

**WELWYN
HATFIELD**
BOROUGH COUNCIL



2015 Updating and Screening
Assessment for
Welwyn Hatfield Borough Council

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

October 2015

Welwyn Hatfield Borough Council

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Executive Summary

The air quality in the Borough of Welwyn and Hatfield currently meets the government air quality objectives set for local air quality management (LAQM) purposes. The Council is demonstrating its political leadership by taking action; such as leading by example; monitoring air quality; using the planning system; integrating air quality into the public health system; and informing the public. This 2015 Updating and Screening Assessment fulfils one further aspect of this ongoing commitment.

This 2015 Updating and Screening Assessment for Welwyn Hatfield reviews and assesses air quality against the government's objectives in the Air Quality Regulations 2000 and amendment regulations.

The role of the Review and Assessment process is to identify any relevant areas in the Borough where it is considered that the air quality objectives for the above air pollutants will be exceeded. The Council has previously undertaken the earlier rounds of Review and Assessment of local air quality management and not identified any areas where the objectives are exceeded.

This report concerns the sixth round Updating and Screening Assessment of air quality. For this, pollution sources have been re-examined and recent air quality monitoring in the Borough checked in accordance with Defra's Local Air Quality Management (LAQM) guidance.

The report identifies that the Council has not identified an additional risk of the air quality objectives for the LAQM pollutants: nitrogen dioxide, particles (PM₁₀) carbon monoxide, benzene, 1,3-butadiene, lead and sulphur dioxide, being exceeded anywhere in the Council's area. Thus the Council need not proceed beyond the updating and screening assessment for these pollutants

In view of these findings the Council will undertake the following actions:

1. Undertake consultation with the statutory and other consultees as required.

2. Maintain the existing monitoring programme.
3. Prepare for the submission of its next Air Quality report.

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1 Introduction

1.1 Description of Local Authority Area

The Borough of Welwyn Hatfield is located in southern Hertfordshire sharing a boundary with the London Borough of Enfield. It is set within the London green belt and covers an area around 50 square miles (13,000 hectares). The Borough Council area covers the two towns of Welwyn Garden City and Hatfield, along with numerous smaller settlements from Woolmer Green in the north to Little Heath in the south.

Welwyn Garden City has a famous heritage, being one of only two Garden Cities in the country, and Hatfield was also designated as a New Town. The area acts as dormitory area for London, although there is also a strong commercial base with several designated employment areas. The estimated population in Welwyn Hatfield for 2013 is approximately 114,061 (from the Office of National Statistics (ONS)).

The main local sources of atmospheric pollutants are road transport from the busy and congested roads in the Borough and neighbouring areas. The Borough is well served by major road routes, namely the A1 (M), A414 and the M25.

1.2 Purpose of 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.

The objective of this Updating and Screening Assessment (USA) 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); these are shown in Table 1.1. This table shows the objectives in units of microgrammes per cubic metre $\mu\text{g m}^{-3}$ (milligrammes per cubic metre, mg m^{-3} for carbon monoxide) with the number of exceedences in each year that are permitted (where applicable).

1.4 Summary of Previous Review and Assessments

The Welwyn Hatfield Borough Council has previously completed all earlier stages of air quality review and assessment as required under the LAQM regime. The main issue with respect to local air quality was found to be road traffic emissions (NO_2 and PM_{10}) emanating from vehicles, but it was considered that the air quality objectives would be met where there was relevant exposure and in view of that it was not necessary to designate an Air Quality Management Area (AQMA) in the Borough. There were also no exceedences of the objectives for the other LAQM pollutants.

Recent Progress Reports (Welwyn Hatfield, 2013 and 2014) include updated monitoring that shows that the Council is meeting the air quality objectives for NO_2 in areas where there is relevant public exposure.

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

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

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

2.1.1 Automatic Monitoring Sites

The Council operated a continuous monitoring site on the roof of the Council Offices in Welwyn Garden City until June 2014. The site was closed following advice from Defra. The site monitored oxides of nitrogen (including nitrogen dioxide (NO₂)) and ozone. (Note – ozone is not one of the seven LAQM pollutants, although it is reported in the Council's Air Quality Progress reports).

The continuous site opened in 1998 and was classified as an urban background site. Historic data are available from the Herts and Beds Air Pollution Monitoring Network (HBAPMN) website (see www.hertsbedsair.net). The measured data have traceability to national standards and operational procedures defined for the regional Network, which are similar to those of the government's AURN sites, with validation and ratification undertaken by AQDM. The automatic monitoring site was serviced six monthly with regular two weekly calibrations are undertaken on site by Council staff.

Figure 2.1 Map of Welwyn Hatfield Automatic Monitoring Site (now closed)



Table 2.1 Details of Automatic Monitoring Sites

Site Name	Site Type	Easting	Northing	Pollutants Monitored	In AQMA?	Monitoring Technique	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
WH1 (Council offices)	Urban background	523852	213228	NO ₂ (O ₃)	N	N/A	Y	20m	N

2.1.2 Non-Automatic Monitoring Sites

The Welwyn Hatfield Borough Council also undertook non-automatic monitoring using NO₂ diffusion tubes across the Borough to extend its understanding of air quality.

The diffusion tube network has undergone changes in recent years. For 2014, there were 24 locations monitored. This is an increase of eight locations over the previous year. Seven of the eight new locations were sited close to main roads near the main urban centres and the other located at a background site. A co-located study with the Council's automatic monitoring station was not undertaken.

Each diffusion tube was deployed and collected at 4 to 5 weeks intervals (in accordance with the UK NO₂ Diffusion Tube calendar requirements). The locations of the diffusion tubes are given in the Table 2.2 below.

The diffusion tubes were supplied and analysed by ESG Didcot with a preparation method using 50% TEA in acetone. ESG participates in the AIR NO₂ PT, which is an independent analytical proficiency-testing scheme, operated by LGC Standards and supported by the Health and Safety Laboratory (HSL). AIR PT is a new scheme, started in April 2014, which combines two long running PT schemes (LGC Standards STACKS PT scheme and the HSL WASP PT scheme). ESG achieved a 100% "Satisfactory" in the laboratory performance testing rounds 121-124 for WASP and AIR NO₂ PT rounds AR001, 3 and 4.

A major disadvantage of undertaking monitoring using diffusion tubes is that the method is less precise and accurate than continuous monitoring. The recommended methods to reduce errors include the use of good QA/QC practices and bias adjustment factors that are derived from co-location studies between continuous analysers and diffusion tubes.

As a local co-location study was not undertaken the default factors supplied by Defra were used for this report. The bias adjustment factors (shown below) are specific to each year, analysing laboratory, method of analysis and location. The factors are

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therefore also limited to the data supplied. The Review and Assessment website advises that “in many cases, using an overall correction factor derived from as many co-location studies as possible will provide the ‘best estimate’ of the ‘true’ annual mean concentration, it is important to recognise that there will still be uncertainty associated with this bias adjusted annual mean. One analysis has shown that the uncertainty for tubes bias adjusted in this way is $\pm 20\%$ (at 95% confidence level). This compares with a typical value of $\pm 10\%$ for chemiluminescence monitors subject to appropriate QA/QC procedures.”

Year	Bias Default factor
2010	0.86 (20 studies)
2011	0.83 (45 studies)
2012	0.79 (38 studies)
2013	0.80 (44 studies)
2014	0.81 (22 studies)

Table 2.2 Details of Non-Automatic Monitoring Sites

Ref	Site Address	Site Type	Easting	Northing	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
WH1	Dicket Mead, Welwyn	Background	523442	216316	N	N	Y (1m)	2m	Y
WH2	Parkway, Welwyn Garden City (WGC)	Background	523656	213133	N	N	N	2m	N
WH3	Great North Road, Bell Bar	Kerbside	524991	205525	N	N	N	2m	Y
WH4	New Barnfield Hatfield	Background	522863	206489	N	N	N	1m	N
WH5	Coopers Lane Road, Northaw	Background	529402	200929	N	N	N	1m	N
WH6	Bradgate, Cuffley	Background	529933	203654	N	N	Y (13m)	1m	N
WH7	Parkhouse Court, Hatfield	Background	521575	208645	N	N	Y(10m)	2m	Y
WH8	Far End, Hatfield	Background	522609	206718	N	N	Y(5m)	1m	Y
WH9	Mount Pleasant Close, Hatfield	Background	523519	209890	N	N	Y(10m)	2m	Y

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Ref	Site Address	Site Type	Easting	Northing	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
WH10	The Ryde, Hatfield	Background	523377	209858	N	N	Y(10m)	2m	Y
WH11	Thistle Grove, WGC	Background	526249	211617	N	N	Y(7m)	1m	N
WH12	The Commons, WGC	Background	525852	211187	N	N	Y(15m)	1m	N
WH13	Alconbury, WGC	Background	527150	212966	N	N	Y(7m)	1m	Y
WH14	Green Lanes, Hatfield	Kerbside	522013	209707	N	N	Y(13m)	2m	Y
WH15	Great North Road, Hatfield	Background	522604	210859	N	N	Y(30m)	2m	Y
WH16	The Runway, Hatfield	Background	521052	208998	N	N	Y(10m)	2m	N
WH17	Great North Road, Hatfield (A1000)	Kerbside	523293	209164	N	N	Y(10m)	2m	Y
WH18	B195/ Broadwater Road, WGC	Kerbside	524285	212988	N	N	N	2m	Y

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Ref	Site Address	Site Type	Easting	Northing	In AQMA?	Is monitoring collocated with a Continuous Analyser (Y/N)	Relevant Exposure? (Y/N with distance (m) to relevant exposure)	Distance to kerb of nearest road (N/A if not applicable)	Does this location represent worst-case exposure?
WH19	Comet Way A1001 & A1M	Kerbside	522144	209516	N	N	Y(55m)	5m	N
WH20	Queensway, Hatfield	Background	522497	208544	N	N	Y(5m)	2m	Y
WH21	Roadside Layby A414 Essendon	Kerbside	527258	210364	N	N	N	3m	Y
WH22	Garden Village, Hatfield	Kerbside	521801	209471	N	N	N	5m	N
WH23	South Way, Bishops Rise	Kerbside	521998	206243	N	N	N	5m	N
WH24	Ellenbrook Lane A1001	Kerbside	521164	207740	N	N	Y(46m)	2m	Y

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

The monitoring reported below represents the continuous results for recent years' monitoring up to the end of 2014. In line with the TG09 guidance, the automatic results are adjusted and directly compared to the annual mean and hourly mean objectives.

The diffusion tube results are compared to the annual mean objective and also to an annual mean of $60 \mu\text{g m}^{-3}$, which represents an indicative value to represent the hourly mean objective. The results are reported separately for the automatic sites and diffusion tubes in the Council's area.

Automatic Monitoring Data

The following tables (Tables 2.3 and 2.4) provide results for the period from 2010 to 2014 inclusive (note the 2014 data are fully ratified). The monitoring site location was considered typical of an urban background location in the Borough. However it is the roadside areas that typically have the highest concentrations.

Data capture for 2014 was limited due to the site closing mid-way through the year; as a consequence the data were adjusted using an adjustment factor derived from three background sites (two in the Herts and Beds network and one in the nearby London Air Quality Network). The sites used were in Sawbridgeworth (in East Herts), Borehamwood (in Hertsmere) and Stanmore (in the London Borough of Harrow). All three of these sites had greater than 90% data capture in 2014. The derived adjustment factor used was 0.9666 indicating that the diffusion tube result for the period monitored was slightly higher than the annual mean.

Table 2.3 represents the 2014 and previous years' results of automatic monitoring in comparison with annual mean objective. The table shows that for all years the annual mean was easily met exceeded at the Civic Centre background site. Annual mean

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concentrations have reduced over the period shown from $31 \mu\text{g m}^{-3}$ in 2010 to less than $25 \mu\text{g m}^{-3}$ in 2013 and 2014.

Table 2.4 represents the number of exceedences of the 1-hour mean objective of $200 \mu\text{g m}^{-3}$. From 2010 to 2014 there no periods when the hourly mean exceeded the $200 \mu\text{g m}^{-3}$ standard; hence the 1-hour mean objective was easily met.

Table 2.3 Results of Automatic Monitoring of NO₂: Comparison with Annual Mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring % ^a	Valid Data Capture 2014 % ^b	Annual Mean Concentration $\mu\text{g m}^{-3}$				
					2010	2011	2012	2013	2014 ^c
WH1	Background	N	99	47	31	25	26	24	23

^a Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b 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 Mean “annualised” as in Box 3.2 of TG(09).

Table 2.4 Results of Automatic Monitoring for NO₂: Comparison with 1-hour mean Objective

Site ID	Site Type	Within AQMA?	Valid Data Capture for period of monitoring % ^a	Valid Data Capture 2014 % ^b	Number of Exceedences of Hourly Mean ($200 \mu\text{g m}^{-3}$)				
					2010	2011	2012	2013	2014 ^c
WH1	Background	N	99	47	0	0	0	0	0 (80)

^a Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

^b 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 The 99.8th percentile of hourly means is in brackets

Diffusion Tube Monitoring Data

The results given in Table 2.5 are the bias adjusted values for the diffusion tube monitoring undertaken in the Borough that have been annualised. The annual mean concentrations that exceeded the $40 \mu\text{g m}^{-3}$ annual mean NO_2 objective are highlighted in bold. No result exceeded $60 \mu\text{g m}^{-3}$; again indicating that the hourly objective is not exceeded at the monitored sites.

The data capture for the sixteen sites that have been established since 2013 was mostly good at 88%. For all sites the result for September was missing due to resource problems. Some tubes were also lost due to vandalism at other sites. Six of the other eight sites were only established in September and there was only two months data capture for one of these. There was no data for the other two sites that were established in 2014.

Annual adjustment was undertaken for all sites, although these adjustments were small (less than 5%) where the data capture was reduced by up to three months. For the sites with more than three months data lost the adjustment was greater (i.e. more than 10%). The adjustment factors were derived using continuously monitored data from other nearby background sites (as provided in the previous section on continuous monitoring). The specific adjustment factors used are given in the Appendix.

For 2014, background concentrations varied between $17.4 \mu\text{g m}^{-3}$ (WH13) and $31.3 \mu\text{g m}^{-3}$ (WH4), with the more urban background sites having the higher concentrations. The overall average for the background sites was $23.5 \mu\text{g m}^{-3}$; thus indicating that the government's air quality objective was easily met.

The sites newly established in 2014 close to roadsides only had three months data capture and the annually adjusted results for these sites ranged between $27.9 \mu\text{g m}^{-3}$ (WH3) and $42.9 \mu\text{g m}^{-3}$ (WH19). This confirms that roadside concentrations are higher than background concentrations within the Borough. Of these, the adjusted monitoring result at the WH19 site just exceeded the air quality objective of $40 \mu\text{g m}^{-3}$.

³. However this measurement site is located around 55m from a location meeting the relevant exposure criteria. The estimated concentration at this site of nearest relevant exposure was $26.4 \mu\text{g m}^{-3}$ (as derived using the distance adjustment described in the TG09 guidance).

The 2014 results are consistent with previous years in meeting the air quality objective. Annual mean concentrations were lower in 2014 than 2013 for all but two of the sixteen sites monitored.

Table 2.5 Results of NO₂ Diffusion Tubes in 2014

Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.81)
								2014 ($\mu\text{g m}^{-3}$)
WH1	Dicket Mead, Welwyn	Background	N	N	11	Y	N	27.0
WH2	Parkway, Welwyn Garden City	Urban Background	N	N	11	Y	N	24.9
WH3	Great North Road, Bell Bar	Kerbside	N	N	11	Y	N	27.9
WH4	New Barnfield Hatfield	Background	N	N	11	Y	N	31.3
WH5	Coopers Lane Road, Northaw	Background	N	N	11	Y	N	24.3
WH6	Bradgate, Cuffley	Background	N	N	11	Y	N	19.9
WH7	Parkhouse Court, Hatfield	Urban Background	N	N	9	Y	N	31.2
WH8	Far End, Hatfield	Background	N	N	11	Y	N	20.9
WH9	Mount Pleasant Close, Hatfield	Background	N	N	10	Y	N	21.8
WH10	The Ryde, Hatfield	Background	N	N	11	Y	N	20.5
WH11	Thistle Grove, WGC	Background	N	N	10	Y	N	18.2
WH12	The Commons, WGC	Background	N	N	10	Y	N	18.4
WH13	Alconbury, WGC	Background	N	N	11	Y	N	17.4

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Site ID	Location	Site Type	Within AQMA?	Triplicate or Collocated Tube	Data Capture 2014 (Number of Months or %)	Data with less than 9 months has been annualised (Y/N)	Confirm if data has been distance corrected (Y/N)	Annual mean concentration (Bias Adjustment factor = 0.81)
								2014 ($\mu\text{g m}^{-3}$)
WH14	Green Lanes, Hatfield	Kerbside	N	N	11	Y	N	29.2
WH15	Great North Road, Hatfield	Background	N	N	11	Y	N	28.2
WH16	The Runway, Hatfield	Background	N	N	8	Y	N	25.6
WH17	Great North Road, Hatfield (A1000)	Kerbside	N	N	3	Y	N	38.5
WH18	B195/Broadwater Road, WGC	Kerbside	N	N	3	Y	N	34.1
WH19	Comet Way on A1001 & A1M	Kerbside	N	N	3	Y	N	28.4
WH20	Queensway, Hatfield	Background	N	N	0	Y	N	N/A
WH21	Roadside Layby A414 Essendon	Kerbside	N	N	0	Y	N	N/A
WH22	Garden Village, Hatfield	Kerbside	N	N	3	Y	N	34.3
WH23	South Way, Bishops Rise	Kerbside	N	N	3	Y	N	31.4
WH24	Ellenbrook Lane @ A1001	Kerbside	N	N	2	Y	N	N/A

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

Site ID	Site Type	Annual mean concentration (adjusted for bias) $\mu\text{g m}^3$				
		2010 (Bias Adjustment Factor = XX)	2011 (Bias Adjustment Factor = XX)	2012 (Bias Adjustment Factor = 0.79)	2013 (Bias Adjustment Factor = 0.80)	2014 (Bias Adjustment Factor = 0.81)
WH1	Background	N/A	N/A	26	27	27.0
WH2	Urban Background	32	29	30	27	24.9
WH3	Kerbside	29	32	32	30	27.9
WH4	Background	N/A	28	34	34	31.3
WH5	Background	25	25	26	24	24.3
WH6	Background	25	23	23	20	19.9
WH7	Urban Background	N/A	N/A	N/A	34	31.2
WH8	Background	N/A	N/A	N/A	23	20.9
WH9	Background	N/A	N/A	N/A	23	21.8
WH10	Background	N/A	N/A	N/A	25	20.5
WH11	Background	N/A	N/A	N/A	21	18.2
WH12	Background	N/A	N/A	N/A	21	18.4
WH13	Background	N/A	N/A	N/A	18	17.4
WH14	Kerbside	N/A	N/A	N/A	34	29.2
WH15	Background	N/A	N/A	N/A	19	28.2
WH16	Background	N/A	N/A	N/A	26	25.6
WH17	Kerbside	N/A	N/A	N/A	N/A	38.5
WH18	Kerbside	N/A	N/A	N/A	N/A	34.1
WH19	Kerbside	N/A	N/A	N/A	N/A	28.4
WH20	Background	N/A	N/A	N/A	N/A	N/A
WH21	Kerbside	N/A	N/A	N/A	N/A	N/A
WH22	Kerbside	N/A	N/A	N/A	N/A	34.3
WH23	Kerbside	N/A	N/A	N/A	N/A	31.4
WH24	Kerbside	N/A	N/A	N/A	N/A	N/A

N/A indicates not available

2.2.2 Summary of Compliance with AQS Objectives

Welwyn Hatfield 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

Concentrations are often higher where traffic is slow moving, with stop/start driving, and where buildings on either side reduce dispersion. Screening models so far have not proved helpful at identifying potential exceedences, which have only been identified by monitoring. This assessment is for NO₂ only.

Previous Review and Assessments undertaken by the Council did not identify any roads needing assessment and this situation has not changed.

Welwyn Hatfield 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

These include some street locations where individuals may regularly spend 1-hour or more, for example, streets with many shops and streets with outdoor cafes and bars, close to road traffic where there may be high concentrations of NO₂. (Note - those people that are occupationally exposed are not included, as they are not covered by the regulations). The assessment is for NO₂ only.

Busy streets where people may spend an hour or more close to traffic were not found in previous assessments. There has been no change to the previous findings since

then and no new roads have been constructed with traffic flows greater than 10,000 vehicles per day in the Council's area.

Welwyn Hatfield 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.

These include street locations in the Borough where traffic flows are not necessarily high (i.e. fewer than 20,000 vehicles per day) but where there are an unusually high proportion of buses and/or HGVs. The assessment is for both NO₂ and PM₁₀ and is dependent on the proximity of relevant exposure within 10 m of the kerbside. The Council in earlier Review and Assessment reports identified those roads within the Borough with high flows of heavy-duty vehicles. No new roads relevant to this section have been identified in the Borough.

Welwyn Hatfield Borough Council confirms that there are no new/newly identified roads with high flows of buses/HGVs.

3.4 Junctions

Air pollutant concentrations are usually higher close to junctions, due to the combined impact of traffic emissions on roads forming the junction, and to the higher emissions due to stop start driving. The assessment is for both NO₂ and PM₁₀ and is dependent on the proximity of relevant exposure within 10 m of the kerbside.

There is no change to the previously reported situation concerning junctions with no new or newly identified junctions having relevant exposure within 10 m.

Welwyn Hatfield 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

The approach to considering new roads depends on whether or not an assessment was carried out in advance of building the new road. The assessment is for NO₂ and PM₁₀ and is dependent on the proximity of relevant exposure to the kerbside.

There have been no new or proposed roads in the Borough where an air quality assessment was required.

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

3.6 Roads with Significantly Changed Traffic Flows

Only roads with significantly changed traffic flows that have not already been considered above were investigated. The assessment is for both NO₂ and PM₁₀. A comparison of traffic flows from the latest traffic data available from DfT confirms that there are no new roads with significantly changed traffic flows.

Whilst two local road links have increased HDV volumes (Mosquito Way and Gypsy Moth Avenue in Hatfield), the overall traffic volumes have not increased by 25%. Furthermore these roads have not been identified at risk (i.e. with an annual mean above 36 µg m⁻³ at a relevant location). Box 5.3 of the TG09 guidance indicates in this instance that further screening is not necessary.

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

3.7 Bus and Coach Stations

The bus station at Welwyn Garden City adjacent to the Howard Centre has approximately 800 bus movements per day (both inward and outward movements) based on timetabled information. This is less than the 2,500 threshold in Box A.7 of TG09 and therefore further screening is not needed.

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

4 Other Transport Sources

4.1 Airports

Aircraft are potentially significant sources of nitrogen oxides (NO_x) emissions, especially during take-off. The TG09 guidance used new information, which has resulted in the criteria to trigger a Detailed Assessment being relaxed, while the requirement to assess PM₁₀ has been removed. Thus this section only applies to NO₂. (Note – any road traffic using airports was considered in the previous section.)

The nearest major airport to the Council's area is Luton Airport, which is outside the Borough and sufficiently distant (greater than 10km) as not to be relevant. The only other airfield in the Borough was the Panshangar Aerodrome, which has been used by flying clubs for training and recreational flying. It closed in September 2014.

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

4.2 Railways (Diesel and Steam Trains)

Stationary locomotives, both diesel and coal fired, can give rise to high levels of sulphur dioxide (SO₂) close to the point of emission. Recent evidence also suggests that moving diesel locomotives, in sufficient numbers, can also give rise to high NO₂ concentrations close to the track where, along busy lines, emissions can be equivalent to those from a busy road.

4.2.1 Stationary Trains

Previous rounds of Review and Assessment also found that there are no areas within the Borough where diesel or steam locomotives are stationary for periods of 15

minutes or more and within 15 m of locations where regular outdoor exposure arises. This situation has not changed.

Welwyn Hatfield 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

Diesel locomotives use rail lines that run through Welwyn Hatfield, however these are not included within the list of lines (from Table 5.1 of TG09), which identify those with a “high” usage of diesel locomotives.

Welwyn Hatfield 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)

There are no ports or shipping within the Borough.

Welwyn Hatfield Borough Council confirms that there are no ports or shipping within the Local Authority area.

5 Industrial Sources

5.1 Industrial Installations

The Council and the Environment Agency (EA) control industrial sources within the Borough under the Environmental Permitting (England and Wales) Regulations 2010, as amended. The Council also has control over some smaller industrial and commercial sources, largely through the Clean Air Act 1993, with its associated control of the discharge stack or chimney heights. As a result of these controls, there are relatively few sources that may be relevant under the Local Air Quality Management (LAQM) regime. Many of these sources were also addressed during previous rounds of Review and Assessment. The focus is thus on new installations and those with significantly changed emissions.

Industrial sources are considered unlikely to make a significant local contribution to annual mean concentrations, but could be significant in terms of the short-term objectives in the Borough. Sources in neighbouring authorities and the combined impact of several sources are considered. The approach used is based on use of the planning and permitting processes. The assessment considers all the LAQM pollutants, including those most at risk of requiring further work (SO₂, NO₂, PM₁₀ and benzene).

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

Since the last round of Review and Assessment the Council have not permitted any installation that required an air quality assessment.

Welwyn Hatfield 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

None of the existing installations in the Borough have increased emissions by greater than 30% and no new relevant exposure has been introduced nearby.

Welwyn Hatfield 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

Since the last round of Review and Assessment the Council has not received any applications for new installations that required an air quality assessment.

No other applications have been received for new or proposed sources where it has been determined that the installation is likely to give rise significant pollutant emissions.

Welwyn Hatfield 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

This was previously assessed in earlier rounds of Review and Assessment and it was found that there are no major petrol storage depots in the Borough. This situation has not changed.

There are no major fuel (petrol) storage depots within the Local Authority area.

5.3 Petrol Stations

There is some evidence that petrol stations could emit sufficient benzene to put the 2010 objective at risk of being exceeded, especially if combined with higher levels from nearby busy roads. Some sites in the Borough have however already incorporated petrol vapour recovery (PVR) systems, furthermore those service stations with petrol sales above 3.5 million litres per annum were required to install Stage 2 PVR systems before the 1st January 2010 deadline to comply with UK legislation to reduce petrol vapour (and benzene) from vehicles.

The previous round of Review and Assessment assessed all petrol stations for a throughput of more than 2000 m³ of petrol, and a busy road nearby. Of these none were found to have relevant exposure within 10m of the pumps and therefore it was not necessary to go to a Detailed Assessment. There has been no change in this situation for this round.

Welwyn Hatfield Borough Council confirms that there are no petrol stations meeting the specified criteria.

5.4 Poultry Farms

Some local authorities in England have identified potential exceedences of the PM₁₀ objectives associated with emissions from poultry farms. These relate to large farms (with more than 100,000 birds) that are regulated by the EA. None however exist within the Council's area.

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

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Biomass burning can lead to an increase in PM₁₀ emissions, from the combustion process itself and also by aerosol formation from the volatile materials distilled from the wood. Compared to conventional gas burning, biomass burning can also result in an increase in NO_x emissions due to the fuel-derived portion that is not present in gas combustion.

The Council has designated a Smoke Control Area in the Borough, however it has produced an enforcement policy in regard of the requirements of the Clean Air Act 1993, which seeks to minimise smoke emissions.

The Council has assessed for individual combustion plant burning biomass ranging from 20 MW down to 50 kW units and no new plant have been identified that have not previously been considered.

Welwyn Hatfield Borough Council confirms that there are no biomass combustion plant in the Local Authority area.

6.2 Biomass Combustion – Combined Impacts

Any biomass burning using non-authorized appliances in the Borough is considered minimal. There is however the potential that many small biomass combustion installations (including domestic solid-fuel burning), whilst individually acceptable, could in combination lead to unacceptably high PM₁₀ concentrations, particularly in areas where PM₁₀ concentrations are close to or above the objectives. The impact of domestic biomass combustion in most areas is thought to be small at the time of writing, but could become more important in future. The potential for combined impacts, other than that discussed above, will be assessed should future plant be

proposed. Currently there is minimal domestic solid fuel burning as discussed in the next section.

Welwyn Hatfield Borough Council confirms that there are no biomass combustion plant in the Local Authority area.

6.3 Domestic Solid-Fuel Burning

The previous rounds of Review and Assessment identified areas where domestic solid fuel burning gives rise to exceedences of the objective for SO₂. PM₁₀ from domestic solid fuel burning was also covered above.

There are currently no areas of significant domestic solid fuel use in the Borough. This position has not changed from the previous USA, which confirmed that no areas of significant domestic solid fuel burning were identified. Gas is widely available in the Borough and it remains the predominant fuel used for domestic water and space heating.

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

7 Fugitive or Uncontrolled Sources

Dust emissions from uncontrolled and fugitive sources can give rise to elevated PM₁₀ concentrations. These sources can include, but are not limited to the following sites: quarrying and mineral extraction sites, landfill sites, coal and material stockyards, or materials handling, major construction works and waste management sites. Dust can arise from the passage of vehicles over unpaved ground and along public roads that have been affected by dust and dirt tracked out from dusty sites. Other sources of dust are from the handling of dusty materials, the cutting of concrete, etc. and wind-blown dust from stockpiles and dusty surfaces.

No fugitive and uncontrolled particulate matter emissions have however been identified based on local professional knowledge, recent air quality assessments or recent complaints to the Council.

Welwyn Hatfield 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

The monitoring results within the Borough confirmed that the annual mean nitrogen dioxide objective continues to be met at background and nearby locations. The majority of the sites monitored are considered to represent relevant exposure. New NO₂ diffusion tube monitoring was started in 2014 close to roadsides in heavily trafficked areas. The results from this monitoring also indicate that nitrogen dioxide objectives were met.

Based on these findings, the Council does not need to undertake a Detailed Assessment, as no new potential or actual exceedences at relevant locations were established.

8.2 Conclusions from Assessment of Sources

The Council has assessed local developments of road transport, other transport, industrial processes, commercial/domestic, fugitive emissions, plus residential and commercial sources. The findings for these have indicated that there are no new changes that require the Council to undertake a Detailed Assessment.

8.3 Proposed Actions

This report follows the technical guidance (TG09) and fulfils this part of the continuing LAQM process.

The findings from following this methodology are that the Council has not identified a need to proceed to a Detailed Assessment. The Council will therefore undertake the following actions:

Welwyn Hatfield Borough Council

1. Undertake consultation on the findings arising from this report with the statutory and other consultees as required.
2. Maintain the existing monitoring programme so far as reasonably practicable.
3. Prepare for the submission of its next Air Quality report.

9 References

Defra, 2007. Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volume 1). Defra, London. Cm 7169.

Defra, 2009. Local Air Quality Management, Technical guidance LAQM.TG09. Defra, London.

LAQM Helpdesk March 2015. Summary of Laboratory Performance in AIR/WASP NO₂ Proficiency Testing Scheme (April 2013 – February 2015)

Welwyn Hatfield Borough Council (2012). Local Air Quality Management – Updating and Screening Assessment 2012.

Welwyn Hatfield Borough Council (2013) Local Air Quality Management – Progress Report.

Welwyn Hatfield Borough Council (2014) Local Air Quality Management – Progress Report.

Appendices

Appendix 1: Part B installations in Welwyn Hatfield

Table of permitted petrol stations in the Council's area

Ref no.	Company/ Site Address
EP/000000019	Bell Bar Service Station, Great North Road, Hatfield, Hertfordshire, AL9 6DA.
EP/000000021	Tesco Stores Ltd - Petrol Station, Tesco Stores Ltd, Great North Road, Hatfield, Hertfordshire, AL9 5JY.
EP/000000022	BP Express, Nodeway Filling Station, Welwyn By Pass Road, Welwyn, Hertfordshire.
EP/000000023	Asda Stores Ltd, Asda Superstore, 98 Town Centre, Hatfield, Hertfordshire, AL10 0JW.
EP/000000024	Eastbridge Service Station, Bridge Road East, Welwyn Garden City, Hertfordshire, AL7 1LE.
EP/000000025	Morrisons Petrol Filling Station, Morrison Supermarket, 40 Black Fan Road, Welwyn Garden City, Hertfordshire.
EP/000000026	Total, Stadium Service Station, Stanborough Road, Welwyn Garden City, Hertfordshire, AL8 6XA.
EP/000000027	Esso Service Station, 51-53 London Road, Woolmer Green, Knebworth, Hertfordshire, SG3 6JB.
EP/000000028	Tesco Stores Ltd, Cirrus Building A, Falcon Way, Welwyn Garden City, Hertfordshire, AL7 1AB.

Welwyn Hatfield Borough Council

Table of Part B installations in the Council's area

PG Note	Company Name	Site Address/ Home Address of Mobile Plant
PG3/1(04) Bulk Cement	Rapid Ready Mix	Alpha Place, Garth Road, Morden, SM4 4LG
PG 6/24 (05) Pet food manufacture	Gilbertson & Page	45-55 Brownfields, Welwyn Garden City, Hertfordshire, AL7 1AN.
PG6/34(11) Respraying of Road Vehicles	Garden City Coach Works	Fiddlebridge Lane, Hatfield, Hertfordshire, AL10 0SP.
PG6/34(11) Respraying of Road Vehicles	Squire Furneaux Saab	Welwyn Saab, 36 Brownfields, Welwyn Garden City, Hertfordshire, AL7 1AN.
PG6/34(11) Respraying of Road Vehicles	Brooks & Stratton	14 Burrowfield, Welwyn Garden City, Hertfordshire, AL7 4SN.
PG6/34(11) Respraying of Road Vehicles	Welspray Accident Repair Centre	12 Southfield, Welwyn Garden City, Hertfordshire, AL7 4ST.
PG6/34(11) Respraying of Road Vehicles	WS Coachworks	Wright Signs And Coachworks Ltd, Travellers Lane, Welham Green, Hatfield, Hertfordshire, AL9 7HF.
PG6/34(11) Respraying of Road Vehicles	UK Assistance Accident Repair Centre	Unit 1, North Park, Great North Road, Hatfield, Hertfordshire, AL9 5JN.
PG1/01(04) Waste Oil and Recovered Oil Burners Less Than 0.4 MW	Ashcroft Autocare	8 Little Ridge, Welwyn Garden City, Hertfordshire, AL7 2BH.
PG1/01(04) Waste Oil and Recovered Oil Burners Less Than 0.4 MW	Aylmer Motor Works	Old Coach Stations, Great North Road, Brookmans Park, Hatfield, Hertfordshire, AL9 6NA.
PG1/01(04) Waste Oil and Recovered Oil Burners Less Than 0.4 MW	Cuzner & White	32 Brownfields, Welwyn Garden City, Hertfordshire, AL7 1AN.
PG1/01(04) Waste Oil and Recovered Oil Burners Less Than 0.4 MW	Mark Tempest Autocentre Cars	Unit, 1 Garden Court, Welwyn Garden City, Hertfordshire, AL7 1BH.

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Table of permitted dry cleaners in the Council's area

Ref No.	Process Name	Address
EP/000000003	Lady Valet Dry Cleaners	25 Station Road, Cuffley, Potters Bar, Hertfordshire, EN6 4HX
EP/000000004	Johnsons Dry Cleaners	43 Fretherne Road, Welwyn Garden City, Hertfordshire, AL8 6NY
EP/000000005	Swift Dry Cleaners	8 The Arcade, Hatfield, Hertfordshire, AL10 0JY
EP/000000006	Charlies Valet	1 Bradmore Green, Brookmans Park, Hatfield, Hertfordshire, AL9 7QW
EP/000000007	Charlie's Cleaning Ltd.	8 Parkhouse Court, Hatfield, Hertfordshire, AL10 9RQ
EP/000000008	Brookmans Park Dry Cleaning Company	87 Bradmore Green, Brookmans Park, Hatfield, Hertfordshire, AL9 7QT
EP/000000029	Welwyn Dry Cleaners	37 Wigmores North, Welwyn Garden City, Hertfordshire, AL8 6PG

Appendix 2: Part A installations in Welwyn Hatfield

Process	Licence	Operator	Site Address
Inert Landfill	EA/PPC/KP3030XW	Cemex UK Materials Ltd	Suttons Farm Landfill, Woodcock Hill, St Albans, Hertfordshire, AL4 9HJ
Chemical machining of titanium	EA/EPR/NP3333BH	RTI Advanced Forming Ltd (formerly Aeromet International)	Watchmead, Welwyn Garden City, Hertfordshire, AL7 1LT
Lead recovery process	EA/EPR/BL8317IK	British Lead Mills	Peartree Lane, Welwyn Garden City, Hertfordshire, AL7 3UB
Storage, treatment & disposal of waste oils in a facility with a capacity of 10tonnes per day	EA/EPR/ZP3535TP/V003	Honeywagon	34 Burrowfield, Welwyn Garden City, Hertfordshire, AL7 4SR
Waste Transfer Station	EA/EPR/CP3199VT/A001	Burrowfields Waste Ltd	50-52 Burrowfield, Welwyn Garden City, Hertfordshire, AL7 4SR.
Ferrous & Non Ferrous Scrap Metal Merchants	EA/EPR/JP3297EY	Sovchem	Iron Sidings, Travellers Lane, Welham Green, Hatfield, Hertfordshire, AL9 7HF
Scrap Metal Merchants	EA/EPR/TP3198VP/A001	WGC Metals	17 Tewin Road, Welwyn Garden City, Hertfordshire, AL7 1BD
Green waste recycling	EPR/BB3630RH/A001	Land Networks	Cattlegate Farm, Cattlegate Road, Northaw, Potters Bar, Hertfordshire, EN2 8AU.

Appendix 3: Non continuous monitoring in Welwyn Hatfield

Table showing unbiased diffusion tube results for 2014

Site Ref	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
WH1	38	35	43	33	29	23	21	33		34	43	35
WH2	41	40	29	25	20	17	16	27		45	33	45
WH3	34	36	39	37	30	22	27	32		40	42	40
WH4	54	46	31	30	30	26	28	30		51	49	51
WH5	39	35	34	25	29	16	19	19		38	39	38
WH6	34	27	26	21	17	14	14	14		29	41	34
WH7	45			32	28	21	25	28		52	53	49
WH8	23	32	34	19	21	18	17	21		28	37	34
WH9	31	32	37	22	20	15	19	24		32	34	
WH10	30	32	32	19	13	14	14	22		32	36	35
WH11	27	25		15	15	10	13	16		26	33	38
WH12	26	21	25	48	10	8		15		24	28	33
WH13	21	21	23	38	9	6	11	12		27	35	34
WH14	43	42	36	44	22	19	21	26		51	47	46
WH15	41	37	43	40	39	19	21	28		36	44	36
WH16	39	38	39	16				25		38	48	40
WH17										65	72	37
WH18										58	58	38
WH19										53	60	81
WH20												
WH21												
WH22										44	67	44
WH23										56	57	29
WH24										73		70

(Note: greyed areas represent < 25% data capture)

Table showing Annual adjustment factors for 2014

Site	Factor
WH1/2/3/4/5/6/8/10/13/14/15	0.998466912
WH9	1.012008012
WH11	1.0285865
WH12	0.955133488
WH7	1.041346289
WH16	0.892880658
WH17/18/19/22/23	0.81952314

