Maidstone Borough Council

Updating And Screening Assessment 2015

Bureau Veritas Air Quality

December 2015

Move Forward with Confidence

Document Control Sheet

Issue/Revision	Issue 1	Issue 2
Remarks	DRAFT	FINAL
Date	25/09/2015	01/12/2015
Submitted to	Rosalyn Bower-Smyth	Dr Stuart Maxwell
Prepared by	Anna Czerska – Assistant Consultant	Anna Czerska – Assistant Consultant
Signature	A.C.	A.C.
Approved by	Jamie Clayton – Senior Consultant	Jamie Clayton – Senior Consultant
Signature		
Project number	6275878	
File reference	2973	

Disclaimer

This Report was completed by Bureau Veritas on the basis of a defined programme of work and terms and conditions agreed with the Client. Bureau Veritas' confirms that in preparing this Report it has exercised all reasonable skill and care taking into account the project objectives, the agreed scope of works, prevailing site conditions and the degree of manpower and resources allocated to the project.

Bureau Veritas accepts no responsibility to any parties whatsoever, following the issue of the Report, for any matters arising outside the agreed scope of the works.

This Report is issued in confidence to the Client and Bureau Veritas has no responsibility to any third parties to whom this Report may be circulated, in part or in full, and any such parties rely on the contents of the report solely at their own risk.

Unless specifically assigned or transferred within the terms of the agreement, the consultant asserts and retains all Copyright, and other Intellectual Property Rights, in and over the Report and its contents.

Any questions or matters arising from this Report should be addressed in the first instance to the report author.

Bureau Veritas UK Limited
5th Floor, 66 Prescot Street
London
E1 8HG

Telephone: +44 (0) 207 902 6100
Fax: +44 (0) 207 902 6149
Registered in England 1758622
www.bureauveritas.co.uk

Registered Office
Suite 308 Fort Dunlop
Fort Parkway, Birmingham
B24 9FD

Local Authority Officer	Rosalyn Bower-Smith Dr Stuart Maxwell Sarah Jane Edwards-Bonner
Department	Environmental Health
Address	Maidstone Borough Council Maidstone House, King Street Maidstone, Kent ME15 6JQ
Telephone	01622 602580
e-mail	rosalynbower-smith@maidstone.gov.uk stuartmaxwell@midkent.gov.uk sarahjaneedwards-bonner@midkent.gov.uk
Report Reference	Maidstone_USA 2015
Date	December 2015

Executive Summary

Part IV of the Environment Act 1995 places a statutory duty on local authorities to review and assess the air quality within their area and take account of Government Guidance when undertaking such work. This Updating and Screening Assessment is a requirement of the Sixth Round of Review and Assessment and is a requirement for all local authorities. The Report has been undertaken in accordance with the Technical Guidance LAQM.TG (09) and associated tools (as updated in 2014).

This Updating and Screening Assessment considers all new monitoring data and assesses the data against the Air Quality Strategy (AQS) objectives. It also considers any changes that may have an impact on air quality.

With regards to the continuous monitoring locations Maidstone A229 Kerbside monitor has shown a slight decrease in nitrogen dioxide (NO_2) concentrations from 2013. At the rural monitoring location annual mean concentrations of NO_2 have remained relatively stable, with PM_{10} also showing a slight decrease from 2013 concentrations.

Eleven diffusion tube monitoring sites showed an exceedence of the annual mean NO_2 objective at locations of relevant exposure within the AQMA.

There are three NO_2 diffusion tube locations - Maid 58, Maid 59 and Maid 81 - where the annual mean exceeded 60µg/m^3 at the nearest relevant exposure façade; all three have been identified previously. An annual mean concentration of greater than 60µg/m^3 indicates the potential for exceedence of the 1-hour objective. The Council have obtained funding to site an automatic monitor at this location but this has unfortunately not commenced due to siting location, and equipment supply, issues.

The Council are currently planning to move the Maidstone A229 Kerbside monitor, required due to changes to the road alignment close to the current location. A new site for the Kerbside monitor has not yet been finalised but it is hoped the new location will allow for an assessment of 1-hour NO_2 concentrations at Upper Stone Street.

Six biomass installations in the Borough have been identified in recent years. Although it has been possible to obtain some information for the Smiths Hall, West Farleigh and Elmscroft House, Charlton Lane boilers, the data is not sufficient to undertake a screening assessment. The Council has made several attempts to collect data and is still working to obtain the missing information. Once the data is available an assessment will be undertaken to

determine if emissions from the boilers are likely to cause an exceedence of the air quality objectives, the results of which will be reported in the next LAQM report.

Proposed actions from the Updating and Screening Assessment are as follows:

- Continue diffusion tube and continuous monitoring in the Borough to identify future changes in pollutant concentrations;
- Relocate Maidstone A229 Kerbside monitor to ascertain if an exceedence of the 1-hour NO_2 objective is occurring at Upper Stone Street/A249 Mote Road junction;
- Continue to gather emission and stack information for the identified biomass installations to determine their potential impact upon air quality; and
- Proceed to a Progress Report in 2016.

Table of contents

List of Tables

List of Figures

1 Introduction

1.1 Description of Local Authority Area

Maidstone is the county town of Kent, and the Borough of Maidstone was home to 149,800 people in 2010, with its population expected to increase to 167,700 by 2026. Around 11,080 new homes are to be provided within the planning period 2006 to 2026. The Borough is home to 8.8 per cent of the Kent and Medway population (2001 Census) and borders Swale, Ashford, Tunbridge Wells and Tonbridge and Malling Boroughs, as well as Medway Unitary Authority.

The Borough of Maidstone includes the large urban area of Maidstone as well as several small rural settlements. Its countryside, set within 'the Garden of England', is of a high landscape quality and includes the Kent Downs Area of Outstanding Natural Beauty.

The main source of air pollution in the Borough is traffic emissions from major roads, notably the M2, M20, A20, A229, A249, A26 and A274. An Air Quality Management Area (AQMA) was declared in August 2008 which incorporates the whole Maidstone urban area and the M20 corridor, where exceedences of the annual mean objective for nitrogen dioxide (NO_2) and 24-hour mean objective for fine particulate matter (PM_{10}) were predicted. Maidstone is subject to significant commuting into and out of the town, as well as an influx of school children, shoppers and tourists, and suffers from significant congestion especially on the approach roads to the town centre at peak hours. Other pollution sources, including commercial, industrial and domestic sources, also make a contribution to background pollution concentrations.

1.2 Purpose of Report

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

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

1.3 Air Quality Objectives

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

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 $\mu g/m^3$	Running annual mean	31.12.2003
	5.00 $\mu g/m^3$	Running annual mean	31.12.2010
1,3-Butadiene	2.25 $\mu g/m^3$	Running annual mean	31.12.2003
Carbon monoxide	10.0 mg/m^3	Running 8-hour mean	31.12.2003
Lead	0.5 $\mu g/m^3$	Annual mean	31.12.2004
	0.25 $\mu g/m^3$	Annual mean	31.12.2008
Nitrogen dioxide	200 $\mu g/m^3$ not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 $\mu g/m^3$	Annual mean	31.12.2005
Particles (PM_{10}) (gravimetric)	50 $\mu g/m^3$, not to be exceeded more than 35 times a year	24-hour mean	31.12.2004
	40 $\mu g/m^3$	Annual mean	31.12.2004
Sulphur dioxide	350 $\mu g/m^3$, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
	125 $\mu g/m^3$, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
	266 $\mu g/m^3$, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005

1.4 Summary of Previous Review and Assessments

Between 1998 and 2001, the Council undertook its first round of review and assessment of air quality. The conclusions of the first round were that it was necessary to declare an AQMA based on exceedences of the nitrogen dioxide (NO_2) annual mean objective due to road traffic emissions on the M20. An AQMA was subsequently declared along the M20 corridor between Junctions 6 and 7.

The first phase of the second round of review and assessment of air quality, the Updating and Screening Assessment (USA), was completed in July 2003 and this provided an update with respect to air quality issues within Maidstone. The USA concluded that a detailed assessment was required for NO_2 and particulates (PM_{10}) due to emissions from road traffic in Maidstone town centre. The detailed assessment confirmed the conclusions of the USA, and Maidstone town centre was declared as an AQMA in January 2005 for both particulate matter (24-hour mean) and nitrogen dioxide (annual mean).

The third round of review and assessment, following the same stages as the second round, began with an USA. The Council completed this in June 2006, with the conclusion that a detailed assessment was required for NO_2 at the Fountain/Tonbridge Road junction and on Well Road, and for NO_2 and PM_{10} at the junction of Loose Road and Sutton Road. The report recommended that the Council consider declaring AQMAs at the Fountain Lane/Tonbridge Road junction, the Well Road/Boxley Road junction and at the Loose Road/Sutton Road junction based on the potential exceedences. Following extensive consultation, the Council decided to declare an urban area wide AQMA. The amended AQMA was declared in July 2008. A Further Assessment was completed 2009. The process of preparing an Air Quality Action Plan started in parallel with the Further Assessment. The Council adopted the Maidstone AQAP in December 2010.

The 2009 USA identified a requirement for Maidstone Borough Council to undertake a detailed assessment for the hourly NO_2 objective at Upper Stone Street and Lower Stone Street, however this was to be considered as part of the on-going further assessment work for the Maidstone AQMA. It was recommended that additional monitoring of NO_2 should be carried out in the vicinity of the M20, Boxley Road/Westfield Sole Road and Lordswood Industrial Estate in order to assess compliance with the annual mean objective.

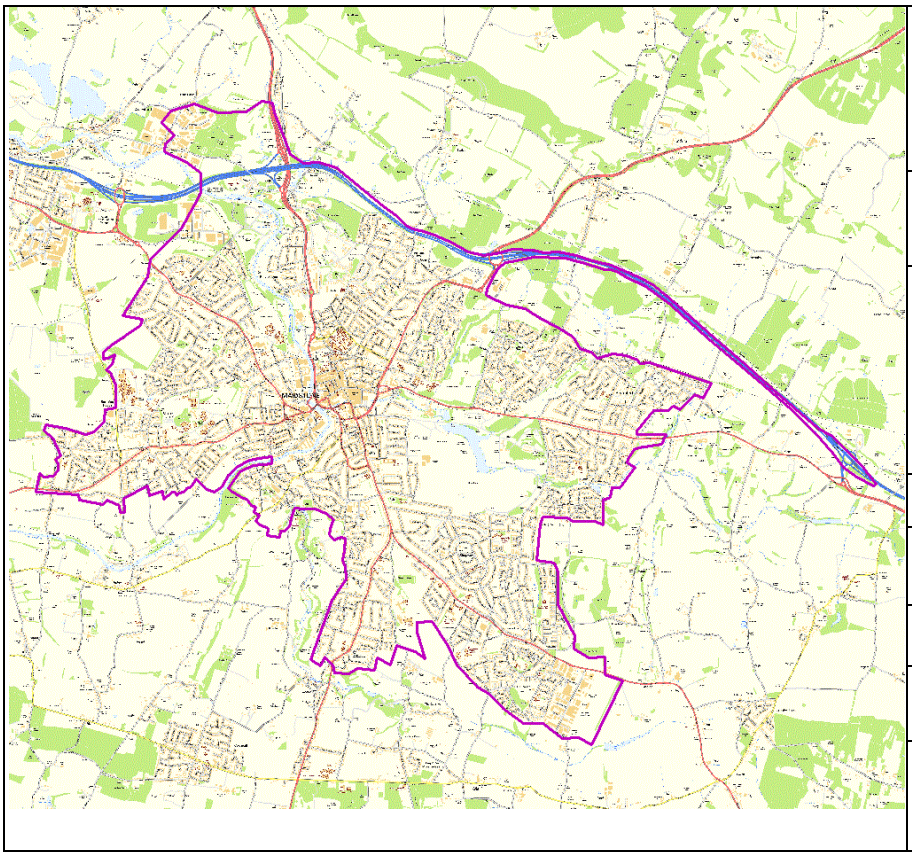
The Progress Reports produced in 2010 and 2011 identified the need to increase monitoring at busy locations and start monitoring at 1 Pilgrims Way to confirm exceedence and need for a Detailed Assessment. The Progress report 2011 also recommended that quantitative appraisal of AQAP measures should be undertaken.

The USA produced in 2012 suggested that '*little has changed in terms of sources of emissions in Maidstone Borough'* since the last USA in 2009, hence a Detailed Assessment was not necessary. The USA made some recommendations about diffusion tube monitoring to make it more representative and robust.

The 2013 and 2014 Progress Reports confirmed that there were no exceedences of air quality objectives for NO_2 outside of the Maidstone town AQMA. However, three NO_2 diffusion tube sites exceeded 60µg/m^3. These sites were Maid 58, Maid 59 and Maid 81; they have been identified previously. The review of industrial installations identified six biomass installations requiring a screening assessment.

The Maidstone town AQMA, which incorporates the entire urban conurbation, is shown in Figure 1.1. The declaration of the urban area-wide AQMA does not mean that NO_2 concentrations in the entire area are exceeding the objectives; it has been declared to aid administration of the AQMA. In reality, the exceedences are typically experienced within close proximity to busy routes with high volumes of traffic and/or congestion. The review and assessment process has identified six exceedence areas and these six exceedence areas were the focus of a quantitative appraisal modelling exercise carried out in 2012.

Figure 1.1 Maidstone AQMA



Legend

Maidstone AQMA Boundary

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location	Maidstone
Title	AQMA in Maidstone
By	AC
Approved	JC
Scale	Not To Scale
Job Ref	6275878
Date	August 2015
Figure No.	**1.1**

2 New Monitoring Data

2.1 Summary of Monitoring Undertaken

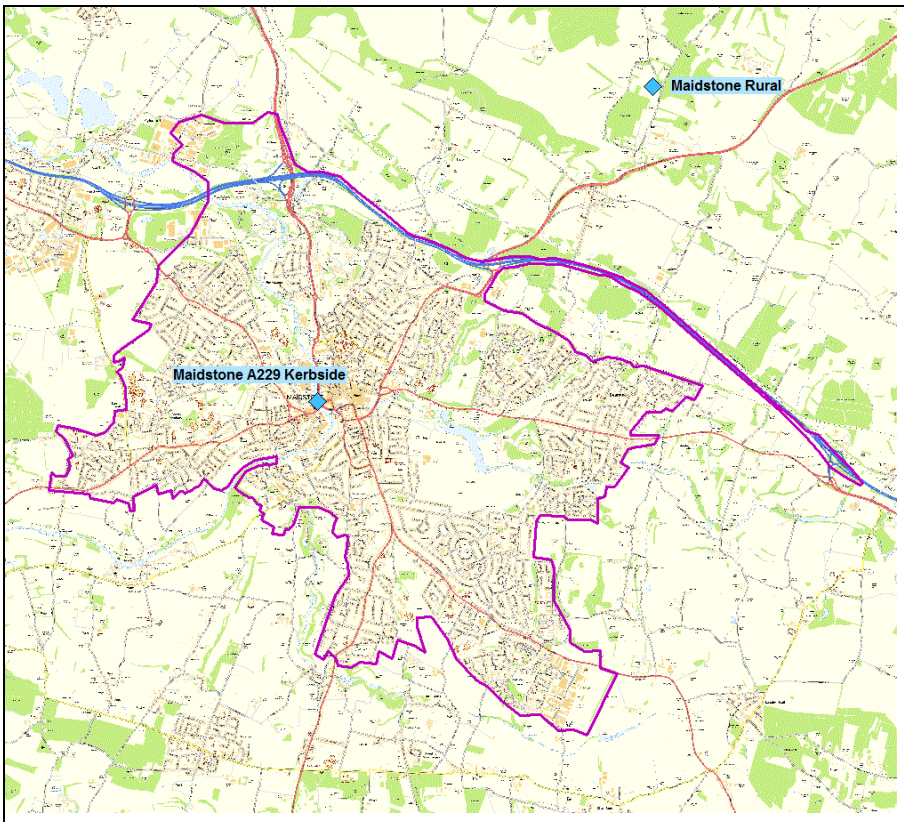
2.1.1 Automatic Monitoring Sites

Maidstone Borough Council operates two automatic monitoring stations, one situated at a roadside site, and one at a rural background location. The station at the A229 Bridge Gyratory measures NO_2 and PM_{10} and is next to a main road, within the AQMA. The rural background site in Detling is outside the AQMA and measures NO_x, PM_{10}, sulphur dioxide (SO_2) and ozone (O_3). Since the fourth round Updating and Screening Assessment in 2009, no changes have taken place to the automatic monitoring network.

The two PM_{10} monitoring sites in Maidstone use different instruments to measure particles. The background monitor located on Scragged Oak Lane (Detling) uses a Filter Dynamics Measurement System (FDMS). The roadside monitor located at Bridge Gyratory uses a Tapered Element Oscillating Microbalance (TEOM). Both monitors intake air through a filter which is then weighed, however, the TEOM filter is heated which means that the semi-volatile component of PM is lost. FDMS monitors are designed in such a way that this component is not lost and are therefore accurate enough to be considered reference equivalent. Measurements from FDMS monitors are used in the Volatile Correction Model (VCM) to correct TEOM measurements to account for the volatile element that is lost. Results from the Bridge Gyratory PM_{10} monitor have been corrected using VCM.

Details of the two automatic monitoring sites located in the Borough are given in Table 2.1 and their location illustrated in Figure 2.1.

Figure 2.1 Map of Automatic Monitoring Sites



Legend

Continuous Monitoring Site

AQMA Boundary

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location Maidstone	
Title Automatic Monitoring Sites	
By AC	**Approved** JC
Scale Not To Scale	**Job Ref** 6275878
Date August 2015	**Figure No.** **2.1**

Table 2.1 Details of Automatic Monitoring Sites

Site Name	Location	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA ?	Monitoring Technique	Relevant Exposure ?	Distance to Kerb of Nearest Road	Worst-case Exposure?
Maidstone A229 Kerbside	Bridge Gyratory, Maidstone	Roadside	575740	155615	NO_2 , PM_{10}	Y	Chemiluminescence (NO_2), TEOM (PM_{10})	N	1.8 m	Y
Maidstone Rural	Scragged Oak Lane, Detling	Rural Background	580075	159700	NO_2, PM_{10}, SO_2, O_3	N	Chemiluminescence (NO_2), TEOM FDMS (PM_{10}), ultraviolet fluorescence (SO_2), UV absorption (O_3)	N	N/A	N

2.1.2 Non-Automatic Monitoring Sites

Maidstone Borough Council undertook monitoring at 53 nitrogen dioxide diffusion tube sites in 2014. This includes two triplicate sets co-located with continuous analyser:

- Maid 03 - Bridge Gyratory, Maidstone - co-located with Maidstone A229 Kerbside;
- Maid 06 - Scragged Oak Lane, Detling – co-located with Maidstone Rural.

Details of the monitoring sites are shown in Table 2.2, whilst their location is provided in Figure 2.2 through to Figure 2.6. Quality control procedures, including bias adjustment, are discussed in Appendix A.

Four monitoring sites were removed since the last report and were not deployed in 2014; those were:

- Maid 15 - Claremont Road – removed in December 2013;
- Maid 24 - Brookbank (outside No. 10) – removed in June 2013;
- Maid 72 - 7 Staplers Court – removed in November 2013; and
- Maid 73 - 12 Sandling Place Court – removed in December 2013.

Furthermore, eight additional sites were removed at the end of 2014; those were:

- Maid 14 - Boxley Close – removed in December 2014;
- Maid 18 – Bellmeadow – removed in January 2015;
- Maid 21 – Walnut Tree,Tonbridge Road – removed in January 2015;
- Maid 41 - Amberleigh, Harbourland Close – removed in December 2014;
- Maid 50 - 157 Chatham Road, Springfield – removed in December 2014;
- Maid 78 - 355 Loose Road – removed in January 2015;
- Maid 85 - 439/441 Tonbridge Road – removed in January 2015; and
- Maid 87 - 1 Neville Close – removed in January 2015.

One site has been removed in May 2014, this was SW91 (Old Nurses Home, Hermitage Lane, Maidstone), which was discontinued when the location site became inaccessible due to building works.

Two additional sites have been recently installed in 2015:

- Maid 94 - 5 High Street, Maidstone - commenced in March 2015; and
- Maid 95 - 11 Bellmeadow – commenced in March 2015.

Table 2.2 Details of Non- Automatic Monitoring Sites

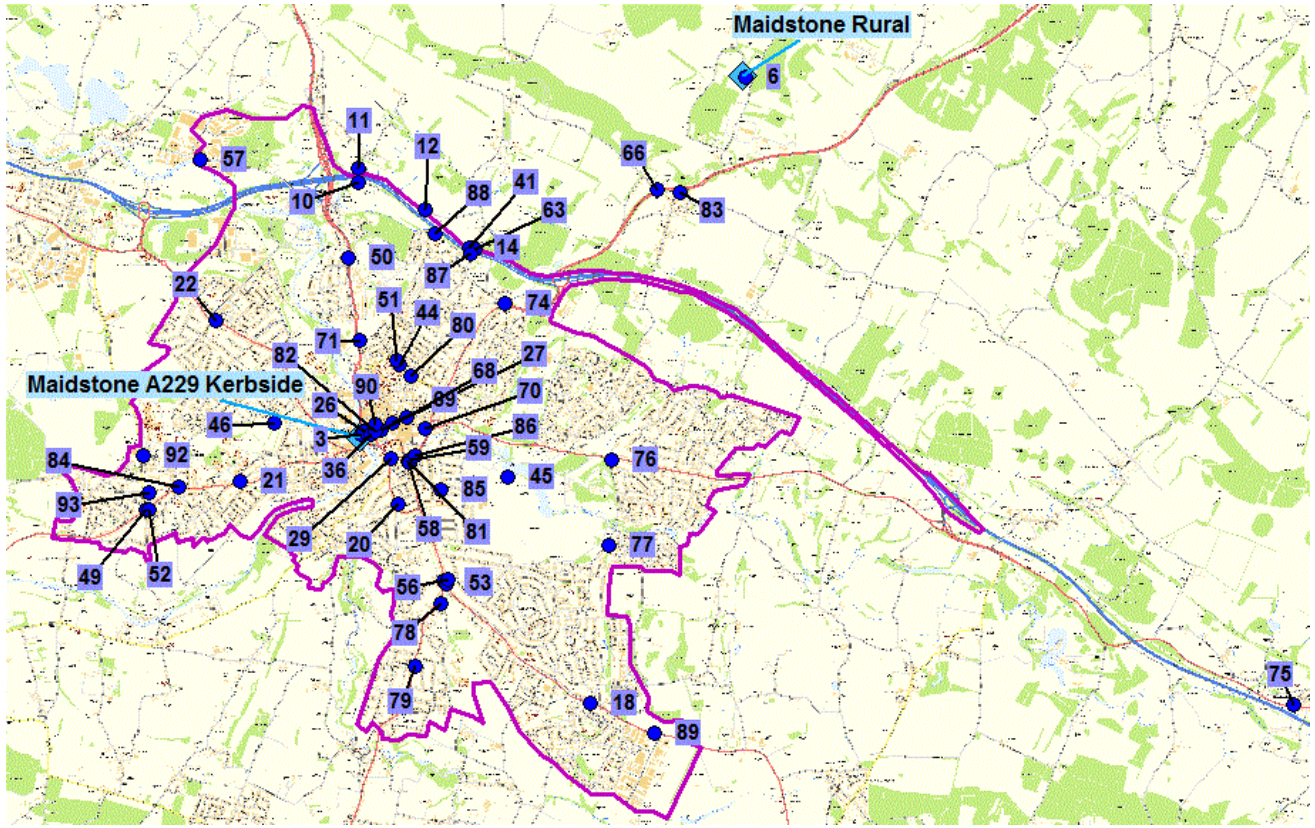
Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Triplicate Tube or Co-located with a Continuous Analyser?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case exposure?
Maid 03	Bridge Gyratory (Fairmeadow AQ Station)	Roadside	575758	155639	NO_2	Y	Triplicate and co-located (Maidstone A229 Kerbside)	N	1.5 m	N
Maid 06	Scragged Oak Lane (Detling AQ Station)	Rural	580101	159695	NO_2	N	Triplicate and co-located (Maidstone Rural)	N	>50 m	N
Maid 10	Grange Lane South	Motorway receptor	575714	158504	NO_2	Y	N	Y (6.5 m)	1.9 m	N
Maid 11	Boarley Lane	Motorway receptor	575718	158653	NO_2	Y	N	Y (6 m)	1.7 m	N
Maid 12	Grange Lane North	Motorway receptor	576473	158198	NO_2	Y	N	Y (22 m)	2.3 m	N
Maid 14	Boxley Close	Suburban	577018	157758	NO2	Y	N	Y	1.6 m	N
Maid 18	Bell Meadow	Roadside	578342	152605	NO_2	Y	N	Y (7 m)	6.9 m	N
Maid 19	196 Loose Rd	Roadside	576692	153992	NO_2	Y	N	Y (0 m)	13.3 m	N
Maid 20	Sheals Crescent	Roadside	576175	154858	NO_2	Y	N	Y (5.4 m)	1.4 m	Y
Maid 21	Tonbridge Road	Roadside	574386	155107	NO_2	Y	N	Y (10 m)	1.6 m	Y
Maid 22	A20 London Road	Kerbside (U1)	574109	156930	NO_2	Y	N	Y (7.5 m)	2.9 m	N
Maid 26	Drakes PH	Roadside	575782	155678	NO_2	Y	N	Y (2 m)	1.8 m	Y
Maid 27	High Street (JPs Bar)	Roadside	575970	155688	NO_2	Y	N	Y (0 m)	4.4 m	N

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Triplicate Tube or Co-located with a Continuous Analyser?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case exposure?
Maid 29	Knightrider Street	Roadside	576086	155373	NO_2	Y	N	Y (1.2 m)	2.8 m	N
Maid 36	37 High Street	Roadside	575865	155640	NO_2	Y	N	Y (0 m)	4.9 m	N
Maid 41	Amberleigh, Harbourland Close	Roadside	576983	157763	NO_2	Y	N	Y (0 m)	16 m	Y
Maid 44	Well Road (facade between No.3 & 4)	Roadside	576189	156440	NO_2	Y	N	Y (0 m)	3.4 m	N
Maid 45	Mote Park	Urban Background	577410	155166	NO_2	Y	N	N	>50 m	N
Maid 46	Scrubbs Lane (Oakwood Park)	Urban Background	574770	155774	NO_2	Y	N	N	>50 m	N
Maid 49	454 Tonbridge Road (façade)	Roadside	573309	154789	NO_2	Y	N	Y (0 m)	6.6 m	N
Maid 50	157 Chatham Road Springfield	Roadside	575612	157643	NO_2	Y	N	Y (0 m)	18.8 m	N
Maid 51	121 Boxley Road	Roadside	576147	156488	NO_2	Y	N	Y (0 m)	3.5 m	N
Maid 52	565 & 567 Tonbridge Road	Roadside	573349	154790	NO_2	Y	N	Y (0.5 m)	3.4 m	N
Maid 53	Wheatsheaf PH	Roadside	576724	153948	NO_2	Y	N	Y (0.5 m)	1.3 m	Y
Maid 56	243 Loose Road	Roadside	576735	154007	NO_2	Y	N	Y (0 m)	15.1 m	N
Maid 57	29A Forstal Road Cottages, Forstal Road	Roadside	573929	158763	NO_2	Y	N	Y (0 m)	1.4 m	Y
Maid 58	R & J Carpets, Upper Stone Street	Roadside	576287	155342	NO_2	Y	N	Y (0 m)	1.7 m	N

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Triplicate Tube or Co-located with a Continuous Analyser?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case exposure?
Maid 59	Harts, Upper Stone Street	Roadside	576292	155353	NO_2	Y	N	Y (0 m)	1.8 m	N
Maid 63	Façade 8 Harbourland Cottages	Roadside	577037	157739	NO_2	Y	N	Y (0 m)	12.8 m	N
Maid 66	1 Pilgrims Way (Triplicate)	Receptor	579106	158411	NO_2	N	N	Y (0 m)	17 m	N
Maid 68	Burger King (King Street side)	Roadside	576267	155840	NO_2	Y	N	N	2.3 m	N
Maid 69	34 Church Street	Roadside	576111	155781	NO_2	Y	N	N	1.3 m	Y
Maid 70	92 King Street	Roadside	576469	155710	NO_2	Y	N	N	1.3 m	Y
Maid 71	Flowerpot PH, Sandling Road	Roadside	575738	156711	NO_2	Y	N	Y (6.5 m)	10 m	Y
Maid 74	Chiltern Hundreds PH	Roadside	577377	157131	NO_2	Y	N	Y (0 m)	6 m	Y
Maid 75	1 The Hampshires	Roadside	586308	152577	NO_2	N	N	Y (28 m)	8 m	Y
Maid 76	1 Willington Street	Roadside	578594	155356	NO_2	Y	N	Y (23 m)	20 m	Y
Maid 77	161 Willington Street	Roadside	578558	154384	NO_2	Y	N	Y (0 m)	14 m	Y
Maid 78	355 Loose Road	Roadside	576647	153734	NO_2	Y	N	Y (0 m)	9 m	Y
Maid 79	523 Loose Road	Roadside	576367	153011	NO_2	Y	N	Y (0 m)	7 m	Y
Maid 80	Well Road / Wheeler Street	Kerbside	576314	156301	NO_2	Y	N	Y (2.0 m)	1 m	Y
Maid 81	The Pilot PH	Kerbside	576303	155329	NO_2	Y	N	Y (0 m)	1 m	Y
Maid 82	Lamppost by Argos, High Street	Roadside	575916	155672	NO_2	Y	N	N	1.5 m	Y
Maid 83	1 The Street Detling	Roadside	579357	158392	NO_2	N	N	Y (1.5 m)	1 m	Y

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Triplicate Tube or Co-located with a Continuous Analyser?	Relevant Exposure?	Distance to kerb of nearest road	Worst-case exposure?
Maid 84	384 & 382 Tonbridge Road	Roadside	573686	155050	NO_2	Y	N	Y (2.5 m)	0.5 m	Y
Maid 85	439 & 441 Tonbridge Road	Roadside	576658	155021	NO_2	Y	N	Y (0 m)	10 m	Y
Maid 86	20 & 18 Mote Road	Roadside	576368	155408	NO_2	Y	N	Y (6 m)	0.5 m	Y
Maid 87	1 Neville Close, Maidstone	Roadside	576986	157690	NO_2	Y	Triplicate	Y (10 m)	36 m	Y
Maid 88	42 Downs View Road, Maidstone	Urban Background	576595	157920	NO_2	Y	N	Y (10 m)	37 m	Y
Maid 89	Briarwood Cottage, Sutton Road A274, Maidstone	Roadside	579072	152254	NO_2	Y	N	Y (2 m)	2 m	Y
Maid 90	Pudding Lane, Medway Street, Maidstone	Roadside	575918	155753	NO_2	Y	N	Y (2 m)	0.5 m	Y
Maid 91	Lamp-post in car park, Old Nurses Home, Hermitage Lane, Maidstone	Urban Background	573236	155150	NO_2	Y	N	N/A	20 m	N
Maid 92	Hunton House, Opposite Denton Crook Warehouse, Hermitage Lane, Maidstone	Roadside	573283	155407	NO_2	Y	N	Y (8 m)	1 m	Y
Maid 93	Corner Of St Andrews Road / Fountain Lane, Maidstone	Roadside	573347	154981	NO_2	Y	N	Y (1 m)	10 m	Y

Figure 2.2 Map of Non-Automatic Monitoring Sites: Maidstone Borough



Legend

- Diffusion Tube Monitoring Site
- Continuous Monitoring Site
- AQMA Boundary

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location	**Maidstone Borough**
Title	**Non-Automatic Monitoring Sites**
By AC	**Approved** JC
Scale Not To Scale	**Job Ref** 6275878
Date September 2015	**Figure No.** **2.2**

Figure 2.3 Map of Non-Automatic Monitoring Sites: North Maidstone

Legend

Diffusion Tube Monitoring Site

Continuous Monitoring Site

AQMA Boundary

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location

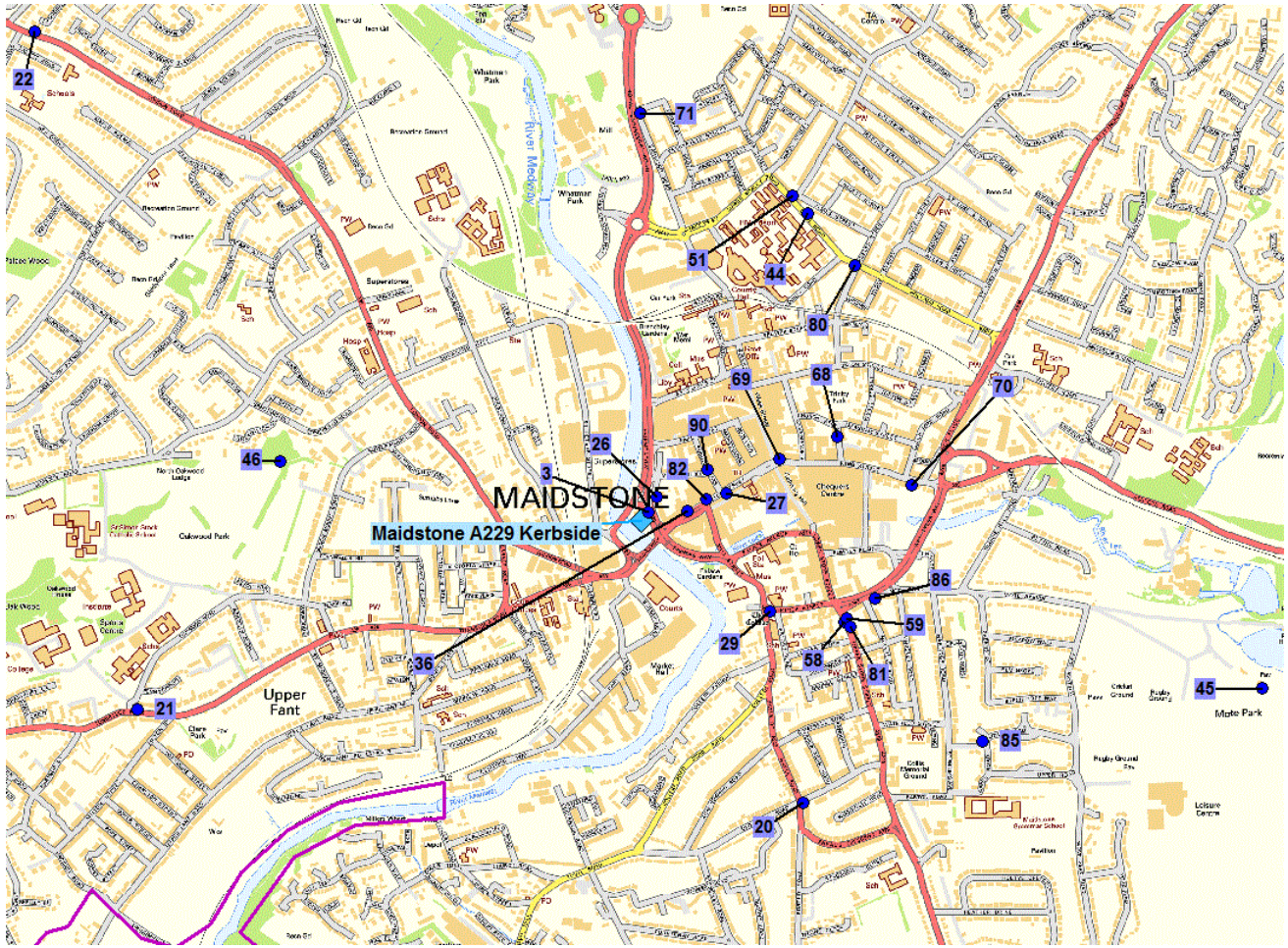
Maidstone Borough

Title

Non-Automatic Monitoring Sites

By	Approved
AC	JC
Scale	**Job Ref**
Not To Scale	6275878
Date	**Figure No.**
September 2015	**2.3**

Figure 2.4 Map of Non-Automatic Monitoring Sites: Central Maidstone



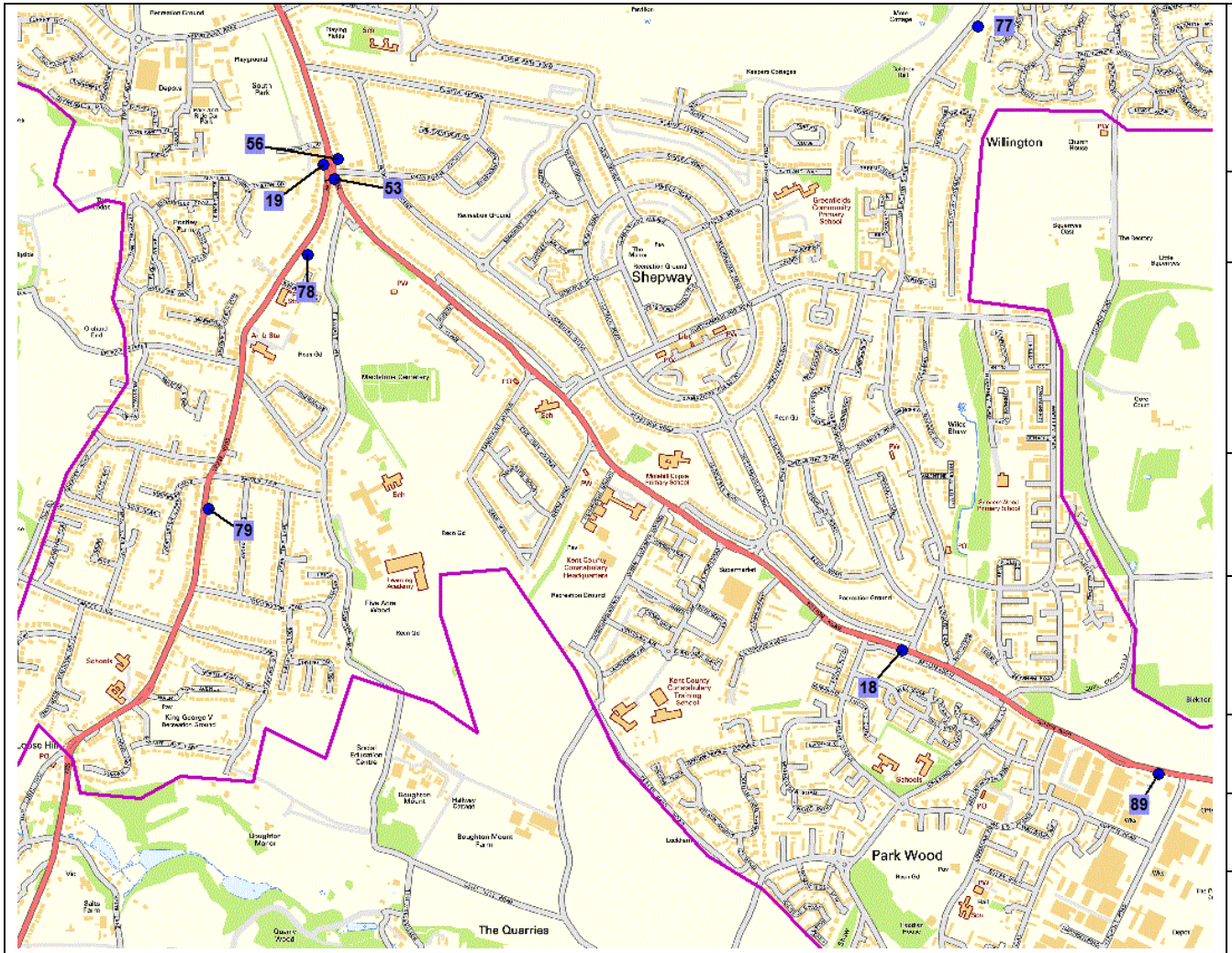
Legend

- Diffusion Tube Monitoring Site
- Continuous Monitoring Site
- AQMA Boundary

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location	**Maidstone Borough**
Title	**Non-Automatic Monitoring Sites**
By AC	**Approved** JC
Scale Not To Scale	**Job Ref** 6275878
Date September 2015	**Figure No.** **2.4**

Figure 2.5 Map of Non-Automatic Monitoring Sites: South Maidstone



Legend

Diffusion Tube Monitoring Site

Continuous Monitoring Site

AQMA Boundary

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location

Maidstone Borough

Title

Non-Automatic Monitoring Sites

By	Approved
AC	JC
Scale	**Job Ref**
Not To Scale	6275878
Date	**Figure No.**
September 2015	**2.5**

Figure 2.6 Map of Non-Automatic Monitoring Sites: Harrietsham

Legend
Diffusion Tube Monitoring Site

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location	**Maidstone Borough**
Title	**Non-Automatic Monitoring Sites**
By AC	**Approved** JC
Scale Not To Scale	**Job Ref** 6275878
Date September 2015	**Figure No.** **2.6**

2.2 Comparison of Monitoring Results with Air Quality Objectives

2.2.1 Nitrogen Dioxide

Automatic Monitoring Data

Automatic monitoring results from the two automatic monitors have been presented in Table 2.3, Table 2.4 and Figure 2.7. Similar to the previous years, data capture at both sites was good (above 75%), therefore annualisation was not required.

The urban roadside monitor in central Maidstone has recorded a slight decrease in concentrations since the previous year. This site has been consistently exceeding the annual mean objective for NO_2 in all the monitoring years. The 1-hour objective has not been exceeded.

Both the annual mean objective and the 1-hour objective for NO_2 were met at the rural background monitoring station in Detling.

The graph in Figure 2.7 shows annual man NO_2 concentrations for the two automatic monitoring sites for the years from 2009 to 2014. Maidstone A229 Kerbside site peaked between 2010 and 2011, after a significant decrease in 2012, the site showed a subsequent increase in 2013. .

Concentrations at the rural background site have plateaued around 12-13µg/m^3 in the recent years (2011-2014).

Table 2.3 Results of Automatic Monitoring for NO_2: Comparison with Annual Mean Objective

Site Name	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period, %	Valid Data Capture 2014, %	Annual Mean Concentration (µg/m^3)					
					2009	2010	2011	2012	2013	2014
Maidstone A229 Kerbside	Roadside	Y	95.7	95.7	**46**	**56**	**53.5**	**43.2**	**48.1**	**46.9**
Maidstone Rural	Rural Background	N	99.5	99.5	16	17	12.5	13.7	13.5	12.3

In **bold**, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

Figure 2.7 Trends in Annual Mean NO_2 Concentrations Measured at Automatic Monitoring Sites

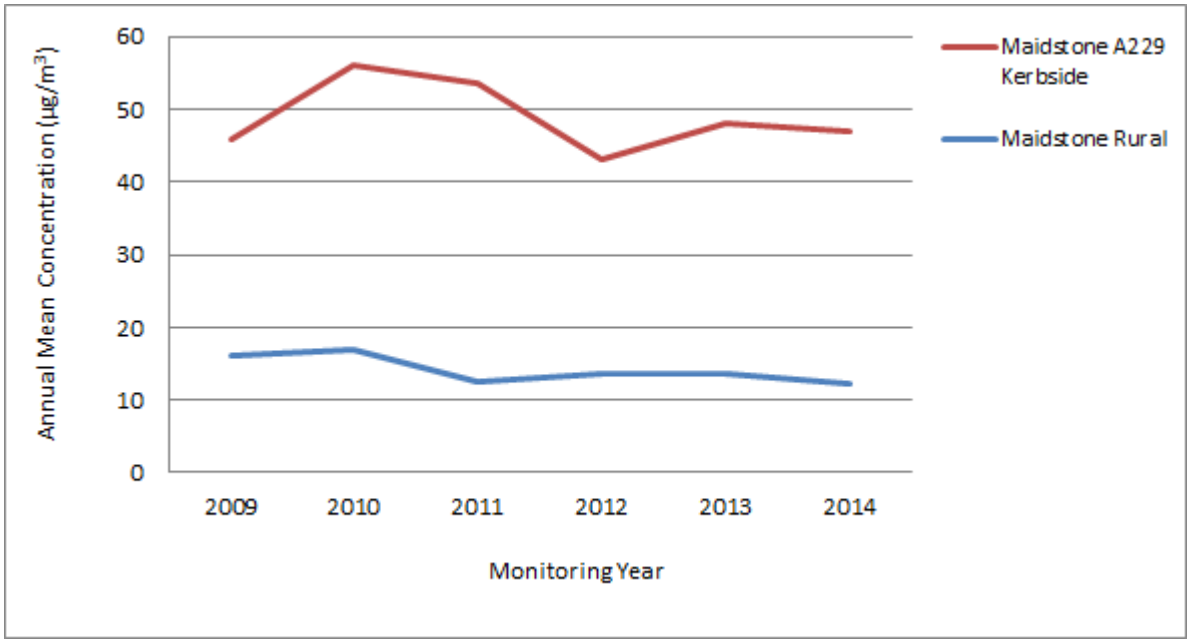


Table 2.4 Results of Automatic Monitoring for NO_2: Comparison with 1-hour Mean Objective

Site Name	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period, %	Valid Data Capture 2013, %	Number of Hourly Means > 200µg/m^3					
					2009	2010	2011	2012	2013	2014
Maidstone A229 Kerbside	Roadside	Y	95.7	95.7	3	0	0	0	0	2
Maidstone Rural	Rural Background	N	99.5	99.5	0	0	0	0	0	0

In **bold**, exceedence of the NO_2 hourly mean AQS objective (200µg/m^3 – not to be exceeded more than 18 times per year)

Diffusion Tube Monitoring Data

The nitrogen dioxide diffusion tube data are summarised in Table 2.5. The full dataset (monthly mean values) are included in Appendix A. Very low outlying values were removed before processing to increase accuracy; the removed results have been marked in the dataset.

Where data capture was below 75% the data has been annualised using the method set out in Box 3.2 LAQM TG(09). Those were sites: Maid 36, Maid 46, Maid 59, Maid 81 and Maid 91.

The diffusion tube annual mean results have been corrected using the bias correction factor of 0.88, as calculated from the local co-location studies.

Full details of the annualisation, bias adjustment and QA/QC procedure are provided in Appendix A.

The 2014 results show fifteen sites exceeding the annual mean objective of 40µg/m^3, all within the Maidstone AQMA:

- Maid 03 - Bridge Gyratory, Maidstone;
- Maid 27 - High Street (JPs Bar), Maidstone;
- Maid 36 - 37 High Street, Maidstone;
- Maid 41 - Amberleigh, Harbourland Close, Maidstone;
- Maid 44 - Well Road, Maidstone;
- Maid 49 - 454 Tonbridge Road, Maidstone;
- Maid 51 - 121 Boxley Road, Maidstone;
- Maid 52 - 565 & 567 Tonbridge Road, Maidstone;
- Maid 53 - Wheatsheaf PH, jct A274/A229, Maidstone;
- Maid 58 - R & J Carpets, Upper Stone Street, Maidstone;
- Maid 59 - Harts, Upper Stone Street, Maidstone;

- Maid 70 – 92 King Street, Maidstone;
- Maid 80 - Well Road / Wheeler Street, Maidstone;
- Maid 81 - The Pilot, Upper Stone Street, Maidstone;
- Maid 82 - High Street, Maidstone; and

When distance corrected for relevant exposure the results showed an exceedence at eleven diffusion tube sites, as detailed in Table 2.6.

As in the previous year, Maid 21 (on Tonbridge Road, Maidstone) was close to exceeding the annual mean objective. The site is located some distance away from the nearest relevant exposure, therefore it is not expected that the objective was exceeded at a relevant receptor façade.

In 2014 there were three sites exceeding 60µg/m^3, which is an indication of a potential exceedence of the 1-hour mean NO_2 objective.

- Maid 58 - R & J Carpets, Upper Stone Street, Maidstone;
- Maid 59 - Harts, Upper Stone Street, Maidstone; and
- Maid 81 - The Pilot, Upper Stone Street, Maidstone.

Sites Maid 58, Maid 59 and Maid 81 are all in close proximity to one another on Upper Stone Street, next to the Upper Stone Street/A249 Mote Road junction, in the town centre within the Maidstone Town AQMA and in an area already identified as being at risk of exceeding the 1-hr mean nitrogen dioxide objective.

Table 2.5 Results of NO_2 Diffusion Tubes (2009 to 2014)

Site ID	Site Type	Within AQMA?	Full Calendar Year Data Capture 2014 (Number of Months)	Annual Mean Concentration (µg/m^3) - Adjusted for Bias					
				2009 (Bias Adjustment Factor = 0.84)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.92)	2012 (Bias Adjustment Factor = 0.79)	2013 (Bias Adjustment Factor = 0.88)	2014 (Bias Adjustment Factor = 0.88)
Maid 03	Roadside	Y	12	**45**	**48**	**44.4**	38.4	**43.8**	**43.8**
Maid 06	Rural	N	12	21	18	15.9	16.0	15.1	13.3
Maid 10	Motorway receptor	Y	12	34	34	32.3	29.3	34.5	29.8
Maid 11	Motorway receptor	Y	12	32	28	32.3	26.6	28.8	29.4
Maid 12	Motorway receptor	Y	10	32	28	32.3	26.5	27.9	29.3
Maid 14	Suburban	Y	12	33	36	33.1	28.5	32.5	29.1
Maid 18	Roadside	Y	9	29	31	29.4	24.6	31.4	25.4
Maid 19	Roadside	Y	12	28	29	28.8	25.6	27.1	26.8
Maid 20	Roadside	Y	12	32	33	29.4	29.2	31.6	29.7
Maid 21	Roadside	Y	12	35	37	33.8	31.8	39.8	39.9
Maid 22	Kerbside (U1)	Y	12	35	36	32.5	30.6	31.7	29.5
Maid 26	Roadside	Y	10	39	35	39	32.4	30.6	34.9
Maid 27	Roadside	Y	12	**42**	**41**	**44.9**	38.1	37.8	**44.1**
Maid 29	Roadside	Y	11	39	**40**	37.5	28.6	33.5	32.0
Maid 36	Roadside	Y	6	**43**	**42**	**46.3**	39.4	**42.3**[a]	**46.5**[a]
Maid 41	Roadside	Y	11	**42**	37	**41.7**	35.7	35.9	**40.7**
Maid 44	Roadside	Y	12	**43**	**46**	**41.2**	**41.1**	**43.5**	**42.3**
Maid 45	Urban Background	Y	11	20	25	22	21.1	22.3	17.7

Site ID	Site Type	Within AQMA?	Full Calendar Year Data Capture 2014 (Number of Months)	Annual Mean Concentration (µg/m^3) - Adjusted for Bias					
				2009 (Bias Adjustment Factor = 0.84)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.92)	2012 (Bias Adjustment Factor = 0.79)	2013 (Bias Adjustment Factor = 0.88)	2014 (Bias Adjustment Factor = 0.88)
Maid 46	Urban Background	Y	8	19	18	16.3	18.0	17.2[a]	15.0[a]
Maid 49	Roadside	Y	12	**41**	**41**	**43.1**	39.4	**43.2**	**42.4**
Maid 50	Roadside	Y	12	27	28	24.2	23.0	24.9	22.9
Maid 51	Roadside	Y	12	**44**	**49**	**44**	**40.5**	**46.5**	**42.9**
Maid 52	Roadside	Y	12	**48**	**47**	**48**	**42.0**	**46.0**	**44.7**
Maid 53	Roadside	Y	12	**59**	**60**	**60.2**	**53.5**	**61.7**	**50.5**
Maid 56	Roadside	Y	12	35	30	30.4	27.7	27.6	36.8
Maid 57	Roadside	Y	10/8/8	38	**42**	39.9	36.4	**41.0[a]**	38.7
Maid 58	Roadside	Y	9	**94**	**90**	**85.7**	**81.0**	**92.3**	**86.6[a]**
Maid 59	Roadside	Y	9	**87**	**71**	**70**	**61.5**	**69.8**	**78.3[a]**
Maid 63	Roadside	Y	12	**40**	39	**40.7**	35.5	35.6	38.6
Maid 66	Receptor	N	10/5/5		34	34.9	31.7	35.4[a]	34.8
Maid 68	Roadside	Y	9			**43.8**	35.3	39.9	36.1
Maid 69	Roadside	Y	12			31.5	24.2	25.8	26.1
Maid 70	Roadside	Y	12			**47.9**	37.8	35.2	**43.2**
Maid 71	Roadside	Y	12			33.9	31.1	32.3	30.0
Maid 74	Roadside	Y	11			38.1	32.3	34.3	35.6
Maid 75	Roadside	N	11			37.4	30.6	31.0	32.2
Maid 76	Roadside	Y	12			30.5	29.8	28.3	26.9
Maid 77	Roadside	Y	12			22.4	24.6	27.3	24.9
Maid 78	Roadside	Y	11			24	26.3	26.5	27.6
Maid 79	Roadside	Y	10			27.1	26.4	30.0	26.1
Maid 80	Kerbside	Y	12				**41.6**	39.0	**41.9**

Site ID	Site Type	Within AQMA?	Full Calendar Year Data Capture 2014 (Number of Months)	Annual Mean Concentration (µg/m^3) - Adjusted for Bias					
				2009 (Bias Adjustment Factor = 0.84)	2010 (Bias Adjustment Factor = 0.85)	2011 (Bias Adjustment Factor = 0.92)	2012 (Bias Adjustment Factor = 0.79)	2013 (Bias Adjustment Factor = 0.88)	2014 (Bias Adjustment Factor = 0.88)
Maid 81	Kerbside	Y	11			**84.8**	**87.3**	**81.7**	**74.8**[a]
Maid 82	Roadside	Y	9			37.3	39.2	**42.1**	**42.3**
Maid 83	Roadside	Y	12				20.1	26.7	25.3
Maid 84	Roadside	Y	12				26.6	31.9	29.5
Maid 85	Roadside	Y	12				25.4	31.0	30.0
Maid 86	Roadside	Y	12				33.2	37.9	39.4
Maid 87	Roadside	Y	6					34.9[a]	31.8
Maid 88	Urban Background	Y	5					25.6[a]	26.6
Maid 89	Roadside	Y	3					27.4[a]	29.3
Maid 90	Roadside	Y	4					35.8[a]	37.2
Maid 91	Urban Background	Y	5					-	19.7[a]
Maid 92	Roadside	Y	1					**(43.4[a])**	37.3
Maid 93	Roadside	Y	1					(35.2[a])	30.2

In **bold**, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3

[a] Results were annualised in accordance with the methodology laid out in TG(09) Box 3.2.

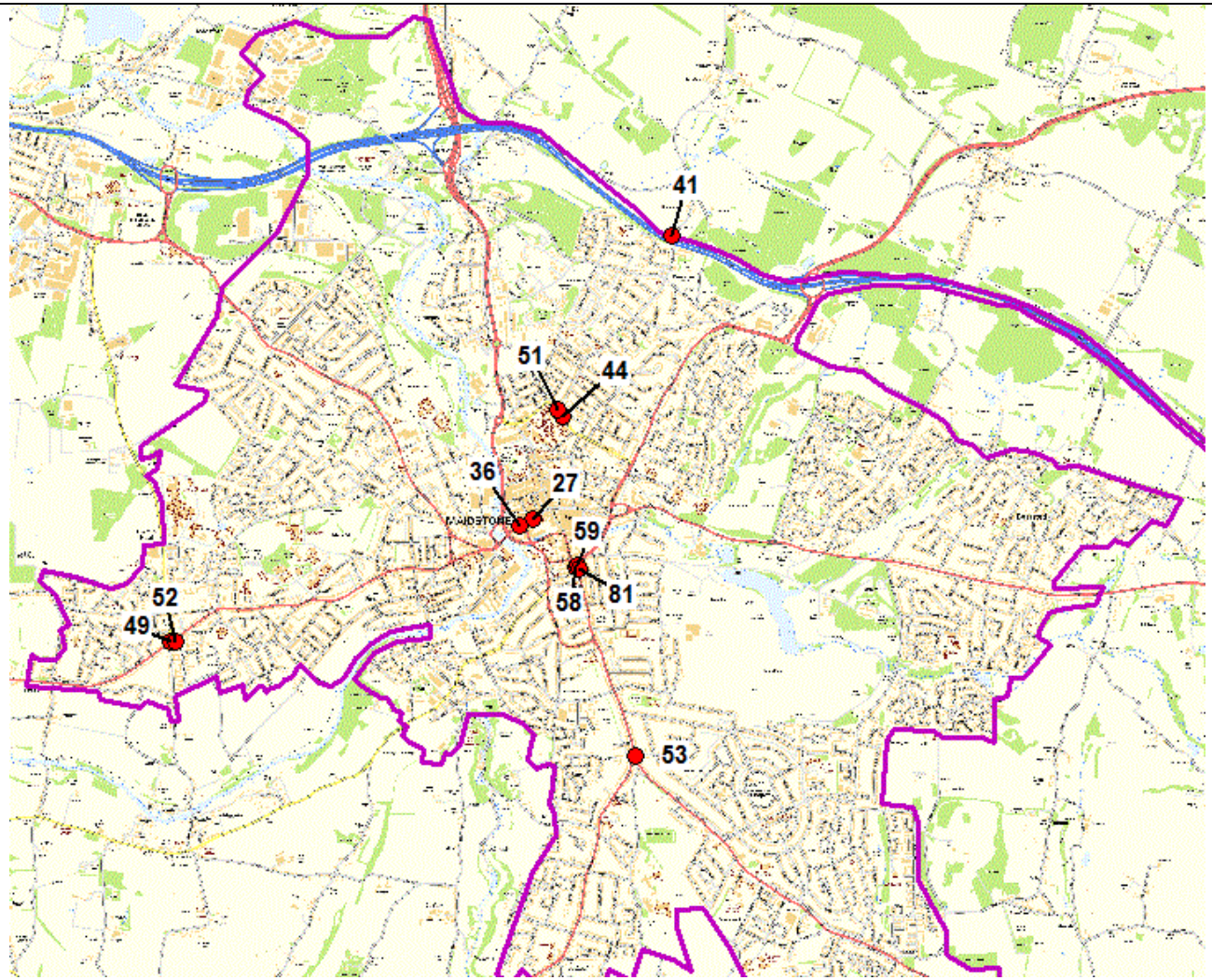
Data in brackets were provided for orientation only. They are short-term averages and although they were annualised they should not be compared to the annual mean NO_2 objective.

Table 2.6 provides information on those sites which showed an exceedence of the annual mean and represent relevant exposure. These sites have been distance corrected to estimate concentrations at the nearest relevant exposure façade. The locations of the monitoring sites which have shown an exceedence at the façade of relevant receptor is provided in Figure 2.8.

Table 2.6 Fall-off with Distance Correction of Sites Exceeding the NO_2 Annual Mean Objective

Site ID	In AQMA?	Relevant Exposure (Distance from Monitoring Site to Exposure)?	Bias Adjusted Annual Mean (µg/m^3)	Distance Corrected Annual Mean (µg/m^3)
Maid 03 - Bridge Gyratory, Maidstone	Y	N	**43.8**	n/a
Maid 27 - High Street (JPs Bar), Maidstone	Y	Y (0m)	**44.1**	n/a
Maid 36 - 37 High Street	Y	Y (0m)	**46.5**	n/a
Maid 41 - Amberleigh, Harbourland Close, Maidstone	Y	Y (0m)	**40.7**	n/a
Maid 44 - Well Road, Maidstone	Y	Y (0m)	**42.3**	n/a
Maid 49 - 454 Tonbridge Road, Maidstone	Y	Y (0m)	**42.4**	n/a
Maid 51 - 121 Boxley Road, Maidstone	Y	Y (0m)	**42.9**	n/a
Maid 52 - 565 & 567 Tonbridge Road, Maidstone	Y	Y (0.5 m)	**44.7**	**43.5**
Maid 53 - Wheatsheaf PH, jct A274/A229	Y	Y (1.3 m)	**50.5**	**44.0**
Maid 58 - R & J Carpets, Upper Stone Street, Maidstone	Y	Y (0m)	**86.6**	n/a
Maid 59 - Harts, Upper Stone Street, Maidstone	Y	Y (0m)	**78.3**	n/a
Maid 70 - 92 King Street, Maidstone	Y	N	**43.2**	n/a
Maid 80 - Well Road / Wheeler Street, Maidstone	Y	Y (1.0 m)	**41.9**	38.6
Maid 81 - The Pilot, Upper Stone Street, Maidstone	Y	Y (0m)	**74.8**	n/a
Maid 82 - High Street, Maidstone	Y	N	**42.3**	n/a
In **bold**, exceedence of the NO_2 annual mean AQS objective of 40µg/m^3				

Figure 2.8 Diffusion Tube Locations Showing Exceedence at Relevant Receptor Façade



Legend

Diffusion Tube Monitoring Site

AQMA Boundary

Air Quality
Bureau Veritas
5th Floor
66 Prescott Street
London, E1 8HG

Location

Maidstone Borough

Title

Non-Automatic Monitoring Sites

By	Approved
AC	JC
Scale	**Job Ref**
Not To Scale	6275878
Date	**Figure No.**
September 2015	**2.8**

2.2.2 PM_{10}

Automatic monitoring of PM_{10} concentrations by Maidstone Borough Council took place at both automatic monitoring stations. Annual mean results are presented in Table 2.7, with daily mean values presented in Table 2.8. These tables show that there were no exceedences of the annual mean or daily mean PM_{10} objectives in 2014.

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

Site Name	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period, %	Valid Data Capture 2014, %	Confirm Gravimetric Equivalent (Y or N/A)	Annual Mean Concentration (µg/m^3)					
						2009	2010	2011	2012	2013	2014
Maidstone A229 Kerbside	Roadside	Y	99.6	99.6	Y	26	27	26.5	24.9	24.5	22.6
Maidstone Rural	Rural Background	N	89.7	89.7	Y	17	12	15.8	17.5	18.8	25.3

In **bold**, exceedence of the PM_{10} annual mean AQS objective of 40µg/m^3

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

Site Name	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period, %	Valid Data Capture 2014, %	Confirm Gravimetric Equivalent (Y or N/A)	Number of Daily Means > 50µg/m^3					
						2009	2010	2011	2012	2013	2014
Maidstone A229 Kerbside	Roadside	Y	99.6	99.6	Y	3	3	11	11	11	10
Maidstone Rural	Rural Background	N	89.7	89.7	Y	0	0	8	10 (33)	1	18

In **bold**, exceedence of the PM_{10} 24-hour mean AQS objective (50 µg/m^3 not to be exceeded more than 35 times a year)
If the period of valid data is less than 90%, the 90.4th percentile of 24-hour means is included in brackets

2.2.3 Sulphur Dioxide

Monitoring of sulphur dioxide was undertaken by Maidstone Borough Council in 2014 at the Maidstone Rural site. Results in Table 2.9 show there were no exceedences of the objectives recorded.

Table 2.9 Results of Automatic Monitoring for SO_2: Comparison with Objectives

Site Name	Site Type	Within AQMA?	Valid Data Capture for Monitoring Period, %	Valid Data Capture 2014, %	Number of:		
					15-minute Means > 266µg/m^3	1-hour Means > 350µg/m^3	24-hour Means > 125µg/m^3
Maidstone Rural	Rural Background	N	93.6	93.6	0	0	0

2.2.1 Benzene

No monitoring of benzene takes place in the Borough. All previous LAQM reports have identified that there is no likely exceedence of the benzene AQS objectives.

2.2.2 Ozone

Continuous monitoring of O_3 is undertaken at the Maidstone Rural background monitoring site. O_3 is a trans-boundary pollutant; the sources of O_3 are frequently spatially distant from the measured site of the concentrations. This pollutant is not a prescribed air quality objective for LAQM purposes; however, it has been reported as recommended by Technical Guidance LAQM TG(09).

The results from 2014 (Table 2.10) indicate the AQS objective for O_3, of 10 8-hour running mean exceedences of 100µg/m^3 per year continues to be exceeded, however, the number of exceedences was much lower than in the previous year.

Table 2.10 Results of Automatic Monitoring for Ozone: Comparison with Objectives

Site Name	Within AQMA?	Description	% Data capture 2014	Number of Exceedences in 2014
Maidstone Rural	N	Maximum 8-hour running mean > 100 µg/m^3	99.3	16
Exceedence of the ozone AQS objective: 8 hour mean of 100µg/m^3 - 10 exceedences allowed per year.				

2.2.3 Summary of Compliance with AQS Objectives

The updated monitoring results for Maidstone Borough Council show that the annual mean NO_2 concentration at the urban roadside monitor in central Maidstone continues to exceed the objective; 2014 show a small decrease on 2013. The rural background monitor shows annual mean NO_2 concentrations have remained relatively stable, and below the annual mean objective.

The NO_2 diffusion tube network had a total of eleven sites showing an exceedence at relevant exposure; all exceeding sites are within the Maidstone Town AQMA.

There are three locations (Maid 58, Maid 59 and Maid 81) where the annual mean exceeded 60µg/m^3 at the nearest relevant exposure façade; all three have been identified previously. An annual mean concentration of greater than 60µg/m^3 indicates the potential for exceedence of the 1-hour objective. A Detailed Assessment was undertaken at Upper Stone Street as part of the 2009 Further Assessment. The assessment concluded that there was a risk of an exceedence of the 1-hour NO_2 objective and that the Council may consider declaration of an AQMA relevant to the short term objective. The Council therefore obtained funding to site an automatic monitor on Upper Stone Street/A249 Mote Road junction to ascertain if an exceedence of the 1-hour NO_2 objective is occurring. This monitoring however, has unfortunately not commenced due to siting location, and equipment supply, issues.

The Council are currently planning to move the Maidstone A229 Kerbside monitor, required due to changes to the road alignment close to the current location. A new site for the Kerbside monitor has not yet been finalised but it is hoped the new location will allow for an assessment of 1-hour NO_2 concentrations at Upper Stone Street.

With regards to PM_{10} and SO_2, the updated monitoring shows that there were no exceedences from either monitoring location of the relevant objectives.

Maidstone Borough Council has examined the results from monitoring in the Borough. Other than those receptor locations which are located within the Maidstone Town AQMA, concentrations are below the objectives at all receptor locations, 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

Maidstone 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

Maidstone 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.

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

3.4 Junctions

Maidstone 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

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

3.6 Roads with Significantly Changed Traffic Flows

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

3.7 Bus and Coach Stations

Maidstone Borough Council confirms that there are no relevant bus stations in the Local Authority area meeting the criteria for bus / coach stations.

4 Other Transport Sources

4.1 Airports

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

4.2 Railways (Diesel and Steam Trains)

4.2.1 Stationary Trains

Maidstone 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

Maidstone 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)

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

5 Industrial Sources

5.1 Industrial Installations

5.1.1 New or Proposed Installations for which an Air Quality Assessment has been carried out

Maidstone 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

Maidstone 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

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

5.2 Major Fuel (Petrol) Storage Depots

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

5.3 Petrol Stations

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

5.4 Poultry Farms

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

6 Commercial and Domestic Sources

6.1 Biomass Combustion – Individual Installations

Since the 2012 USA, Maidstone Borough Council has identified six biomass installations which are over the 50kW criteria for assessment. The details for these installations are provided in Table 6.1.

Table 6.1 Recent Biomass Installations in Maidstone

Installation:	Comment:
Ewell Manor, Ewell Lane, West Farleigh. Coppice Wood burner (571281, 152745) – the nearest residential exposure is 30m from the installation	Details of the installation are not yet available as it has not yet been decided what boiler to purchase.
Smiths Hall, Lower Road, West Farleigh, Maidstone. Wood Chip burner with a thermal output of 100kW (571343, 152610) – the nearest residential exposure is 76m from the installation	Assessment will be undertaken when actual emissions data is available for this installation.
Little Addlestead, Yalding (570420,148834) – the nearest residential exposure is 60m from the installation	Assessment will be undertaken when actual emissions data is available for this installation.
Elmscroft House, Charlton Lane, West Farleigh (57235, 152868) – the nearest residential exposure is 25m from the installation	Assessment will be undertaken when actual emissions data is available for this installation.
Planning application 13/0819 - The Stumps, Lenham Road, Kingswood, ME17 1LX (584473, 150655)	Assessment will be undertaken when actual emissions data is available for this installation.
Planning application 13/1316 - Pinkhorn Green Farm, Tattlebury Lane, Headcorn, TN27 9JU (582881, 145536)	Assessment will be undertaken when actual emissions data is available for this installation.

Although it has been possible to obtain some information for the Smiths Hall, West Farleigh and Elmscroft House, Charlton Lane boilers, the data is not sufficient to undertake a screening assessment. At this current time no further information is available regarding the installations. Maidstone Borough Council has made several attempts to collect data and is still working to obtain the missing information. Once the data is available an assessment will be undertaken to determine if emissions from the boilers are likely to cause an exceedence of the air quality objectives, the results of which will be reported in the next LAQM report.

Maidstone Borough Council confirms that there are biomass combustion plants in the Local Authority area but information is not currently available to assess emissions.

The Council will continue to seek the relevant information from relevant stakeholders; once this is known a screening assessment will be undertaken to determine the air quality impacts and this will be reported in the annual LAQM report.

6.2 Biomass Combustion – Combined Impacts

Maidstone Borough Council confirms that there are no biomass combustion plants in the Local Authority area requiring combined assessment.

6.3 Domestic Solid-Fuel Burning

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

7 Fugitive or Uncontrolled Sources

Maidstone 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 updated monitoring results for Maidstone Borough Council show that with regards to the continuous monitoring of NO_2 there has been a small decrease in annual mean concentration at Maidstone A229 Kerbside monitor from 2013 concentrations. The annual mean concentration has remained relatively stable at the Maidstone Rural monitoring station, well below the annual mean objective.

The majority of NO_2 diffusion tube monitoring sites have showed a decrease in annual mean concentrations when compared to the previous year. There were eleven sites which showed an exceedence at relevant exposure, all of them within the Maidstone Town AQMA.

There are three NO_2 diffusion tube locations - Maid 58, Maid 59 and Maid 81 - where the annual mean exceeded 60µg/m^3 at the nearest relevant exposure façade; all three have been identified previously. An annual mean concentration of greater than 60µg/m^3 indicates the potential for exceedence of the 1-hour objective. A Detailed Assessment was undertaken at Upper Stone Street as part of the 2009 Further Assessment. The assessment concluded that there was a risk of an exceedence of the 1-hour NO_2 objective and that the council may consider declaration of an AQMA relevant to the short term objective. The Council therefore obtained funding to site an automatic monitor on Upper Stone Street/A249 Mote Road junction to ascertain if an exceedence of the 1-hour NO_2 objective is occurring. This monitoring however, has unfortunately not commenced due to siting location, and equipment supply, issues.

The Council are currently planning to move the Maidstone A229 Kerbside monitor, required due to changes to the road alignment close to the current location. A new site for the Kerbside monitor has not yet been finalised but it is hoped the new location will allow for an assessment of 1-hour NO_2 concentrations at Upper Stone Street.

With regards to PM_{10} and SO_2, the updated monitoring shows that there were no exceedences from either monitoring location of the relevant objectives.

8.2 Conclusions from Assessment of Sources

Six biomass installations in the Borough have been identified in recent years. Although it has been possible to obtain some information for the Smiths Hall, West Farleigh and Elmscroft

House, Charlton Lane boilers, the data is not sufficient to undertake a screening assessment. The Council has made several attempts to collect data and is still working to obtain the missing information. Once the data is available an assessment will be undertaken to determine if emissions from the boilers are likely to cause an exceedence of the air quality objectives, the results of which will be reported in the next LAQM report.

8.3 Proposed Actions

Proposed actions from the Updating and Screening Assessment are as follows:

- Continue diffusion tube and continuous monitoring in the Borough to identify future changes in pollutant concentrations;
- Relocate Maidstone A229 Kerbside monitor to ascertain if an exceedence of the 1-hour NO_2 objective is occurring at Upper Stone Street/A249 Mote Road junction;
- Continue to gather emission and stack information for the identified biomass installations to determine their potential impact upon air quality; and
- Proceed to a Progress Report in 2016.

9 References

- Local Air Quality Management Technical Guidance LAQM.TG(09). February 2009. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland
- Maidstone Borough Council 2012 Updating and Screening Assessment
- Maidstone Borough Council 2014 Annual Progress Report
- Maidstone Borough Council Quantitative Appraisal Air Quality Action Plan 2013
- Growing the Garden of England: A strategy for Environment and Economy in Kent July 2011
- Growth Without Gridlock – Transport Delivery Plan for Kent, December 2010
- Maidstone Integrated Transport Strategy 2012-2026 Public Consultation 2012

Appendices

Appendix A: QA/QC Data

Appendix B: Monthly Monitoring Data

Appendix A: QA/QC Data

Diffusion Tube Bias Adjustment Factors

The diffusion tubes are supplied and analysed by Environmental Scientifics Group (ESG) Didcot utilising the 50% triethanolamine (TEA) in acetone preparation method. A bias adjustment of 0.81 for the year 2014 (based on 31 studies) has been derived from the national bias adjustment calculator[1].

For previous data, years 2008 to 2013, the bias adjustment factors have been taken from the Council's previous LAQM annual reports. The factors used were 0.84 (2009), 0.85 (2010) and 0.92 (2011), 0.79 (2012) and 0.88 (2013).

Factor from Local Co-location Studies

Maidstone Borough Council has triplicate tubes located at the Maidstone A229 Kerbside monitoring station (diffusion tube site Maid 03) and the Maidstone Rural site (diffusion tube site Maid 06).

A factor of 0.94 was produced from the Maidstone A229 Kerbside co-location survey using eight periods of data with good diffusion tube precision and good data capture for the monitoring period.

A factor of 0.82 was produced from the Maidstone Rural co-location survey using eleven periods of data with good diffusion tube precision and good data capture.

The orthogonal regression of the two bias adjustment factors has been used, giving an overall bias adjustment factor of 0.88.

Location	Diffusion Tube Data Capture (for periods used), %	Continuous Monitor Data Capture (for periods used), %	Diffusion Tube Annual Mean (µg/m^3)	Continuous Monitor Annual Mean (µg/m^3)	Ratio
Maidstone A229 Kerbside	96.3	99	53	50	0.94
Maidstone Rural	97.0	100	15	12	0.82
Local Factor					0.88

[1] National Diffusion Tube Bias Adjustment Factor Spreadsheet, version 09/15 published in September 2015.

Maidstone A229 Kerbside

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	09/01/2014	06/02/2014	67.3	58.8	48.1	58	9.6	17	23.9
2	06/02/2014	04/03/2014		53.5	53.4	53	0.1	0	0.6
3	04/03/2014	04/04/2014	62.7	56.5	46.8	55	8.0	14	19.9
4	04/04/2014	30/04/2014	48.8	37.6	46.8	44	6.0	13	14.8
5	30/04/2014	30/05/2014	42.6	34.8	49.2	42	7.2	17	17.9
6	30/05/2014	09/07/2014	41.1	35.9	23.1	33	9.3	28	23.0
7	09/07/2014	31/07/2014	50.4	61.6	34.7	49	13.5	28	33.6
8	31/07/2014	29/08/2014	33.1	43.0	39.2	38	5.0	13	12.4
9	29/08/2014	02/10/2014	53.5	63.2	63.8	60	5.8	10	14.4
10	02/10/2014	29/10/2014	46.6	54.7	51.0	51	4.1	8	10.1
11	29/10/2014	01/12/2014	52.3	65.2	65.9	61	7.7	13	19.0
12	01/12/2014	08/01/2015	46.3	57.0	53.7	52	5.5	10	13.6
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
47.27	99.85	Good	Good
42.98	99.84	Good	Good
56.01	99.87	Good	Good
47.96	100	Good	Good
45	99.86	Good	Good
40	99.69	Poor Precision	Good
37	99.81	Poor Precision	Good
30	48.56	Good	r Data Capture
45	99.75	Good	Good
45	99.54	Good	Good
60.94	99.37	Good	Good
58.86	100	Good	Good
Overall survey -->		Good precision	Good Overall

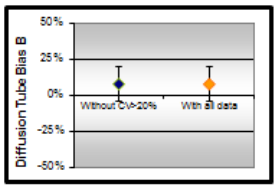
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:

Precision 10 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval)
without periods with CV larger than 20%
Bias calculated using 9 periods of data
Bias factor A 0.94 (0.84 - 1.06)
Bias B 6% (-6% - 19%)
Diffusion Tubes Mean: 53 µgm^{-3}
Mean CV (Precision): 11 caution
Automatic Mean: 50 µgm^{-3}
Data Capture for periods used: 100%
Adjusted Tubes Mean: 50 (45 - 56) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 11 periods of data
Bias factor A 0.94 (0.84 - 1.06)
Bias B 6% (-6% - 19%)
Diffusion Tubes Mean: 51 µgm^{-3}
Mean CV (Precision): 14 caution
Automatic Mean: 48 µgm^{-3}
Data Capture for periods used: 100%
Adjusted Tubes Mean: 48 (43 - 54) µgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

Maidstone Rural

Checking Precision and Accuracy of Triplicate Tubes

AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements

Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 µgm^{-3}	Tube 2 µgm^{-3}	Tube 3 µgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	08/01/2014	05/02/2014	18.7	19.5	16.7	18	1.4	8	3.6
2	05/02/2014	04/03/2014	17.6	17.8		18	0.1	1	1.3
3	04/03/2014	04/04/2014	20.0	16.6	19.0	19	1.7	9	4.3
4	04/04/2014	01/05/2014	24.6	14.9	13.8	18	5.9	33	14.8
5	01/05/2014	29/05/2014	10.4	11.2	9.9	11	0.7	6	1.6
6	29/05/2014	09/07/2014	9.3	7.2	6.7	8	1.4	18	3.4
7	09/07/2014	31/07/2014	12.7	12.4	11.5	12	0.6	5	1.6
8	31/07/2014	28/08/2014	12.4	13.1	13.8	13	0.7	5	1.7
9	28/08/2014	02/10/2014	15.9	14.6	14.9	15	0.7	4	1.7
10	02/10/2014	29/10/2014	14.6	14.5	13.3	14	0.7	5	1.8
11	29/10/2014	01/12/2014	20.2	20.7	20.9	21	0.4	2	0.9
12	01/12/2014	08/01/2015	16.8	18.1	16.6	17	0.8	5	2.0
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Automatic Method		Data Quality Check	
Period Mean	Data Capture (% DC)	Tubes Precision Check	Automatic Monitor Data
13.77	99.85	Good	Good
10.62	99.54	Good	Good
18.05	99.73	Good	Good
11.03	97.99	Poor Precision	Good
9	100	Good	Good
7	99.7	Good	Good
8	99.81	Good	Good
9	99.26	Good	Good
13	99.64	Good	Good
11	99.07	Good	Good
19.13	99.24	Good	Good
16.73	99.89	Good	Good
Overall survey -->		Good precision	Good Overall

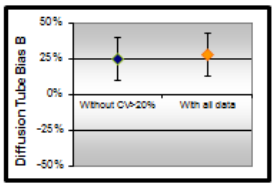
(Check average CV & DC from Accuracy calculations)

Site Name/ ID:

Precision 11 out of 12 periods have a CV smaller than 20%

Accuracy (with 95% confidence interval)
without periods with CV larger than 20%
Bias calculated using 11 periods of data
Bias factor A 0.82 (0.73 - 0.94)
Bias B 21% (6% - 36%)
Diffusion Tubes Mean: 15 µgm^{-3}
Mean CV (Precision): 6
Automatic Mean: 12 µgm^{-3}
Data Capture for periods used: 100%
Adjusted Tubes Mean: 12 (11 - 14) µgm^{-3}

Accuracy (with 95% confidence interval)
WITH ALL DATA
Bias calculated using 12 periods of data
Bias factor A 0.8 (0.72 - 0.92)
Bias B 24% (9% - 39%)
Diffusion Tubes Mean: 15 µgm^{-3}
Mean CV (Precision): 9
Automatic Mean: 12 µgm^{-3}
Data Capture for periods used: 99%
Adjusted Tubes Mean: 12 (11 - 14) µgm^{-3}



Jaume Targa, for AEA
Version 04 - February 2011

Discussion of Choice of Factor to Use

Data has been corrected using a bias adjustment factor, which is an estimate of the difference between diffusion tube concentrations and continuous monitoring, the latter assumed to be a more accurate method of monitoring. The technical guidance LAQM.TG (09) provides guidance with regard to the application of a bias adjustment factor to correct diffusion tubes. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data from NO_x / NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

With regard to the application of a bias adjustment factor for the diffusion tubes, the technical guidance LAQM.TG (09) and LAQM Helpdesk[2] recommends the use of a local bias adjustment factor where available and relevant to diffusion tube sites.

It was decided to use a local bias adjustment factor (0.88) for the year 2014. Data capture was good for the two co-location studies used to calculate the bias factor. The bias factor was calculated using data periods with good diffusion tube precision, which included 11 periods of data for the Maidstone Rural co-location site and 9 periods of data for the Maidstone A229 Kerbside site. The bias factor of 0.88 is consistent with factors used in previous years and provides more conservative results than if a national bias adjustment factor was used.

PM Monitoring Adjustment

The Council undertook monitoring of PM_{10} based on TEOM analysers at one location during 2014. The monitoring results for the TEOM have been VCM[3] corrected prior to reporting. The correction has been carried out by the data managers, Ricardo-AEA.

[2] laqm.defra.gocv.uk
[3] Volatile Correction Model – Used to correct TEOM measurements for the loss of volatile components of particulate matter that occur due to the high sampling temperatures employed by this instrument

Short-term to Long-term Data adjustment

Annualisation was required at the following diffusion tube locations.

Diffusion Tube Site	Maidstone Rural AF	Canterbury AF	Rochester Stoke AF	Average Annualisation Factor	Bias Unadjusted Annual Mean Concentration (µg/m^3)	Bias Adjusted Annual Mean Concentration (µg/m^3)	Bias Adjusted & Annualised Annual Mean Concentration (µg/m^3)
Maid 36	1.006	1.022	1.030	1.019	50.7	44.6	46.5
Maid 46	0.809	0.785	0.848	0.814	21.0	18.5	15.0
Maid 59	1.131	1.091	1.162	1.128	80.2	70.6	78.3
Maid 81	0.877	0.865	0.903	0.882	97.2	85.5	74.8
Maid 91	0.983	0.938	0.973	0.965	23.1	20.3	19.7

QA/QC of Automatic Monitoring

The QA/QC procedures for the two sites are those of the Kent and Medway Air Quality Monitoring Network (K&MAQMN). These procedures are equivalent to the UK Automatic Urban and Rural Network (AURN), with the exception of the following:

- Calibration of NO_x analysers with NO gas;
- Data checks are completed once daily and downloads are completed twice daily; and
- Independent audits of the stations are undertaken annually.

QA/QC of Diffusion Tube Monitoring

ESG Didcot is a UKAS accredited laboratory and participates in the new AIR-PT Scheme (a continuation of the Workplace Analysis Scheme for Proficiency (WASP)) for NO_2 tube analysis and the Annual Field Inter-Comparison Exercise. These provide strict performance criteria for participating laboratories to meet, thereby ensuring NO_2 concentrations reported are of a high calibre. The lab follows the procedures set out in the Harmonisation Practical Guidance. In the latest available WASP/AIR-PT results, rounds WASP 124 (January to March 2014), AIR-PT AR001 (April to May 2014), AR 003 (July to August 2014) and AR004 (October to November 2014) ESG Didcot have scored 100%. The percentage score reflects the results deemed to be satisfactory based upon the z-score of $< \pm 2$. Based on 30 studies from ESG Didcot utilising the 50% TEA, 65% of all local Authority co-location studies in 2014 were rated as ‘good’ (tubes are considered to have "good" precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%).

Appendix B: Monthly Monitoring Data

Monthly Diffusion Tube Results

Site Ref	NO_2 Concentrations µg/m^3												COUNT	AVERAGE
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Maid 03	67.3		62.7	48.8	42.6	41.1	50.4	33.1	53.5	46.6	52.3	46.3	11	49.5
Maid 03	58.8	53.5	56.5	37.6	34.8	35.9	61.6	43.0	63.2	54.7	65.2	57.0	12	51.8
Maid 03	48.1	53.4	46.8	46.8	49.2	23.1	34.7	39.2	63.8	51.0	65.9	53.7	12	48.0
Maid 06	18.7	17.6	20.0	24.6	10.4	9.3	12.7	13.8	15.9	14.6	20.2	16.8	12	16.2
Maid 06	19.5	17.8	16.6	14.9	11.2	7.2	12.4	12.4	14.6	14.5	20.7	18.1	12	15.0
Maid 06	16.7		19.0	13.8	9.9	6.7	11.5	13.1	14.9	13.3	20.9	16.6	11	14.2
Maid 10	29.5	26.6	40.6	38.4	27.5	18.3	32.8	32.8	39.8	30.9	43.7	45.0	12	33.8
Maid 11	48.1	47.2	39.9	28.4	23.1	18.7	18.9	34.0	26.1	41.2	34.9	40.0	12	33.4
Maid 12	41.2	37.3	40.9	29.3	21.6	9.9	15.9	30.5	25.7	39.6	44.3	40.4	11	33.3
Maid 14	33.2	28.1	37.4	39.6	23.2	17.2	43.3	27.3	44.1	26.8	39.4	37.1	12	33.1
Maid 18	28.0		33.4	29.1	27.3	25.4	31.1	20.9	40.4	17.7	36.8	28.0	11	28.9
Maid 19	33.3	22.5	46.5	28.2	23.9	23.7	36.2	20.7		26.0	42.2	32.4	11	30.5
Maid 20	43.2	25.7	47.4	28.2	28.6	24.1	23.4	27.2	36.3	30.2	47.7	42.7	12	33.7
Maid 21	49.1	44.4	57.1	48.1	36.9	33.0	40.9	36.2	51.1	41.8	54.8	51.1	12	45.4
Maid 22	42.4	37.7	39.4	33.5	20.3	17.8	29.5	28.5	33.4	36.0	40.3	43.0	12	33.5
Maid 26	47.0	42.6	60.4	32.7	37.9	10.5	39.1	40.0	39.2	40.1	43.6	43.2	12	39.7
Maid 27	57.7	45.3	69.9		44.7		43.9	41.0	50.3	48.9	50.2	48.8	10	50.1
Maid 29	39.0	36.7	49.7	34.5	22.1	14.1	35.2	35.3	40.7	39.1	46.9	43.2	12	36.4
Maid 36		45.8		31.2			50.4		60.0	57.0		59.9	6	50.7
Maid 41	54.3	52.9	56.0	43.9	40.4	30.5	33.2	46.9			52.8	51.9	10	46.3
Maid 44	50.9	38.5	66.8	39.0	52.4	36.2	50.2	40.6	59.5	38.8	53.5	50.9	12	48.1
Maid 45	24.8	22.3	27.8	15.4	15.5	11.4	14.7	18.7	19.8	19.6	27.6	24.2	12	20.2
Maid 46	17.5		25.2	17.8					17.7		25.9	21.9	6	21.0
Maid 49	48.7	60.3	61.2	51.8	42.0		27.7	33.3	53.7	43.6	55.9	52.3	11	48.2
Maid 50	31.4	24.1	36.2	26.3	21.0	19.7	20.1	21.9	25.8	22.0	30.1	33.6	12	26.0
Maid 51	45.4	46.8	67.7	40.1	43.1	31.6	54.4	35.9	59.0	44.8	60.2	55.7	12	48.7
Maid 52	60.2	49.0	58.1	52.7	44.8	34.9	42.1	45.3	53.9	58.1	49.9	60.1	12	50.8
Maid 53	83.7	90.3	85.3	47.1	61.3	46.8	58.5	44.4	72.7	28.7	32.1	37.5	12	57.4
Maid 56	36.6	32.1	34.1	25.0	24.1	0.9	27.9	30.3	28.3	83.3	72.4	65.6	11	41.8
Maid 57	47.7	42.7	52.5	41.3	40.9	30.6	44.4	39.7	55.4	41.7		47.2	11	44.0
Maid 58	72.6		125.2	82.3		88.6	106.1	111.8		110.8	95.0	93.6	9	98.4
Maid 59			97.4	58.7		62.7	81.9	86.4	83.1	91.2		0.0	7	80.2
Maid 63	59.0	46.0	49.3	43.3	41.9	28.5	30.5	45.0	37.6	48.6	47.6	49.5	12	43.9

Site Ref	NO_2 Concentrations µg/m^3												COUNT	AVERAGE
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Maid 66	52.1	45.0	44.8	41.9	38.9	24.0	21.8	31.3	33.0	48.6	56.0	37.6	12	39.6
Maid 68		49.7	52.8	34.8	26.6	15.6	36.8	44.5	45.3	50.7		53.6	10	41.0
Maid 69	33.2	28.4	43.7	24.3	24.4		23.8	23.6	27.5	27.9	35.5	34.5	11	29.7
Maid 70	50.9	42.3	53.2	35.9	40.8	38.5	39.7	78.4	45.8	51.0	60.2	51.8	12	49.0
Maid 71	38.5		33.9	29.9	24.8	15.2	28.4	34.5	39.9	41.7	44.0	44.7	11	34.1
Maid 74	43.0	37.4	50.2	45.3	35.1	29.8	32.7	36.7	39.9	39.4	47.7	48.4	12	40.5
Maid 75	48.7	42.2	44.1	35.2	29.6	17.6	19.1	38.9	35.1	40.3	48.8	39.1	12	36.6
Maid 76	29.1	32.2	41.1	25.5	28.3	24.7	25.4	26.0	31.6	31.2	35.9	35.5	12	30.5
Maid 77	30.5	28.8	37.9	24.6	23.5	26.1			28.3	21.1	25.5	36.6	10	28.3
Maid 78	32.1	33.3	46.3	27.1	29.9	26.2	30.2	27.0	30.6	29.0	32.0	32.2	12	31.3
Maid 79	35.4	30.1	43.7	29.5	26.9	21.9	22.1	22.5	33.2	25.2	34.3	31.4	12	29.7
Maid 80	63.0		62.4	37.9	47.1	27.9	40.1	36.4	48.0	51.5	65.1	44.8	11	47.7
Maid 81	91.9		114.3	78.2			113.2		99.8	97.5	94.9	87.4	8	97.2
Maid 82	54.9	44.8	67.0	37.3	43.1	36.0	38.1	48.5	51.9	47.9	48.0	59.7	12	48.1
Maid 83	23.4	27.2	35.7	26.9	26.1	23.7	28.4	30.5	35.2	23.0	28.8	36.1	12	28.8
Maid 84	26.9	33.3	38.0	36.9	27.2	26.4	29.9	30.0	41.1	35.0	43.9	34.1	12	33.6
Maid 85	38.4	30.4	47.9	28.4	33.4	26.8	28.3	28.5	35.3	31.1	46.6	34.5	12	34.1
Maid 86	50.1	42.5	61.1	34.0	39.1	36.2	40.2	39.9	47.0	44.2	53.3	49.4	12	44.8
Maid 87	32.3	30.8	46.8	50.7	37.1	31.9	39.0	26.4	44.0	25.5	31.1	36.8	12	36.0
Maid 87	38.2	27.5	46.9	47.4	37.4	27.0	41.6	26.4	45.0	28.1	32.3	36.1	12	36.2
Maid 87	32.8	26.5	47.2	50.9	31.5	29.1	42.0	29.1	43.9	27.1	37.0	37.3	12	36.2
Maid 88	24.5		35.9	34.3	28.1	27.7	34.1	25.5	37.7	23.4	29.4	32.1	11	30.2
Maid 89	23.5	24.1	43.8	32.4	33.9	31.1	38.7	35.6	42.7	24.9	34.3	34.5	12	33.3
Maid 90	55.5	35.4	58.4	33.8	34.6	27.3	36.8	39.8	44.8	43.0	52.3	45.9	12	42.3
Maid 91	23.9	18.9	32.5	22.4	17.7								5	23.1
Maid 92	48.8		44.2	40.4	35.0	24.8	33.0	33.8	40.4	46.8	68.0	51.6	11	42.4
Maid 93	36.9	37.7	42.0	28.2	26.7	24.1	31.5	30.1	34.9	33.2	38.4	47.6	12	34.3

Value = Value removed from the dataset prior to processing