



# 2013 Air Quality Progress Report for Watford Borough Council

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

July 2013

|                                |  |
|--------------------------------|--|
| <b>Local Authority Officer</b> | Richard Brown  |
|                                |  |
| <b>Department</b>              | Environmental Services   |
| <b>Address</b>                 | Town Hall<br>Watford<br>WD17 3EX   |
| <b>Telephone</b>               | 01923 278440   |
| <b>e-mail</b>                  | <a href="mailto:richard.brown@watford.gov.uk">richard.brown@watford.gov.uk</a> |
|                                |  |
| <b>Report Reference number</b> | PR2013_V1  |
| <b>Date</b>                    | 17 <sup>th</sup> July 2013   |

## Executive Summary

This is the fourth Progress Report prepared by Watford Borough Council. It sets out updated air quality monitoring data and assesses whether any new or proposed developments are likely to have a significant effect on air quality concentrations, and in particular whether there is sufficient concern to move immediately to an Updating and Screening Assessment.

### Air Quality Monitoring Data

This continues to be provided by real-time analysers monitoring oxides of nitrogen and PM<sub>10</sub> particles close to the Town Hall, As well as a network of diffusion tubes monitoring long term nitrogen dioxide concentrations. This network has been reduced from 17 to 15 sites as two locations have consistently recorded concentrations below the nitrogen dioxide objective value.

At the rest of the sites concentrations have remained fairly constant over recent years. At some, concentrations are above the objective value for nitrogen dioxide but these are located within existing Air Quality Management Areas (AQMAs) and there is no need to progress to an Updating and Screening Assessment for any additional locations with the Borough.

### New Developments

There have been no new developments within in the Borough that are likely to have a significant effect on air quality.

### Revisions to existing Air Quality Management Areas

Since the last Progress report the Council has been finalising its plans to revise the boundaries of the six Air Quality Management Areas that it declared in 2006. This is being done because the Further Assessment of air quality within the AQMAs identified that changes were needed. The following changes were consulted on in 2012:

- Extending the boundary of AQMA 2 (Vicarage Road)
- Amalgamate AQMA 3 (Aldenham Road) and AQMA 4 (Chalk Hill) into a single larger AQMA (AQMA 3A, Aldenham Road and Chalk Hill)
- Reducing the boundary of AQMA 5 (Horseshoe Lane)
- Revoking AQMA 6 (M1 / Meriden).

## **Air Quality Action Plan**

The Council has recently completed the second draft of its Air Quality Action Plan that sets out how it aims to improve air quality within the Air Quality Management Areas. Again this was consulted on in 2012.

## **Progress Report Conclusions**

Monitoring data has not identified a need to progress to a Detailed Assessment. In addition, the Willow Lane site will be commissioned at the end of 2013 as results have indicated that concentrations are unlikely to breach objective concentrations.

Two new nitrogen dioxide diffusion tubes sites will be set up at the beginning of 2014, so that the effect of developments planned for Lower High Street can be monitored.

The council will also be finalising the formal processing amending and revoking some of the existing Air Quality Management Areas.

Finally, the council will be working close with Hertfordshire County Council and other internal and external partners so that measures outlined in the Air Quality Action plan can be progressed. This will include finalising the new air quality planning policy.

# Table of Contents

|           |  |           |
|-----------|--|-----------|
| <b>1</b>  | <b>Introduction</b>  | <b>6</b>  |
| 1.1       | Description of Local Authority Area                          | 6         |
| 1.2       | Purpose of Progress Report                                   | 6         |
| 1.3       | Air Quality Objectives                                       | 7         |
| 1.4       | Summary of Previous Review and Assessments                   | 9         |
| <b>2</b>  | <b>New Monitoring Data</b>                                   | <b>13</b> |
| 2.1       | Summary of Monitoring Undertaken                             | 13        |
| 2.2       | Comparison of Monitoring Results with Air Quality Objectives | 18        |
| <b>3</b>  | <b>New Local Developments</b>                                | <b>26</b> |
| 3.1       | Road Traffic Sources   | 26        |
| 3.2       | Other Transport Sources                                      | 26        |
| 3.3       | Industrial Sources   | 26        |
| 3.4       | Commercial and Domestic Sources                              | 26        |
| 3.5       | New Developments with Fugitive or Uncontrolled Sources       | 26        |
| <b>4</b>  | <b>Local / Regional Air Quality Strategy</b>                 | <b>28</b> |
| <b>5</b>  | <b>Planning Applications</b>                                 | <b>29</b> |
| <b>6</b>  | <b>Air Quality Planning Policies</b>                         | <b>31</b> |
| <b>7</b>  | <b>Local Transport Plans and Strategies</b>                  | <b>32</b> |
| <b>8</b>  | <b>Climate Change Strategies</b>                             | <b>33</b> |
| <b>9</b>  | <b>Implementation of Action Plans</b>                        | <b>34</b> |
| <b>10</b> | <b>Conclusions and Proposed Actions</b>                      | <b>37</b> |
| 10.1      | Conclusions from New Monitoring Data                         | 37        |
| 10.2      | Conclusions relating to New Local Developments               | 37        |
| 10.3      | Other Conclusions  | 37        |
| 10.4      | Proposed Actions   | 37        |
| <b>11</b> | <b>References</b>  | <b>39</b> |

**List of Tables**

- Table 1.1 Air Quality Objectives included in Regulations for the purpose of LAQM in England
- Table 11.2 Summary of Watford AQMAs designated in February 2006
- Table 2.1 Details of Automatic Monitoring Sites
- Table 2.2 Details of Non- Automatic Monitoring Sites
- Table 11.3a Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with Annual Mean Objective
- Table 2.3b Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with 1-hour Mean Objective
- Table 2.4 Results of NO<sub>2</sub> Diffusion Tubes 2012
- Table 2.5 Results of NO<sub>2</sub> Diffusion Tubes (2008 to 2012)
- Table 11.6a Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with Annual Mean Objective
- Table 2.6b Results of Automatic Monitoring for PM<sub>10</sub>: Comparison with 24-hour Mean Objective
- Table 9.1 Action Plan Recommended Measures

**List of Figures**

- Figure 2.1 Maps of Automatic Monitoring Sites
- Figure 2.2 Map(s) of Non-Automatic Monitoring Sites (if applicable)
- Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites

**Appendices**

Appendix A: Original and Revised Air Quality Management Areas

Appendix B: QA and QC Data

Appendix C: Watford Borough Council Air Quality Planning Policies

# **1 Introduction**

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

Watford is a concentrated urban area situated to the North West of London, with a population of around 90,300 (2011 Census). It is a well established regional shopping centre with major rail and road communication links. It has both mainline and underground train stations. The M1 lies along the northern boundary of the borough and the M25 is situated to the west. The borough is also served by several major trunk roads, including the A41, A411, A412 and A405.

## **1.2 Purpose of Progress Report**

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

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

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

### 1.3 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             |

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

### **1.4.1 First Round of Review & Assessment (December 2000)**

The combined effect of the Stage 1 and 2 reports of the first round Review and Assessment suggested that a Stage 3 Review and Assessment was only needed for two pollutants: nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>10</sub>). Exceedences of the Air Quality Regulation objectives were predicted close to some major roads. A public exposure assessment was carried out, which concluded that there were no domestic properties within the areas of exceedence. Accordingly no Air Quality Management Areas (AQMAs) were declared.

### **1.4.2 Updating and Screening Assessment (June 2003)**

The assessment concluded that there was no need to progress to a Detailed Assessment for carbon monoxide, lead, benzene, 1,3-butadiene, or sulphur dioxide. It was, however, considered necessary to proceed to a Detailed Assessment for NO<sub>2</sub> and PM<sub>10</sub> as 23 locations required additional assessment before a decision could be made as to whether to declare one or more AQMAs.

### **1.4.3 Detailed Assessment (April 2004)**

The study concluded that for NO<sub>2</sub>, there were likely to be six areas where the annual mean objective for nitrogen dioxide was unlikely to be met:

- Parts of St.Albans Road between Beechen Grove and North Western Avenue;
- Parts of Rickmansworth Road between the High Street and Cassio Road;
- Parts of Farraline Road close to its junction with Vicarage Road;
- Parts of Pinner Road close to its junction with Chalk Hill;
- Close to the junction of Horseshoe Lane, the A405 and St.Albans Road; and
- Parts of the Gossamers, Ravenscroft, Eastlea Avenue and Westlea Avenue.

In February 2006, six AQMAs were declared, encompassing the residential properties identified in Table 1.2. Maps showing the extents of the AQMAs are shown in Appendix A.

**Table 1.2 Summary of Watford AQMAs designated in February 2006**

|   |   |
|---|---|
| <b>Watford AQMA no 1</b><br>St Albans Road        | 1B & 1C Wellington Road<br>155 – 157 St. Albans Road<br>211-215 St. Albans Road<br>164 – 454 St. Albans Road                                      |
| <b>Watford AQMA no 2</b><br>Vicarage Road         | 28A – 30A Vicarage Road (Flats above shops)<br>85A-87A Vicarage Road (Flats above shops)  |
| <b>Watford AQMA no 3</b><br>Aldenham Road         | Residential Accommodation above The Railway Arms, Aldenham Road   |
| <b>Watford AQMA no 4</b><br>Chalk Hill            | 12 Chalk Hill   |
| <b>Watford AQMA no 5</b><br>A405 / Horseshoe Lane | 3A – 5A Horseshoe Lane<br>887 St Albans Road<br>1026 St Albans Road   |
| <b>Watford AQMA no 6</b><br>M1 / Meriden          | 16, 17 & 18 Ravenscroft<br>1 – 5 The Gossamers<br>31 The Gossamers<br>63 – 65 The Gossamers<br>95 – 97 The Gossamers<br>62, 64, 69 Eastlea Avenue |

#### **1.4.4 Updating and Screening Assessment (July 2007)**

The USA concluded that there was no need to progress to a Detailed Assessment for carbon monoxide, lead, benzene, 1,3-butadiene, sulphur dioxide or PM10. Monitoring data indicated the continuing need for the existing AQMAs, designated for NO2.

#### **1.4.5 Progress Report (December 2008)**

The 2008 Progress Report concluded that there was not a requirement to continue to a Detailed Assessment for any pollutant.

#### **1.4.6 Further Assessment of AQMAs 1-6 (April 2009)**

The Further Assessment of the six AQMAs recommended that AQMA 1 (St Albans Road) should remain unchanged and AQMA 5 (A405/Horseshoe Lane) should be decreased. It also recommended that that AQMA 2 (Vicarage Road), AQMA 3 (Aldenham Road) and AQMA 4 (Chalk Hill) should be extended, and AQMA 6 (M1 / Meriden) should be revoked. The recommendations of the Further Assessment were accepted by DEFRA in April 2009.

Accordingly in 2012 we formally consulted on our intentions to:

- Leave AQMA 1 (St.Albans Road) unchanged.

- Extend the boundary of AQMA 2 (Vicarage Road)
- Amalgamate AQMA 3 (Aldenham Road) and AQMA 4 (Chalk Hill) into a single AQMA (AQMA 3A, Aldenham Road and Chalk Hill) due to their proximity and similarity in air quality issues affecting them.
- Reduce the boundary of AQMA 5 (Horseshoe Lane)
- Revoke AQMA 6 (M1 / Meriden).

Maps showing the revised AQMAs are shown in Appendix A. No objections were received to the proposals, and the legal mechanism to formally amend and revoke the AQMAs will be completed in 2013.

#### **1.4.7 Combining Updating and Screening Assessment and Progress Report (June 2010)**

This report showed that there were some annual mean NO<sub>2</sub> concentrations recorded during 2009 using passive diffusion tubes where the annual mean objective of 40 µg/m<sup>3</sup> and that 3 of these locations were outside the Air Quality Management Areas. These locations are not representative of relevant public exposure, and hence a Detailed Assessment was not required:

- WF03 Hospital, Vicarage Road;
- WF37 St Albans Road 2; and
- WF42 Queens Road.

Once more detailed distance from roads calculations were submitted, the report was accepted by DEFRA and progression to a Detailed Assessment was not required.

Monitoring of PM<sub>10</sub> showed no exceedences of the Air Quality Strategy objective, and further assessment is subsequently not required. The assessment does not identify any other pollutant source of concern.

#### **1.4.8 Updated Air Quality Action Plan (April 2011)**

This report confirmed that the most likely source of nitrogen dioxide as transport, in particular congestion. It set out 16 measures aimed at improving air quality, and the council consulted on these on 2012. No objections to the measures laid out in the

Action Plan were received, indeed a number of useful suggestions aimed at improving air quality were received and these will be taken forward.

#### **1.4.9 Updating and Screening Assessment (June 2012)**

This Updating and Screening Assessment concluded that concentrations of nitrogen dioxide and PM10 particles have remained fairly stable over recent years, and that there have been no exceedences of the objectives.

There continued to be some locations where results suggested that nitrogen dioxide concentrations would be above the annual mean objectives, but all of these were in existing Air Quality Management Areas. Overall it was concluded that there was no need to progress to a Detailed Assessment

## 2 New Monitoring Data

### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

Since January 2008, the following analysers have been in operation at Watford Town Hall:

1. API M200E chemiluminescent NO<sub>x</sub> analyser from Envirotechnology; and
2. Rupprecht & Patashnick TEOM analyser, gathering PM<sub>10</sub> data.

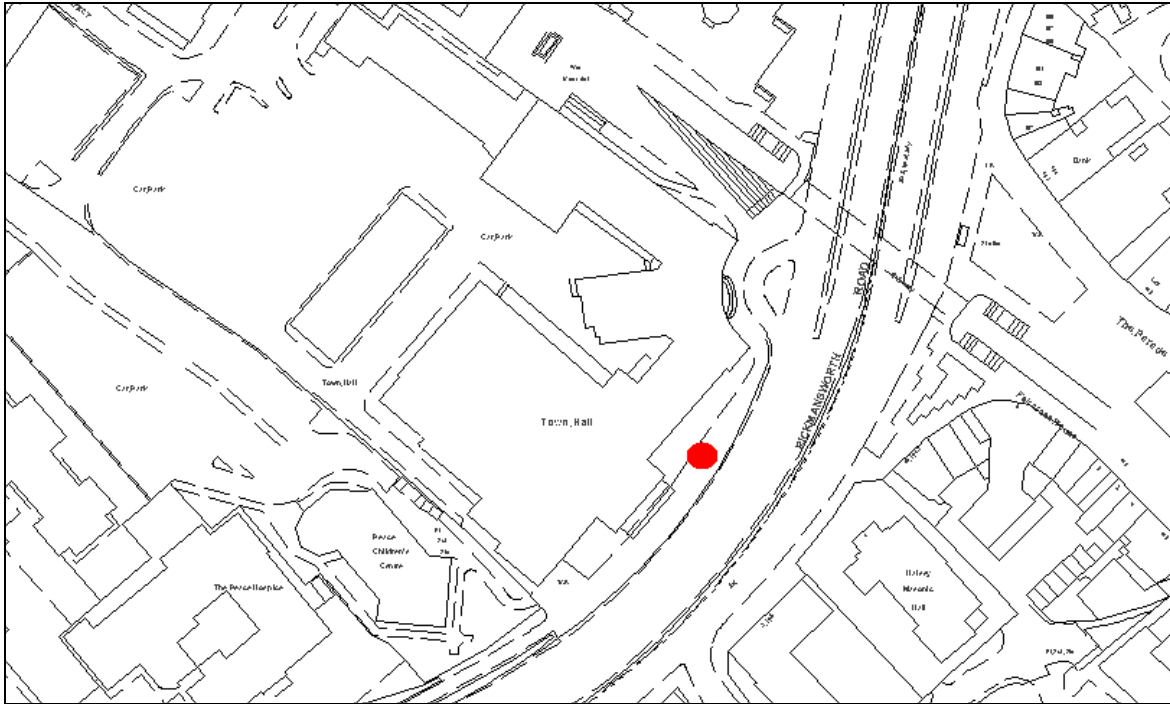
The monitoring station is classified as a Roadside monitoring site, and is situated approximately 10 metres from the kerb of Rickmansworth Road. Figure 2.1 shows the location of the monitoring station and table 2.1 shows the technical details of the site.

Until 2011 data was collected via modem by the King's College London Environmental Research Group (ERG), who validated and reported on the data. Since 2011 data has been collected, via modem by Air Quality Data Management (AQDM), part of Envitech Europe. AQDM also now carry out the validation and reporting of the data. Real time data, as well as weekly month and annual reports are available from Herts & Beds Air Pollution Monitoring Network website; [www.hertsbedsair.net](http://www.hertsbedsair.net)

All servicing and maintenance (including periodic calibration of equipment) is still carried out by Kings ERG, and we have a service and monitoring contract with SupportingU.

PM10 data collected using the TEOM instrument is converted by ERG to reference equivalence using the volatile correction method (VCM).

Figure 2.1 Maps of Automatic Monitoring Sites



This map is reproduced from Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings. 100018689 (2010).

**Table 2.1 Details of Automatic Monitoring Sites**

|  |  |
|--|--|
| <b>Site ID</b>   | WF1  |
| <b>Site Name</b>   | Watford Town Hall  |
| <b>Site Type</b>   | Roadside   |
| <b>X OS Grid Reference</b>                               | 510540   |
| <b>Y OS Grid Reference</b>                               | 196780   |
| <b>Inlet Height (m)</b>                                  | 2m   |
| <b>Pollutants Monitored</b>                              | NO <sub>2</sub> , PM <sub>10</sub>                             |
| <b>In AQMA?</b>  | N  |
| <b>Monitoring Technique</b>                              | NO <sub>x</sub> : Chemiluminescence<br>PM <sub>10</sub> : TEOM |
| <b>Relevant Exposure?</b>                                | N  |
| <b>Distance to Kerb of Nearest Road (m)</b>              | 10m  |
| <b>Does this Location Represent Worst-Case Exposure?</b> | Y  |

### 2.1.2 Non-Automatic Monitoring Sites

As of 1st January 2013, passive monitoring of NO<sub>2</sub> is undertaken using diffusion tubes at 16 locations within the Borough.

Two sites, WF 31 High Road Leavesden and WF34 Westland Road were decommissioned in April 2011 after results showed that concentrations were consistently well below 40 µg/m<sup>3</sup> for several years. A new site WF47 Willow Lane was commissioned late in 2011 following concerns about queuing traffic close to a street of residential properties.

Details of the site locations are given in table 2.2 and their approximate location is shown in Figure 2.2. Unadjusted monthly diffusion tube data can be downloaded from:

[www.hertsbedsair.net](http://www.hertsbedsair.net)



Figure 2.2 Map(s) of Non-Automatic Monitoring Sites (if applicable)

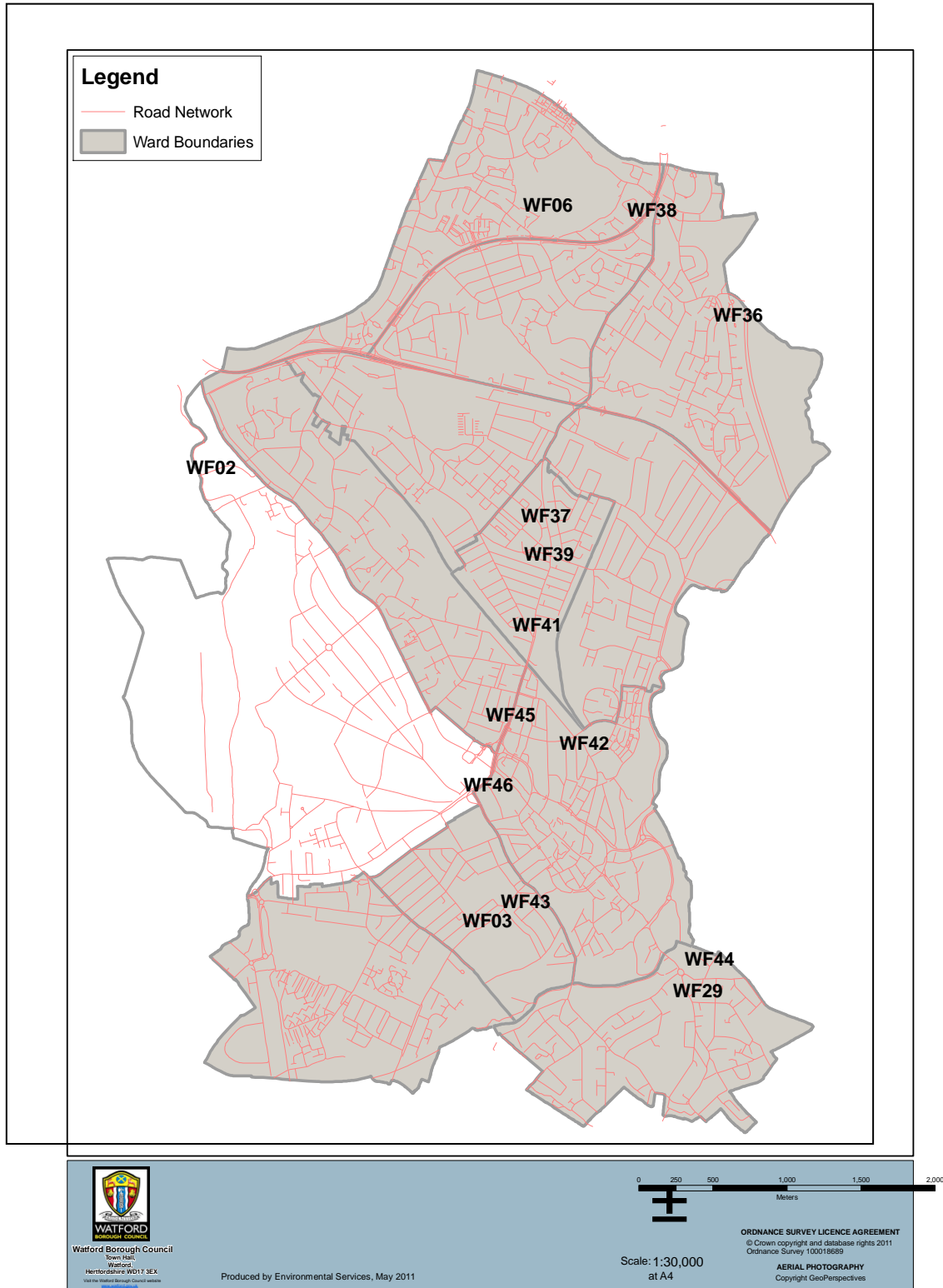


Table 2.2 Details of Non- Automatic Monitoring Sites

| Site ID | Site Name               | Site Type | X OS Grid Reference | Y OS Grid Reference | Site Height (m) | Pollutants Monitored | In AQMA? | Co-located with a Continuous Analyser (Y/N) | Relevant Exposure? | Distance to Kerb of Nearest Road (m) | Does this Location Represent Worst-Case Exposure? |
|---------|-------------------------|-----------|---------------------|---------------------|-----------------|----------------------|----------|---|--------------------|--------------------------------------|---|
| WF02    | Grove Pumping Station   | B         | 508700              | 198950              | 2m              | NO2                  | N        | N   | N                  | n/a                                  | N   |
| WF03    | Hospital Vicarage Road  | K         | 510570              | 195800              | 2.4m            | NO2                  | N        | N   | N                  | 4m                                   | Y   |
| WF06    | Woodside Playing Fields | B         | 510985              | 200710              | 3m              | NO2                  | N        | N   | N                  | n/a                                  | N   |
| WF29    | Pinner Road             | K         | 511940              | 195320              | 2.1m            | NO2                  | Y        | N   | Y- 6m              | 2m                                   | Y   |
| WF36    | Ravenscroft             | I         | 512240              | 199910              | 2.2m            | NO2                  | N        | N   | Y – 8m             | n/a                                  | Y   |
| WF37    | St Albans Road 2        | K         | 510970              | 198535              | 2.4m            | NO2                  | N        | N   | Y – 5m             | 1m                                   | Y   |
| WF38    | A405 Horseshoe Lane     | K         | 511680              | 200700              | 3m              | NO2                  | Y        | N   | Y -2m              | 4m                                   | Y   |
| WF39    | Balmoral Road           | K         | 511000              | 198270              | 2.4m            | NO2                  | Y        | N   | N                  | 1m                                   | Y   |
| WF40    | Salisbury Road          | K         | 510930              | 198000              | 2.4m            | NO2                  | Y        | N   | N                  | 2m                                   | Y   |
| WF41    | Leavesden Road          | K         | 510850              | 197780              | 2.5m            | NO2                  | Y        | N   | N                  | 1m                                   | Y   |
| WF42    | Farraline Road          | K         | 511160              | 197000              | 2.4m            | NO2                  | N        | N   | Y - 4m             | 1m                                   | Y   |
| WF43    | Queens Road             | K         | 510800              | 196020              | 2.4m            | NO2                  | Y        | N   | Y- 4m              | 2m                                   | Y   |
| WF44    | Chalk Hill              | K         | 511920              | 195450              | 2.1m            | NO2                  | Y        | N   | Y – 6m             | 2m                                   | Y   |
| WF45    | Wellington Road         | K         | 510750              | 197230              | 2.3m            | NO2                  | Y        | N   | Y- 10m             | 4m                                   | Y   |
| WF46    | Town Hall               | R         | 510565              | 196800              | 2m              | NO2                  | N        | Y   | N                  | 6m                                   | N   |
| WF47    | Willow Lane             | K         | 510335              | 195610              | 2.4m            | NO2                  | N        | N   | Y- 4m              | 1m                                   | Y   |

## 2.2 Comparison of Monitoring Results with Air Quality Objectives

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

#### Automatic Monitoring Data

The annual mean ratified NO<sub>2</sub> concentrations recorded by the continuous analyser at Watford Town Hall on Rickmansworth for the period 2008-12 are presented in Table 2.3a.

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

| Year   | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|------|------|------|------|------|
| Annual mean concentration (µg/m <sup>3</sup> ) | 32   | 39   | 39   | 39   | 38   |
| Data Capture (%)                               | 84   | 98   | 98   | 98.3 | 99.6 |

Data can be downloaded from [www.hertsbedsair.net](http://www.hertsbedsair.net)

It can be seen that concentrations have remained fairly constant over the last few years, and that the annual mean objective of 40 µg/m<sup>3</sup> has not been exceeded during this time.

Table 2.3b shows the comparison of monitored results at the Town Hall monitoring station on Rickmansworth Road with the 1-hour mean objective.

**Table 2.3b Results of Automatic Monitoring for NO<sub>2</sub>: Comparison with 1-hour Mean Objective**

| Year  | 2008                          | 2009 | 2010 | 2011 | 2012 |
|---|-------------------------------|------|------|------|------|
| Number of Exceedences of hourly mean (200 µg/m <sup>3</sup> ) | 0<br>(108 µg/m <sup>3</sup> ) | 0    | 1    | 0    | 1    |
| Data Capture (%)  | 84                            | 98   | 98   | 98.3 | 99.6 |

Data can be downloaded from [www.hertsbedsair.net](http://www.hertsbedsair.net)

There was one hour during 2012 where the hourly average was above 200 µg/m<sup>3</sup>. This is well below the limit of 18 hours allowed as per the NO<sub>2</sub> hourly mean objective of 200 µg/m<sup>3</sup> at Watford Town Hall.

Where data capture was <90% (2008), the 99.8th percentile was still well below the 200 µg/m<sup>3</sup> target.

Recent results are consistent with those from previous years so we can be confident that the hourly mean objective is not being exceeded at this location.

### **Diffusion Tube Monitoring Data**

Table 2.4 shows the annual mean bias adjusted NO<sub>2</sub> concentrations recorded at the 16 diffusion tube sites in 2012.

Table 2.4 Results of NO<sub>2</sub> Diffusion Tubes 2012

| Site ID | Location                              | Site Type | Within AQMA? | Triplicate or Co-located Tube | Full Calendar Year Data Capture 2012 (Number of Months) | 2012 Annual Mean Concentration ( $\mu\text{g}/\text{m}^3$ ) - Bias Adjustment factor = 0.79 |
|---------|---------------------------------------|-----------|--------------|-------------------------------|---|---|
| WF02    | Grove Pumping Station, Hempstead Road | B         | N            | N                             | 9   | 21  |
| WF03    | Hospital, Vicarage Road               | K         | N            | N                             | 9   | 38  |
| WF06    | Leisure Centre, Horseshoe Lane        | B         | N            | N                             | 9   | 25  |
| WF29    | Pinner Road                           | K         | Y            | N                             | 9   | <b>56</b>   |
| WF36    | Ravenscroft                           | I         | N            | N                             | 9   | 25  |
| WF37    | St Albans Road 2                      | K         | N            | N                             | 9   | <b>40</b>   |
| WF38    | A405 Horseshoe Lane                   | K         | Y            | N                             | 9   | <b>40</b>   |
| WF39    | Balmoral Road                         | K         | Y            | N                             | 8   | <b>(45)</b>   |
| WF40    | Salisbury Road                        | K         | Y            | N                             | 9   | <b>42</b>   |
| WF41    | Leavesden Road                        | K         | Y            | N                             | 9   | 36  |
| WF42    | Queens Road                           | K         | N            | N                             | 8   | <b>(37)</b>   |
| WF43    | Farraline Road                        | K         | Y            | N                             | 9   | <b>55</b>   |
| WF44    | Chalk Hill                            | K         | Y            | N                             | 8   | <b>(84)</b>   |
| WF45    | Wellington Road                       | K         | Y            | N                             | 9   | <b>40</b>   |
| WF46    | Town Hall collocation                 | R         | N            | Y                             | 9   | 37  |
| WF47    | Willow Lane                           | R         | N            | N                             | 9   | 35  |

Notes:

1. Exceedences of the NO<sub>2</sub> annual mean AQS objective of 40µg/m<sup>3</sup> are shown in bold.
2. Annual mean > 60µg/m<sup>3</sup> are underlined, indicating a potential exceedence of the NO<sub>2</sub> hourly mean AQS objective
3. Unfortunately it was not possible to replace the diffusion tubes at the beginning of June or July 2012, so three months data has been lost for all 16 sites. For most sites this means that data capture does not fall below the 75% cut off rate. However, for 3 sites (Balmoral Road, Queens Road and Chalk Hill) other tubes have gone missing during the year and the data capture rate has dropped below 75%. It was decided that producing annualised results for these sites was not needed, as the 8 month concentrations were similar to averages ones recorded for the whole of previous years (see table 2.6)
4. A bias correction factor of 0.79 was used for the 2012, DEFRA national bias adjustment factors.

Table 2.5 shows the average diffusion tube concentrations that have been recorded over the last 5 years

Table 2.5 Results of NO<sub>2</sub> Diffusion Tubes (2008 to 2012)

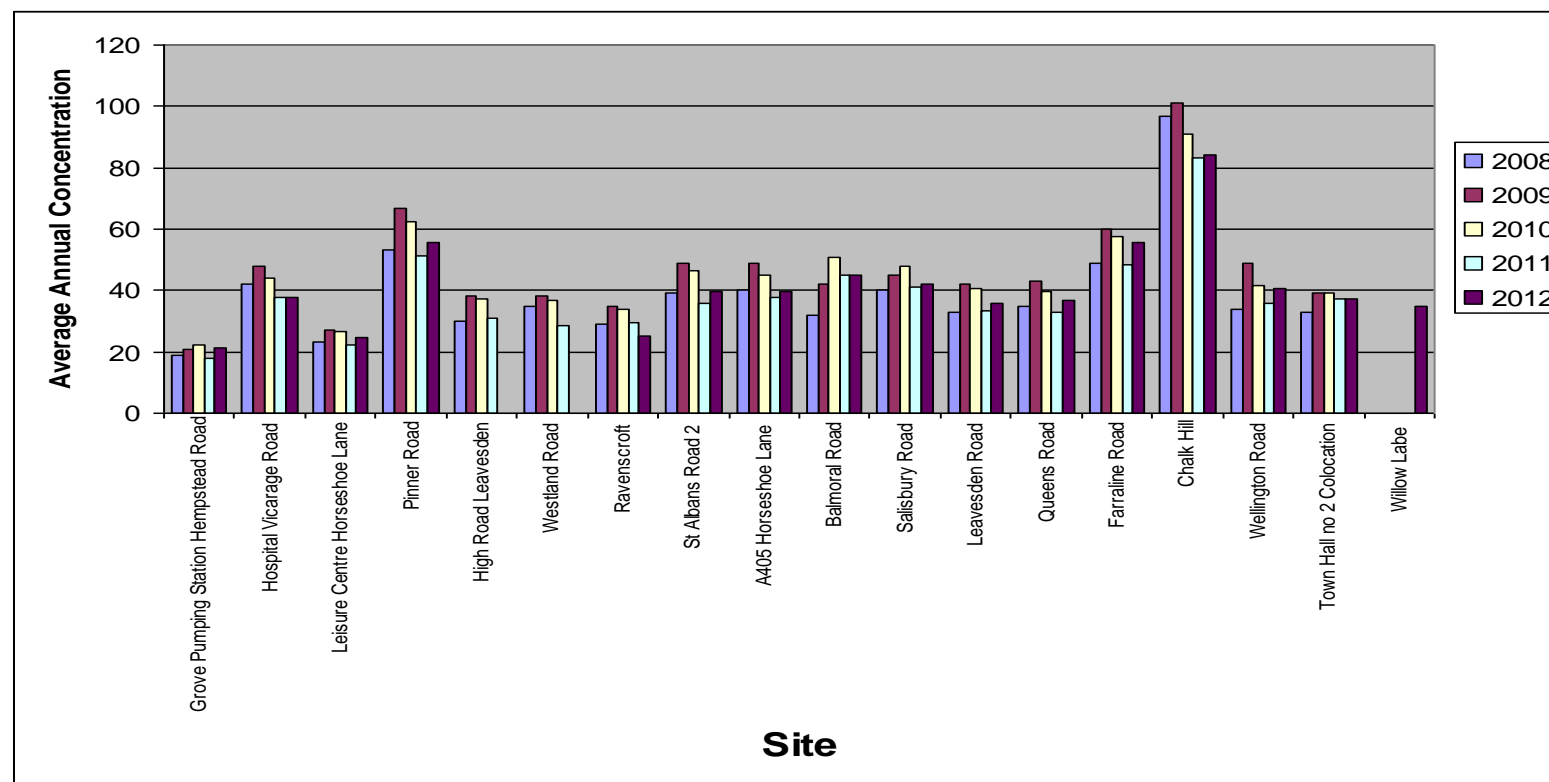
| Site ID | Site Type                             | Within AQMA? | Annual Mean Concentration (µg/m <sup>3</sup> ) - Adjusted for Bias <sup>a</sup> |                                      |                                      |                                      |                                      |
|---------|---------------------------------------|--------------|---|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|         |                                       |              | 2008 (Bias Adjustment Factor = 0.74)  | 2009 (Bias Adjustment Factor = 0.91) | 2010 (Bias Adjustment Factor = 0.85) | 2011 (Bias Adjustment Factor = 0.83) | 2012 (Bias Adjustment Factor = 0.79) |
| WF02    | Grove Pumping Station, Hempstead Road | N            | 19  | 21                                   | 22                                   | 18                                   | 21                                   |
| WF03    | Hospital, Vicarage Road               | N            | <b>42</b>   | <b>48</b>                            | <b>44</b>                            | 38                                   | 38                                   |
| WF06    | Leisure Centre, Horseshoe Lane        | N            | 23  | 27                                   | 27                                   | 22                                   | 25                                   |
| WF29    | Pinner Road                           | Y            | <b>53</b>   | <u><b>67</b></u>                     | <u><b>62</b></u>                     | <b>52</b>                            | <b>56</b>                            |
| WF36    | Ravenscroft                           | N            | 29  | 35                                   | 34                                   | 30                                   | 25                                   |
| WF37    | St Albans Road 2                      | Y            | 39  | <b>49</b>                            | <b>46</b>                            | 36                                   | <b>40</b>                            |
| WF38    | A405 Horseshoe Lane                   | Y            | <b>40</b>   | <b>49</b>                            | <b>45</b>                            | 38                                   | <b>40</b>                            |
| WF39    | Balmoral Road                         | Y            | 32  | <b>42</b>                            | <b>51</b>                            | <b>45</b>                            | <b>(45)</b>                          |
| WF40    | Salisbury Road                        | Y            | <b>40</b>   | <b>45</b>                            | <b>48</b>                            | <b>41</b>                            | <b>42</b>                            |
| WF41    | Leavesden Road                        | Y            | 33  | <b>42</b>                            | <b>40</b>                            | 33                                   | 36                                   |
| WF42    | Queens Road                           | N            | 35  | <b>43</b>                            | 39                                   | 33                                   | <b>(37)</b>                          |
| WF43    | Farraline Road                        | Y            | <b>49</b>   | <u><b>60</b></u>                     | <b>58</b>                            | <b>48</b>                            | <b>55</b>                            |
| WF44    | Chalk Hill                            | Y            | <u><b>97</b></u>  | <u><b>101</b></u>                    | <u><b>91</b></u>                     | <u><b>83</b></u>                     | <u><b>(84)</b></u>                   |
| WF45    | Wellington Road                       | Y            | 34  | <b>49</b>                            | <b>42</b>                            | 36                                   | <b>40</b>                            |
| WF46    | Town Hall collocation                 | N            | 33  | 39                                   | 39                                   | 37                                   | 37                                   |
| WF47    | Willow Lane                           | N            | n/a   | n/a                                  | n/a                                  | n/a                                  | 35                                   |

## Notes

1. Exceedences of the NO<sub>2</sub> annual mean AQS objective of 40µg/m<sup>3</sup> are shown in bold
2. Annual means > 60µg/m<sup>3</sup> are underlined, indicating a potential exceedence of the NO<sub>2</sub> hourly mean AQS objective
3. Figures in brackets are those for which data capture was below 75%

4. Local adjustment factors, calculated from the collocation of diffusion tubes at the Watford Town Hall continuous monitoring site, have been applied to diffusion tube data collected during 2008 (0.74) and 2009 (0.91). In 2010, 2011 and 2012 DEFRA's national bias adjustment spreadsheet was used to obtain values of 0.85, 0.83 and 0.79 respectively
5. It should be noted that some rounding errors have been identified so some figures in table 2.5 differ slightly from previous reports.

**Figure 2.3 Trends in Annual Mean Nitrogen Dioxide Concentrations Measured at Diffusion Tube Monitoring Sites**





It should be noted that concentrations across all of the sites have remained fairly constant in recent years. At the following sites, results suggest that concentrations are above an objective level.

- Pinner Road,
- St. Albans Road 2
- Balmoral Road
- Salisbury Road
- Farraline Road
- Chalk Hill
- Wellington Road

All of these sites are within existing Air Quality Management Areas, so it is not proposed to proceed to a Detailed Assessment.

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

The annual mean PM10 concentrations recorded by the TEOM instrument at Watford Town Hall for the period 2008-10 are presented in Table 2.6a, and the number of exceedences of the 24-hour mean objective are shown in Table 2.6b, as downloaded from the Herts & Beds Air Pollution Monitoring Network website.

[www.hertsbedsair.net](http://www.hertsbedsair.net)

In both cases, data was collected using a TEOM PM10 instrument. Results have been converted to reference equivalence using the volatile correction method (VCM).

**Table 2.6a Results of Automatic Monitoring for PM10: Comparison with Annual Mean Objective**

|  | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|------|------|------|------|------|
| Annual Mean Concentration (µg/m <sup>3</sup> ) | 21   | 22   | 24   | 25   | 22   |

**Watford Borough Council**

|              | 2008 | 2009 | 2010 | 2011 | 2012 |
|--------------|------|------|------|------|------|
| Data Capture | 98   | 98   | 98   | 98.8 | 97.8 |

**Table 2.6b Results of Automatic Monitoring for PM10: Comparison with 24-hour Mean Objective**

|  | 2008 | 2009 | 2010 | 2011 | 2012 |
|--|------|------|------|------|------|
| <b>Number of Exceedences of 24-hour mean (50 µg/m<sup>3</sup>) *</b> | 9    | 0    | 7    | 20   | 13   |
| <b>Data Capture</b>  | 98   | 98   | 98   | 98.8 | 97.8 |

The annual mean PM10 concentration recorded at Watford Town Hall has been well below the objective of 40 µg/m<sup>3</sup> for the period 2008-12.

The number of exceedences of the 24-hour mean objective of 50 µg/m<sup>3</sup> is well within the permitted 35 exceedences per year for the period 2008-12.

### 2.2.3 Summary of Compliance with AQS Objectives

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

Concentrations within the AQMA still exceed the annual objective from nitrogen dioxide at a number of locations in the Borough and the AQMA should remain.

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

## **3 New Local Developments**

### **3.1 Road Traffic Sources**

There are no new road traffic sources that may have an impact on air quality in the Borough.

### **3.2 Other Transport Sources**

There are no new other transport sources that may have an impact on air quality in the Borough.

### **3.3 Industrial Sources**

There are no new industrial sources that may have an impact on air quality in the Borough.

### **3.4 Commercial and Domestic Sources**

A new biomass boiler has been installed at the Sainsbury Store located on Albert Road South close to the High Street. The installation company approached the Environmental Health Section with full details of the plant, including the boiler rating, stack height, flue diameter and maximum emission rates.

The impact of the plant was assessed using DEFRA's Technical Guidance LAQM.TG(09) and concluded that the PM10 and nitrogen dioxide objective values would be met.

In addition to being satisfied that the objective levels would be met, the Environmental Health Section also noted that there was no relevant exposure in the vicinity of the boiler.

### **3.5 New Developments with Fugitive or Uncontrolled Sources**

There are no new developments with fugitive or uncontrolled sources that may have an impact on air quality in the Borough.

Watford Borough 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.

Watford Borough 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.**

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

Currently the Council is not proposing to develop an Air Quality Strategy. Instead we are developing the measures outlining the Air Quality Action plan that was produced following the declaration of the six Air Quality Management Areas in 2006. This is discussed in more detail in chapter 9.

## 5 Planning Applications

Discussions with the Council's Development Control Section have not revealed any new developments which could impact upon air quality.

However there are two proposed developments that may have an impact in the future:

### **Watford Health Campus.**

This is a large development will seeing the rebuilding of Watford General Hospital, along with the construction of new commercial and residential properties, and a new road that will improve access from the M1 and Lower High Street Areas. The project has been at the planning stage for a number of years but has now been given planning consent and is due for completion in 2018.

As part of the pre-application work, an air quality assessment was carried out in 2007, which concluded that overall the likely impact of the development on air quality was 'minor adverse', based on conditions at that time. It suggested that nitrogen dioxide concentrations could rise by up to 2µg/m<sup>3</sup> at some locations.

It was also suggested that concentrations at other locations could be reduced, as a result of the access road relieving congestion. Overall, the benefit of the project was deemed to outweigh any air quality considerations and it was given planning consent in 2011.

It is also worth noting that since the air quality assessment was carried out, the size of the Air Quality Management Areas at Bushey Arches and Vicarage Road have increased. As these are the two areas most likely to be affected by the Health Campus Development, it is possible that any areas affected by it will be in the new areas.

County Council traffic engineers will be looking at traffic flows associated with the development so this will be a good opportunity to work with them on air quality issues too.

### **Supermarket Development**

A major supermarket chain has also approached the Council with a view to opening a shop in the Lower High Street, just to the North of the AQMA at Bushey Arches. The air quality assessment that has been submitted to the council suggests that there will be a minor adverse effect on air quality close to the site, and that it could cause nitrogen dioxide concentrations to rise above the 40 µg/m<sup>3</sup> annual mean objective level. No planning application has been received to date.

The council proposes to install two additional diffusion tubes in the vicinity of these developments, to monitor air quality.

## 6 Air Quality Planning Policies

In Watford the Local Development Plan remains the principal planning policy document relating to air quality. It was adopted in December 2003. The plan has two policies that relate to air quality as follows:

SE20 Air Quality

SE21 Air Quality Management Areas

The full text of the policies is contained in Appendix C

The plan was first drafted in 2000 (with subsequent revisions up to 2003), and therefore some of the references to the Council's Air Quality Management processes and the areas of concern are out of date. The Local Development Plan is gradually being superseded by the Local Development Framework. This will give us an opportunity to revise the policy to reflect the new Air Quality Management Areas.

In addition, one of the measures contained in the April 2011 updated Air Quality Action Plan is the writing of an amended air quality policy for use within the planning framework.

The Council's Planning Policy Team are currently rewriting a number of their environmental planning policies and the Environmental Health Section have been involved in this work. It is hoped that conclusion will be more robust air quality policies that will restrict development where it may have an adverse effect on air quality, as well as allow for more mitigation measures where they are needed.



## **7 Local Transport Plans and Strategies**

As part of the development on the updated Air Quality Action plan, Watford Borough Council has been working closely with Hertfordshire County Council to make sure that the measures included with the plan tie in with the development of their LTP3. In addition we have been fully involved in County Council's consultation on their transport policy.

## **8 Climate Change Strategies**

The Council has adopted a Climate Change Policy which formalises the commitments that the Council has made to tackle climate change.

In addition the Council has adopted a Carbon Management Strategy and associated Action Plan that sets out how reductions in community and Council carbon emissions will be delivered.

## 9 Implementation of Action Plans

The Council produced its first action plan in 2009. This detailed 21 measures aimed at improving air quality. In April 2011 an updated version was completed and this recommends 16 measures for implementation.

A public consultation on the changes was carried out in 2012. This was carried out at the same time as the proposed amendments to the existing AQMAs that were identified in the 2009 Further Assessment

The Action Plan was ratified by DEFRA, and there were no objections received as part of the consultation.

The Council has set up internal and external working arrangements (for example with Hertfordshire County Council traffic planners and Watford Borough Council planners to take these measures forward. We will also be making sure that measures contained in the Air Quality Action Plan tie up with the Council's wider planning policy and the County Council Local Transport plan

Table 9.1 below outlines the 16 measures. Please note that there are no columns relating to progress with the implementation as the updated report has only just been finalised, and working arrangements with other agencies are still being developed.

**Table 9.1 Action Plan Recommended Measures**

| No. | Measure                                  | Focus  | Lead authority | Policy linkages  | Timescale | Indicator  | Target   | Air Quality impact                                |
|-----|--|--|----------------|--|-----------|--|--|---|
| 1   | Intelligent Transport Systems            | To manage traffic movement more efficiently throughout the County                                    | HCC            | <ul style="list-style-type: none"> <li>LTP3</li> </ul>               | TBC       | NI167 congestion   | 2.87 mins/mile in 2008/09 to 2.80 mins/mile in 2015/15 | Likely to be high in the AQMA congested junctions |
| 2   | Road Infrastructure Improvements         | Ease congestion in St Albans Road AQMA. Further improvements are recommended in the Congestion study | HCC/WBC        | <ul style="list-style-type: none"> <li>LTP3</li> </ul>               | TBC       | Schemes completed  | 2 link roads completed                                 | Likely to be high                                 |
| 3   | Enforcement of parking policy            | Minimise emissions due to reduced traffic flow caused by obstructions                                | WBC            | Council Enforcement Officers   | TBC       | Number of warnings, fines and prosecutions for such offences | n/a  | low   |
| 4   | Installation of EV charging points       | Encourage the uptake of electric vehicles  | HCC            | LTP3, Relies on success of bid to Plugged In Places government grant | TBC       | Number of charging points installed                          | N/A depends on success of grant                        | low   |
| 5   | Implement bus strategy                   | Encourage the increase of bus patronage  | HCC/WBC        | LTP3, Bus Strategy   | TBC       | Bus patronage  | Not set as yet   | medium  |
| 6   | Implement the intralink project          | Increase the integration of public and sustainable transport movements                               | HCC/WBC        | LTP3   | TBC       | Bus and rail patronage, number of cyclists and pedestrians   | Not set as yet   | medium  |
| 7   | Watford Junction interchange improvement | Increase the accessibility of the rail station   | HCC/WBC        | LTP3   | TBC       | Completed scheme   | Completed scheme                                       | High in the vicinity of the junction              |
| 8   | Promotion of car sharing scheme          | Increase car sharing to ease congestion  | WBC            | LTP3, WBC green travel plan  | TBC       | Registered members on liftshare<br>Number of                 | 2011 level is 480,000<br>8 schemes                     | low   |

## Watford Borough Council

|    |   |   |         |   |     |   |                    |     |
|----|---|---|---------|---|-----|---|--------------------|-----|
|    |   |   |         |   |     | private schemes   | in 2011            |     |
| 9  | Promotion of Travel Plans                               | Increase in sustainable transport                                     | WBC     | LTP3, WBC green travel plan                 | TBC | Number of travel plans in schools and businesses  | Increase from 2011 | low |
| 10 | Promotion of TravelSmart                                | Personalised travel planning to reduce car use                        | WBC     | LTP3, WBC green travel plan                 | TBC | Progress on the Croxley programme   | N/A                | low |
| 11 | Promotion of cycling and walking                        | Increase sustainable transport  | WBC/HCC | LTP3, WBC green travel plan                 | TBC | Number of cyclists and pedestrians  | N/A                | low |
| 12 | Develop Supplementary Planning Document for Air Quality | Develop SPD on AQ for inclusion in the 2011 Development Plan Document | WBC     | LDF   | TBC | <ul style="list-style-type: none"> <li>• Publication of SPD;</li> <li>• Number of planning applications made using the guidance;</li> </ul> | n/a                | low |
| 13 | Annual Council vehicle fleet review                     | Maintain clean Council vehicle fleet                                  | WBC     | Green Travel Plan                           | TBC | Age and Euro standard of Council vehicle fleet  | n/a                | low |
| 14 | Promote air quality within the Borough                  | Increase awareness of AQ as a health issue and the                    | WBC     | Air Quality SPD; Green Travel Plans         | TBC | "Hits" on Herts&Beds Air Quality website  | Increase on 2011   | low |
| 15 | Continue to monitor air quality                         | Maintenance of air quality monitors and data management               | WBC     | LTP3, Green travel plan, Community strategy | TBC | Number of operational monitors  | Same as in 2010    | low |
| 16 | Undertake feasibility studies                           | To investigate the air quality impact of any potential future schemes | WBC     | LDF, LTP3                                   | TBC | N/A   | N/A                | N/A |

## **10 Conclusions and Proposed Actions**

### **10.1 Conclusions from New Monitoring Data**

There is no new monitoring data to suggest that there are any potential breaches of Air Quality objectives outside the existing AQMAs.

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

The Council has identified no new local developments that that will require more detailed consideration in the next Updating and Screening Assessment, or that give rise to the need for a Detailed Assessment..

### **10.3 Other Conclusions**

The Council has identified that the future Health Campus Development and the supermarket proposed for the Lower High Street area may have an adverse affect on air quality in the vicinity and will need to be closely monitored

### **10.4 Proposed Actions**

Although the monitoring data has not identified a need to progress to a Detailed Assessment, two new nitrogen dioxide diffusion tubes sites will be set up at the beginning on 2014 to monitor the effects on proposed developments on Lower High Street.

The nitrogen dioxide diffusion tube site on Willow Lane will be decommissioned.

The formal process to amend and revoke some of the existing Air Quality Management Area will be completed.

The measures outlined in the Air Quality Action plan will be progressed.

The new air quality planning policy will be formalised.

## 11 References

First Round Review & Assessment , Watford Borough Council, December 2000

Updating and Screening Assessment Watford Borough Council, June 2003

Detailed Assessment, Watford Borough Council, April 2004

Updating and Screening Assessment, Watford Borough Council, July 2007

Progress Report, Watford Borough Council, December 2008

Further Assessment, Watford Borough Council, April 2009

Combining Updating and Screening Assessment and Progress Report, Watford Borough Council, June 2010

Updated Air Quality Action Plan, Watford Borough Council, April 2011

Updating and Screening Assessment Watford Borough Council, June 2012



# Appendices

## Appendix A: Original and Revised Air Quality Management Areas

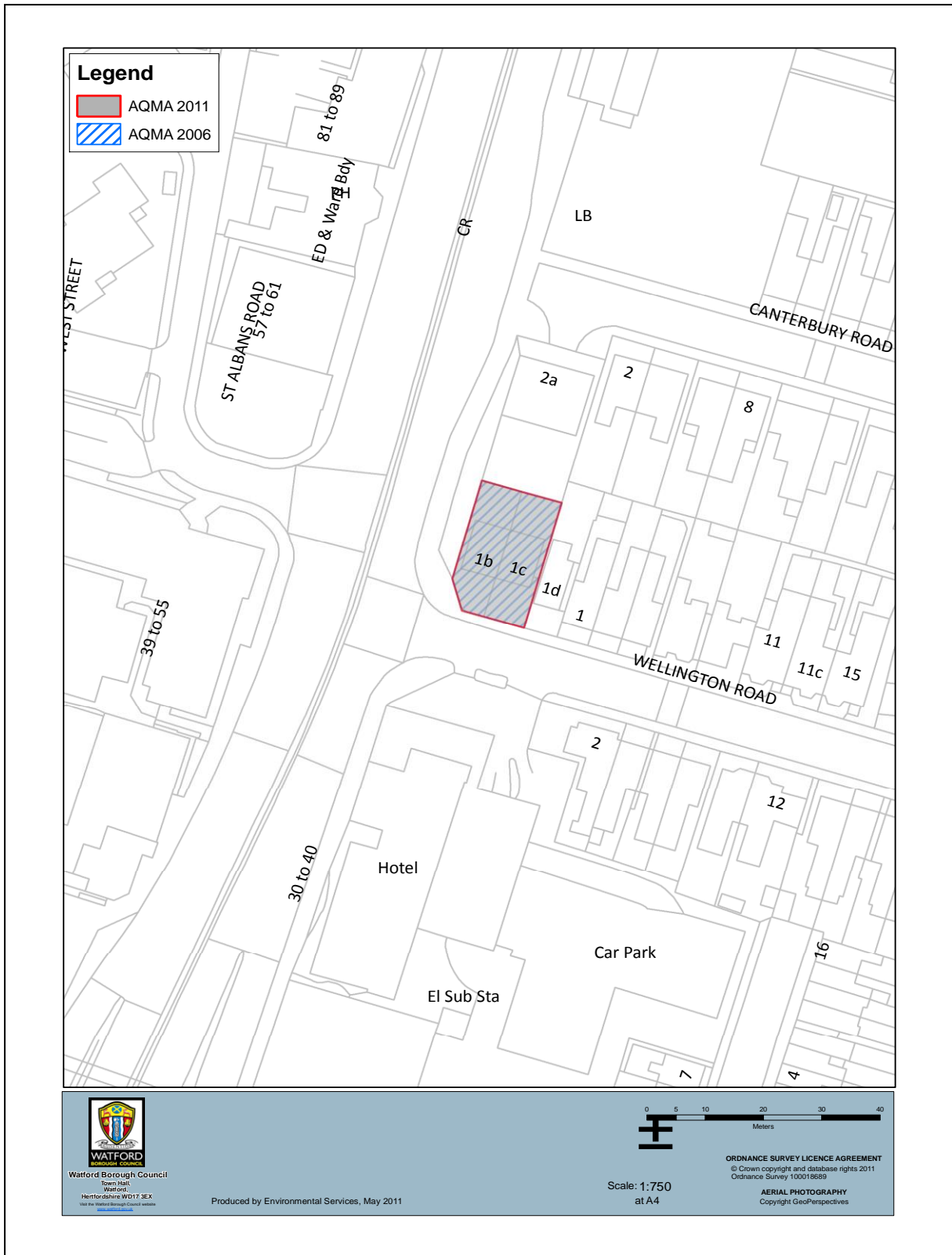


Figure A1.1 Air Quality Management Area 1 St.Albans Road Map 1

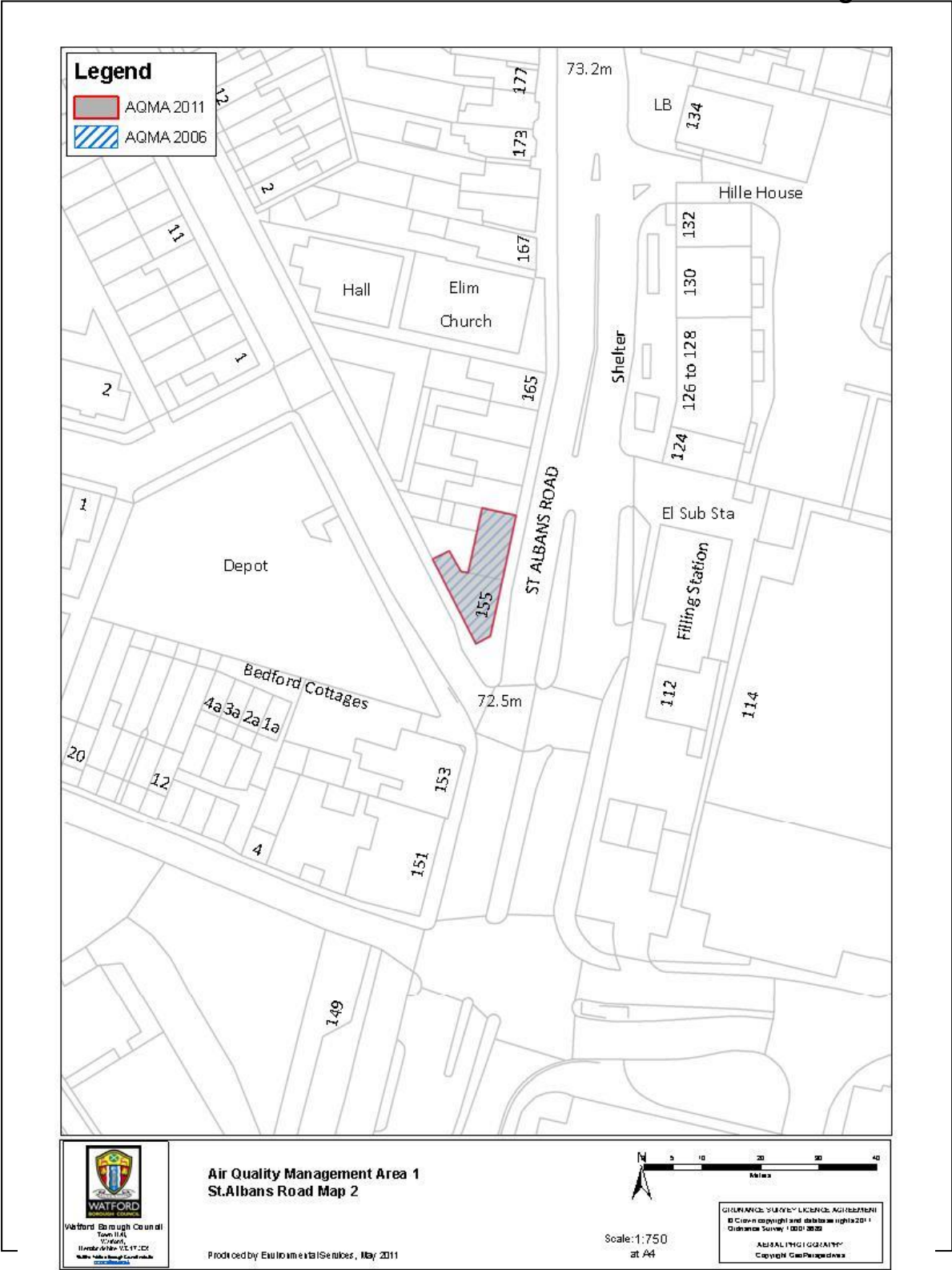


Figure A1.2 Air Quality Management Area 1 St. Albans Road Map 2



Figure A1.3 Air Quality Management Area 1 St. Albans Road Map 3



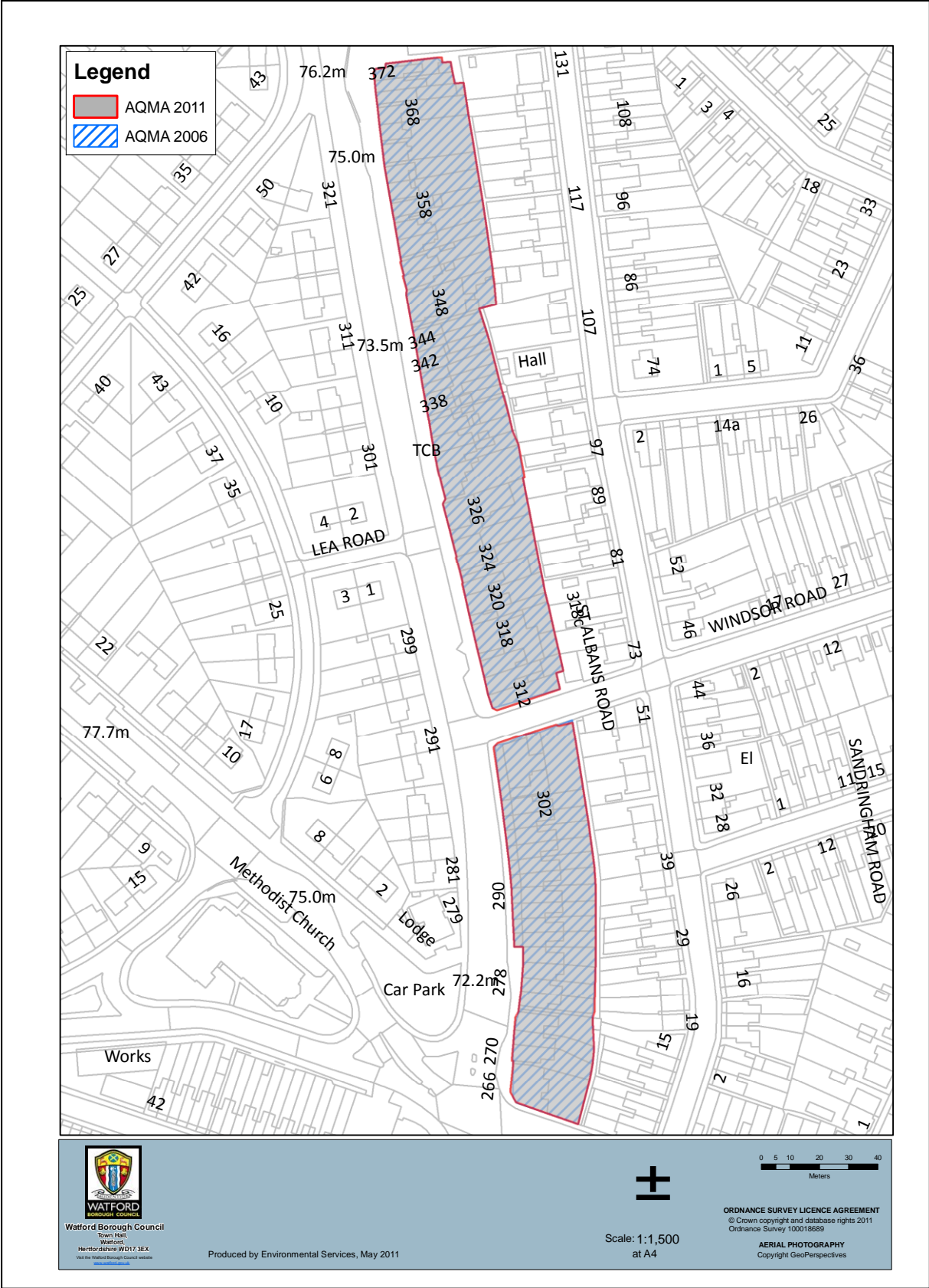


Figure A1.4 Air Quality Management Area 1 St.Albans Road Map 4

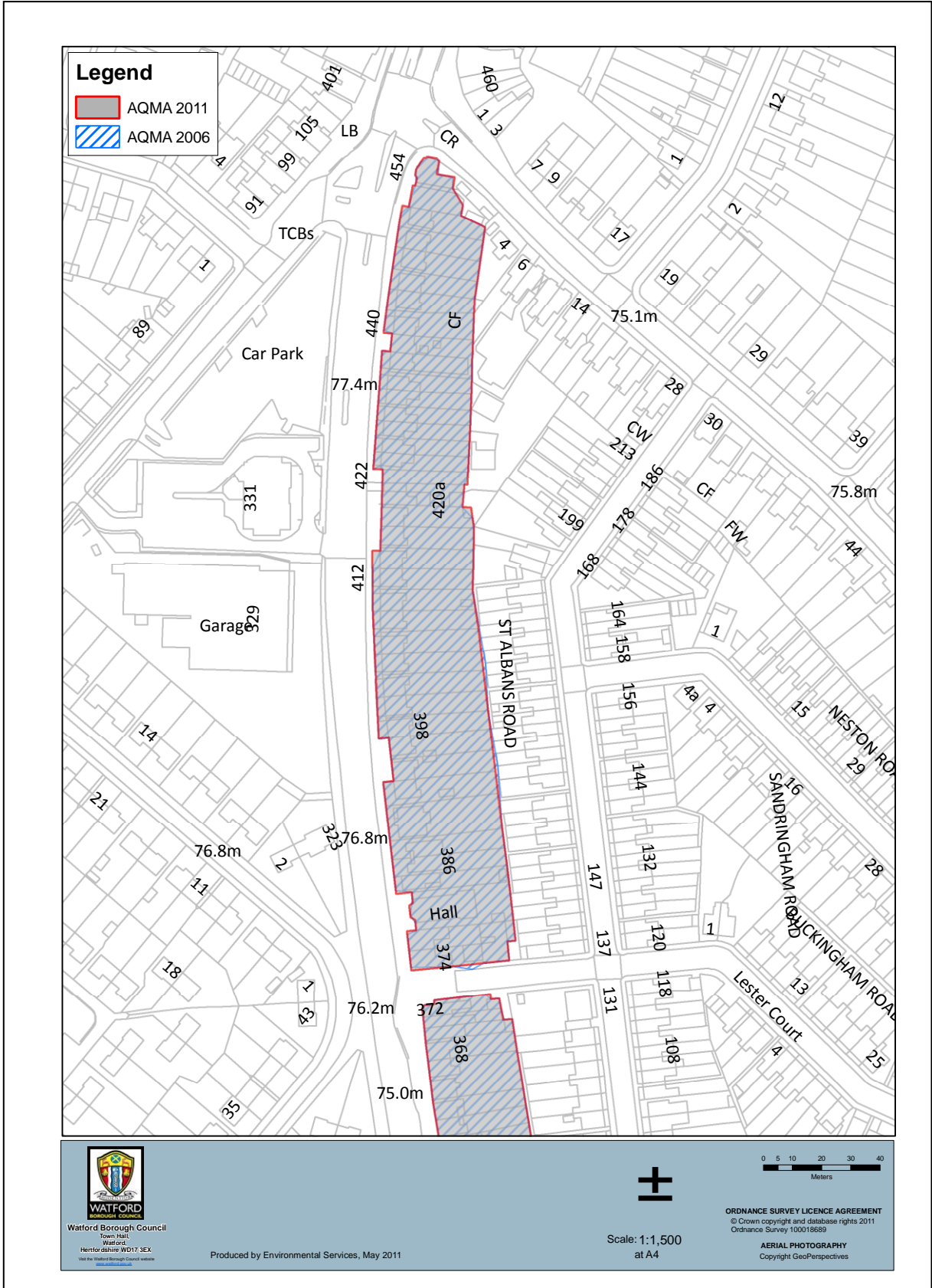


Figure A1.5 Air Quality Management Area 1 St.Albans Road Map 5

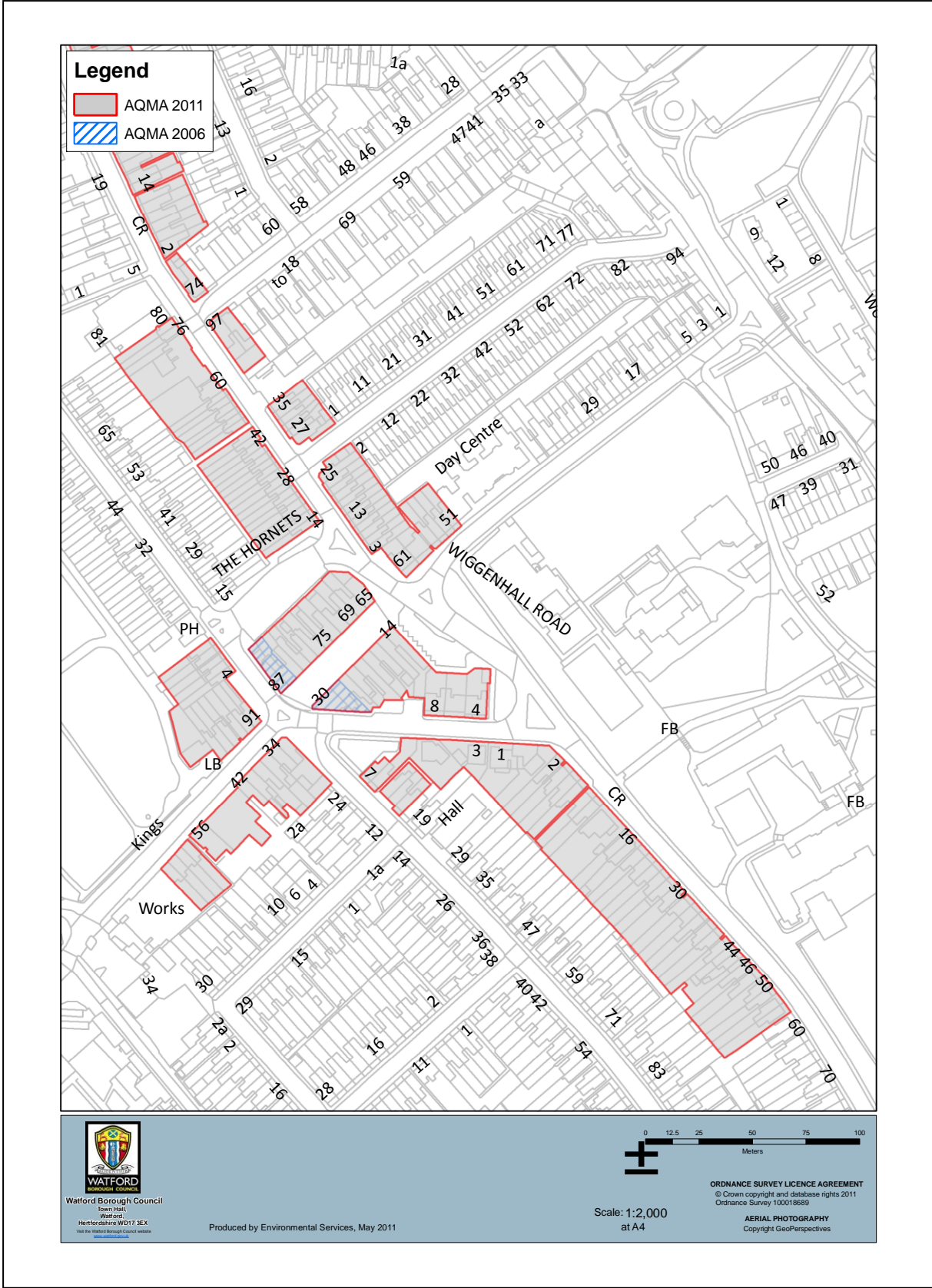


Figure A1.6 Air Quality Management Area 2 Hornets Interchange / Vicarage Road Map 1



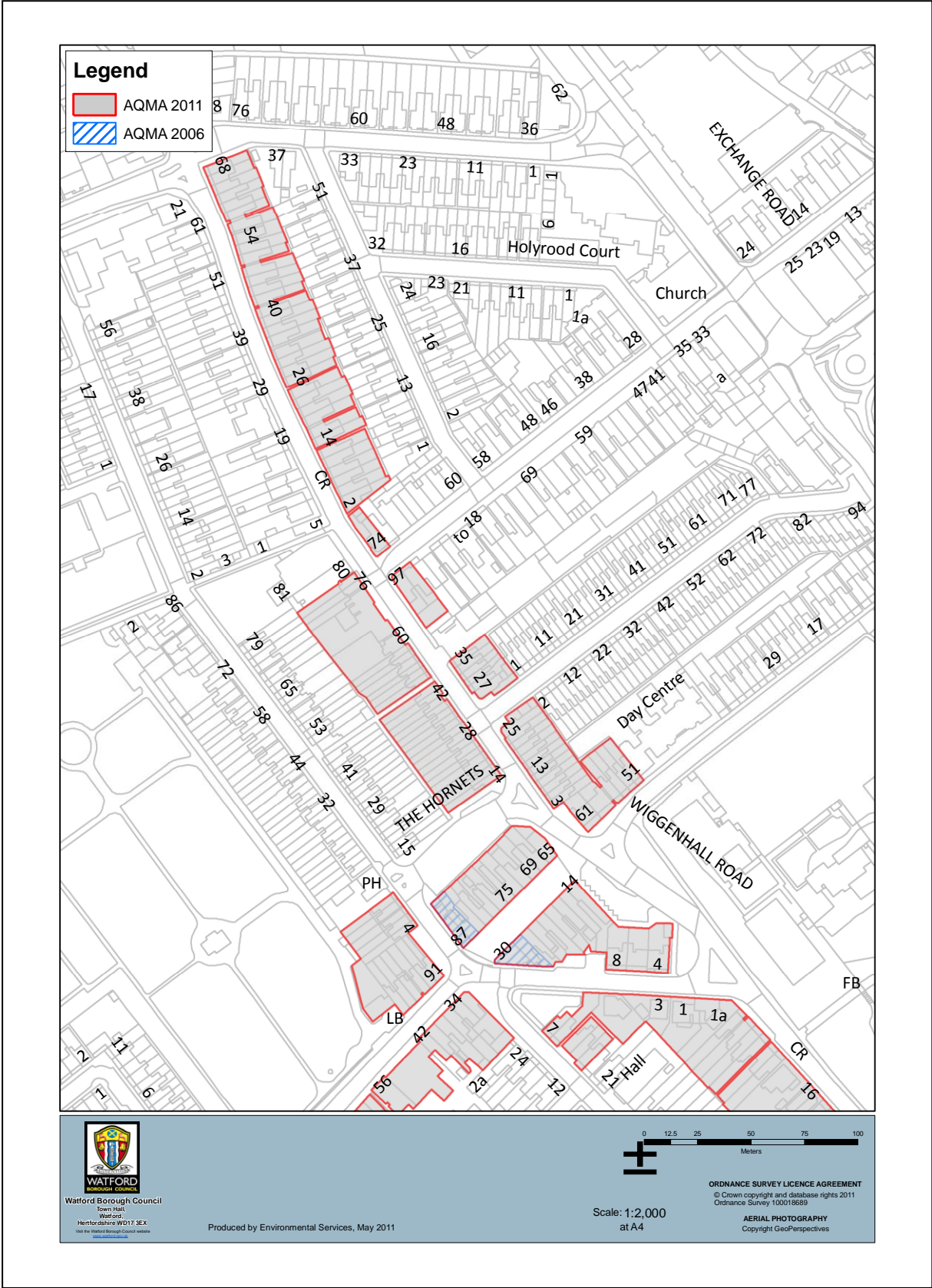


Figure A1.7 Air Quality Management Area 2 Hornets Interchange / Vicarage Road Map 2

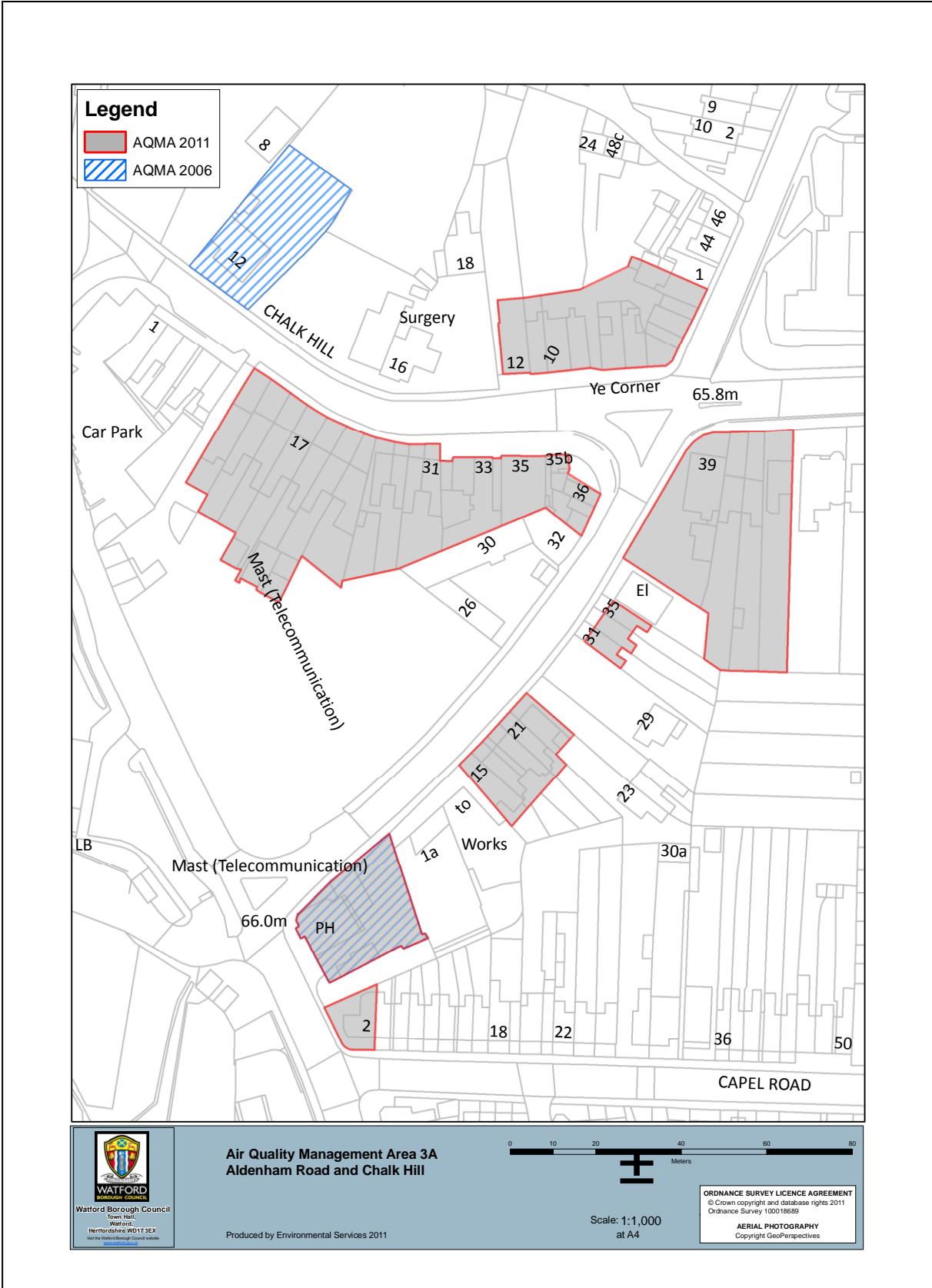


Figure A1.8 Air Quality Management Area 3A Aldenham Road / Chalk Hill



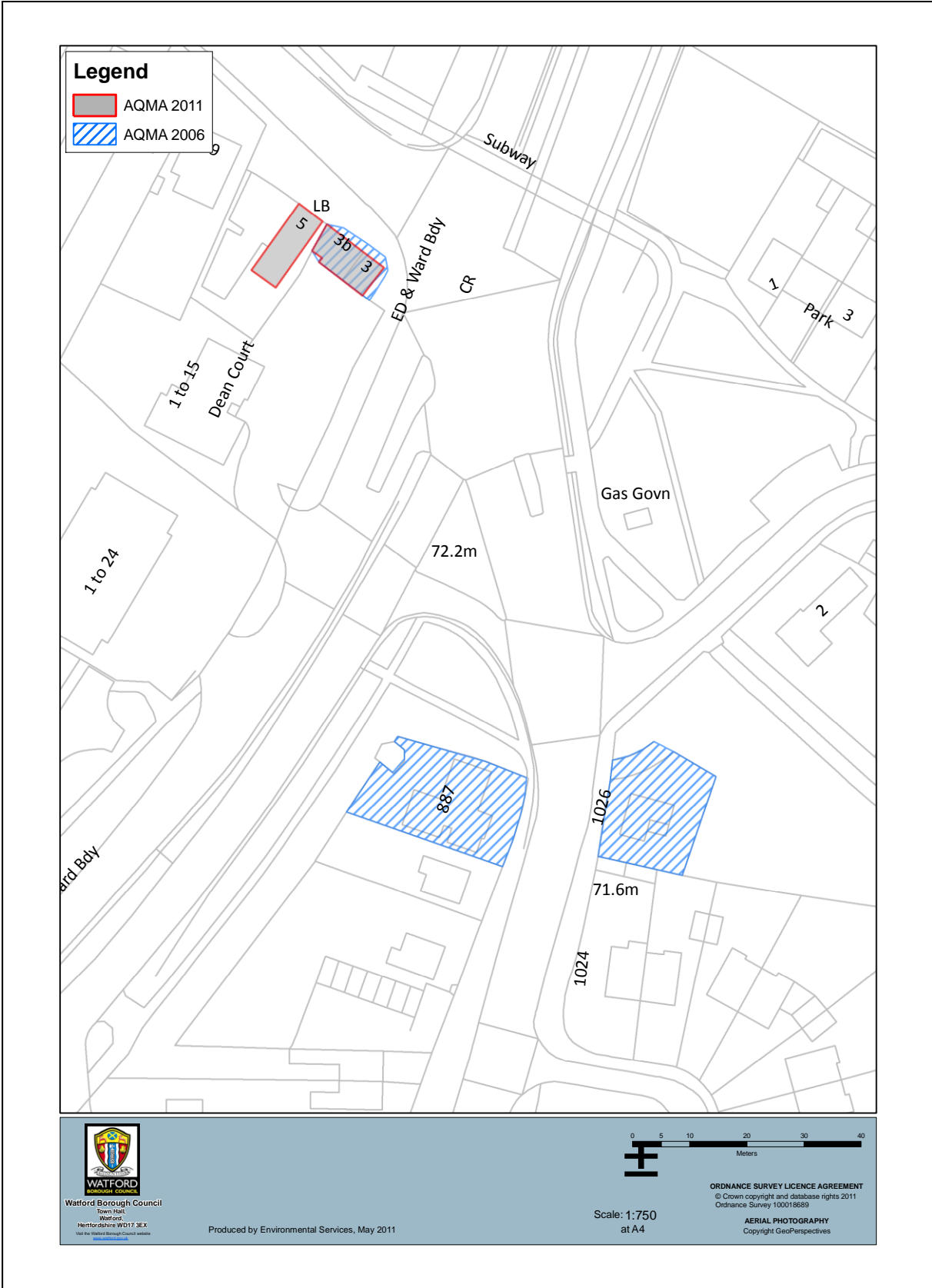


Figure A1.9 Air Quality Management Area 5 Horseshoe Lane

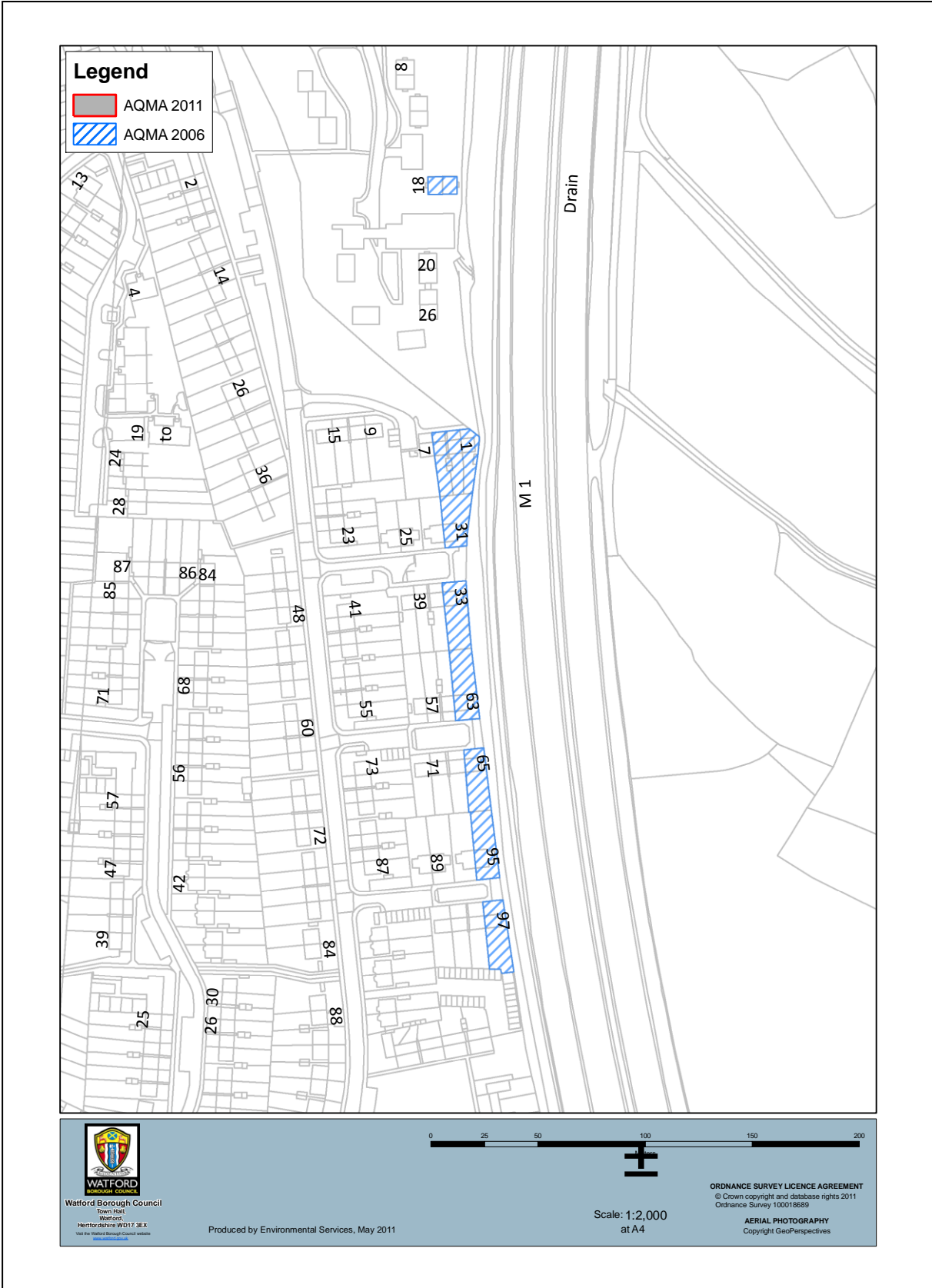


Figure A1.10 Air Quality Management Area 6 M1 / Meriden Map 1

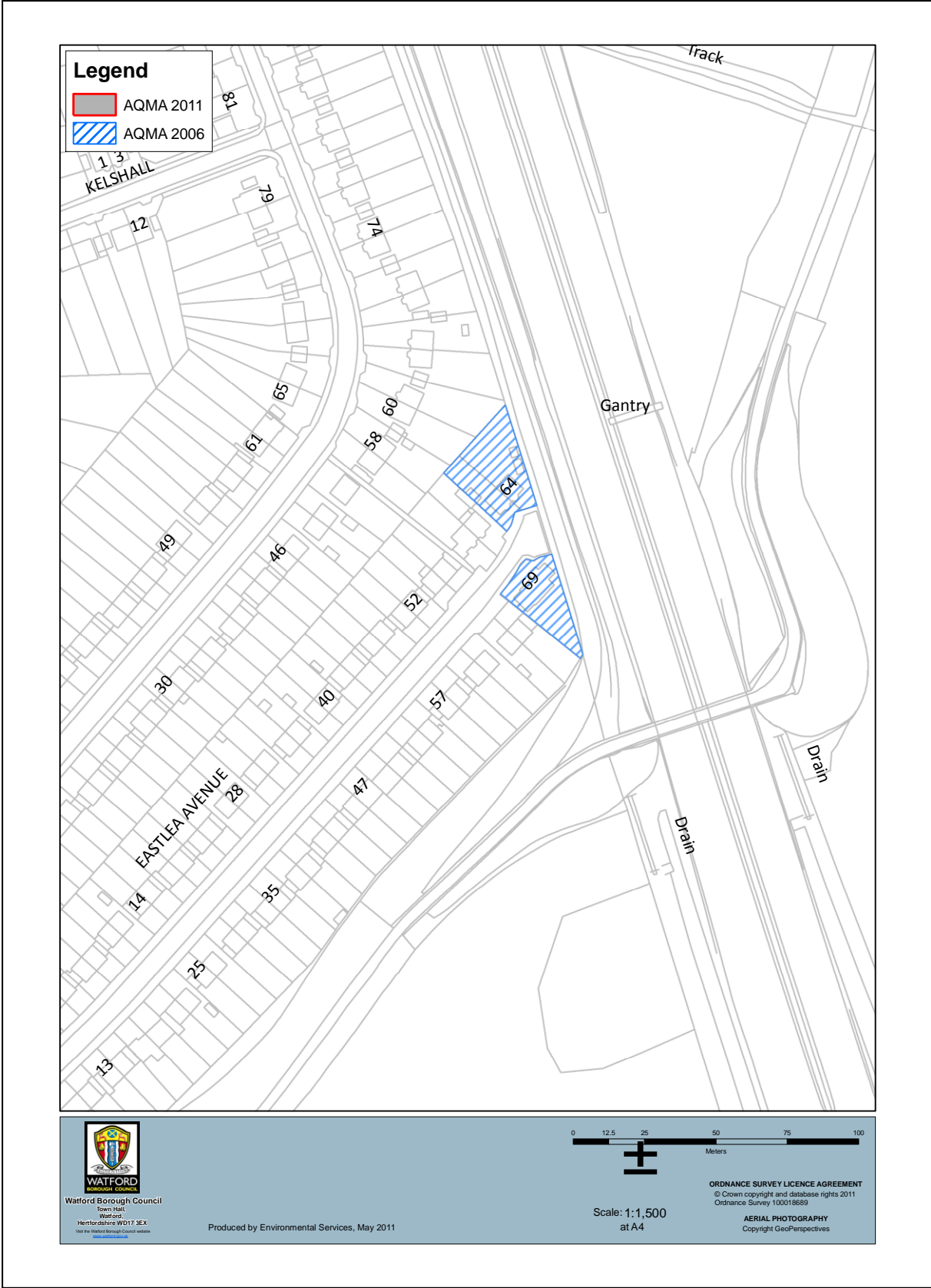


Figure A1.11 Air Quality Management Area 6 M1 / Meriden Map 2

## Appendix B: QA:QC Data

### Diffusion Tube Bias Adjustment Factors

The bias adjustment factors used as given in section 2.2.1

### PM Monitoring Adjustment

As part of the contract that the Council has with AQDM to collect and ratify data from the automatic monitoring station, PM<sub>10</sub> data collected using the TEOM instrument is converted by them to reference equivalence using the volatile correction method (VCM).

### QA/QC of automatic monitoring

The QA/QC procedures for the Herts and Beds Air Quality Monitoring Network are equivalent to that of the AURN with the following exceptions:

- No chart recorders are used.
- NO<sub>2</sub> span gas is used at routine site visits.

QA/QC procedures are detailed in the UK Automatic Network Site Operator's Manual available on [www.airquality.co.uk](http://www.airquality.co.uk).

Broadly speaking, the QA/QC procedures for the AURN are:

Data measured by the analysers are retained by the data loggers as 15 minute, raw averages. These values are collected remotely every 12 hours by telemetry automatically by the central computer, where calibration factors are applied to calculate scaled 15 minute average pollutant concentrations. At each polling, algorithms are used to apply automatic validity checks and flag any suspect measurements for possible future editing, rescaling or rejection. In addition to the automatic systems, trained staff inspect the results each morning (365 days per year) and investigate any suspicious data. The resulting provisional data sets are then released as data or statistics to the network internet pages and distributed to interested parties via daily or weekly emails.

In addition to this initial screening process, data are further scrutinised in monthly blocks, then again at the end of each calendar year, in order to provide a final ratified dataset. These definitive results are suitable for publication and use by local authorities for LAQM analysis. This data ratification process requires the detailed examination of a variety of site and analyser outputs. These include site records, calibration records, network intercalibration results, site servicing and equipment records supplied by the site operators and equipment engineers.

### QA/QC of diffusion tube monitoring

Tubes are supplied and analysed by Harwell Scientific Services, a UKAS accredited laboratory. The tubes are prepared using 50% TEA (triethanolamine) in acetone.

## Watford Borough Council

The Harwell Scientific laboratory participates in the field intercomparison scheme and the Workplace Analysis Scheme for Proficiency (WASP) programme, operated by the Health and Safety Laboratory (HSL). For the period presented, Harwell Scientific demonstrated 'good' performance in the WASP scheme for analysis of NO<sub>2</sub> diffusion tubes (<http://www.laqmsupport.org.uk/no2qaqc.php>).

## Appendix C: Watford Borough Council Air Quality Planning Policies

### 3.58 SE20 Air Quality

In determining planning applications it will be important to consider the impact of a development in terms of the effects on air quality caused by both the operational characteristics of the development (industrial, commercial and domestic) and the traffic generated by it. The Council will have regard to the potential effects of a development on local air quality when determining planning applications.

- 3.59** In considering the impact of a proposed development on air quality, the Council will liaise with the pollution control authorities (the local Environmental Health and Licensing Service or Environment Agency). The Council may require the submission of information and modelling to indicate the potential impact of atmospheric emissions, or the effect on background pollution concentrations. This should particularly be the case where a development is proposed in, or close to, an Air Quality Management Area (AQMA). Where local air quality is identified as being a risk to health, and the potential problem is incapable of being overcome by a condition or planning obligation, then this may be cause for refusal of planning permission.

### 3.60 SE21 Air Quality Management Areas

Any development within areas designated as air quality management areas in Watford must have regard to guidelines for ensuring air quality is maintained at acceptable concentrations as set out in the national air quality strategy. In addition, where developments are close to AQMAs, and a significant increase in road traffic is predicted, similar regard to air quality concentrations must be had.

- 3.61** Major developments can have an effect on air quality. Road related development as well as some types of industry can both increase emissions. The Environment Act 1995 places a duty on local authorities to review and assess air quality in their districts. Those areas that are expected to exceed national guidelines in the year 2005 will be deemed Air Quality Management Areas (AQMAs) and a strategy will need to be devised by the Council to reduce pollution concentrations accordingly.
- 3.62** The Council completed its initial assessment of air quality across the Borough in 2001. This identified six areas where the objectives laid down in the Air Quality Regulations 2000 could, on occasion, be exceeded, as follows:

- Close to the M1
- Close to the A41
- Close to the A4008 (Pinner Road)
- Close to the A4178 (Cassio Road/Wiggenhall Road)
- Close to the A411 (Hempstead Road)
- Close to the A412 (Rickmansworth Road)

In each case, the pollutants of concern were nitrogen dioxide and 'PM<sub>10</sub>' particles (small particles of dust). Both are traffic-related pollutants. As no significant public exposure was identified in any of these areas, no Air Quality Management Areas were declared. However, the areas remain of concern.

- 3.63 The Council is currently repeating the Review and Assessment process. Early indications are that nitrogen dioxide and 'PM<sub>10</sub>' particles may again be problems in areas close to some of the Borough's busiest roads.
- 3.64 Air Quality is an issue of sustainability, identified as a key element in the reduction of health risks from environmental pollution and hazards, also impacting on the built and natural environment. Its improvement is a major factor in the quality of life received by Watford's population. Air Quality is being monitored at a number of sites across the Borough including at the Town Hall.