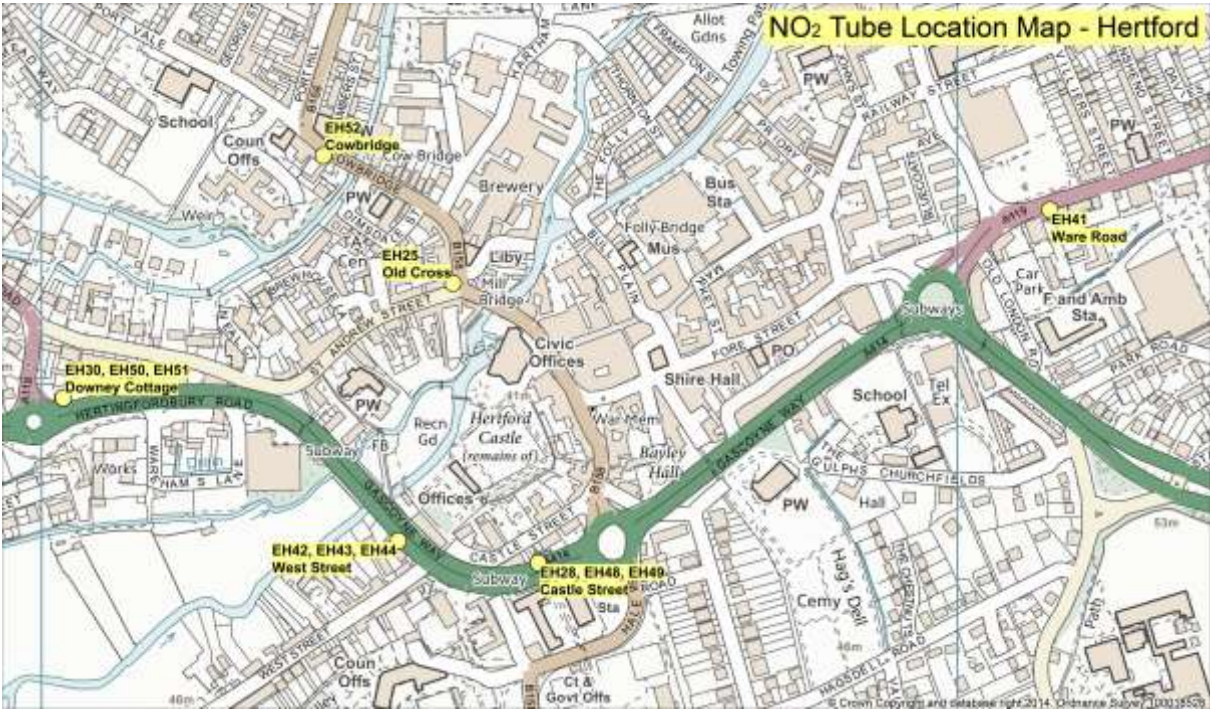


Table 2.2 Details of Non- Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Reference	Y OS Grid Reference	Site Height (m)	Pollutants Monitored	In AQMA?	Is Monitoring Co-located with a Continuous Analyser (Y/N)	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?
EH12	Hockerill Street, Bishop's Stortford	Roadside	549156	221242	2.5	NO <sub>2</sub>	Y	N	Y (0.9)	1.38	Y
EH31	Hockerill Street, Co-located with EH12	Roadside	549156	221242	2.5	NO <sub>2</sub>	N	N	Y (0.9)	1.38	Y
EH32	Hockerill Street, Co-located with EH12	Roadside	549156	221242	2.5	NO <sub>2</sub>	N	N	Y (0.9)	1.38	Y
EH14	London Road, Sawbridgeworth	Roadside	548065	214711	3.0	NO <sub>2</sub>	N*	N	Y (0.6)	2.6	Y
EH55	London Road Sawbridgeworth co-located with EH14	Roadside	548065	214711	3.0	NO <sub>2</sub>	N*	N	Y (0.6)	2.6	Y
EH56	London Road Sawbridgeworth co-located with EH14	Roadside	548065	214711	3.0	NO <sub>2</sub>	N*	N	Y (0.6)	2.6	Y

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<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
EH17	Dunmow Road, Bishop's Stortford	Roadside	549364	221215	2.75	NO <sub>2</sub>	N	N	Y (7.4)	1.8	Y
EH35	Dunmow Road, Bishops Stortford Co-located with EH17	Roadside	549100	221215	2.75	NO <sub>2</sub>	N	N	Y (7.4)	1.8	Y
EH36	Dunmow Road, Bishops Stortford Co-located with EH17	Roadside	549364	221215	2.75	NO <sub>2</sub>	N	N	Y (7.4)	1.8	Y
EH18	Stansted Road, Bishop's Stortford	Roadside	549298	221313	2.7	NO <sub>2</sub>	N	N	Y (2.7)	1.43	Y
EH37	Stansted Road, Co-located with EH18	Roadside	549298	221313	2.7	NO <sub>2</sub>	N	N	Y (2.7)	1.43	Y
EH38	Stansted Road, Co-located with EH18	Roadside	549298	221313	2.7	NO <sub>2</sub>	N	N	Y (2.7)	1.43	Y

**East Herts District Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
EH19	London Road, Bishop's Stortford	Roadside	549250	221200	2.5	NO <sub>2</sub>	Y	N	Y (0.4)	1.05	Y
EH39	London Road Co-located with EH19	Roadside	549250	221200	2.5	NO <sub>2</sub>	Y	N	Y (0.4)	1.05	Y
EH40	London Road Co-located with EH19	Roadside	549250	221200	2.5	NO <sub>2</sub>	Y	N	Y (0.4)	1.05	Y
EH25	Old Cross, Hertford	Roadside	532449	212675	3.0	NO <sub>2</sub>	Y	N	Y (3.1)	0.92	Y
EH28	Castle Street, Hertford	Roadside	532542	212370	2.35	NO <sub>2</sub>	Y	N	Y (12.5)	2.39	Y
EH48	Castle Street, Hertford Co-located with EH28	Roadside	532542	212370	2.35	NO <sub>2</sub>	Y	N	Y (12.5)	2.39	Y
EH49	Castle Street, Hertford Co-located with EH28	Roadside	532542	212370	2.35	NO <sub>2</sub>	Y	N	Y (12.5)	2.39	Y



**East Herts District Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
EH30	Downey Cottage, Hertford	Roadside	532023	212550	2.35	NO <sub>2</sub>	Y	N	Y (1.8)	0.5 \$	Y
EH50	Downey Cottage, Hertford Co-located with EH30	Roadside	532023	212550	2.35	NO <sub>2</sub>	Y	N	Y (1.8)	0.5 \$	Y
EH51	Downey Cottage, Hertford Co-located with EH30	Roadside	532023	212550	2.35	NO <sub>2</sub>	Y	N	Y (1.8)	0.5 \$	Y
EH41	Ware Road, Hertford	Roadside	533101	212755	2.3	NO <sub>2</sub>	Y	N	Y (2.1)	1.08	Y
EH42	West Street Hertford	Roadside	532389	212394	2.75	NO <sub>2</sub>	Y	N	Y (4.8)	2.75	Y
EH43	West Street Hertford Co-located with EH42	Roadside	532389	212394	2.75	NO <sub>2</sub>	Y	N	Y (4.8)	2.75	Y

**East Herts District Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
EH44	West Street, Hertford Co-located with EH42	Roadside	532389	212394	2.75	NO <sub>2</sub>	Y	N	Y (4.8)	2.75	Y
EH52	Cowbridge, Hertford	Roadside	532307	212814	2.65	NO <sub>2</sub>	Y	N	Y (1.5)	3.2	Y
EH53	Viaduct Road, Ware	Roadside	536068	214120	2.9	NO <sub>2</sub>	N	N	Y (3.1)	1.83	Y
EH54	Station Road, Ware	Roadside	536085	214077	2.6	NO <sub>2</sub>	N	N	Y (20.7)	1.75	Y
EH57	Junction between Bell Street and London Road Sawbridgeworth	Roadside	548123	214903	2.8	NO <sub>2</sub>	N*	N	Y (0.6)	2.75	Y
EH58	Junction between Bell Street and London Road Sawbridgeworth Co-located with EH57	Roadside	548123	214903	2.8	NO <sub>2</sub>	N*	N	Y (0.6)	2.75	Y
EH59	Cutforth Road Sawbridgeworth	Kerbside	548222	215395	2.2	NO <sub>2</sub>	N*	N	Y (1.5) £	3.0	Y
EH60	Cutforth Road Sawbridgeworth Co-located with EH59	Kerbside	548222	215395	2.2	NO <sub>2</sub>	N*	N	Y (1.5) £	3.0	Y

**East Herts District Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
EH61	Cutforth Road Sawbridgeworth Co-located with EH59	Kerbside	548222	215395	2.2	NO <sub>2</sub>	N*	N	Y (1.5) £	3.0	Y
EH62	Northgate End Bishops Stortford	Roadside	548723	221719	2.6	NO <sub>2</sub>	N	N	Y (6.0)	2.5	Y
EH63	Northgate End Bishops Stortford Co-located with EH62	Roadside	548723	221719	2.6	NO <sub>2</sub>	N	N	Y (6.0)	2.5	Y
EH64	79 Rye Street Bishops Stortford	Roadside	548741	222109	2.25	NO <sub>2</sub>	N	N	Y (3.9)	1.5	Y
EH65	79 Rye Street Bishops Stortford Co-located with EH64	Roadside	548741	222109	2.25	NO <sub>2</sub>	N	N	Y (3.9)	1.5	Y
EH66	221 Rye Street Bishops Stortford	Roadside	549163	222731	2.5	NO <sub>2</sub>	N	N	Y (0.5) £	1.2	Y
EH67	221 Rye Street Bishops Stortford Co-located with EH66	Roadside	549163	222731	2.5	NO <sub>2</sub>	N	N	Y (0.5) £	1.2	Y

**East Herts District Council**

<b>Site ID</b>	<b>Site Name</b>	<b>Site Type</b>	<b>X OS Grid Reference</b>	<b>Y OS Grid Reference</b>	<b>Site Height (m)</b>	<b>Pollutants Monitored</b>	<b>In AQMA?</b>	<b>Is Monitoring Co-located with a Continuous Analyser (Y/N)</b>	<b>Relevant Exposure? (Y/N with distance (m) from monitoring site to relevant exposure)</b>	<b>Distance to Kerb of Nearest Road (m) (N/A if not applicable)</b>	<b>Does this Location Represent Worst-Case Exposure?</b>
EH68	9 Hadham Road Bishops Stortford	Roadside	548611	221541	2.35	NO <sub>2</sub>	N	N	Y (0.5)	1.5	Y
EH69	9 Hadham Road Bishops Stortford Co-located with EH68	Roadside	548611	221541	2.35	NO <sub>2</sub>	N	N	Y (0.5)	1.5	Y

N\* Denotes where an Air Quality Management Area is to be declared in the near future.

\$ Denotes where the nearest road is not thought to be the dominant source of air pollution

£ Denotes where the distance to receptor used is represented by a neighbouring property

## **2.2 Comparison of Monitoring Results with Air Quality Objectives**

### **2.2.1 Nitrogen Dioxide (NO<sub>2</sub>)**

#### **Automatic Monitoring Data**

Both the East Herts Background and East Herts Roadside continuous monitoring stations recorded annual mean concentrations below the 40 µg/m<sup>3</sup> threshold. In addition, neither site any hourly means in excess of the 50 µg/m<sup>3</sup> objective. A graph showing hourly means can be found in Appendix B.

**Table 2.3 Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2013 % <sup>b</sup>	Annual Mean Concentration (µg/m <sup>3</sup> )				
					2009* <sup>c</sup>	2010* <sup>c</sup>	2011* <sup>c</sup>	2012* <sup>c</sup>	2013 <sup>c</sup>
EH2	East Herts Background	N	99.6	99.6	18	16	16	12	17
EH3	East Herts Roadside	N	99.5	99.5	31	31	30	<b>41</b>	31

In bold, exceedence of the NO<sub>2</sub> annual mean AQS objective of 40µg/m<sup>3</sup>

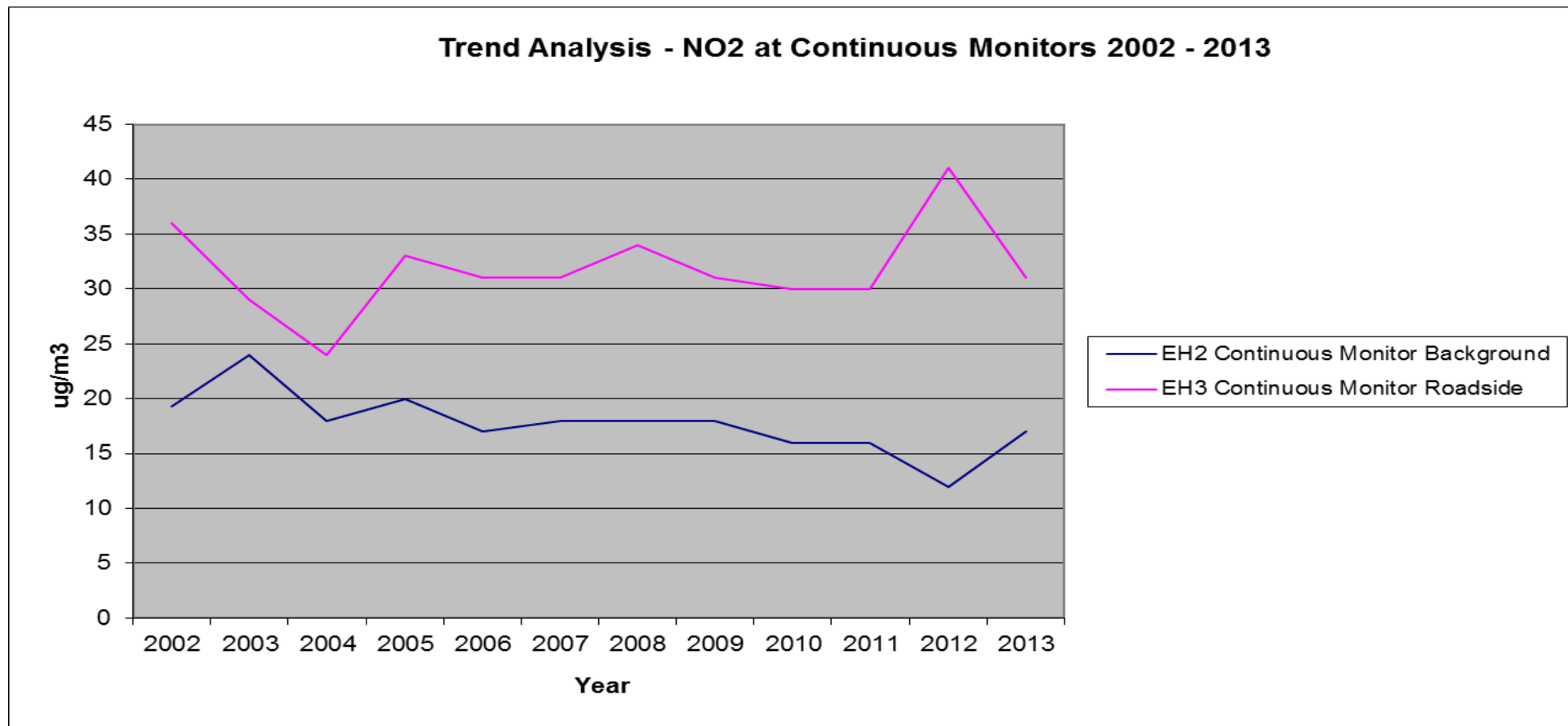
<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

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

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

\* Annual mean concentrations for previous years are optional

Figure 2.3 Trends in Annual Mean NO<sub>2</sub> Concentrations Measured at Automatic Monitoring Sites



**Table 2.4 Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with 1-hour Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2013 % <sup>b</sup>	Number of Hourly Means > 200µg/m <sup>3</sup>				
					2009* <sup>c</sup>	2010* <sup>c</sup>	2011* <sup>c</sup>	2012* <sup>c</sup>	2013 <sup>c</sup>
EH2	East Herts Background	N	99.6	99.6	0	0	0	0	0
EH3	East Herts Roadside	N	99.5	99.5	0	0	0	0	0

In bold, exceedence of the NO<sub>2</sub> hourly mean AQS objective (200µg/m<sup>3</sup> – not to be exceeded more than 18 times per year)

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

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

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

\* Number of exceedences for previous years is optional



## Diffusion Tube Monitoring Data

East Herts currently have a network of 42 nitrogen dioxide diffusion tubes (in 19 locations), 11 of these locations exceed the annual mean objective of  $40\mu\text{g}/\text{m}^3$ . 9 of these locations are already in an AQMA, and the remaining 2 are located in an area that is to be declared as an AQMA in the near future. 4 of the 9 locations in the AQMA recorded annual means in excess of  $60\mu\text{g}/\text{m}^3$  which indicates a possible exceedence of the hourly objective. 2 of these locations are located within the Hockerill junction AQMA, 1 in the Hertford AQMA, and the other within an area of Sawbridgeworth soon to be included in an AQMA. Where diffusion tubes are located in duplicate or triplicate, the results presented in Table 2.5 have been averaged. However the result for each individual diffusion tube has been given in Appendix C.

One location in Viaduct road Ware recorded an annual mean of  $40\mu\text{g}/\text{m}^3$ . As the level at the nearest receptor would be less and therefore under the objective, and another tube located opposite this one recorded an annual mean of  $30\mu\text{g}/\text{m}^3$ , it was considered appropriate to keep a watching brief on this area

Table 2.5 Results of NO<sub>2</sub> Diffusion Tubes 2013

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) <sup>a</sup>	2013 Annual Mean Concentration (µg/m <sup>3</sup> ) - Bias Adjustment factor = 0.95 <sup>b</sup>
EH12 EH31 EH32	Hockerill Street, Bishops Stortford	roadside	Y	Triplicate	12 12 12	<b>49</b>
EH14 EH55 EH56	London Road, Sawbridgeworth	roadside	N	Triplicate	12 12 12	<b>52</b>
EH17 EH35 EH36	Dunmow Road, Bishops Stortford	kerbside	Y	Triplicate	12 12 12	<b>74</b>
EH18 EH37 EH38	Stansted Road, Bishops Stortford	roadside	Y	Triplicate	12 12 12	<b>41</b>
EH19 EH39 EH40	London Road Bishops Stortford	roadside	Y	Triplicate	12 12 12	<b>76</b>
EH25	Old Cross Hertford	kerbside	Y		12	<b>44</b>
EH28 EH48 EH49	Castle St Hertford	roadside	Y	Triplicate	12 12 12	<b>48</b>
EH30 EH50 EH51	Downey Cottage Hertingfordbury Rd	roadside	Y	Triplicate	12 12 12	<b>45</b>

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) <sup>a</sup>	2013 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.95 <sup>b</sup>
EH41	Ware Rd Hertford	roadside	Y		12	52
EH42 EH43 EH44	West St Hertford	roadside	Y	Triplicate	12 12 12	64
EH52	Cowbridge Hertford	roadside	N		12	32
EH53	Viaduct Road Ware	roadside	N		12	40
EH54	Station Road Ware	roadside	N		12	30
EH57 EH58	Opposite Bell Street Sawbridgeworth at crossing	roadside	N	Duplicate	12 12	65
EH59 EH60 EH61	Cutforth Road Sawbridgeworth	Kerbside	N	Triplicate	10 10	33
EH62 EH63	Northgate End Bishops Stortford	Roadside	N	Duplicate	5 6	35*
EH64 EH65	79 Rye Street Bishops Stortford	Roadside	N	Duplicate	7 7	39*
EH66 EH67	209 Rye Street Bishops Stortford	Roadside	N	Duplicate	7 7	22*

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2013 (Number of Months or %) <sup>a</sup>	2013 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.95 <sup>b</sup>
EH68 EH69	9 Hadham Road Bishops Stortford	Roadside	N	Duplicate	7 7	39*

In bold, exceedence of the NO<sub>2</sub> 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 exceedence of the NO<sub>2</sub> hourly mean AQS objective

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

<sup>b</sup> If an exceedence is measured at a monitoring site not representative of public exposure, NO<sub>2</sub> concentration at the nearest relevant exposure should be estimated based on the “NO<sub>2</sub> fall-off with distance” calculator (<http://laqm.defra.gov.uk/tools-monitoring-data/no2-falloff.html>), and results should be discussed in a specific section. The procedure is also explained in Box 2.3 of Technical Guidance LAQM.TG(09) (<http://laqm.defra.gov.uk/technical-guidance/index.html?d=page=30>).

\*Denotes Annual Means that have been annualised. See Appendix for details of calculation.

Table 2.6 Results of NO<sub>2</sub> Diffusion Tubes (2009 to 2013)

Site ID	Site Type	Within AQMA?	Annual Mean Concentration (µg/m <sup>3</sup> ) - Adjusted for Bias <sup>a</sup>				
			2009 (Bias Adjustment Factor = 0.90)	2010 (Bias Adjustment Factor = 0.96)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.97)	2013 (Bias Adjustment Factor = 0.95)
EH12	roadside	Y	<b>53</b>	<b>45</b>	<b>46</b>	<b>46</b>	<b>49</b>
EH14	roadside	N	<b>53</b>	<b>46</b>	<b>42</b>	<b>47</b>	<b>52</b>
EH17	kerbside	Y	<b>66</b>	<b>66</b>	<b>59</b>	<b>60</b>	<b>74</b>
EH18	roadside	Y	<b>45</b>	39	36	41	39
EH19	roadside	Y	<b>71</b>	<b>69</b>	<b>66</b>	<b>67</b>	<b>75</b>
EH25	kerbside	Y	<b>42</b>	<b>41</b>	<b>40</b>	39	<b>44</b>
EH28	roadside	Y	<b>44</b>	40	<b>42</b>	38	<b>50</b>
EH30	roadside	Y	<b>46</b>	<b>41</b>	<b>42</b>	<b>40</b>	<b>45</b>
EH31	roadside	Y	<b>55</b>	<b>46</b>	N/A	<b>46</b>	<b>50</b>
EH32	roadside	Y	<b>55</b>	<b>45</b>	<b>44</b>	<b>48</b>	<b>48</b>
EH35	kerbside	Y	<b>65</b>	<b>68</b>	<b>59</b>	<b>65</b>	<b>74</b>
EH36	kerbside	Y	<b>69</b>	<b>64</b>	<b>61</b>	<b>59</b>	<b>73</b>
EH37	roadside	Y	<b>45</b>	40	37	38	<b>42</b>
EH38	roadside	Y	<b>43</b>	<b>41</b>	35	38	<b>41</b>
EH39	roadside	Y	<b>73</b>	<b>69</b>	<b>65</b>	<b>66</b>	<b>77</b>
EH40	roadside	Y	<b>75</b>	<b>72</b>	<b>67</b>	<b>65</b>	<b>77</b>
EH41	roadside	Y	<b>49</b>	<b>44</b>	<b>44</b>	<b>47</b>	<b>52</b>
EH42	roadside	N	<b>67</b>	<b>51</b>	<b>56</b>	<b>59</b>	<b>66</b>
EH43	roadside	N	<b>68</b>	<b>55</b>	<b>60</b>	<b>56</b>	<b>65</b>
EH44	roadside	N	<b>66</b>	<b>59</b>	<b>55</b>	<b>61</b>	<b>61</b>
EH48	roadside	Y	<b>45</b>	<b>40</b>	38	38	<b>46</b>
EH49	roadside	Y	<b>45</b>	<b>41</b>	39	38	<b>47</b>
EH50	roadside	Y	<b>46</b>	<b>40</b>	39	39	<b>46</b>
EH51	roadside	N	<b>44</b>	<b>40</b>	38	39	<b>45</b>

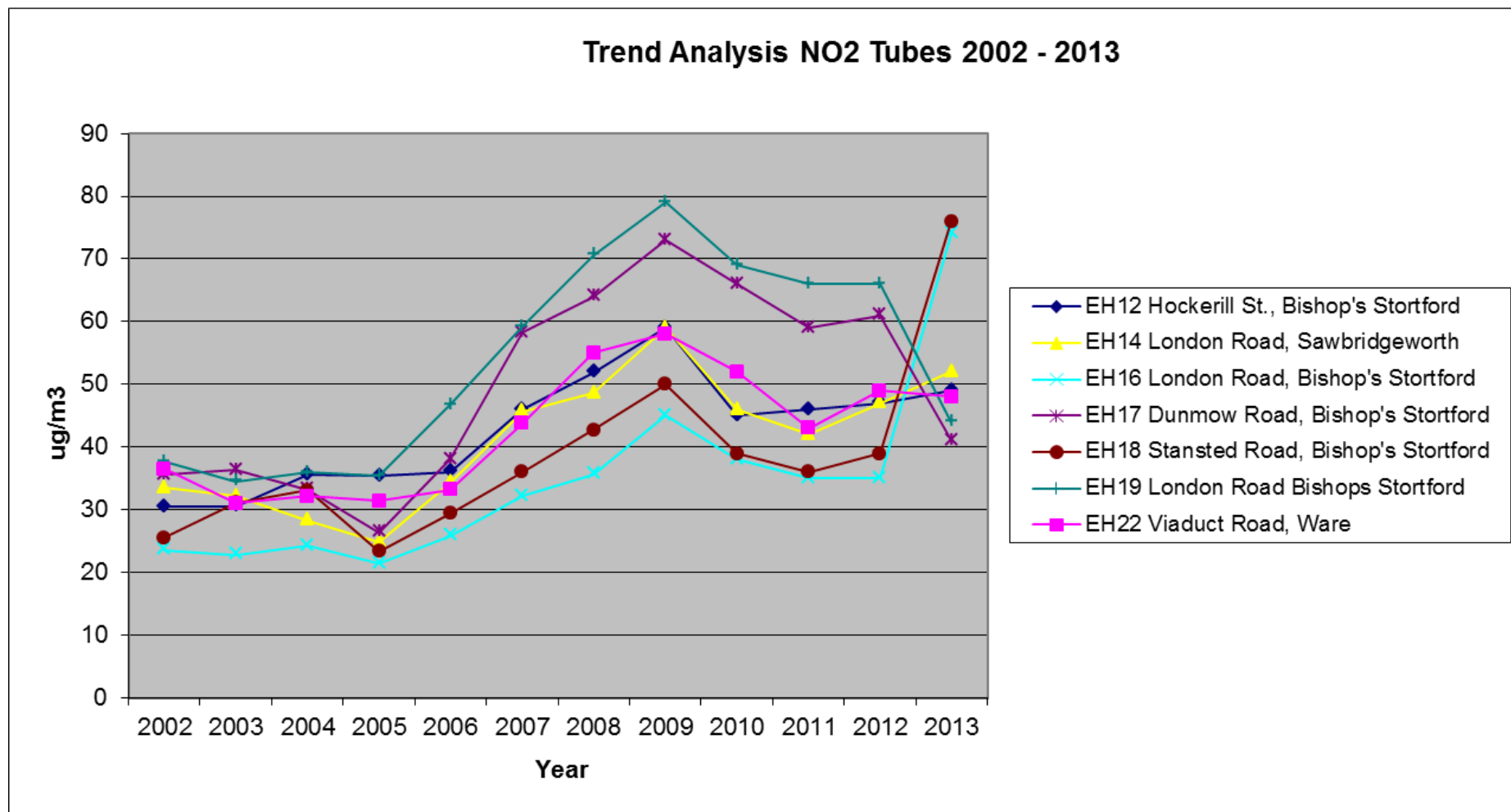
Site ID	Site Type	Within AQMA?	Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Adjusted for Bias <sup>a</sup>				
			2009 (Bias Adjustment Factor = 0.90)	2010 (Bias Adjustment Factor = 0.96)	2011 (Bias Adjustment Factor = 0.89)	2012 (Bias Adjustment Factor = 0.97)	2013 (Bias Adjustment Factor = 0.95)
EH52	roadside	N	35	31	32	31	32
EH53	roadside	N	N/A	38	36	38	<b>40</b>
EH54	roadside	N	N/A	34	28	29	30
EH55	roadside	N	N/A	<b>44</b>	<b>43</b>	<b>47</b>	<b>53</b>
EH56	roadside	N	N/A	<b>49</b>	<b>43</b>	<b>46</b>	<b>50</b>
EH57	roadside	N	N/A	<b>67</b>	<b>56</b>	<b>61</b>	<b>66</b>
EH58	roadside	N	N/A	N/A	<b>55</b>	<b>59</b>	<b>65</b>
EH59	roadside	N	N/A	N/A	N/A	N/A	34
EH60	roadside	N	N/A	N/A	N/A	N/A	34
EH61	roadside	N	N/A	N/A	N/A	N/A	33
EH62	roadside	N	N/A	N/A	N/A	N/A	33
EH63	roadside	N	N/A	N/A	N/A	N/A	37
EH64	roadside	N	N/A	N/A	N/A	N/A	38
EH65	roadside	N	N/A	N/A	N/A	N/A	<b>40</b>
EH66	roadside	N	N/A	N/A	N/A	N/A	22
EH67	roadside	N	N/A	N/A	N/A	N/A	22
EH68	roadside	N	N/A	N/A	N/A	N/A	38
EH69	roadside	N	N/A	N/A	N/A	N/A	39

In bold, exceedence of the NO<sub>2</sub> 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 exceedence of the NO<sub>2</sub> hourly mean AQS objective

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

Figure 2.4 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites



**2.2.2 Particulate Matter (PM<sub>10</sub>)**

East Herts Council met the annual objective and the 24 hour mean objective for PM10 at all locations monitored.



**Table 2.7 Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with Annual Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2013 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m <sup>3</sup> )				
						2009* <sup>c</sup>	2010* <sup>c</sup>	2011* <sup>c</sup>	2012* <sup>c</sup>	2013 <sup>c</sup>
EH2	East Herts Background	N	95.1	95.1	Y	17	17	14	13	18
EH3	East Herts Roadside	N	95.5	95.5	Y	21	23	21	25	24

In bold, exceedence of the PM<sub>10</sub> annual mean AQS objective of 40µg/m<sup>3</sup>

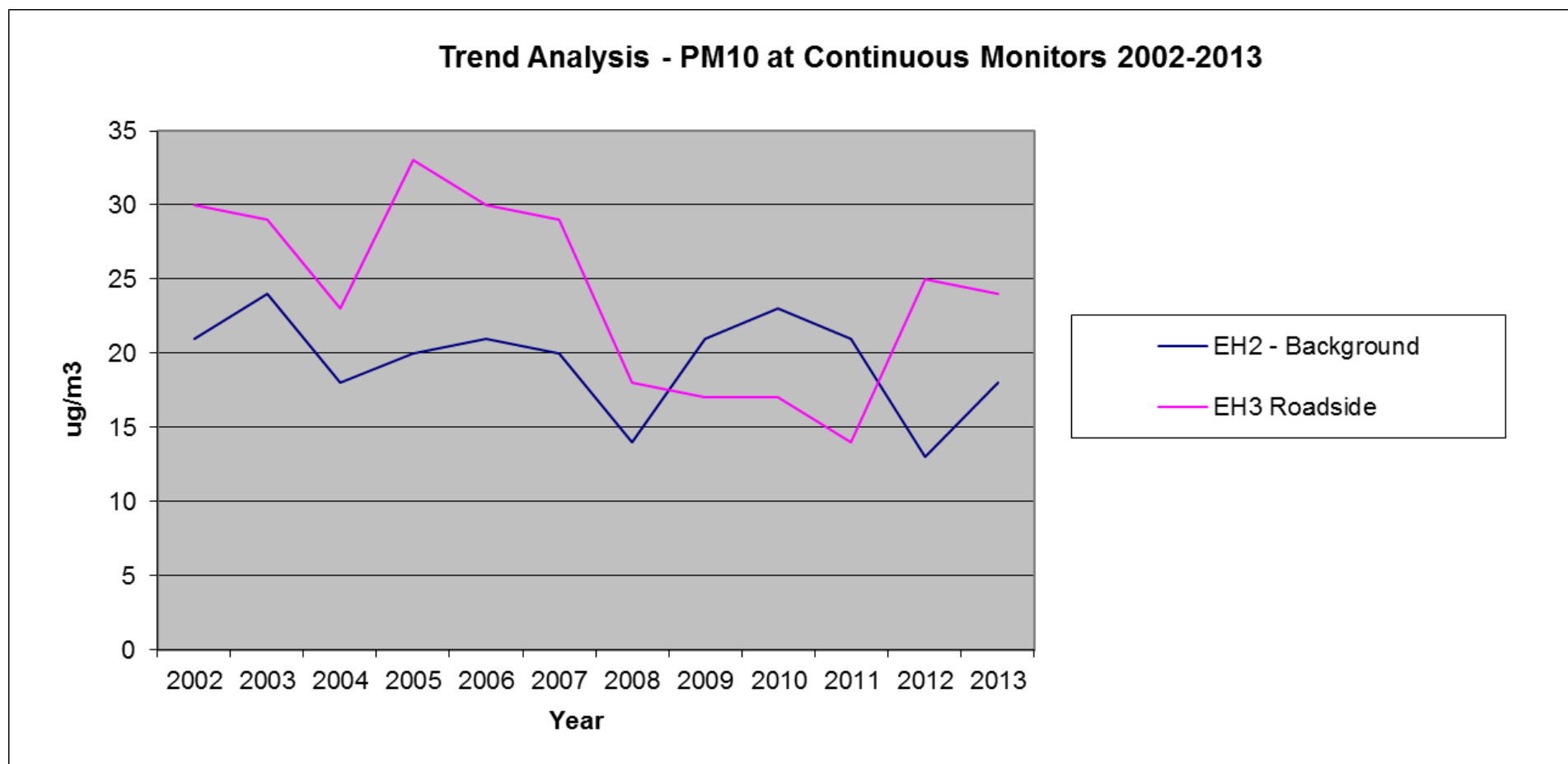
<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

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

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

\* Annual mean concentrations for previous years are optional

Figure 2.5 Trends in Annual Mean PM<sub>10</sub> Concentrations



**Table 2.8 Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour Mean Objective**

Site ID	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period % <sup>a</sup>	Valid Data Capture 2013 % <sup>b</sup>	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m <sup>3</sup>				
						2009* <sup>c</sup>	2010* <sup>c</sup>	2011* <sup>c</sup>	2012* <sup>c</sup>	2013 <sup>c</sup>
EH2	East Herts Background	N	95.1	95.1	Y	0	0	0	14	2
EH3	East Herts Roadside	N	95.5	95.5	Y	0	0	0	4	6

In bold, exceedence of the PM<sub>10</sub> daily mean AQS objective (50µg/m<sup>3</sup> – not to be exceeded more than 35 times per year)

<sup>a</sup> i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

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

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

\* Number of exceedences for previous years is optional

**2.2.3 Sulphur Dioxide (SO<sub>2</sub>)**

East Herts Council does not monitor Sulphur Dioxide

**2.2.4 Benzene**

East Herts Council does not monitor Benzene

**2.2.5 Other Pollutants Monitored**

Ozone has been monitored in a rural school in Anstey since January 2011. Ozone is not emitted directly from any man made source in significant quantities, but is formed by a complex set of reactions involving nitrogen oxides and hydrocarbons in the presence of light from the sun. Once formed, ozone can remain in atmosphere for many days and is often transported over long distances. It is for this reason that a real reduction in ozone levels can only be achieved through global action by everyone. Ozone is therefore not a pollutant currently in the Air Quality Regulations. It is however still considered when looking at air Quality. The results of the ozone monitoring for 2013 are given below:

**Table 2.9 Results of Automatic Monitoring for Ozone**

<b>Air Quality (England) Regulations 2000 &amp; (Amendment) Regulations 2002</b>	<b>Max. Concentration</b>	<b>Number</b>	<b>Days</b>	<b>Allowed</b>	<b>Exceeded</b>
Daily max run 8hr mean > 100 µg/m <sup>3</sup>	159 µg/m <sup>3</sup>	24	24	10 days	yes

## Summary of Compliance with AQS Objectives

East Herts Council has examined the results from monitoring in the district.

Concentrations within the AQMA still exceed the annual objective for Nitrogen Dioxide at Hockerill Junction, Bishop's Stortford and Gascoyne Way, Hertford and the AQMAs should remain.

An AQMA is to be declared at London Road, Sawbridgeworth.

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

## New Local Developments

### 2.3 Road Traffic Sources

East Herts has not identified any new road traffic sources since the last updating and screening assessment.

### 2.4 Other Transport Sources

There have been no changes since the previous Updating and Screening Assessment that would require East Herts to carry out an assessment on the following:

- Airports.
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.
- Locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.
- Ports for shipping.

### 2.5 Industrial Sources

East Herts has not identified any of the following since the last Updating and Screening Assessment that would require further assessment.

- **Industrial installations:** new or proposed installations for which an air quality assessment has been carried out.
- **Industrial installations:** existing installations where emissions have increased substantially or new relevant exposure has been introduced.
- **Industrial installations:** new or significantly changed installations with no previous air quality assessment.

- Major fuel storage depots storing petrol.
- Petrol stations

## 2.6 Commercial and Domestic Sources

East Herts Council are not aware of any new biomass combustion plants or a significant increase in the use of domestic solid fuel burning since publication of the Updating and Screening Assessment in 2012.

## 2.7 New Developments with Fugitive or Uncontrolled Sources

East Herts Council has not identified any of the following sources that require further assessment since the previous Updating and Screening Assessment.

- Biomass combustion plant – individual installations.
- Areas where the combined impact of several biomass combustion sources may be relevant.
- Areas where domestic solid fuel burning may be relevant.

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

East Herts Council confirms that all the following have been considered:

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

### **3 Local / Regional Air Quality Strategy**

East Herts Council does not have an Air Quality Strategy



## 4 Planning Applications

The following application has been approved pending s106 agreements since the Progress report in 2013

<b>Main Location</b>	Land at Bishop's Stortford North, Bishop's Stortford, Herts
<b>Proposal</b>	Erection of up to 2,200 dwellings inclusive of affordable housing; green infrastructure, amenity and formal and informal recreation space; landscaping; development of 2 mixed use local centres on 4.1 hectares of land providing up to 21,000 sq.m. (gross) commercial floorspace (Use Class B1 a, b and c) inclusive of (if required) a maximum of 3,000 sq.m. (gross) for a healthcare facility (Use Class D1) together with retail floorspace (Use Classes A1, A2, A3, A4 & A5) up to a maximum of 1,200 sq.m. (gross) and the potential for other community/cultural/leisure (Use Class D1 & D2) If required (floorspace to be agreed); two primary schools and associated facilities; a park and ride facility for approximately 100 vehicles; 4 new junctions (A120, Hadham Road, Rye Street and Farnham Road); estate roads and public transport route (including a link along Dane O'Coys Road); footpaths/cycleways; site profiling/earthworks; a noise bund with barrier; a sustainable drainage system; utilities services including foul water pumping stations; 2 residential garden extensions; and the demolition of 221 Rye Street and 164 & 165 Hadham Road (all matters reserved except vehicular access)

## **5 Air Quality Planning Policies**

East Herts Council is currently preparing its District Plan which will contain Environmental Quality policies including those relating to air quality. Public consultation on the District Plan took place between February and May 2014. Further public consultation will take place next year with possible subsequent adoption of the document by 2016.

Current planning policies for East Herts are set out in the 'East Herts Local Plan Second Review 2007 Saved Policies Version' and include policy ENV27 Air Quality which considers the impact of development on air quality and refers to AQMAs.

## 6 Local Transport Plans and Strategies

East Herts Council is currently working with Hertfordshire County Council in the revision of the joint Air Quality Action Plan to ensure that suitable actions are incorporated into this Progress Report to reduce the pollution in the newly extended AQMA in Hertford. The Action Plan also aims to reduce overall pollution throughout the district.

East Herts Council will assist Hertfordshire County Council with the implementation of the current joint Air Quality Action Plan and the reporting of these actions. The joint Air Quality Action Plan is integrated into the Local Transport Plan as an appendix to the Local Transport Plan Annual Progress Report ([www.hertsdirect.org/ltp](http://www.hertsdirect.org/ltp)).

## 7 Climate Change Strategies

East Herts Council recognises that climate change will bring challenges and opportunities, and that action is needed now, both to reduce emissions of global warming gases in order to help reduce more serious changes in the future (often referred to as mitigation), and to help us to prepare for those impacts of climate change that are already unavoidable (adaptation).

The strategy document describes briefly the causes of climate change and the changes that are likely to be experienced by the District of East Herts. The strategy consolidates East Herts Council's response to climate change as a signatory to the Nottingham Declaration (see below).

The strategy defines the scope and objectives of the Council's activities in the context of actions being undertaken by other agencies. It comprises a review of actions that the District Council is already undertaking, and proposes additional measures to tackle the causes and impacts of climate change.

For ease of communication and implementation, current and proposed actions have been grouped under a series of topics that loosely reflect the Council's relevant service areas.

Each section includes a description of how service areas can mitigate the causes of climate change and how the service areas will be affected by climate change. The proposed actions have been assigned to named sections of the Authority for implementation.

Each action plan focuses primarily on measures to mitigate climate change by reducing emissions of greenhouse gases. Where applicable, however, actions have been included that relate to adaptation - enabling the Council or wider District to better withstand the anticipated effects of climate change. Further work is proposed on adaptation, identifying risks to the District.

The Action Plan contains a mix of one-off short-term measures that should bring quick wins and more strategic proposals for longer-term but ultimately further-reaching effects.

It is intended that the Action Plan will be monitored on an annual basis to ensure that targets are being met wherever possible. In addition, an annual audit of carbon dioxide (or carbon dioxide equivalents) emissions arising through the Council's operations will be undertaken to evaluate the effectiveness of the Council's actions in reducing its contribution to climate change. The results of this "Carbon Footprint" will be publicised.

The Council's Climate Change Strategy can be found on [www.eastherts.gov.uk](http://www.eastherts.gov.uk)

## **8 Implementation of Action Plans**

The joint Herts County Council Local Transport Plan and East Herts Council Action Plan Progress report is currently under review

## **9 Conclusions and Proposed Actions**

### **9.1 Conclusions from New Monitoring Data**

The 2014 Progress Report has not identified any exceedances that has not been previously considered and assessed in previous reports.

### **9.2 Conclusions relating to New Local Developments**

Bishop's Stortford North has been given planning permission pending s106 agreements. This development will be considered in more detail in the next Updating and Screening Assessment.

### **9.3 Other Conclusions**

East Herts Council has carried out several projects over the year including the development of a teaching pack for secondary schools. A progress report for the action plan needs to be written to reflect these achievements,

### **9.4 Proposed Actions**

The Air Quality Management Area for Sawbridgeworth will be declared before the end of January 2015.

## 10 References

1. Part IV of Environment Act 1995: Local Air Quality Management. Technical Guidance LAQM.TG (09). Defra, February 2009.
2. The Air Quality (England) Regulations 2000 (Statutory Instrument 2000 No. 928), March 2000.
3. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland. January 2000. ISBN 0-10-145482-1
4. The Air Quality Amendment Regulations 2002, ISBN 0 11061468 2.





### 3. Discussion of Choice of Factor to Use

The bias adjustment factor used in this report was the one produced by the national bias adjustment survey. This factor was higher than the local factor and therefore would result in higher concentrations being reported than if the lower locally derived figure had been used. This ensures that the progress report is conservative,

### 4. PM Monitoring Adjustment

Results obtained from the TEOM analysers were corrected using the Kings College Volatile Correction Model (VCM). This model allows the correction of TEOM measurements for the loss of volatile components of particulate matter that occur due to the high sampling temperatures employed by this instrument. The resulting corrected measurements have been demonstrated as equal to the gravimetric reference equivalent.

This calculation was undertaken by Air Quality Data Management (AQDM).

Summary	Text	Value
Site Name	E. Herts Sawbridgeworth (Background)	
Organisation	Herts & Beds	
Start Date	01/01/2013	
End Date	31/12/2013	
TEOM data already corrected with 1.3 factor	No	
EPA Constant A		3
EPA Constant B		1.03
Instrument Temperature		25
Instrument Pressure		1013
Instrument reports to local ambient readings	No	
Timescale	Hourly	
Pressure Site	Havering - Romford (HV3)	
Pressure Site Warning		
Temperature Site	Bexley - Belvedere FDMS (BX0)	
Temperature Site Warning		
FDMS Site 1	Bexley - Belvedere FDMS (BX0)	
FDMS Site 1 Warning	FDMS1 Correction includes unratified data.	
FDMS Site 2	Lewisham - New Cross (LW2)	
FDMS Site 2 Warning	FDMS2 Correction includes unratified data.	
FDMS Site 3	Average of remaining sites within range	
FDMS Site 3 Warning	FDMS3 Correction includes unratified data.	

Summary	Text	Value
Site Name	E. Herts Sawbridgeworth (Roadside)	
Organisation	Herts & Beds	
Start Date	01/01/2013	
End Date	31/12/2013	
TEOM data already corrected with 1.3 factor	No	
EPA Constant A		3
EPA Constant B		1.03
Instrument Temperature		25
Instrument Pressure		1013
Instrument reports to local ambient readings	No	
Timescale	Hourly	
Pressure Site	Havering - Romford (HV3)	
Pressure Site Warning		
Temperature Site	Bexley - Belvedere FDMS (BX0)	
Temperature Site Warning		
FDMS Site 1	Bexley - Belvedere FDMS (BX0)	
FDMS Site 1 Warning	FDMS1 Correction includes unratified data.	
FDMS Site 2	Greenwich - Blackheath (GR7)	
FDMS Site 2 Warning	FDMS2 Correction includes unratified data.	
FDMS Site 3	Average of remaining sites within range	
FDMS Site 3 Warning	FDMS3 Correction includes unratified data.	

### 5. Short-term to Long-term Data adjustment

The following calculations have been undertaken to estimate the annual mean concentrations at the locations where nitrogen dioxide monitoring commenced part way through the year. The following sites were chosen as they are nearest and most appropriate.

**Table A.1 Short-Term to Long-Term Monitoring Data Adjustment**

**Where:**

AURN 1	Thurrock BG Urban
AURN 2	Wicken Fen
AURN 3	Northampton Kingsthorpe

## EH62 Northgate End B/S Jct Yew Tree Court

Site	Site Type	Annual Mean ( $\mu\text{g}/\text{m}^3$ )	Period Mean ( $\mu\text{g}/\text{m}^3$ )	Ratio
AURN1	Urban Background	27.1	28.1	0.964461
AURN2	Rural	9.7	11.9	0.818389
AURN3	Urban Background	14.0	17.4	0.805521
Average				0.86279

## EH63 Northgate End B/S Jct Yew Tree Court c/loc EH62

Site	Site Type	Annual Mean ( $\mu\text{g}/\text{m}^3$ )	Period Mean ( $\mu\text{g}/\text{m}^3$ )	Ratio
AURN1	Urban Background	27.1	26.8	1.008513
AURN2	Rural	9.7	10.7	0.904496
AURN3	Urban Background	14.0	15.7	0.890643
Average				0.934551

## EH64 Rye St, B/S outside 79

Site	Site Type	Annual Mean ( $\mu\text{g}/\text{m}^3$ )	Period Mean ( $\mu\text{g}/\text{m}^3$ )	Ratio
AURN1	Urban Background	27.1	25.5	1.059717
AURN2	Rural	9.7	10.0	0.971197
AURN3	Urban Background	14.0	14.5	0.9696
Average				1.000172

## EH65 Rye St, B/S outside 79 c/loc EH64

Site	Site Type	Annual Mean ( $\mu\text{g}/\text{m}^3$ )	Period Mean ( $\mu\text{g}/\text{m}^3$ )	Ratio
AURN1	Urban Background	27.1	25.5	1.059717
AURN2	Rural	9.7	10.0	0.971197
AURN3	Urban Background	14.0	14.5	0.9696
Average				1.000172

## EH66 Rye St, B/S outside 221

Site	Site Type	Annual Mean ( $\mu\text{g}/\text{m}^3$ )	Period Mean ( $\mu\text{g}/\text{m}^3$ )	Ratio
AURN1	Urban Background	27.1	25.5	1.059717
AURN2	Rural	9.7	10.0	0.971197
AURN3	Urban Background	14.0	14.5	0.9696
Average				1.000172

## EH67 Rye St, B/S outside 221 c/loc EH66

Site	Site Type	Annual Mean ( $\mu\text{g}/\text{m}^3$ )	Period Mean ( $\mu\text{g}/\text{m}^3$ )	Ratio
AURN1	Urban Background	27.1	25.5	1.059717
AURN2	Rural	9.7	10.0	0.971197
AURN3	Urban Background	14.0	14.5	0.9696
Average				1.000172

## EH68 Hadham Rd, B/S outside 9

Site	Site Type	Annual Mean ( $\mu\text{g}/\text{m}^3$ )	Period Mean ( $\mu\text{g}/\text{m}^3$ )	Ratio
AURN1	Urban Background	27.1	25.5	1.059717
AURN2	Rural	9.7	10.0	0.971197
AURN3	Urban Background	14.0	14.5	0.9696
Average				1.000172

## EH69 Hadham Rd, B/S outside 9 c/loc EH68

Site	Site Type	Annual Mean ( $\mu\text{g}/\text{m}^3$ )	Period Mean ( $\mu\text{g}/\text{m}^3$ )	Ratio
AURN1	Urban Background	27.1	25.5	1.059717
AURN2	Rural	9.7	10.0	0.971197
AURN3	Urban Background	14.0	14.5	0.9696
Average				1.000172

## 6. QA/QC of Automatic Monitoring

Officers from East Herts Council undertook calibrations of the analysers in 2013. SupportingU were contracted to undertake 6 monthly calibration and maintenance all analysers.

Results were validated and ratified by Air Quality Data Management (AQDM) who has provided this information regarding the procedures used:

Air quality measurements from automatic instruments are ratified to the standards described in the Local Air Quality Management – Technical Guidance LAQM TG(09) <http://www.defra.gov.uk/publications/2011/03/25/pb13081-laqm-technical-guidance-tg09>.

### *Validation*

This process operates on data during the data collection stage. All data are continually screened algorithmically and manually for anomalies. There are several techniques designed to discover spurious and unusual measurements within a very large dataset. These anomalies may be due to equipment failure, human error, power failures, interference or other disturbances Automatic screening can only safely identify spurious results that need further manual investigation.

Raw data from the gaseous instruments (e.g. NO<sub>x</sub>, O<sub>3</sub>, SO<sub>2</sub> and CO) are scaled into concentrations using the latest values derived from the manual and automatic calibrations. These instruments are not absolute and suffer drifts. Both the zero baseline (background) and the sensitivity change with time. Regular calibrations with certified gas standards are used to measure the zero and sensitivity. However, these are only valid for the moment of the calibration since the instrument will continue to drift. Raw measurements from particulate instruments (e.g. PM<sub>10</sub> and PM<sub>2.5</sub>) generally do not require scaling into concentrations. The original raw data are always preserved intact while the processed data are dynamically scaled and edited.

### *Ratification*

This is the process that finalises the data to produce the measurements suitable for reporting. All available information is critically assessed so that the best data scaling

is applied and all anomalies are appropriately edited. Generally this operates at three, six or twelve month intervals. However, unexpected faults can be identified during the instrument routine services or independent audits which are often at 6-monthly intervals. In practice, therefore, the data can only be fully ratified in 12-month or annual periods. The data processing performed during the three and six monthly cycles helps build a reliable dataset that is finalised at the end of the year.

There is a diverse range of additional information that can be essential to the correct understanding and editing of data anomalies. These may include

- the correct scaling of data
- ignoring calibrations that were poor e.g. a spent zero scrubber
- closely tracking rapid drifts or eliminating the data
- comparing the measurements with other pollutants and nearby sites
- corrections due to span cylinder drift
- corrections due to flow drifts for the particulate instruments
- corrections for ozone instrument sensitivity drifts
- eliminating measurements for NO<sub>2</sub> conversion inefficiencies
- eliminating periods where calibration gas is in the ambient dataset
- identifying periods where instruments are warming-up after a power cut
- identification of anomalies due to mains power spikes
- correcting problems with the date and time stamp
- observations made during the sites visits and services

The identification of data anomalies, the proper understanding of the effects and the application of appropriate corrections requires expertise gained over many years of operational experience. Instruments and infrastructure can fail in numerous ways that significantly and visually affect the quality of the measurements. There are rarely simple faults that can be discovered by computer algorithms or can be understood without previous experience.

Further information about air quality data management, expert data ratification and examples of bad practices are given on the Air Quality Data Management (AQDM) website <http://www.aqdm.co.uk>.

## 7. QA/QC of Diffusion Tube Monitoring

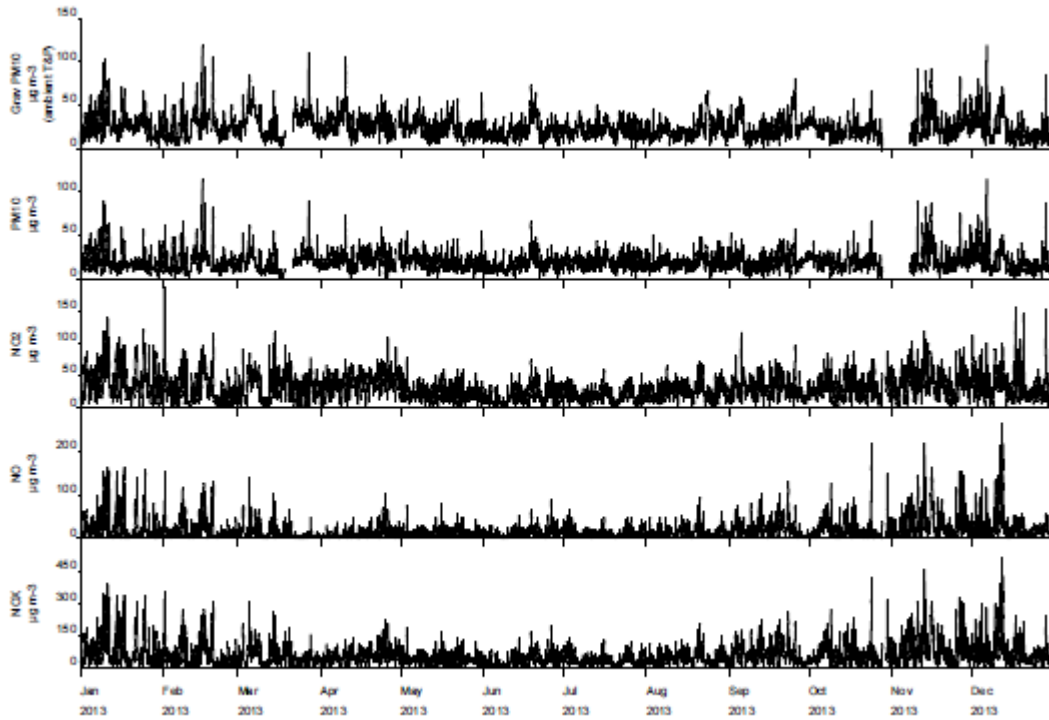
The precision and accuracy of diffusion tubes deployed by East Herts Council is shown in Appendix A.2.

Tubes deployed by the Council are obtained from Gradko International Ltd. using a preparation of 20% TEA in deionised water. The performance of Gradko is monitored under the WASP NO<sub>2</sub> Proficiency Testing Scheme. In 2013 Gradko achieved 100% in all 4 rounds of monitoring.

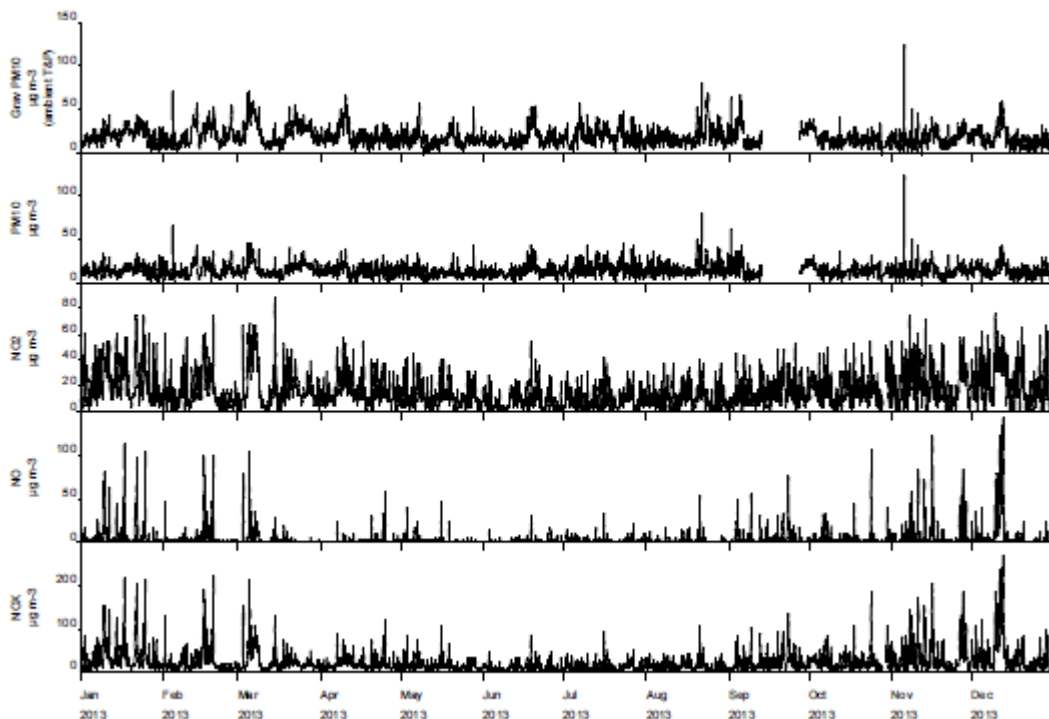


## Appendix B: Graphs from Automatic Monitoring Stations

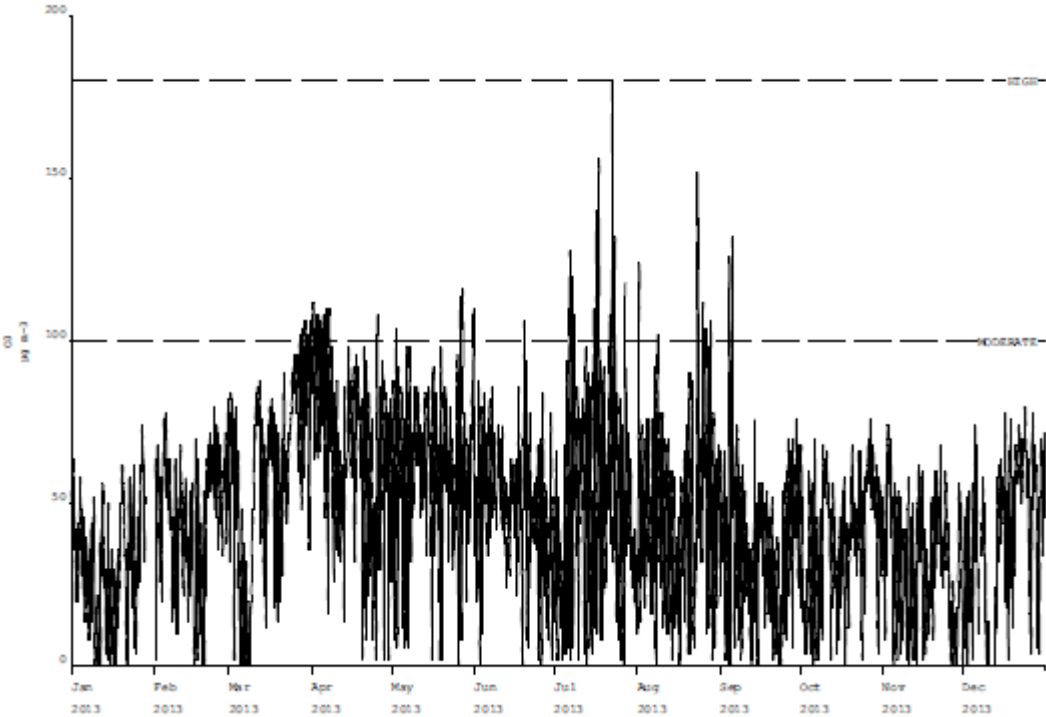
### EH2: East Herts Roadside, Sawbridgeworth



### EH3: East Herts Background, Sawbridgeworth



Anstey Ozone Monitor



### Appendix C: Detailed Breakdown of Diffusion Tube Results for 2013

NO2 tube results for East Herts (Jan - Dec 2013) ug m-3																				
Site	Environment	Location	Easting	Northing	January	February	March	April	May	June	July	August	September	October	November	December	Mean	Bias Adjusted Mean	Mean for site	
EH12	kerbside	Hockerill Street Bishops Stortford	549156	221242	62	48	47	45	44	38	52	44	56	61	57	69	52		49	49
EH31	kerbside	Hockerill Street BS c/loc EH12	549156	221242	66	52	50	48	42	38	50	50	54	59	55	66	53		50	
EH32	kerbside	Hockerill Street BS c/loc EH12	549156	221242	59	51	51	42	37	37	53	49	54	60	55	62	51		48	
EH14	kerbside	London Road Sawbridgeworth	548065	214711	63	58	59	48	44	52	58	50	53	52	63	61	55		52	52
EH55	roadside	London Road Sawbridgeworth c/loc EH14	548065	214711	61	61	66	52	44	48	57	48	56	55	65	56	56		53	
EH56	roadside	London Road Sawbridgeworth c/loc EH14	548065	214711	61	56	64	50	40	47	60	32	55	53	63	55	53		50	
EH17	kerbside	Dunmow Road Bishops Stortford	549364	221215	81	88	87	75	61	78	82	78	76	72	98	62	78		74	74
EH35	kerbside	Dunmow Road Bishops Stortford c/loc EH17	549364	221215	82	96	87	73	74	73	90	75	80	74	82	53	78		74	
EH36	kerbside	Dunmow Road Bishops Stortford c/loc EH17	549364	221215	78	90	89	71	65	73	83	72	83	74	85	58	77		73	
EH18	kerbside	Stansted Road Bishops Stortford	549298	221313	51	47	49	40	33	38	40	40	18	46	57	36	41		39	41
EH37	kerbside	Stanstead Road Bishops Stortford c/loc EH18	549298	221313	51	52	43	40	36	36	38	41	40	46	56	53	44		42	
EH38	kerbside	Stanstead Road Bishops Stortford c/loc EH18	549298	221313	52	47	43	39	35	35	38	39	44	48	54	48	44		41	
EH19	kerbside	London Road Bishops Stortford	549250	221200	87	86	82	68	62	70	72	76	87	78	106	73	79		75	76
EH39	kerbside	London Road Bishops Stortford c/loc EH19	549250	221200	88	91	83	70	67	74	85	76	81	75	99	79	81		77	
EH40	kerbside	London Road Bishops Stortford c/loc EH19	549250	221200	87	86	80	68	72	77	79	77	83	85	106	75	81		77	
EH25	kerbside	Old Cross Hertford	532449	212675	51	54	50	38	36	38	42	43	50	46	57	45	46		44	44
EH28	kerbside	Castle Street Hertford	532542	212370	49	56	67	51	36	64	44	36	54	45	83	46	53		50	48
EH48	roadside	Castle Street Hertford c/loc EH28	532542	212370	50	53	58	47	32	62	47	38	52	42	46	49	48		46	
EH49	roadside	Castle Street Hertford c/loc EH28	532542	212370	56	53	65	45	36	69	43	38	52	43	50	43	49		47	
EH30	kerbside	Downey Cottage Hertingfordbury Road	532023	212550	51	55	49	49	36	42	49	45	50	52	53	42	48		45	45
EH50	roadside	Downey Cottage Hertingfordbury Road c/loc EH30	532023	212550	50	55	49	47	34	40	50	43	49	53	56	49	48		46	
EH51	roadside	Downey Cottage Hertingfordbury Road c/loc EH30	532023	212550	53	52	50	45	36	41	47	47	50	53	50	45	47		45	
EH41	roadside	Ware Road Hertford	533101	212755	66	60	51	53	40	43	55	52	55	62	62	62	55		52	52
EH42	roadside	West Street Hertford	532389	212394	74	77	79	64	62	37	79	75	71	71	75	74	70		66	64
EH43	roadside	West Street Hertford c/loc EH42	532389	212394	81	79	76	65	58	35	72	68	73	69	64	77	68		65	
EH44	roadside	West Street Hertford c/loc EH42	532389	212394	71	82	73	69	59	40	75	61	74	76	38	52	64		61	
EH52	roadside	Cowbridge Hertford	532307	212814	40	38	37	28	26	22	31	31	34	38	44	37	34		32	32
EH53	roadside	Viaduct Road Ware	536068	214120	54	50	45	36	27	26	35	36	45	46	54	49	42		40	40
EH54	roadside	Station Road Ware	536085	214077	44	34	32	23	22	22	25	27	30	37	43	42	32		30	30
EH57	roadside	Opp Bell Street Sawbridgeworth at crossing	548123	214903	73	70	66	57	64	60	65	70	69	82	84	71	69		66	65
EH58	roadside	Opp Bell Street Sawbridgeworth at crossing c/loc EH57	548123	214903	77	77	59	59	54	55	57	73	67	72	95	78	69		65	
EH59	roadside	Cutforth Road Sawbridgeworth	548222	215395			37	31	29	29	30	33	37	38	52	39	36		34	33
EH60	roadside	Cutforth Road Sawbridgeworth c/loc EH59	548222	215395			37	28	29	28	31	33	38	39	53	41	36		34	
EH61	roadside	Cutforth Road Sawbridgeworth c/loc EH59	548222	215395			39	33	27	27	31	32	34	34	49	39	35		33	
EH62	roadside	Northgate End B/S Jct Yew Tree Court	548723	221719								32	37	42	49	44	41		39	39
EH63	roadside	Northgate End B/S Jct Yew Tree Court c/loc EH62	548723	221719							40	30	40	42	50	48	42		40	
EH64	roadside	Rye Street, B/S outside 79	548741	222109						31	34	34	41	38	56	47	40		38	39
EH65	roadside	Rye Street, B/S outside 79 c/loc EH64	548741	222109						31	34	33	43	42	61	48	42		40	
EH66	roadside	Rye Street, B/S outside 221	549163	222731						16	19	17	26	26	29	28	23		22	22
EH67	roadside	Rye Street, B/S outside 221 c/loc EH67	549163	222731						13	18	17	26	25	30	31	23		22	
EH68	roadside	Hadham Road, B/S outside 9	548611	221541						34	44	34	46	39	45	39	40		38	39
EH69	roadside	Hadham Road, B/S outside 9 c/loc EH69	548611	221541						38	41	35	46	42	44	41	41		39	

