2015 Updating and Screening Assessment for Stevenage Borough Council

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

April 2015

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Executive Summary

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and to take account of Government guidance when undertaking such work. This Updating Screening Assessment starts the fifth round of review and assessment. The report has been undertaken in accordance with the technical guidance LAQM.TG (09).

Monitoring of nitrogen dioxide and PM10 was undertaken at the continuous monitoring site on Lytton Way. These units were turned off in September 2014. In addition, 22 nitrogen dioxide diffusion tubes were placed at sites around the borough. This monitoring identified one exceedence of the Air Quality Objectives. Whilst the annual mean of the roadside nitrogen dioxide diffusion tube on Hitchin Road was above the objective, this site is not representative of relevant exposure. Relevant exposure along Hitchin Road was monitored by 3 other nitrogen dioxide diffusion tubes which all provided annual mean concentrations below the objective.

It is not considered that detailed assessment is required at this time.

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1 Introduction

1.1 Description of Local Authority Area

Stevenage is located in Central Hertfordshire. It is a compact urban area covering 25,412 m2 with a population of approximately 80,000 people. Built in the 1950s, it was Britain's first new town, and was designed with segregated areas for commercial, industrial and residential purposes. The main industrial area is located on the western edge of the town, between the A1(M) and the main London to Peterborough train line. This segregation of land uses has the effect of reducing environmental impacts of industry due to the increased distance between the source of pollution and the receptor. Road traffic is considered a main source of air pollution in Stevenage as there are a number of busy roads, some of which have residential properties nearby. Stevenage Borough Council has not declared any Air Quality Management Areas in the borough to date.

1.2 Purpose of 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.

The objective of this Updating and Screening Assessment is to identify any matters that have changed which may lead to risk of an air quality objective being exceeded. A checklist approach and screening tools are used to identify significant new sources or changes and whether there is a need for a Detailed Assessment. The USA report should provide an update of any outstanding information requested previously in Review and Assessment reports.

1.3 Air Quality Objectives

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

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

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

1.4 Summary of Previous Review and Assessments

Stevenage Borough Council undertook the first round of review and assessment in 2001. It was found that there was no requirement to proceed to the next stage.

An Updating Screening Assessment (USA) was undertaken in 2003 as the first phase of the second round of review and assessment. This also indicated that there were no air quality issues within the borough. The progress reports undertaken in 2004 and 2005 concluded that there was no need to proceed to the next stage of the review and assessment process.

The USA that was undertaken as the first phase of the third round of review and assessment in 2006 identified one area that required a detailed assessment in respect of the annual mean for nitrogen dioxide. This area (the A602 Hitchin Road) was identified through DMRB modelling and had not previously been monitored through diffusion tubes. A nitrogen dioxide diffusion tube site was set up on Hitchin Road roadside.

A Detailed Assessment of Hitchin Road was undertaken in 2007. It concluded that the annual mean objective for nitrogen dioxide was not likely to be exceeded at the nearest receptor and that the air quality objective was predicted to be met by 2010. The results from the diffusion tube monitoring at this site were used in this assessment.

The Progress report that was undertaken in 2008 indicated that there were slight rises in levels of nitrogen dioxide at many of the monitoring sites with two sites, Danestrete and Hitchin Road appearing to exceed the 40µg/m3 target. However it was assessed that the public were unlikely to be exposed for long periods of time at Danestrete, and modelling showed the levels of exposure affecting the residents at Hitchin Road were below the objectives. The council commenced additional monitoring adjacent to the residents of this road in order to confirm compliance.

The Progress Reports of 2010 and 2011 found no exceedences of the Air Quality Objectives, although again the site at Hitchin Road recorded a figure close to the objective. This was not representative of relevant exposure.

The USA of 2012 identified one exceedence of the Air Quality Objectives, at Hitchin Road. This site is not considered representative of relevant exposure, and three other sites on Hitchin Road provided annual mean concentrations below the objective.

The Progress Report of 2013 found no exceedences of the Air Quality Objectives. As in previous years, one site at Hitchin Road recorded a figure in excess of the objectives, but this is not considered relevant exposure.

The Progress Report of 2014 found no exceedences where there was relevant exposure.

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Site

The Automatic Monitoring Station is located on a roadside site at Lytton Way, Stevenage. It monitors nitrogen dioxide using the chemiluminescent method, and PM10 using a Tapered Element Oscillating Microbalance (TEOM).

Figure 2.1 Map of Automatic Monitoring Site

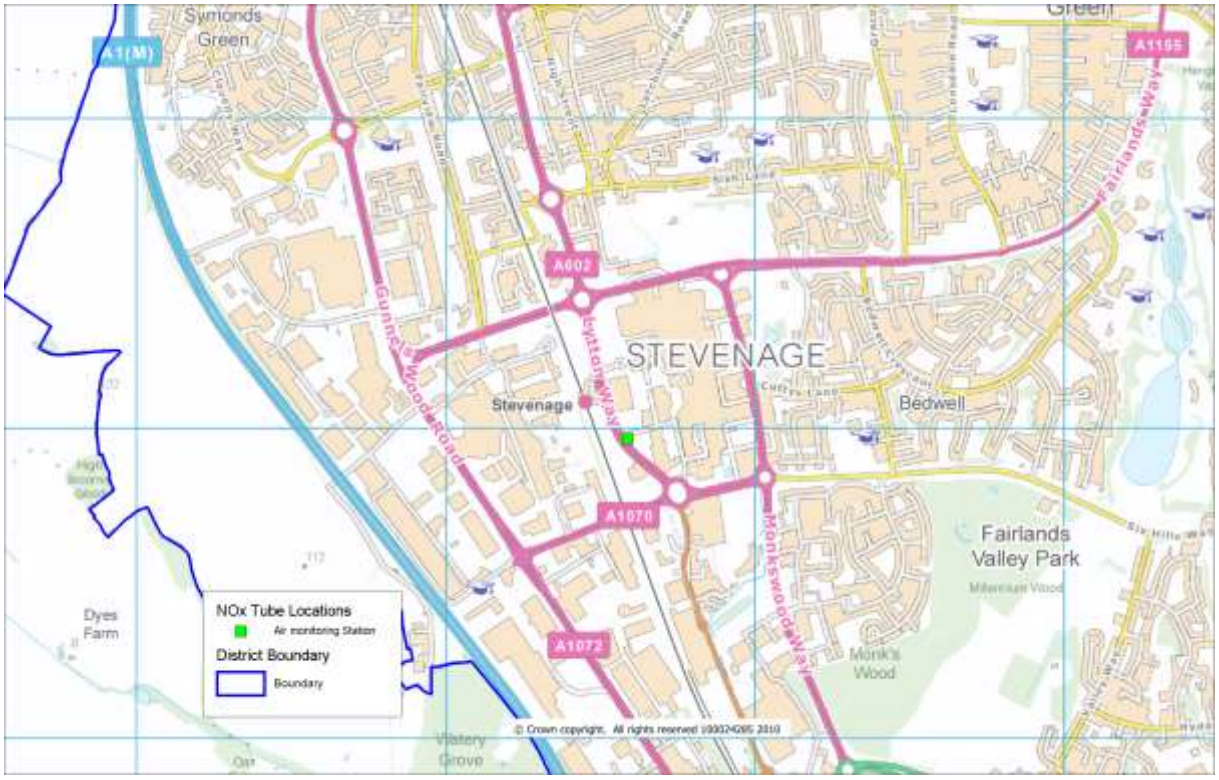

Table 2.1 Details of Automatic Monitoring Site

Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure?	Distance to kerb of nearest road	Does this location represent worst-case exposure?
Stevenage 1	Kerbside	523586	223967	NO_2	N	Chemiluminescent	N (110m)	3m	Y
Stevenage 1	Kerbside	523586	223967	PM_{10}	N	TEOM	N (110m)	3m	Y

2.1.2 Non-Automatic Monitoring Sites

Diffusion tubes are used to monitor air quality at 22 sites across the borough.

Figure 2.2 Map of Non-Automatic Monitoring Sites

Table 2.2 Details of Non-Automatic Monitoring Sites

Site Number	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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 (m) (N/A if not applicable)	Does this location represent worst-case exposure?
1	Town Centre	Kerbside	523771	224090	NO_2	N	N	N (102 m)	2	Y
2	Ashdown Road	Background	525832	221495	NO_2	N	N	Y (14 m)	1.7	N
3	Monks View	Background	524857	222756	NO_2	N	N	Y (9.5 m)	2	N
4	Bedwell Crescent	Kerbside	524345	224468	NO_2	N	N	N (20 m)	1	N
5	Salisbury Road	Background	525373	226985	NO_2	N	N	Y (6.6 m)	17.5	N
6	Letchmore Road	Background	523845	225386	NO_2	N	N	Y (14 m)	1.4	N
7	High Street	Kerbside	523278	225479	NO_2	N	N	N (9 m)	2.3	Y
8	Fishers Green	Background	522259	226001	NO_2	N	N	Y (18 m)	1	N
9	Magpie Crescent	Kerbside	526652	223438	NO_2	N	N	N (12.5 m)	1.9	N
10	Shoreham Close	Kerbside	522075	225568	NO_2	N	N	Y (8 m)	2.1	N
11	Newlyn Close	Kerbside	522126	224862	NO_2	N	N	Y (3.5 m)	1.7	N
12	Chadwell Road	Kerbside	522955	223335	NO_2	N	N	N (25 m)	0.3	N
13	Whitney Drive	Kerbside	523070	226070	NO_2	N	N	Y (8 m)	1.9	N
14	Lytton Way 1	Kerbside	523586	223967	NO_2	N	Y	N (110 m)	3	Y
15	Lytton Way 2	Kerbside	523586	223967	NO_2	N	Y	N (110 m)	3	Y
16	Lytton Way 3	Kerbside	523586	223967	NO_2	N	Y	N(110 m)	3	Y
17	Hitchin Road	Kerbside	522700	226550	NO_2	N	N	N (14 m)	2.4	Y
18	Fairlands Valley Park	Background	525425	224183	NO_2	N	N	N (167 m)	172.5	N

Site Number	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	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 (m) (N/A if not applicable)	Does this location represent worst-case exposure?
19	7 Tates Way	Kerbside	522700	226570	NO_2	N	N	Y (3 m)	9	N
20	3 Coreys Mill Cottages	Kerbside	522710	226550	NO_2	N	N	Y (1 m)	8	N
21	13 Hitchin Road	Kerbside	523128	225677	NO_2	N	N	Y (1 m)	16	N
22	Townsend Mews	Kerbside	523360	224786	NO_2	N	N	Y (1m)	7.8	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

The results obtained from the automatic monitoring station at Lytton Way show that compliance with the air quality objectives has been met for both annual mean concentrations and number of exceedences per year for the last six years. The monitoring station is at a kerbside site and is not considered to be representative of public exposure due to this location.

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

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %	Valid Data Capture 2014 %	Annual Mean Concentration μg/m^3				
					2010	2011	2012	2013	2014
SE1	Kerbside	N	100	22.4	31	29	28	34	36*

* Annual means are unreliable with annual data capture of less than 50% (from Herts and Beds Air Quality Network Annual Report 2014).

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

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %	Valid Data Capture 2014 %	Number of Hourly Means > 200μg/m^3				
					2010	2011	2012	2013	2014
SE1	Kerbside	N	100	22.4	0	0	0	9	2

Diffusion Tube Monitoring Data

Bias adjustment and annualisation calculations can be found at Appendix A

During 2013, only one of the nitrogen dioxide diffusion tubes recorded an annual mean greater than the objective of 40 □g/m3. Tube 17, sited at Hitchin Road recorded an annual mean of 48 □g/m3, however this tube does not reflect relevant exposure. The estimated concentration at the nearest receptor is calculated at 41 □g/m3, although the tubes installed adjacent to the nearest relevant exposure site, 19, Tates Way displays results of 33.51. The three tubes that were erected in June 2008 to reflect relevant exposure (on the facades of residential properties along this road – tubes 19, 20 and 21) recorded annual means of 35, 34 and 28 □g/m3 respectively.

Table 2.5 Results of Nitrogen Dioxide Diffusion Tubes in 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Co-located Tube	Full Calendar Year Data Capture 2014 (Number of Months or %) [a]	2014 Annual Mean Concentration (µg/m^3) - Bias Adjustment factor = 0.98
1	Danestrete	Kerbside	N	Y	83	32.18
2	Ashdown Road	Background	N	N	100	17.55
3	Monks View	Background	N	N	100	22.02
4	Bedwell Crescent	Kerbside	N	N	92	20.99
5	Salisbury Road	Background	N	N	100	15.00
6	Letchmore Road	Background	N	N	100	20.58
7	High Street	Kerbside	N	N	92	31.75
8	Fishers Green	Background	N	N	83	22.53
9	Magpie Crescent	Kerbside	N	N	92	25.71
10	Shoreham Close	Kerbside	N	N	92	26.64
11	Newlyn Close	Kerbside	N	N	83	21.88
12	Chadwell Road	Kerbside	N	N	100	19.70
13	Whitney Drive	Kerbside	N	N	100	23.88
14	Lytton Way 1	Kerbside	N	Y	100	34.08
15	Lytton Way 2	Kerbside	N	Y	100	32.60
16	Lytton Way 3	Kerbside	N	Y	100	31.95
17	Hitchin Road	Kerbside	N	N	100	47.59
18	Fairlands Valley Park	Background	N	N	92	16.68
19	7 Tates Way	Kerbside	N	N	92	33.51
20	3 Coreys Mill Lane	Kerbside	N	N	67	32.44
21	13 Hitchin Road	Kerbside	N	N	83	27.80
22	Townsend Mews	Kerbside	N	N	92	25.08

Table 2.6 Results of Nitrogen Dioxide Diffusion Tubes (2010 to 2014)

Site ID	Site Name	Site Type	Within AQMA?	Annual Mean Concentration (µg/m^3) - Adjusted for Bias [a]				
				2010 (Bias = 0.93)	2011 (Bias = 0.93)	2012 (Bias = 1.01)	2013 (Bias = 1.00)	2014 (Bias = 0.98)
1	Town Centre	Kerbside	N	32.1	33.93	26.90	32.14	32.18
2	Ashdown Road	Background	N	16.1	18.05	18.70	18.54	17.55
3	Monks View	Background	N	18.9	23.02	22.55	21.19	22.02
4	Bedwell Crescent	Kerbside	N	19.3	20.69	19.31	20.83	20.99
5	Salisbury Road	Background	N	13.4	15.67	15.68	15.69	15.00
6	Letchmore Road	Background	N	16.8	17.53	22.24	19.48	20.58
7	High Street	Kerbside	N	28.8	30.53	24.62	14.59	31.75
8	Fishers Green	Background	N	19.6	21.24	21.38	21.38	22.53
9	Magpie Crescent	Kerbside	N	23.7	24.05	25.28	23.96	25.71
10	Shoreham Close	Kerbside	N	26.0	28.25	30.18	27.62	26.64
11	Newlyn Close	Kerbside	N	19.8	21.28	18.74	16.44	21.88
12	Chadwell Road	Kerbside	N	19.4	19.18	19.63	21.69	19.70
13	Whitney Drive	Kerbside	N	20.0	23.29	27.14	22.73	23.88
14/15/16	Lytton Way	Kerbside	N	30.3	33.1	30.57	30.10	32.88
17	Hitchin Road	Kerbside	N	**41.5**	**46.20**	**43.32**	**47.84**	**47.59**
18	Fairlands Valley Park	Background	N	15.4	18.20	16.96	15.25	16.68
19	7 Tates Way	Kerbside	N	30.9	33.87	39.69	35.27	33.51
20	3 Coreys Mill Cottages	Kerbside	N	29.8	33.32	35.86	33.73	32.44
21	13 Hitchin Road	Kerbside	N	24.5	27.57	25.99	27.66	27.80
22	Townsend Mews	Kerbside	N	25.9	19.41	25.16	26.61	25.08

2.2.2 PM_{10}

Stevenage Borough Council monitors PM10 at its Continuous Air Quality Monitoring Station on Lytton Way, using a TEOM monitor. This Air Quality Monitoring Station is not representative of relevant exposure.

Correction of TEOM data

The Volatile Correction Model (VCM) has been applied to all results obtained from the TEOM at Lytton Way (see Appendix A).

Table 2.7 Results of Automatic Monitoring of PM_{10}: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2014 %[b]	Confirm Gravimetric Equivalent (Y or NA)	Annual Mean Concentration μg/m^3				
						2010*[c]	2011*[c]	2012*[c]	2013*[c]	2014[c]
SE1	Kerbside	N	100	24.7	Y	25.1	26.2	28.7	26.3	27.0*

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] Means should be "annualised" as in Box 3.2 of TG(09), if monitoring was not carried out for the full year.

* Annual means are unreliable with annual data capture of less than 50% (from Herts and Beds Air Quality Network Annual Report 2014).

Table 2.8 Results of Automatic Monitoring for PM_{10}: Comparison with 24-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for monitoring Period %[a]	Valid Data Capture 2014 %[b]	Confirm Gravimetric Equivalent	Number of Exceedences of 24-Hour Mean (50 μg/m^3)				
						2010*[c]	2011*[c]	2012*[c]	2013*[c]	2014[c]
SE1	Kerbside	N	100	24.7	Y	3	4	8	6	1

[a] i.e. data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.
[b] i.e. data capture for the full calendar year (e.g. if monitoring was carried out for six months the maximum data capture for the full calendar year would be 50%).
[c] if data capture is less than 90%, include the 90th percentile of 24-hour means in brackets
* Optional

2.2.3 Summary of Compliance with AQS Objectives

Stevenage Borough Council has examined the results from monitoring in the borough. Concentrations are all below the objectives, therefore there is no need to proceed to a Detailed Assessment.

3 Road Traffic Sources

3.1 Narrow Congested Streets with Residential Properties Close to the Kerb

Stevenage Borough Council confirms that there are no new/newly identified congested streets with a flow above 5,000 vehicles per day and residential properties close to the kerb, that have not been adequately considered in previous rounds of Review and Assessment.

3.2 Busy Streets Where People May Spend 1-hour or More Close to Traffic

Stevenage Borough Council confirms that there are no new/newly identified busy streets where people may spend 1 hour or more close to traffic.

3.3 Roads with a High Flow of Buses and/or HGVs.

Stevenage Borough Council confirms that there are no new/newly identified roads with high flows of buses/HDVs.

3.4 Junctions

Stevenage Borough Council confirms that there are no new/newly identified busy junctions/busy roads.

3.5 New Roads Constructed or Proposed Since the Last Round of Review and Assessment

Stevenage Borough Council confirms that there are no new/proposed roads.

3.6 Roads with Significantly Changed Traffic Flows

Stevenage Borough Council confirms that there are no new/newly identified roads with significantly changed traffic flows.

3.7 Bus and Coach Stations

Stevenage Borough Council confirms that there are no relevant bus stations in the Local Authority area.

4 Other Transport Sources

4.1 Airports

Stevenage Borough Council confirms that there are no airports in the Local Authority area.

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Stevenage Borough Council confirms that there are no locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.

4.2.2 Moving Trains

Stevenage Borough Council confirms that there are no locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.

4.3 Ports (Shipping)

Stevenage Borough Council confirms that there are no ports or shipping that meet the specified criteria within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been Carried Out

Stevenage Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.1.2 Existing Installations where Emissions have Increased Substantially or New Relevant Exposure has been Introduced

Stevenage Borough Council confirms that there are no industrial installations with substantially increased emissions or new relevant exposure in their vicinity within its area or nearby in a neighbouring authority.

5.1.3 New or Significantly Changed Installations with No Previous Air Quality Assessment

Stevenage Borough Council confirms that there are no new or proposed industrial installations for which planning approval has been granted within its area or nearby in a neighbouring authority.

5.2 Major Fuel (Petrol) Storage Depots

There are no major fuel (petrol) storage depots within the area of Stevenage Borough Council.

5.3 Petrol Stations

Stevenage Borough Council confirms that there are no petrol stations meeting the specified criteria**.**

5.4 Poultry Farms

Stevenage Borough Council confirms that there are no poultry farms meeting the specified criteria.

6 Commercial and Domestic Sources

6.1

Stevenage Borough Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.2 Biomass Combustion – Combined Impacts

Stevenage Borough Council has assessed the biomass combustion plant, and concluded that it will not be necessary to proceed to a Detailed Assessment.

6.3 Domestic Solid-Fuel Burning

Stevenage Borough Council confirms that there are no areas of significant domestic fuel use in the Local Authority area.

7 Fugitive or Uncontrolled Sources

Stevenage Borough Council confirms that there are no potential sources of fugitive particulate matter emissions in the Local Authority area.

8 Conclusions and Proposed Actions

8.1 Conclusions from New Monitoring Data

No exceedences with relevant receptors were identified in this period of monitoring, and as such, we have not identified any air quality management areas. Detailed assessment is not required.

8.2 Conclusions from Assessment of Sources

Due to new dwellings being built, and the continuous monitoring station being temporarily shut down, a reorganisation of diffusion tube sites and number has taken place. These will be reported in the next progress report. The continuous monitoring station is due to be brought back online later this year. There are no sources creating exceedences in the borough.

8.3 Proposed Actions

This Updating and Screening Assessment has not identified the need to proceed to a detailed assessment for any pollutant. No additional monitoring is required. However, additional NO_x diffusion tubes have been placed around the borough to reflect a reappraisal of sources and receptors. A new continuous particulate matter analyser has been ordered.

9 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. July 2007. Volume 1 and 2, ISBN 978-0-171692-5
4. The Air Quality Amendment Regulations 2002, ISBN 0 11061468 2.
5. Green Travel Plan 2013 to 2018, Stevenage Borough Council.
6. Herts and Beds Air Quality Network Annual Report 2014.

Appendices

Appendix 1: QA/QC Data

Appendix 2: Monthly diffusion tube results

Appendix 1: QA/QC Data

Factor from Local Co-location Studies

Local Co-location study:	Lytton Road, Stevenage Roadside site
Local bias adjustment factor	0.97

Diffusion Tube Bias Adjustment Factors

Collated Bias Adjustment Factor: For Gradko tubes, 50% TEA in Acetone, 2014 (version 06/15 of the NO2 tube bias adjustment factor spreadsheet) = 0.98

Discussion of Choice of Factor to Use

A local bias adjustment factor was available for use, but the national figure was used as this takes account of variations in sampling and reporting. It is more conservative than the local factor.

PM Monitoring Adjustment

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 equivalent. AQDM has applied the correction model to all PM10 data listed in this document.

QA/QC of Automatic Monitoring

Automatic measurements of PM_{10} were made using the Tapered Element Oscillating Microbalance (TEOM) method. Measurements of NO_X used were made using the chemiluminescent method with automatic equipment subject to fortnightly calibration traceable to National Metrological Standards. All measurements were logged by the instruments themselves and collected by ERG and AQDM each hour.
Measurements from the monitoring site were validated using the most up to date calibration factors and publicly disseminated in near real time on the HBAQN web page formerly www.hertsbedsair.org.uk, now http://www.hertsbedsair.net/.

QA/QC of Diffusion Tube Monitoring

Stevenage Borough Council obtains all nitrogen dioxide tubes from Gradko International Ltd., who are also responsible for their analysis. The preparation used is 50% T.E.A. in acetone.

In addition, the lab has for many years participated in both the AEA Network Field Inter-comparison Exercise and WASP scheme.

Appendix 2: Monthly diffusion tube results

SBC Code	Location	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Data Capture %	Annual Average	Local Bias adjustment	Collated Bias adjustment
1	Town Centre	33.99	31.57	35.06	30.99		31.05	34.53	33.11	33.53	32.10	28.15	37.14	83.33	32.84	31.85	32.18
2	Ashdown Road	25.12	18.35	20.49	16.31	10.00	12.31	13.62	12.02	16.70	19.71	26.61	23.63	100.00	17.91	17.37	17.55
3	Monks View	33.97	25.77	26.72	19.63	1.78	17.31	16.21	17.65	19.69	29.31	37.88	23.71	100.00	22.47	21.80	22.02
4	Bedwell Crescent	26.62	22.83	24.98		14.66	17.82	12.87	14.99	20.96	23.16	33.90	22.77	91.67	21.41	20.77	20.99
5	Salisbury Road	26.17	18.53	19.29	12.39	10.17	9.51	9.20	8.26	10.65	18.65	22.14	18.74	100.00	15.31	14.85	15.00
6	Letchmore Road	31.87	25.24	26.64	18.70	12.92	12.25	13.17	13.45	15.67	24.91	33.70	23.48	100.00	21.00	20.37	20.58
7	High Street	39.95	33.14	37.24	31.28	21.91	30.09	28.77	25.44	36.03		40.33	32.24	91.67	32.40	31.43	31.75
8	Fishers Green	27.94	22.80	27.83	19.57		17.58	18.46	19.44	20.57	23.34	32.35		83.33	22.99	22.30	22.53
9	Magpie Crescent	29.11	28.79		29.37	20.28	25.14	24.54	25.25	27.82	18.99	29.60	29.70	91.67	26.24	25.45	25.71
10	Shoreham Close	33.71	26.32	32.54	25.05	18.63	21.43		25.13	22.88	27.86	35.01	30.49	91.67	27.19	26.37	26.64
11	Newlyn Close	29.90	26.44	27.35	20.34	13.60	15.72	15.32	18.55	18.06	24.61	33.04	24.94	100.00	22.32	21.65	21.88
12	Chadwell Road	20.58	16.70	26.56	19.61	13.80	18.55	19.95	11.70	22.98	20.74	33.96	16.09	100.00	20.10	19.50	19.70
13	Whitney Drive	43.65	26.30	26.40	22.13	14.25	15.62	20.29	20.48	19.64	28.80	33.10	21.78	100.00	24.37	23.64	23.88
14	Lytton Way 1	53.25	34.43	36.92	29.71	29.30	25.91	28.18	27.33	30.27	40.86	45.08	36.07	100.00	34.78	33.73	34.08
15	Lytton Way 2	44.20	32.11	41.40	26.07	26.43	23.70	30.57	27.30	27.00	42.53	45.36	32.50	100.00	33.26	32.27	32.60
16	Lytton Way 3	46.75	33.05	36.29	27.57	23.65	24.16	26.65	28.27	28.00	37.25	46.58	33.00	100.00	32.60	31.62	31.95
17	Hitchin Road	51.46	47.57	47.72	42.54	33.88	46.26	51.63	47.03	50.95	52.52	56.15	55.06	100.00	48.56	47.11	47.59
18	Fairlands Valley Park	24.09	18.08	18.73	12.97	8.41		9.61	10.26	11.80	30.17	23.53	19.53	91.67	17.02	16.51	16.68
19	7 Tates Way	46.21	39.46	32.75	34.03	27.10	35.34	39.00	34.55	38.04	40.43	43.40		91.67	34.19	33.17	33.51
20	3 Coreys Mill Cottages	42.84	36.58	34.56	17.33	28.82	34.76	36.08	33.81					66.67	33.10	32.10	32.44
21	13 Hitchin Road	37.63			28.39	22.65	24.38	25.39	23.13	28.81	29.48	35.85	27.95	83.33	28.37	27.52	27.80
22	Townsend Mews	33.50	25.20	30.38	26.07	17.59	23.63	10.83	18.88	28.54	29.77	37.12		91.67	25.59	24.82	25.08