



# 2013 Air Quality Progress Report for Arun District Council

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

June 2013

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## Executive Summary

Under the Environment Act 1995, local authorities are required to Review and Assess (R&A) air quality on a regular basis. A *review* of air quality means a consideration of the levels of pollutants in the air for which objectives are prescribed in Regulations<sup>1</sup>, and estimations of likely future levels. An *assessment* of air quality is the consideration of whether estimated levels for the relevant future period are likely to exceed the levels set in the objectives.

The first review and assessment round was completed in 2003. The main conclusion was that the national air quality objectives were not likely to be exceeded at any location in Arun District.

This first round of R&A constitutes a benchmark against which Arun District Council can measure future progress in making improvements to the local air quality.

Guidance issued by the Department for Environment, Food and Rural Affairs (DEFRA) requires those local authorities, who found no exceedences of the air quality objectives in the last Updating and Screening Assessments (USA), to undertake a Progress Report (PR) of local air quality by the end of April 2013.

This Progress Report identifies those aspects that have changed since the last round of review and assessment, the USA. The report concentrates on the progress on implementing local air quality management and achieving or maintaining concentrations below the air quality objectives. These aims are demonstrated by reporting on updated monitoring data and new local developments that might affect air quality.

The Progress Report provides a summary of all available monitoring data, indicating monitored pollutants and specific locations within Arun District.

It is concluded that air quality objectives were not exceeded in 2012, nor is there a risk of exceedences in 2013, Arun District Council will not therefore be required to undertake any Detailed Assessments of air quality in 2014.

**Arun District Council will carry out a further LAQM Progress Report in 2014.**

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<sup>1</sup> Air Quality Regulations for England (2000; Amendment Regulations 2002)

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# 1 Introduction

## 1.1 Description of Local Authority Area

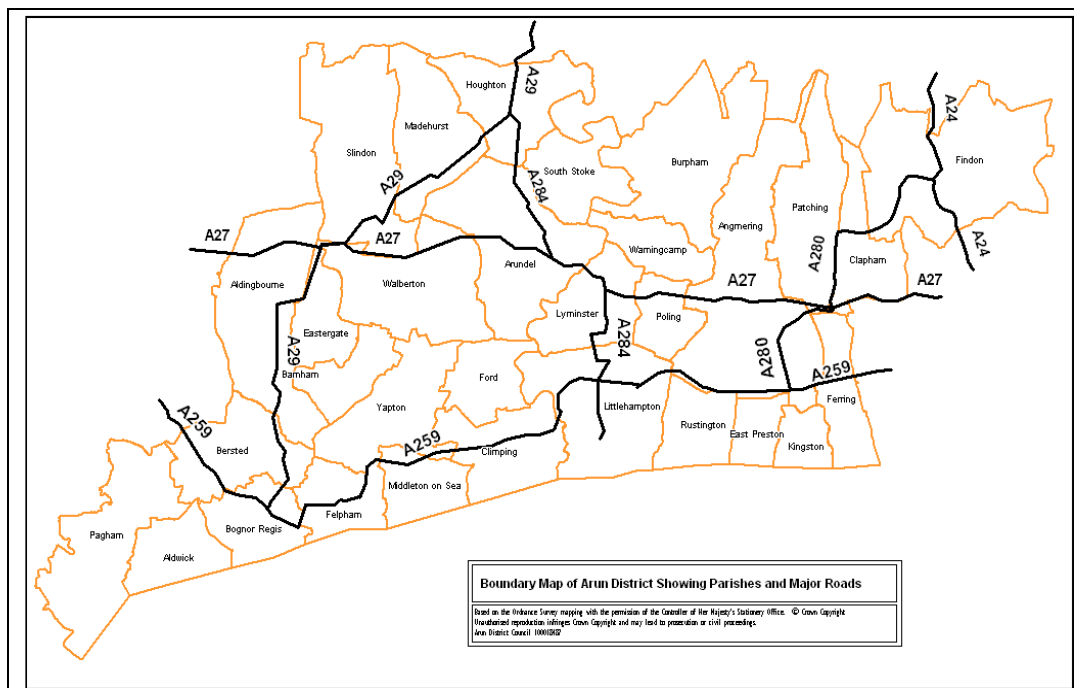
Arun District is a mixed urban / rural area covering 85 square miles, and has a current estimated population of just over 150,000. Littlehampton and Bognor Regis are the main urban centres and the principle administrative and commercial centres within the district.

Arun District is served by transport links to London, Gatwick Airport, the M25, the coast and Europe. Principle east/west routes are the A27 and A259, a network of subsidiary routes connects the villages and small centres of population.

A large proportion of the district is composed of countryside with a varied landscape of woodland, downland, river valleys and meadows being represented. Areas of Outstanding Natural Beauty, Sites of Special Scientific Interest, and Sites of Nature Conservation Importance overlap the area. Agriculture remains a major user of land within the District.

Figure 1. Shows the Arun District boundaries, parishes and main roads.

**Figure 1: Arun District**



## 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

### Stage I, II and III

Arun District Council completed its stage I assessment in December 1998 and identified a number of pollutant sources within the district requiring further assessment. Further stage II and III assessments followed.

### Road sources

Advanced modelling was undertaken using the BREEZE ROADS model which incorporates emissions, traffic and meteorological data and provides estimates for both moving and idling vehicles. Predicted NO<sub>2</sub> concentrations for 2005 were found to be less than the required air quality objective, **so it was not necessary to declare an Air Quality Management Area (AQMA).**

### Industrial sources

The contribution of SO<sub>2</sub> and PM<sub>10</sub> from the Lafarge Tarmac Ltd., (previously Lafarge Redland Ltd.), Roadstone Coating Plant stack in Littlehampton was estimated using the GSS Environment Agency model, incorporating geographical and engineering data. When this value was added to the predicted background concentration, the total SO<sub>2</sub> concentration for 2004/2005 was found to be below the air quality objectives set for SO<sub>2</sub>. Therefore no further assessment was needed. However, for PM<sub>10</sub> the predicted total 2004 concentration was found to be within 5 mg/m<sup>3</sup> of the annual mean air quality objective, so advanced modelling was undertaken to confirm whether the objective would be met by 2004. The advanced AERMOD model results were of similar concentration to those from the GSS model and therefore it was decided not to proceed further.

To conclude, all areas identified as being of possible concern from the Stage I review and assessment were predicted to meet the necessary air quality objectives by the target year. **Therefore, it was not necessary for this authority to declare any Air Quality Management Areas within the Arun District.**

### **2003 Updating and Screening Assessment**

In 2003, an Updating and Screening Assessment (USA) was undertaken to account for changes to air quality objectives, monitoring data and pollutant sources since the Review and Assessment. The USA did not identify any changes to local air quality which would lead to a risk of any of the air quality objectives being exceeded.

**Therefore no further detailed assessment was required.**

### **2004 Progress Report**

The 2004 Progress Report identified no further locations where air quality objectives were likely to be exceeded within Arun District. **Therefore no further detailed assessment was required.**

### **2005 Progress Report**

The 2005 Progress Report identified no further locations where air quality objectives were likely to be exceeded within Arun District. **Therefore no further detailed assessment was required.**

### **2006 Updating and Screening Assessment**

The 2006 Updating and Screening Assessment (USA) was undertaken to review air quality and identify new likely sources of pollution in the district. The assessment included looking at further data from the monitoring sites, assessments for congested roads, junctions, busy streets, roads with high HGV and bus volumes, as well as new roads, bus stations, new and changed emissions from industrial sources.

The 2006 USA did not identify any changes to local air quality which would lead to a risk of any of the air quality objectives being exceeded. **Therefore no further detailed assessment was required.**

## **2007 Progress Report**

The 2007 Progress Report provided a summary of all available monitoring data, indicating monitored pollutants and specific locations within Arun District. It identified no further locations where air quality objectives were likely to be exceeded within Arun District. **Therefore no further detailed assessment was required.**

## **2008 Progress Report**

The 2008 Progress Report identified no further locations where air quality objectives were likely to be exceeded within Arun District. **Therefore no further detailed assessment was required.**

## **2009 Updating and Screening Assessment**

The 2009 Updating and Screening Assessment (USA) reviewed data on measurements of air pollutants in the district and compared these to the national air quality objectives for human health. In addition the report reviewed any new or existing potential sources of pollution and has assessed their potential impacts on air quality for the citizens of the district.

The 2009 USA did not identify any changes to local air quality which would lead to a risk of any of the air quality objectives being exceeded. **Therefore no further detailed assessment was required.**

## **2010 Progress Report**

The 2010 Progress Report identified no further locations where air quality objectives were likely to be exceeded within Arun District. **Therefore no further detailed assessment was required.**

## **2011 Progress Report**

The 2011 Progress Report identified no further locations where air quality objectives were likely to be exceeded within Arun District. **Therefore no further detailed assessment was required.**

## **2012 Updating and Screening Assessment**

The 2012 Updating and Screening Assessment (USA) reviewed data on measurements of air pollutants in the district and compared these to the national air quality objectives for human health. In addition the report reviewed any new or existing potential sources of pollution and has assessed their potential impacts on air quality for the citizens of the district.

The 2012 USA did not identify any changes to local air quality which would lead to a risk of any of the air quality objectives being exceeded. **Therefore no further detailed assessment was required.**

## 2 New Monitoring Data

### 2.1 Summary of Monitoring Undertaken

#### 2.1.1 Automatic Monitoring Sites

Arun District Council has no automatic monitoring sites within its boundaries and has not closed any since the last Review and Assessment of Air Quality (2012).

#### Monitoring of air quality across Sussex.

Arun District Council is a member of the Sussex Air Quality Partnership (Sussex Air) which benefits from the co-ordinated monitoring of air pollutants across the region. The Sussex Air Quality Monitoring Network is managed and co-ordinated by King's College London ERG, on behalf of Sussex-air and they provide data calibration and ratification of results.

**Table 2.1: Sussex air quality monitoring stations and pollutants monitored (2013).**

	Authority	Location	Pollutant
1.	Adur and Worthing	Shoreham High St	NOx
2.	Adur and Worthing	Grove Lodge, A27	NOx
3.	Brighton & Hove CC	Beaconsfield Road	NOx, PM10
4.	Brighton & Hove CC/ AURN	Preston Park	NOx, O3, PM2.5
5.	Brighton & Hove CC	Stanmer Park	O3
6.	Chichester D.C.	A27 Ring Road, Chic.	NOx, O3, PM10
7.	Chichester D.C.	Lodsworth	NOx, O3, PM10
8.	Chichester D.C.	Orchard Street, Chic.	NOx
9.	Crawley B.C.	East Gatwick	NOx
10.	Eastbourne B.C.	Devonshire Park	NOx, O3, PM10
11.	Eastbourne/AURN	Holly Place	NOx, PM10, PM2.5
12.	Hastings B.C.	Bulverhythe (A259)	NOx, PM10
13.	Horsham D.C.	Cowfold	NOx
14.	Horsham D.C.	Park Way, Horsham	NOx, PM10
15.	Horsham/AURN	Storrington	NOx, PM10, PM2.5
16.	Lewes D.C.	Denton School, Newhaven	NOx, O3, PM10, PM2.5
17.	Lewes D.C.	West Street, Lewes	NOx, PM10
18.	Rother D.C.	Rye Harbour	O3
19.	Rother D.C.	De La Warr Rd, Bexhill	NOx, PM10
20.	Wealden D.C.	Isfield	O3
21.	Sussex Air AQMS	Mobile AQMS	PM10, NOx
22.	DEFRA - AURN	Lullington Heath, Wealden	NOx, O3, SO2

**Key:**

AQMS	-	Air Quality Monitoring Station
AURN	-	Automatic Urban and Rural Network (DEFRA national network site)
CO	-	carbon monoxide
DEFRA	-	Department for Environment, Food and Rural Affairs
NO <sub>x</sub>	-	oxides of nitrogen (includes nitrogen dioxide (NO <sub>2</sub> ))
O <sub>3</sub>	-	ozone
PM <sub>10</sub>	-	particles less than 10 microns
PM <sub>2.5</sub>	-	particles less than 2.5 microns
SO <sub>2</sub>	-	sulphur dioxide

## 2.1.2 Non-Automatic Monitoring Sites

Arun District Council undertakes monitoring with non-automatic methods using nitrogen dioxide (NO<sub>2</sub>) diffusion tubes in various locations across the district. There are no AQMA's in Arun District. Site location maps are provided in Appendix B: Location Maps.

**Table 2.2 Details of Non- Automatic Monitoring Sites**

Site Name	Local	Site Type	OS Grid Ref	NO <sub>2</sub>	Relevant Exposure ?	Distance to kerb of nearest road	Worst-case Location?
BR High Street	Bognor	Urban Roadside	X 493778 Y 099135	NO <sub>2</sub>	No	1m	N
Church Lane	Bognor	Urban Backgrd	X 493429 Y 100381	NO <sub>2</sub>	No	N/A	Y
Mornington Crescent	Bognor	Urban Backgrd	X 495328 Y 100344	NO <sub>2</sub>	No	N/A	N
Canada Grove	Bognor	Urban Roadside	X 493313 Y 099228	NO <sub>2</sub>	No	1 m	Y
Terminus Road	Little'ton	Urban Roadside	X 502564 Y 102149	NO <sub>2</sub>	No	1 m	Y
Worthing Road	Little'ton	Urban Roadside	X 503439 Y 103364	NO <sub>2</sub>	No	1 m	Y
Thatchway Close	Little'ton	Urban Backgrd	X 502559 Y 102888	NO <sub>2</sub>	No	N/A	N
Westlands	Little'ton	Urban Backgrd	X 504380 Y 102687	NO <sub>2</sub>	No	N/A	N
Arundel High Street	Arundel	Urban Roadside	X 501825 Y 107165	NO <sub>2</sub>	No	1 m	N
The Causeway	Arundel	Rural Roadside	X 502337 Y 106555	NO <sub>2</sub>	Yes (8 m)	1 m	Y
King Street	Arundel	Urban Backgrd	X 501478 Y 107052	NO <sub>2</sub>	No	N/A	N
Priory Road	Arundel	Urban Backgrd	X 500886 Y 106491	NO <sub>2</sub>	No	N/A	N
A259 Flansham Lane (from 2011)	Bognor	Urban Roadside	X496168 Y100384	NO <sub>2</sub>	Yes (1m)	1.5m	Y
The Causeway 2	Arundel	Rural Roadside	X 502337 Y 106555	NO <sub>2</sub>	Yes (8 m)	1 m	Y
The Causeway (Façade)	Arundel	Rural Roadside	X 502337 Y 106555	NO <sub>2</sub>	Yes	9m	Y
Westergate Level Crossing	W'gate	Rural Roadside	X493762 Y104338	NO <sub>2</sub>	Yes (20m)	1m	N

**Key:**

Little'ton - Littlehampton

Arun District Council sub-contracts the supply and analysis of the NO<sub>2</sub> diffusion tubes with South Yorkshire Air Quality Samplers (SYAQS) – previously South Yorkshire Laboratory.

The NO<sub>2</sub> tube preparation method used is 50% triethanolamine (TEA) in acetone.

The South Yorkshire Laboratory was on the working group and follows the procedures set out in the Harmonisation Practical Guidance.

No co-location study has been undertaken in the district or in a neighbouring authority.

Data from the NO<sub>2</sub> diffusion tubes has been compared and bias corrected to the factors produced from the UK co-location data-base as collated by DEFRA Local Air Quality Management Helpdesk.

The bias adjustment factor for the South Yorkshire Air Quality Samplers (SYAQS) in 2012 is 0.80.

South Yorkshire Air Quality Samplers participate in the Workplace Analysis Scheme for Proficiency (WASP) and for the periods January to March, April to June, July to September, and October to December 2012, 75%, 75%, 50% and 100% respectively of results submitted were subsequently determined to be “satisfactory”.



## 2.2 Comparison of Monitoring Results with Air Quality Objectives

**Arun District Council monitoring results have shown that there have been no measured exceedences of the UK air quality objectives in 2012.**

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

Arun District Council measures nitrogen dioxide using diffusion tubes to provide annual averaged (bias corrected) concentrations within the district.

No (diffusion tube) measured location in the district, exceeded the annual mean concentration limit of 40 µg/m<sup>3</sup> in 2012. At the 9 roadside sites monitored concentrations have increased slightly at 3 sites, and decreased at 5 sites in 2012 from 2011.

One location (The Causeway, Arundel) has marginally exceeded the limit in previous years. This location has two (duplicate) co-located nitrogen dioxide diffusion tubes. The average annual measured concentration for both diffusion tubes at the Causeway has fallen over the last 2 years from 39µg/m<sup>3</sup> in 2010 to 32ug/ m<sup>3</sup> in 2013. The measurement location is adjacent (within 1.0m) of the kerb A27.

There is a relevant location of exposure (a house) a further 8.0m away from the road. When the 2010 measured concentration was re-calculated back to the closest location of relevant public exposure, the result of this calculation showed an annual mean concentration of 30µg/m<sup>3</sup>. As advised in the Appraisal Report in respect of the 2010 Progress Report a further diffusion tube was deployed at the nearest sensitive receptor location for the latter half of 2011. The annualised average measured concentration for this period was 19ug/ m<sup>3</sup>. The average measured concentration for 2012 was again 19ug/m<sup>3</sup>.

A further location (A259, Felpham Way, Bognor Regis) was marginally below the annual mean concentration limit in 2010, the trend over the previous three years showing a steady increase. The nearest relevant location of exposure in the vicinity of the diffusion tube was 9.5m away from the road consequently the tube was

relocated at the start of 2011 to a position within 1m of a relevant location (A259, Flansham Lane, Bognor Regis), 450m east on the same road. The measured annual mean concentration at the relocated position for 2011 was 29 $\mu\text{g}/\text{m}^3$  and in 2012 it was 28 $\mu\text{g}/\text{m}^3$ .

### Automatic Monitoring Data

Arun District Council has no automatic monitoring sites within its boundaries and has not closed any since the Review and Assessment of Air Quality in 2012.

### Diffusion Tube Monitoring Data

Arun District Council measured nitrogen dioxide concentrations at fifteen locations across the district in 2012, including one duplicate monitoring site (The Causeway, Arundel).

All measurements are bias adjusted.

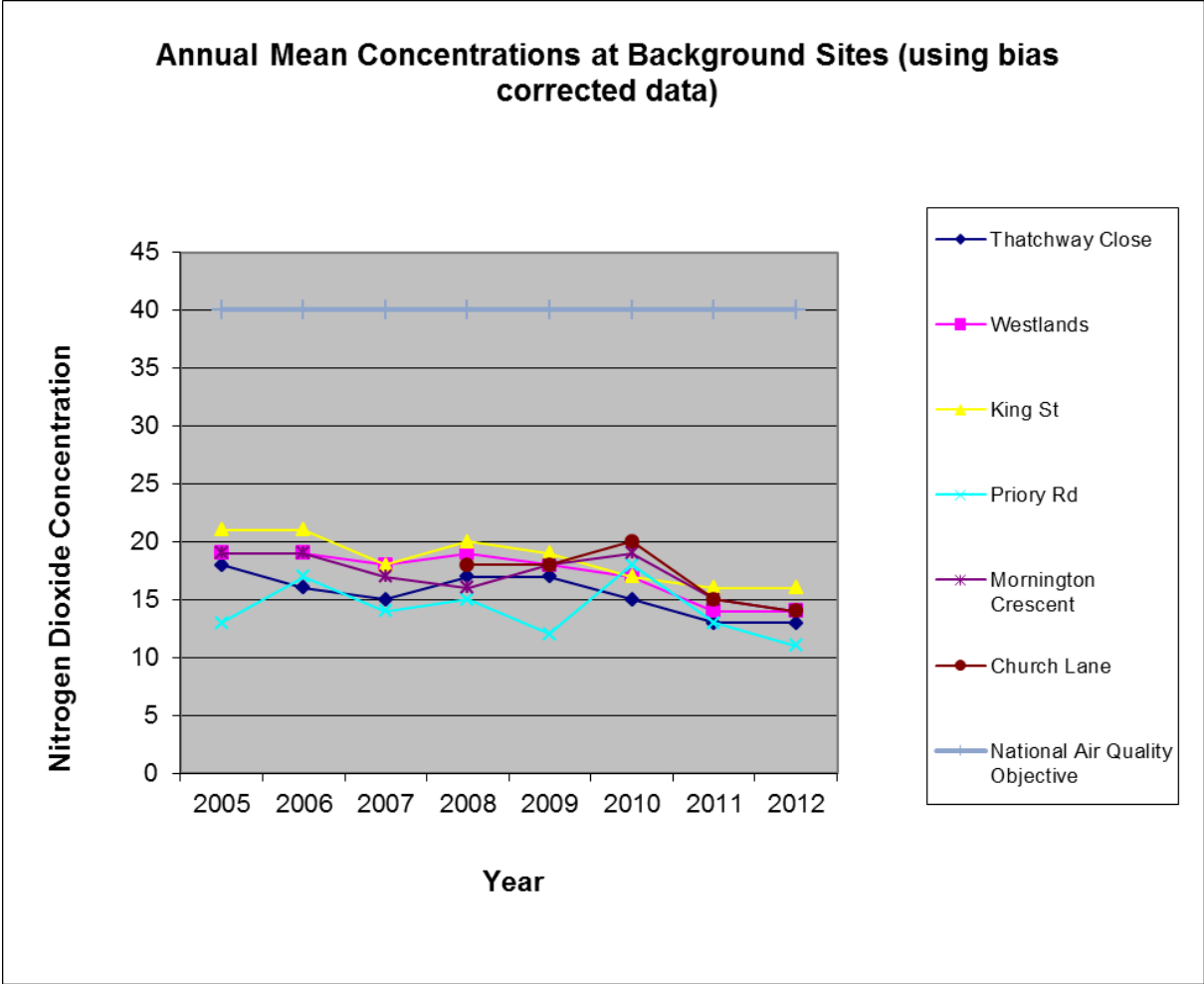
There are no Air Quality Management Areas in Arun District.

**Table 2.3 Results of nitrogen dioxide diffusion tubes**

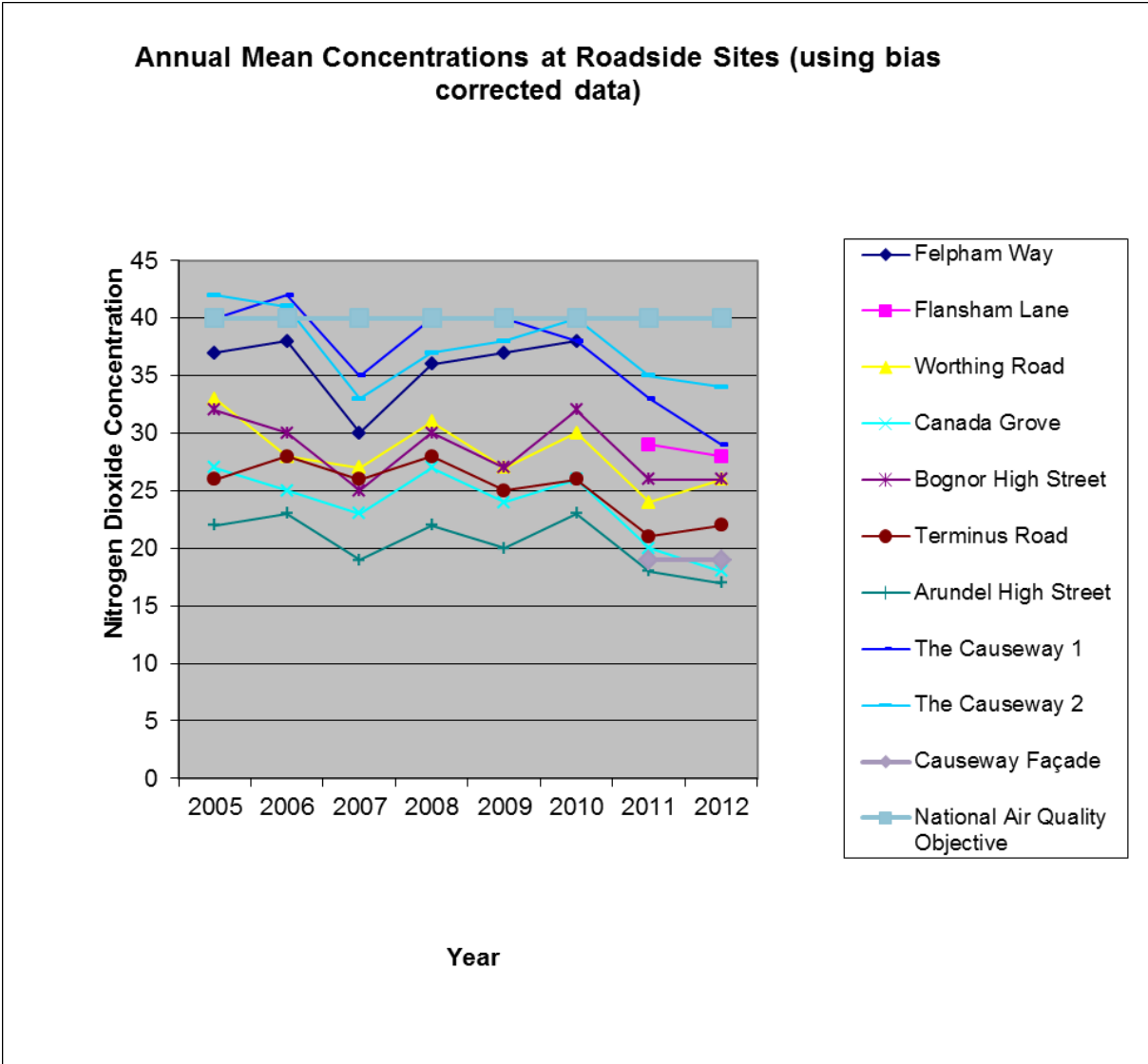
Site ID	Location	Within AQMA?	Data Capture 2012 %	Annual mean concentrations( $\mu\text{g}/\text{m}^3$ ) Bias adjusted			
				2009	2010	2011	2012
BR High Street	Bognor	No	100	27	32	26	26
Church Lane	Bognor	No	100	18	20	15	14
Mornington Crescent	Bognor	No	100	18	19	15	14
Canada Grove	Bognor	No	100	24	26	20	18
Terminus Road	Littlehampton	No	100	25	26	21	22
A259 Worthing Road	Littlehampton	No	100	37	30	24	26
Thatchway Close	Littlehampton	No	100	17	15	13	13
Westlands	Littlehampton	No	100	18	17	14	14
Arundel High Street	Arundel	No	100	20	23	18	17
A27 The Causeway	Arundel	No	100	40	38	33	29
King Street	Arundel	No	100	19	17	16	16
Priory Road	Arundel	No	92	12	18	13	11
A259 Flansham Lane	Bognor	No	100	-	-	29	28
A27 The Causeway 2	Arundel	No	100	38	40	35	34
A27 The Causeway Hotel Facade	Arundel	No	92	-	-	19*	19

\* - Annualised

**Figure 2.1: Trends in Annual Mean Nitrogen Dioxide Concentrations (2005-2012) measured at Background Diffusion Tube Monitoring Sites**



**Figure 2.2 Trends in Annual Mean Nitrogen Dioxide Concentrations (2005-2012) measured at Roadside Diffusion Tube Monitoring Sites**



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

Arun District Council has no particulate monitoring sites within its boundaries and has not closed any since the last Review and Assessment of Air Quality (2009).

**2.2.3 Sulphur Dioxide**

Arun District Council has no sulphur dioxide monitoring sites within its boundaries and has not closed any since the last Review and Assessment of Air Quality (2009).

#### **2.2.4 Benzene**

Arun District Council has no benzene monitoring sites within its boundaries and has not closed any since the last Review and Assessment of Air Quality (2009).

#### **2.2.5 Other pollutants monitored**

Arun District Council has no other monitoring sites or monitors within its boundaries and has not closed any since the last Review and Assessment of Air Quality (2009).

#### **2.2.6 Summary of Compliance with AQS Objectives**

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

### **3 New Local Developments**

No new major developments requiring an air quality assessments have received approval since completion of 2012 Updating and Screening Assessment.

Construction of a mixed use development comprising up to 600 dwellings, 4000m<sup>2</sup> employment floor space, and 235m<sup>2</sup> of local facilities at Courtwick, North Littlehampton has commenced. An air quality assessment satisfying the requirements of technical guidance LAQM.TG(09) showed that there would be no exceedences of UK Air Quality Objectives.

Outline planning permission for development comprising 1,260 dwellings, 13000m<sup>2</sup> employment floor space on land at Toddington (North Littlehampton Strategic Development Area) has been approved. The assessment of the operational phase of the development identified that nitrogen dioxide levels at all existing and proposed residential locations would be below the National Air Quality Objectives.

#### **3.1 Road Traffic Sources**

Construction of the new North Bognor Regis Relief Road is ongoing. An air quality assessment for the relief road carried out at the planning stage satisfied the requirements of technical guidance LAQM.TG(09). The results of the assessment indicate that the Assessed Development would have a “negligible” to “minor” negative impact on air quality and predict that there will be no exceedences of UK Air Quality Objectives.

#### **3.2 Other Transport Sources**

Arun District Council confirms that there are no new/newly identified non-road traffic sources that have not been adequately considered in previous rounds of Review and Assessment.

### **3.3 Industrial Sources**

Environmental Permits have been granted in respect of new Petrol Service Stations at Sainsbury's, Shripney Road, Bognor Regis, and Morrison Supermarket, Courtwick Lane, Bognor Regis.

Arun District Council confirms that there are no other industrial sources that have not been adequately considered in previous rounds of Review and Assessment.

Industrial sources controlled under the Environmental Permitting (England & Wales) Regulations 2010 are listed in Appendix D.

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

Arun District Council confirms that there are no new/newly identified commercial and domestic sources that have not been adequately considered in previous rounds of Review and Assessment.

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

Arun District Council confirms that there have been no new/newly identified uncontrolled sources that have not been adequately considered in previous rounds of Review and Assessment.

Arun District 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.

Arun District 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

Arun District Council are members of the Sussex Air Quality Partnership (Sussex Air). All agencies participating in Sussex Air Quality Steering Group have agreed to the Guiding Principle and Aims of improving air quality in Sussex.

Sussex Air has formulated The Sussex Air Quality Partnership Strategic Plan (2010 - 15) which has the following five key objectives:

1. Provide advice and support and improve the expertise and knowledge base.
2. Project development and implementation.
3. Partnership working.
4. Develop cross cutting work on health improvement, climate change, environment and transport.
5. Communicate air quality issues and initiatives in Sussex.

Sussex-Air resources to enable delivery of the above objectives include:

- A partnership Project Manager to undertake core and project related functions on behalf of Sussex-Air.
- Websites [www.sussex-air.net](http://www.sussex-air.net) and [www.airalert.info](http://www.airalert.info) plus air quality models and emissions inventories.



## 5 Planning Applications

Planning applications have been received for several residential developments including:-

- A/82/12 – Land East of Roundstone Lane, Angmering – Application for a residential development of 150 dwellings – awaiting decision. An Air Quality Assessment submitted with the application demonstrated that it would not give rise to exceedences of Air Quality Objectives. The overall operational air quality impacts of the development were judged to be low.
- A/122/12 – West End Nursery, Roundstone Lane, Angmering – Outline application for 195 dwellings – awaiting decision. An Air Quality Assessment has been requested to support the application.
- EG/29/13 – Former Brooks Nursery, Eastergate – Application for residential development of 40 dwellings. An Air Quality Assessment has been requested if other proposed developments in the vicinity could have a cumulative impact upon local air quality.
- AL/39/13 – Land West of Westergate Street & East of Hook Lane, Aldingbourne – Outline Application for residential development of up to 79 dwellings. An Air Quality Assessment has been requested if other proposed developments in the vicinity could have a cumulative impact upon local air quality.

## 6 Air Quality Planning Policies

Arun District Council Local Plan (June 2013) sets out the vision for the future of Arun and guides development to achieve that vision. The Plan covers the Arun Local Planning Authority Area (LPA) - this area is the entire district apart from those parts within the South Downs National Park. The South Downs National Park Authority is preparing a Local Plan for the entire park.

The Arun Key Diagram, which is a spatial representation of the Local Plan Vision and provides a broad indication of how the District will develop over the lifetime of the Plan, is at Appendix D.

### Policy DM 45 – Air Pollution

All major development proposals will be required to assess the likely impacts of development on air quality and mitigate any negative impacts by:

- i. Ensuring the development is located within easy reach of established public transport services;
- ii. Maximising provision for cycling and pedestrian facilities;
- iii. Encouraging the use of cleaner transport fuels on site, through the inclusion of Electric car charging points; and
- iv. Contributing towards the improvement of the highway network where the development is predicted to result in increased congestion on the highway network.

Development proposed nearby any Air Quality Management Area (AQMA) declared within the District within the Plan period, will require an air quality assessment to identify likely impacts of development upon the designated area. Developers will be required to ensure delivery of the actions set out within any Air Quality Action Plan.

Industrial development which is regulated by environmental permits (that creates or results in dust, smell, fumes, smoke, heat, radiation, gases, steam or other forms of pollution) must be located in such a position which ensures that the health, safety and amenity of users of the site or surrounding land is not put at risk and the quality of the environment would not be damaged or put at risk.

Developments shall also be consistent with all other Local Plan policies.

## 7 Local Transport Plans and Strategies

West Sussex County Council (WSCC) is the Highways Authority for West Sussex and is responsible for all roads, other than trunk roads. WSCC published its first Local Transport Plan (LTP) in 2000 for the period from April 2001 to 2006. Its second LTP, a new ten year plan covering the period 2006 to 2016 was approved in March 2006 (LTP2).

LTP2 is the second cycle of the Local Transport Plans which transport authorities must submit to government on strategic transport planning issues related to their area. Guidance documents are provided by government and outline priorities, one of which is Air Quality, especially in relation to AQMA's.

The Plan's main objectives are to:

- Reduce congestion & pollution;
- Improve road & personal safety;
- Improve accessibility for our residents to key services;
- Improve overall quality of life in West Sussex

The LTP is designed to integrate transport planning with land use planning, health and social needs, which includes air quality. It also explains how air quality considerations are taken account of in the wider plan and in the assessment of individual transport schemes.

The strategy will impact in particular upon the transport plan objectives of reducing congestion and growth in unsustainable travel, improving air quality, reducing the impact of expected climate change and reducing the environmental impact of undertaking all aspects of transport provision and maintenance.

Key targets include:

- Continue to work closely with all councils, including those that are neighbours to West Sussex, and with the primary health care trusts, the Environment Agency, Highways Agency, Sussex and Brighton universities and the Sussex Air Quality Partnership;
- Assist district councils and surrounding counties in their air quality assessments;
- Promote the provision of alternative fuels on Garage forecourts across West Sussex, primarily LPG but also CNG, LNG, and biofuels. Look at provision of public electric recharging points if electric vehicle use is to be promoted;
- Continue with our air quality forecasting and warning system to inform the public and improve their awareness of air quality issues and less polluting means of travel;
- Consider use of Low Emission Zones (LEZs) as part of our developing policies on environmental access controls for town centres, which will be geared to local circumstances.

## 8 Climate Change Strategies

Arun District Council recognises that Climate Change is likely to be one of the key drivers of change within our community this century.

The Council has strategies that highlight the need for action on climate change, the environment and sustainability, these include:

- Sustainable Community Strategy for Arun 2008-2026 'Our Kind of Place'
- Carbon Management Action Plan

Arun District Council Local Plan (Chapter 6) includes the following policies:

- Policy SP17 – Adapting to Climate Change
- Policy SP18 – Energy & Climate Change Mitigation
- Policy SP21 – Transport & Development
- Policy DM21 – Renewable Energy
- Policy DM23 – Sustainable Travel & Public Rights of Way

## **9 Conclusions and Proposed Actions**

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

**New monitoring data for 2012 has shown that there are no areas likely to exceed the air quality objectives in Arun District.**

Monitoring with NO<sub>2</sub> diffusion tubes at background sites (Figure 2.1) has shown that most locations have stayed between 15 - 20 µg/m<sup>3</sup> over the last 5 years monitoring. In 2012 all but one background site monitored was below 15 µg/m<sup>3</sup>.

Monitoring with NO<sub>2</sub> diffusion tubes at roadside sites (Figure 2.2), since 2003 initially showed a slight decline and subsequently levelled off to range between 20 - 40 µg/m<sup>3</sup>. No (diffusion tube) measured location in the district, exceeded the annual mean concentration limit of 40 µg/m<sup>3</sup> in 2010 and in 2011 trends show that at all roadside sites annual concentrations have decreased. NO<sub>2</sub> results for 2012 appear to show no significant changes from the previous year.

The location with the highest measured concentration continues to be the Causeway near Arundel. This site has marginally exceeded the air quality objective in previous years. Consequently from 2004 a duplicate diffusion tube was co-located to provide a more robust measurement. The averaged measured concentration was below the objective and when re-calculated back to the closest location of relevant public exposure, the result of this calculation was significantly below the objective. The average annual measured concentration for both diffusion tubes at the Causeway has fell from 34.ug/ m<sup>3</sup> in 2011 to 32.ug/ m<sup>3</sup> in 2012.

A further diffusion tube has been deployed at the nearest sensitive receptor location since the latter half of 2011. The measured concentration at the premises façade for 2012 was 19.ug/ m<sup>3</sup>.

**No further Detailed Assessment required.**

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

Arun District has had no new major developments that may have an impact on local air quality.

**No further Detailed Assessment required.**

## **9.3 Proposed Actions**

The 2012 Update and Screening Assessment identified no likely measured exceedences of the air quality objectives.

Arun District Council will continue to monitor at locations determined to be relevant in terms of exposure to air pollutants. Following commentary in respect of the 2012 Update and Screening Report the NO<sub>2</sub> diffusion tube network has been reviewed. A number of the diffusion tubes have been relocated from January 2013 to attempt to better represent relevant exposure.

The council will also utilise data from neighbouring authorities within the Sussex Air Quality Partnership Network and have access to the Sussex County Air Quality Laboratory for monitoring any new locations which may be determined a risk in the future.

**Arun District Council will be submitting a Progress Report in 2014.**

## 10 References

- DEFRA (2009) Local Air Quality Management Technical Guidance, (LAQM .TG (09))
- DEFRA (2009) Local Air Quality Management Policy Guidance, (LAQM .PG (09))
- The Environment Act (1995)
- The Environmental Protection Act (1990)
- The Air Quality (England) Regulations 2000
- The Air Quality (England)(Amendment) Regulations 2002

# Appendices

Appendix A: Quality Assurance / Quality Control (QA/QC) Data

Appendix B: Location Maps

Appendix C: Industrial Sources 2012



## **Appendix A: QA:QC Data**

### **Diffusion Tube Bias Adjustment Factors**

Arun District Council utilises the national bias adjustment figures for the laboratory it contracts to supply and analyse the results.

Data from the NO<sub>2</sub> diffusion tubes has been compared and bias corrected to the factors produced from the UK co-location data-base as collated by DEFRA Local Air Quality Management Helpdesk..

[http://laqm.defra.gov.uk/documents/Diffusion\\_Tube\\_Bias\\_Factors\\_v03\\_11.xls](http://laqm.defra.gov.uk/documents/Diffusion_Tube_Bias_Factors_v03_11.xls)

The NO<sub>2</sub> tube preparation method used is 50% triethanolamine (TEA) in acetone.

The supplier is the South Yorkshire Air Quality Samplers

The bias adjustment factor for the South Yorkshire Laboratory in 2011 was 0.80.

### **Factor from Local Co-location Studies (if available)**

Arun District Council undertakes no co-location studies

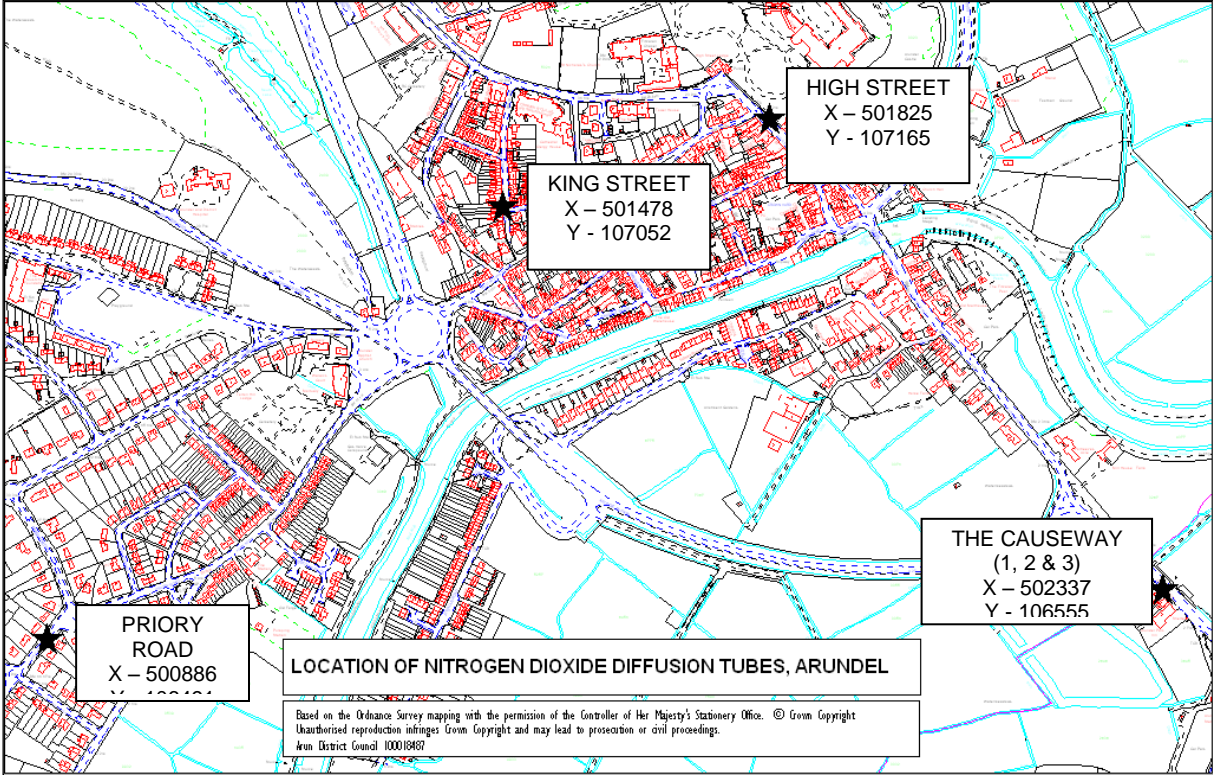
### **QA/QC of Diffusion Tube Monitoring**

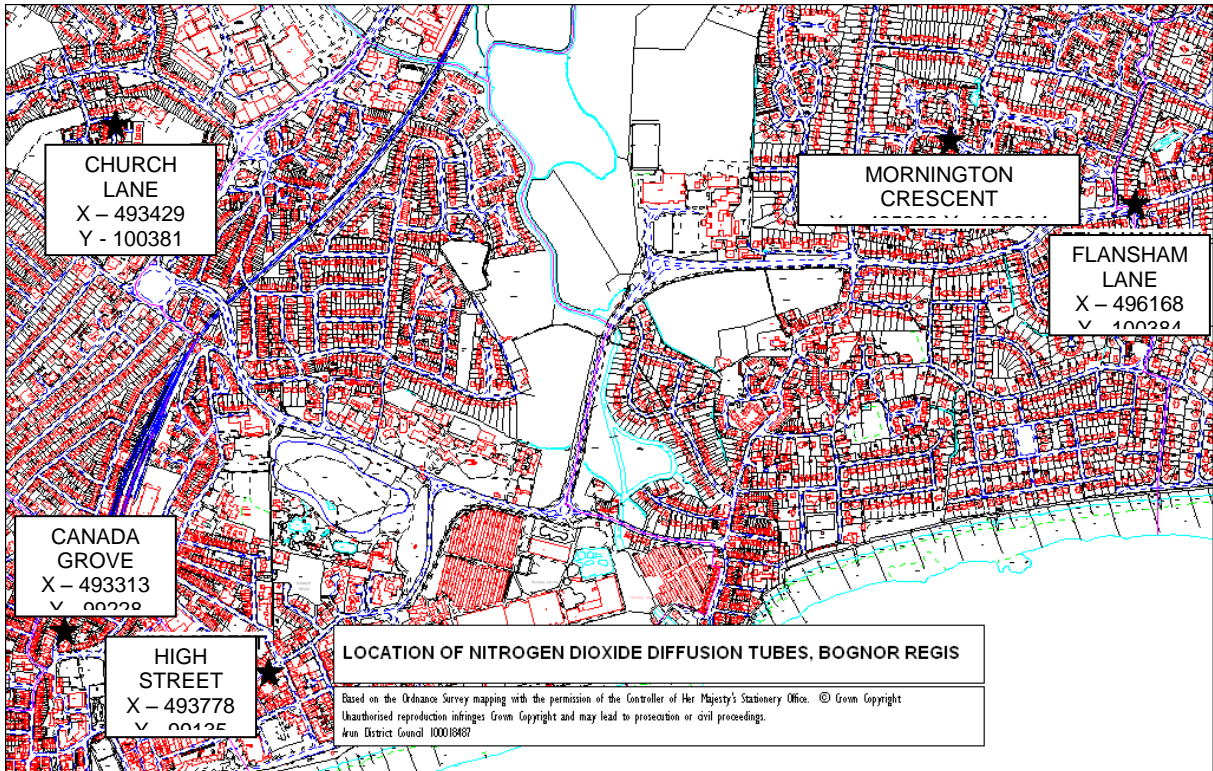
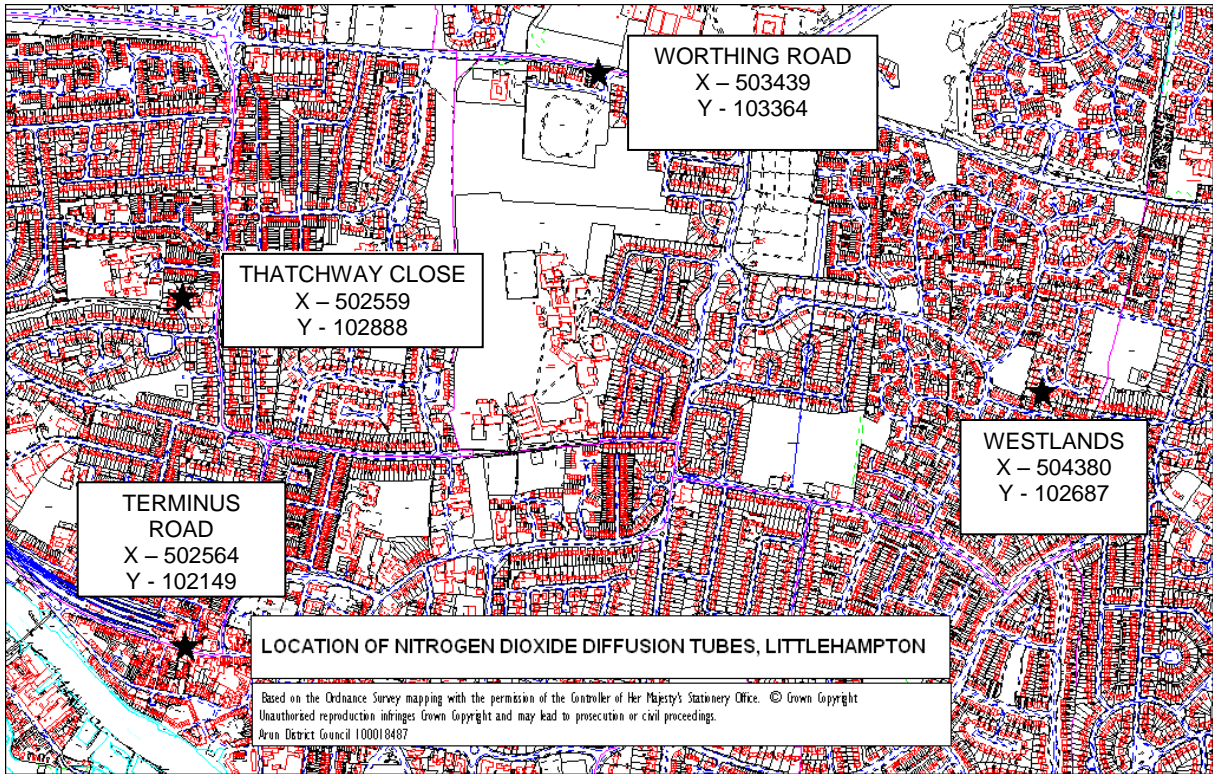
South Yorkshire Air Quality Samplers participate in the Workplace Analysis Scheme for Proficiency (WASP) and for the periods January to March, April to June, July to September, and October to December 2012, 75%, 75%, 50% and 100% respectively of results submitted were subsequently determined to be “satisfactory”.

# Appendix B: Location Maps

## Distribution of Nitrogen Dioxide Diffusion Tubes

The location of nitrogen dioxide (NO<sub>2</sub>) diffusion tubes in Arun district are shown on following pages:





## Appendix C: Industrial Sources

**Table C1: Process installations in Arun District Council**

PROCESS/INSTALATION	ADDRESS OF INSTALLATION/PROCESS
<b>Part A1</b>	
Disposal of Waste by Landfill	Lidsey Landfill Ltd., Bognor Regis, West Sussex, PO22 9PL
Extraction, Handling and Processing of Crude Oil	Midmar Energy, Lidsey Well Site, Lidsey Road, Nr Bognor Regis, West Sussex, PO22 9PH
Sludge Drying Plant	Southern Water Services Ltd., Ford Waste Water Treatment Works, Ford, Arundel, West Sussex, BN18 0HY
Anaerobic Digestion	Barfoot Energy Ltd., Sefter Farm, Pagham, West Sussex, PO21 3PX
Waste Sterilisation	Ethos Recycling Ltd., Littlehampton Waste Treatment Plant, Unit A, Fort Road, Wick, Littlehampton, West Sussex, BN17 7QU
<b>Part B</b>	
Roadstone Coating Plant	Tarmac Southern Ltd., Quayside, Littlehampton, West Sussex, BN17 5DD
Cremation of human remains	The Worthing Crematorium, Horsham Road, Findon, West Sussex
Breeding of Maggots	Marine Pack Ltd., T/A National Bait Company, Lidsey Farm, Lidsey, West Sussex
Aluminum Foundry Process	Finecast Foundry Ltd, Unit 1, Lineside Way, Lineside Industrial Estate, Littlehampton, West Sussex BN17
<b>Respraying of Road Vehicles</b>	
Respraying of Road Vehicles	Poling Motor Company, Fordingbridge Industrial Estate, Barnham Road, Barnham, West Sussex, PO22 0HD
<b>Small Waste Oil Burner</b>	
Small Waste Oil Burner	Chris Clarke Cars, Spencer Street, Bognor Regis, West Sussex, PO22 1AN
Small Waste Oil Burner	Yeomans Honda, Chichester Road, Elbridge, Chichester, West Sussex, PO21 5EH
Small Waste Oil Burner	Hutchings Vehicle Services, 17 Durban Road, Bognor Regis, West Sussex, PO22 9QT
Small Waste Oil Burner	M J Vehicle Services, Unit 13 Brookside Business Park, Rustington, West Sussex, BN16 3LP
<b>Petrol Stations</b>	
Unloading of Petrol into Storage <b>PVR I only</b>	Rose Green Service Station, Hewarts Lane, Bognor Regis, West Sussex, PO21 3DS

Unloading Petrol into Storage <b>PVR I only</b>	Pace Petrol Filling Station, 97, Felpham Way, Bognor Regis, West Sussex, PO22
Unloading Petrol into Storage <b>PVR I only</b>	Pace Petrol Filling Station, Nyton Road, Westergate, Chichester, West Sussex, PO20 8QB
Unloading Petrol into Storage <b>PVR I &amp; II</b>	Tesco Stores Limited, Broadpiece, Littlehampton, West Sussex, BN17 5RA
Unloading Petrol into Storage <b>PVR I &amp; II</b>	Tesco Stores Limited, Shripney Road, Bognor Regis, West Sussex, PO22 9ND
Unloading Petrol into Storage <b>PVR I &amp; II</b>	Shell Eastfield, Rustington Bypass, Rustington, Littlehampton, West Sussex, BN17 6LE
Unloading Petrol into Storage <b>PVR I &amp; II</b>	Shell Fontwell, Arundel Rd, Fontwell, BN18 OSB
Unloading Petrol into Storage <b>PVR I &amp; II</b>	Rustington Filling Station, 102, Worthing Road, Rustington, Littlehampton, West Sussex, BN16 3LS
Unloading Petrol into Storage <b>PVR I only</b>	Snax 24 Ltd, Lyminster Road, Lyminster, Littlehampton, West Sussex
Unloading Petrol into Storage <b>PVR I &amp; II</b>	Regis Service Station, 449 Chichester Road, Bognor Regis, West Sussex, PO21 5DS
Unloading Petrol into Storage <b>PVR I only</b>	Cuff Miller & Co (Littlehampton) Ltd, Horsham Road, Littlehampton, BN17 6BX
Unloading Petrol into Storage <b>PVR I &amp; II</b>	Sainsbury Petrol Filling Station, Shripney Road, Bersted, Bognor Regis, PO22 9NG
Unloading Petrol into Storage <b>PVR I &amp; II</b>	Morrison Petrol Filling Station, Littlehampton 630, Courtwick Lane, Wick, Littlehampton BN17 7RN
<b>Dry Cleaners</b>	
Dry Cleaners	Sandra's Village Laundry & Dry Cleaners, 146 Sea Road, East Preston, BN16 1NN
Dry Cleaners	Colshaz Limited, T/A James Dry Cleaners, 39a Queensway, Bognor Regis, PO21 1QN
Dry Cleaners	Johnson Cleaners UK Ltd, 2 Central Buildings, London Road, Bognor Regis, PO21 1PW
Dry Cleaners	Kingfisher Cleaners, Shop 3 Station Parade, Station Road, East Preston BN16 3AE
Dry Cleaners	Beach Road Dry Cleaners, 4 Beach Road, Littlehampton, BN17 5HT
Dry Cleaners	Corniche Laundry Services Ltd., Unit 1C, Ford Industrial Estate, Yapton, Arundel, West Sussex, BN18 0HY

# Appendix D: Arun Key Diagram

