Sussex Air Pollution Monitoring Network

Annual Report, 2015

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Hima Chouhan

Environmental Research Group

King's College London

Environmental Research Group
Kings College London
Franklin-Wilkins Building
150 Stamford Street
LONDON
SE1 9NH

Telephone: +44 (0) 20 7848 4044
Fax: +44 (0) 20 7848 4045
E-mail: erg@kcl.ac.uk
Internet: www.erg.kcl.ac.uk

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EXECUTIVE SUMMARY

The Sussex Air Quality Monitoring Network provides a central source of information on air pollution issues of a defined and robust quality and can be used with confidence by members of the public, researchers and local authority officers.

Overall the data capture was good across the network during 2015 with most analysers that were in operation for the whole year meeting the minimum requirement of 75% data capture. The reasons for lower capture rate at certain sites are described in Chapter 1.

Exceedances of the 'moderate' nitrogen dioxide (NO_2) banding were recorded only at Adur – Shoreham-by-Sea, on three days during February and early March.

As seen each year there were many days of 'moderate' ozone (O_3) recorded at most network sites monitoring for this pollutant during the summer of 2015. The first widespread incident occurred in mid April, the last in August.

'Moderate' PM_{10} levels were recorded at all sites during 2015. 'High' PM_{10} were recorded at Adur – Shoreham-by-Sea and at Rother – De La Warr Road.

'Moderate' and 'high' $PM_{2.5}$ levels were recorded at Horsham – Storrington during January, March and April.

There were no occurrences of 'moderate' sulphur dioxide ($SO_{2)}$ recorded during the year.

All network sites, that achieved the necessary data capture, met the $PM_{10,}$ $PM_{2.5}$, NO_2 and SO_2 Air Quality Strategy (AQS) objectives. Carbon monoxide (CO) is no longer measured at any network site. The O_3 AQS objective was exceeded at all sites that met the necessary data capture apart from at Chichester – Lodsworth and Eastbourne- Devonshire Park.

The running annual mean concentrations for PM_{10} decreased during 2015. For O_3 and NO_x they remained stable at most sites.

The air quality sustainability indicator for background PM_{10} in Sussex has remained stable in 2015, but for roadside PM_{10} has decreased.

The air quality sustainability indicators for the Sussex urban and rural O_3 showed a decrease in 2015.

The progress of each individual Local Authority's Review and Assessment process is reported in Chapter 3.

INTRODUCTION

The Sussex Air Pollution Monitoring Network was formed in 1995 and has developed into a comprehensive regional monitoring network with nineteen continuous monitoring sites in operation in January 2015.

Network sites are placed in a range of locations according to local monitoring requirements and resources. As a network, these individual sites allow an overall view of pollution levels in rural, industrial, urban and roadside parts of Sussex. As all sites are operated to defined network quality standards, each district or borough can augment their own monitoring results with comparable data from other network sites.

This report aims to make the data more accessible by describing the air pollution trends, episodes and standards across Sussex, and providing a freely available source of information for the public, local authorities and those in education.

The network's Internet site contains peak daily readings from each site, updated each day, as well as historical data from the continuous monitoring carried out across the region. There are many other features and data tools to aid interpretation as well as more detailed information about the network and the individual monitoring sites.

A general information section on the health effects of air pollution can also be found.

Network Home page: http://www.sussex-air.net

CHAPTER 1: Results of Continuous Monitoring, 2015

This chapter describes the results of continuous monitoring which are presented in comparison to national and international standards and guidelines.

The extent and frequency of pollution episodes recorded during 2015 are also reported with some background information as to the cause of each.

Statistics from three London Air Quality Network sites are included at the base of each table for comparison purposes.

'Marylebone Road' is a kerbside site located on a busy six-lane road in central London. 'Kensington & Chelsea' is a background site in central London and 'Greenwich' is a background site in outer London.

Further information on these sites can be found at:

http://www.londonair.org.uk

Network performance

Table 1.1 shows data capture rates for each network analyser during 2015. Low capture rates may be caused by repeated or prolonged analyser or logging system breakdown, on-site communications problems or interruptions in power supply to the monitoring stations.

The majority of analysers that were in operation for the whole year met the minimum requirement of 75% data capture. However, the following sites failed to meet the stricter network target of 90% valid data capture:

- Adur – Shoreham-by-Sea, NO_x and PM_{10}; The fuse blew in November 2014 and was not repaired until the following February 2015. The NOx analyser then had a temperature problem between April and September due to the faulty air conditioning unit at site. The PM_{10} data was excluded from November 2015 onwards as it became inexplicably high and stopped showing correlation to similar sites.

- Brighton and Hove – Stanmer Park, O_3; the spare analyser, which had been installed the previous year, was removed for repair by the equipment service and maintenance unit (ESU) from January to April as it had been suffering from faults and noisy data. Communications to the site stopped during June and July as the modem SIM card had been deactivated, then further data loss occurred during August and September as the analyser failed to respond. It was again removed for repair only to be returned during November suffering pressure warnings due to a blocked sample line.

- Crawley – Gatwick Airport, NO_2; the data was excluded after the service visit in May 2014 to April 2015 as it was over reading. Unfortunately this site did not have equipment support cover for much of the period following, so the analyser fault could not be investigated. Further data were lost during April as a new micro processor board was needed and also in July as the moly heater failed.

- Eastbourne – Devonshire Park, PM_{10}; The analyser was over reading from October 2014 and throughout 2015. This site has no equipment service and maintenance cover so the fault could not be investigated or repaired. The NO_x analyser suffered a fault during November 2014, but as in the case for PM_{10} , this could and has not been investigated.

- Eastbourne – Holly Place, NO_x, P_{M10} and $P_{M2.5}$; is a national monitoring network site ratified by a third party. Reasons for the data loss are not known at this time.

- Horsham – Park Way, NO_x and PM_{10}; power problems at site from February to May resulted in data loss.

- Horsham – Storrington, NO_x; is a national monitoring network site ratified by a third party. Reasons for the data loss are not known at this time.

- Horsham – Cowfold, NO_x; The analyser was switched off from January to February to avoid heat damage as the site's air conditioning unit was broken. The analyser suffered a fault resulting in lost data during August and September. Unfortunately there was no equipment maintenance contract in place at this time so the repair was delayed.

- Wealden – Lullington Heath, NO_x; is a national monitoring network site ratified by a third party. Reasons for the data loss are not known at this time.

- Lewes - West Street, PM_{10}; data was lost from August to the end of the year due to frequent data spikes. After investigation by both the ESU and ERG this is thought to be related to condensation in the down pipe.

- Rother – De La Warr Road, NO_x and PM_{10}; data was lost from November 2014 to September 2015 due to power problems at site and and air conditioning unit fault.

A few analysers also fell below the 75% threshold, however, apart from those sites described above, this was due to commissioning dates part way through the year. For these sites annual statistics are generally considered unrepresentative of the full year and results in the following tables are replaced with 'n.a.' where applicable.

Table 1.1 Analyser capture rates (%) for 2015					
Capture Rate (%)	**Nitrogen Dioxide**	**Ozone**	**PM_{10}**	**PM_{25}**	**Sulphur Dioxide**
Adur - Shoreham-by-Sea	53	-	73	-	-
Chichester - Lodsworth	-	99	-	-	-
Wealden - Isfield	-	100	-	-	-
Brighton and Hove - Preston Park [1]	98[1]	99[1]	-	-	-
Brighton and Hove -Stanmer Park	-	39	-	-	-
Crawley - Gatwick Airport	66	-	-	-	-
Chichester - A27 Chichester Bypass	100	-	99	-	-
Eastbourne - Devonshire Park	0	100	0	-	-
Eastbourne - Holly Place[1]	99[1]	-	77[1]	67[1]	-
Horsham - Park Way	58	-	61	-	-
Horsham - Storrington [1]	76[1]	-	90[1]	90[1]	-
Horsham - Cowfold	86	-	-	-	-
Hastings - Bulverhythe	94	-	86	-	-
Wealden - Lullington Heath[1]	67[1]	99[1]	-	-	95[1]
Lewes - West Street	95	-	75	-	-
Lewes - Denton Community Centre	99	95	98	-	-
Rother - De La Warr Road	32	-	25	-	-
Sussex Mobile Hastings[2]	12[2]	-	12[2]	-	-
Worthing 2 - Grove Lodge	94	-	-	-	-

[1] AURN
[2] Mobile site, deployed from March 2014 to April 2015

A statistical overview of 2015

Annual mean concentrations are shown in Table 1.2. These statistics are calculated from hourly mean concentrations.

Chapter 2 describes trends in running annual mean concentrations in more detail.

Tables 1.3 and 1.4 show the number of days in which ‘moderate’ and ‘high’ air pollution were measured at each site. There were no recorded occurrences of ‘very high’ air pollution during 2015 at any of the Sussex sites.

The air quality banding system has been set by the Government to help describe pollution levels and their associated health effects.

More information on the Air Quality Banding System can be found at:

http://londonair.org.uk/london/asp/airpollutionindex.asp?IndexDate=2012

Air pollution banding	Value	Accompanying health messages for at-risk groups and the general population	
		At-risk individuals *	General population
Low	1-3	***Enjoy*** your usual outdoor activities.	***Enjoy*** your usual outdoor activities.
Moderate	4-6	Adults and children with lung problems, and adults with heart problems, ***who experience symptoms***, should ***consider*** **reducing** strenuous physical activity, particularly outdoors.	***Enjoy*** your usual outdoor activities.
High	7-9	Adults and children with lung problems, and adults with heart problems, should ***reduce*** strenuous physical exertion, particularly outdoors, and particularly if they experience symptoms. People with asthma may find they need to use their reliever inhaler more often. Older people should also ***reduce*** physical exertion.	Anyone experiencing discomfort such as sore eyes, cough or sore throat should ***consider reducing*** activity, particularly outdoors.
Very High	10	Adults and children with lung problems, adults with heart problems, and older people, should ***avoid*** strenuous physical activity. People with asthma may find they need to use their reliever inhaler more often.	***Reduce*** physical exertion, particularly outdoors, especially if you experience symptoms such as cough or sore throat.

* Adults and children with heart or lung problems are at greater risk of symptoms. Follow your doctor's usual advice about exercising and managing your condition.

Table 1.2 Annual means 2015

Mean concentration	Nitrogen Dioxide	Ozone	PM_{10}	PM_{25}	Sulphur Dioxide
Adur - Shoreham-by-Sea	(48)	-	(32)	-	-
Chichester - Lodsworth	-	52	-	-	-
Wealden - Isfield	-	54	-	-	-
Brighton and Hove - Preston Park [1]	15[1]	55[1]	-	-	-
Brighton and Hove -Stanmer Park	-	(64)	-	-	-
Crawley - Gatwick Airport	(24)	-	-	-	-
Chichester - A27 Chichester Bypass	34	-	21	-	-
Eastbourne - Devonshire Park	-	57	-	-	-
Eastbourne - Holly Place[1]	11[1]	-	19[1]	(11)[1]	-
Horsham - Park Way	(28)	-	(20)	-	-
Horsham - Storrington [1]	21[1]	-	16[1]	11[1]	-
Horsham - Cowfold	26	-	-	-	-
Hastings - Bulverhythe	19	-	19	-	-
Wealden - Lullington Heath[1]	(7)[1]	57[1]	-	-	1[1]
Lewes - West Street	23	-	17	-	-
Lewes - Denton Community Centre	10	57	18	-	-
Rother - De La Warr Road	(18)	-	(31)	-	-
Sussex Mobile Hastings[2]	(12)[2]	-	(24)[2]	-	-
Worthing 2 - Grove Lodge	38	-	-	-	-
Greenwich 4	19	44	17	11	5
Kens and Chelsea 1	32	42	16	11	2
Marylebone Road	88	15	30	-	9
Values shown in brackets have less than 75% data capture rate					

[1] AURN
[2] Mobile site, deployed from March 2014 to April 2015

Table 1.3 Number of days 'moderate' air pollution during 2015 (Air Quality Index 4-6)					
	Nitrogen Dioxide	Ozone	PM_{10}	PM_{25}	Sulphur Dioxide
Adur - Shoreham-by-Sea	(3)	-	(30)	-	-
Chichester - Lodsworth	-	7	-	-	-
Wealden - Isfield	-	14	-	-	-
Brighton and Hove - Preston Park [1]	0[1]	13[1]	-	-	-
Brighton and Hove -Stanmer Park	-	(6)	-	-	-
Crawley - Gatwick Airport	(0)	-	-	-	-
Chichester - A27 Chichester Bypass	0	-	3	-	-
Eastbourne - Devonshire Park	-	5	-	-	-
Eastbourne - Holly Place[1]	0[1]	-	1[1]	(0)[1]	-
Horsham - Park Way	(0)	-	(2)	-	-
Horsham - Storrington [1]	0[1]	-	2[1]	5[1]	-
Horsham - Cowfold	0	-	-	-	-
Hastings - Bulverhythe	0	-	3	-	-
Wealden - Lullington Heath[1]	(0)[1]	11[1]	-	-	0[1]
Lewes - West Street	0	-	3	-	-
Lewes - Denton Community Centre	0	13	1	-	-
Rother - De La Warr Road	(0)	-	(1)	-	-
Sussex Mobile Hastings[2]	(0)[2]	-	(1)[2]	-	-
Worthing 2 - Grove Lodge	1	-	-	-	-
Greenwich 4	0	7	4	4	0
Kens and Chelsea 1	0	5	0	8	0
Marylebone Road	29	0	13	-	0
Values shown in brackets have less than 75% data capture rate					

[1] AURN
[2] Mobile site, deployed from March 2014 to April 2015

Table 1.4 Number of days 'high' air pollution during 2015 (Air Quality Index 7-9)					
	Nitrogen Dioxide	Ozone	PM_{10}	PM_{25}	Sulphur Dioxide
Adur - Shoreham-by-Sea	(0)	-	(2)	-	-
Chichester - Lodsworth	-	0	-	-	-
Wealden - Isfield	-	1	-	-	-
Brighton and Hove - Preston Park [1]	0[1]	0[1]	-	-	-
Brighton and Hove -Stanmer Park	-	(0)	-	-	-
Crawley - Gatwick Airport	(0)	-	-	-	-
Chichester - A27 Chichester Bypass	0	-	0	-	-
Eastbourne - Devonshire Park	-	0	-	-	-
Eastbourne - Holly Place[1]	0[1]	-	0[1]	(0)[1]	-
Horsham - Park Way	(0)	-	(0)	-	-
Horsham - Storrington [1]	0[1]	-	0[1]	1[1]	-
Horsham - Cowfold	0	-	-	-	-
Hastings - Bulverhythe	0	-	0	-	-
Wealden - Lullington Heath[1]	(0)[1]	1[1]	-	-	0[1]
Lewes - West Street	0	-	0	-	-
Lewes - Denton Community Centre	0	1	0	-	-
Rother - De La Warr Road	(0)	-	(1)	-	-
Sussex Mobile Hastings[2]	(0)[2]	-	(0)[2]	-	-
Worthing 2 - Grove Lodge	0	-	-	-	-
Greenwich 4	0	0	0	0	0
Kens and Chelsea 1	0	0	1	2	0
Marylebone Road	0	0	0	-	0
Values shown in brackets have less than 75% data capture rate					

[1] AURN
[2] Mobile site, deployed from March 2014 to April 2015

There were no days within the 'very high' bandings recorded at any network site during 2015.

Nitrogen Dioxide (NO_2)

'Moderate' NO_2 was recorded at only one site only during 2015; Adur – Shoreham-by-Sea, on three days during February and early March.

Ozone (O_3)

Widespread 'Moderate' O_3 was recorded on a number of days at all the network sites monitoring for this pollutant. These episodes occur during the warmer sunnier months due to the photochemical reaction of nitrogen oxides with hydrocarbons.

The first widespread incident resulting in 'moderate' O_3 occurred in mid April, and the last occurred during August.

'High' O_3 was recorded at three sites on July 1st.

PM_{10} Particulates

Defra's Air Pollution Index applies to PM_{10} measured by a reference equivalent method such as the Filter Dynamic Measurement System (FDMS). The TEOM PM_{10} data has been converted to reference equivalent PM_{10} using the Volatile Correction Model (VCM) method developed by King's College London. All TEOM PM_{10} data reported on the Sussex-air website prior to the 1st January 2004 has been corrected using a gravimetric conversion factor of 1.3. All data reported after the 1st January 2004 has been corrected using the Volatile Correction Model (VCM).

Further details about the VCM can be found at:

http://www.volatile-correction-model.info/

'Moderate' PM_{10} levels were recorded at all sites during 2015.

'High' PM_{10} were recorded at Adur – Shoreham-by-Sea and at Rother – De La Warr Road.

$PM_{2.5}$ Particulates

'Moderate' and 'high' $PM_{2.5}$ levels were recorded at Horsham – Storrington during January, March and April.

Sulphur Dioxide (SO_2)

There were no occurrences of 'moderate' or above SO_2 pollution during 2015 at network sites.

Significant episodes occurring during 2015

Particulate Episodes

Widespread 'moderate' PM_{10} and $PM_{2.5}$ episodes occurred from March to April 2015 and December 2015 for PM_{10}. 'High' levels were recorded in March in Adur – Shoreham-by-Sea and in December, again at the Adur – Shoreham-by-Sea site and also at Rye – De La Warr Road.

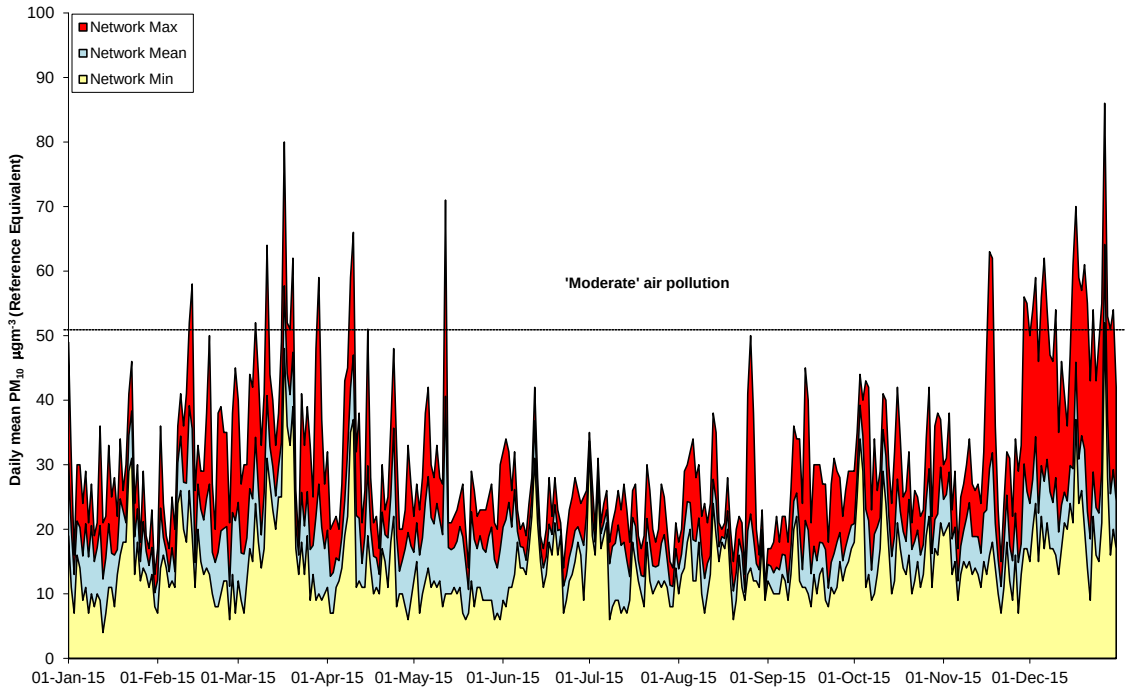
Further, less widespread episodes of 'moderate' PM_{10} were recorded during May.

These episodes were a result of poor dispersal of local emissions, combined with pollution being imported from the continent. Analysis shows that the March episode was comprised mainly of the $PM_{2.5}$ fraction.

The late December episode is thought to have been due to an influx of Saharan dust, with additional local wood burning added to the particle mix.

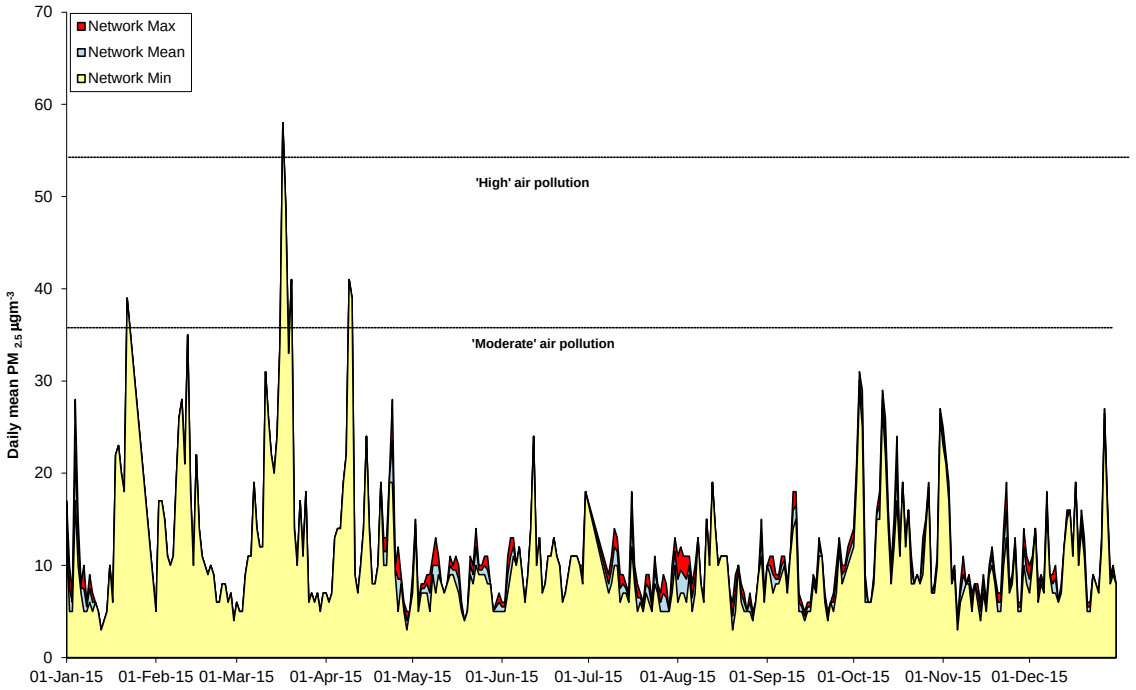
The daily mean PM_{10} levels for 2015 are illustrated in Figure 1.

Figure 1 Daily mean PM_{10} levels across the network during 2015



The daily mean $PM_{2.5}$ levels for 2015 are illustrated in Figure 2.

Figure 2 Daily mean $PM_{2.5}$ levels across the network during 2015



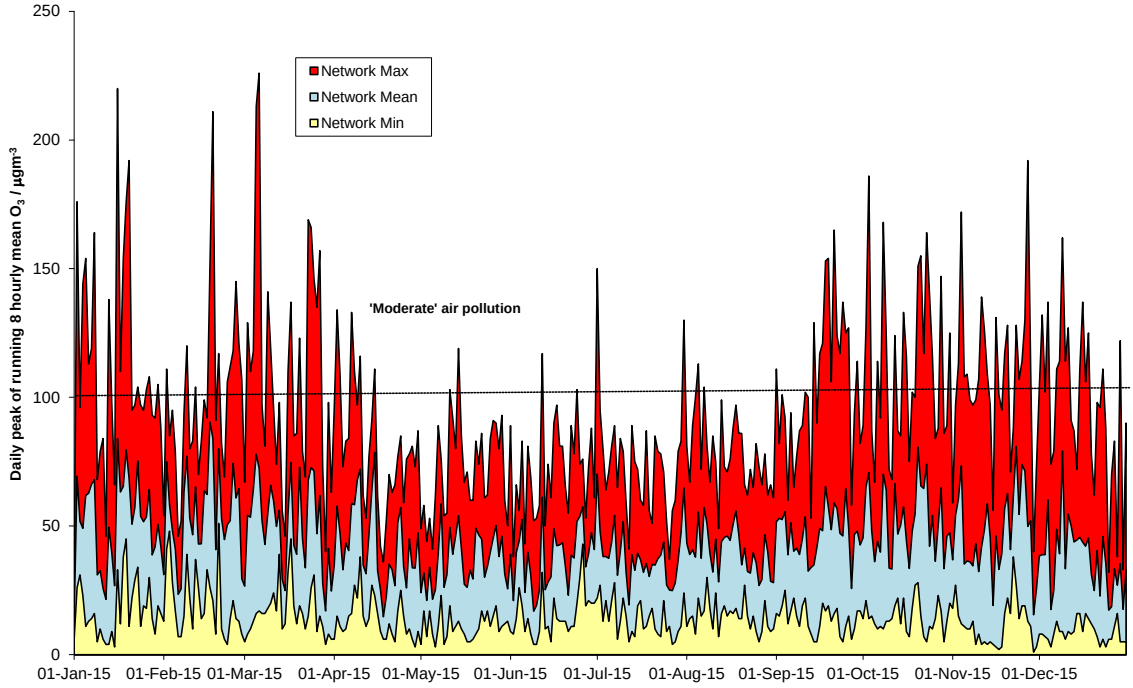
Summer Photochemical Episodes

Figure 3 illustrates the distribution of photochemical episodes O_3 during 2015.

Summer photochemical episodes occur annually in Sussex. Their development is due to a complex set of reactions involving NO_x and hydrocarbons in the presence of sunlight.

The first widespread O_3 episode of the year occurred during April and the last in August.

Figure 3 Daily peak hourly mean ozone levels across the network during 2015



2015 in Comparison with the Air Quality Strategy (AQS) Objectives

Tables 1.5a and 1.5b compare results of monitoring in 2015 to the Government's AQS objectives. There is often more than one objective per pollutant reflecting the differing health effects of short and long term exposure. Each objective had an achievement date between 2004 and 2010 depending on the pollutant. The $PM_{2.5}$ objective has a provisional achievement date of 2020. Where a site did not achieve a minimum of 75% data capture for the year, the measurements cannot be accurately compared to the AQS objectives and are entered as 'not applicable'.

No network sites exceeded either PM_{10} or $PM_{2.5}$ objectives. The distribution of exceedances of the 50 μgm^{-3} daily mean value of PM_{10} (equating to the EU Health Threshold) across the network during 2015 is shown in Figure 1.

The O_3 AQS objective was exceeded at all sites that achieved the necessary data capture, apart from at Chichester – Lodsworth and Eastbourne- Devonshire Park

The daily peak hourly mean O_3 levels across the network during 2015 are shown in Figure 3.

All NO_2 SO_2 objectives were met.

CO is no longer monitored at any of the Sussex stations.

Table 1.5a Comparison with Air Quality Strategy Objectives – Achieved ('yes') or Exceeded ('no')						
	PM_{10}		$PM_{2.5}$		SO_2	
	A	B	C	D	E	F
Adur - Shoreham-by-Sea	n.a	n.a	-	-	-	-
Chichester - Lodsworth	-	-	-	-	-	-
Wealden - Isfield	-	-	-	-	-	-
Brighton and Hove - Preston Park [1]	-	-	-	-	-	-
Brighton and Hove -Stanmer Park	-	-	-	-	-	-
Crawley - Gatwick Airport	-	-	-	-	-	-
Chichester - A27 Chichester Bypass	Yes (3)	Yes (21)	-	-	-	-
Eastbourne - Devonshire Park	-	-	-	-	-	-
Eastbourne - Holly Place[1]	Yes (1[1])	Yes (18[1])	n.a	-	-	-
Horsham - Park Way	n.a	n.a	-	-	-	-
Horsham - Storrington [1]	Yes (21)	Yes (16[1])	Yes (11[1])	-	-	-
Horsham - Cowfold	-	-	-	-	-	-
Hastings - Bulverhythe	Yes (3)	Yes (19)	-	-	-	-
Wealden - Lullington Heath[1]	-	-	-	Yes (0[1])	Yes (0[1])	Yes (0[1])
Lewes - West Street	Yes (3)	Yes (17)	-	-	-	-
Lewes - Denton Community Centre	Yes (1)	Yes (18)	-	-	-	-
Rother - De La Warr Road	n.a	n.a	-	-	-	-
Sussex Mobile Hastings[2]	n.a	n.a	-	-	-	-
Worthing 2 - Grove Lodge	-	-	-	-	-	-
Greenwich 4	Yes (4)	Yes (17)	Yes (11)	Yes (0)	Yes (0)	Yes (2)
Kens and Chelsea 1	Yes (1)	Yes (16)	Yes (11)	Yes (0)	Yes (0)	Yes (0)
Marylebone Road	Yes (13)	Yes (30)	-	Yes (0)	Yes (0)	Yes (0)

[1] AURN
[2]Mobile site, deployed from March 2014 to April 2015

A: 50 μg m^{-3} not to be exceeded more than 35 times a year measured as 24 hr mean. Data is reference equivalent

B: 40 μg m^{-3} measured as annual mean. All data is reference equivalent

C: 25 μg m^{-3} measured as annual mean. All data is reference equivalent

D: 350 μg m^{-3} not to be exceeded more than 24 times a year measured as 1 hour mean.

E: 125 μg m^{-3} not to be exceeded more than 3 times a year measured as 24 hour mean.

F: 266 μg m^{-3} not to be exceeded more than 35 times a year measured as 15 min.

Table 1.5b Comparison with Air Quality Strategy Objectives – Achieved ('yes') or Exceeded ('no')			
	O_3	NO_2	
	A	B	C
Adur - Shoreham-by-Sea	-	n.a	n.a
Chichester - Lodsworth	Yes (7)	-	-
Wealden - Isfield	No (15)	-	-
Brighton and Hove - Preston Park [1]	No(13[1])	Yes(0[1])	Yes(15[1])
Brighton and Hove -Stanmer Park	n.a	-	-
Crawley - Gatwick Airport	-	n.a	n.a
Chichester - A27 Chichester Bypass	-	Yes (0)	Yes (34)
Eastbourne - Devonshire Park	Yes (5)	-	-
Eastbourne - Holly Place[1]	-	Yes (0[1])	Yes (11[1])
Horsham - Park Way	-	n.a	n.a
Horsham - Storrington [1]	-	Yes (0[1])	Yes (21[1])
Horsham - Cowfold	-	Yes (0)	Yes (26)
Hastings - Bulverhythe	-	Yes (0)	Yes (19)
Wealden - Lullington Heath[1]	No (12[1])	n.a	n.a
Lewes - West Street	-	Yes (0)	Yes (23)
Lewes - Denton Community Centre	No (14)	Yes (0)	Yes (10
Rother - De La Warr Road	-	n.a	n.a
Sussex Mobile Hastings[2]	-	n.a	n.a
Worthing 2 - Grove Lodge	-	Yes (2)	Yes (38)
Greenwich 4	Yes (7)	Yes (0)	Yes (19)
Kens and Chelsea 1	Yes (5)	Yes (0)	Yes (32)
Marylebone Road	Yes (0)	No (56)	No (88)

[1] AURN
[2]Mobile site, deployed from March 2014 to April 2015

A: 100 μg m^{-3} not to be exceeded more than 10 times a year measured as the daily max of running 8 hour mean.

B: 200 μg m^{-3} not to be exceeded more than 18 times a year measured as 1 hour mean.

C: 40 μg m^{-3} measured as an annual mean.

Indicators of Sustainable Development

The UK Government is required by European Union law to publish a number of indicators that can be used to assess whether its aims of sustainable development are being met. The UK Sustainable Development Strategy was released in 1999 and one of the Headline Indicators was air quality. The strategy was updated in 2005 and included two new air quality indicators designed to better reflect the effects on health of long term exposure to lower levels of pollution.

The three indicators are:

i. Annual average urban PM_{10} concentrations (roadside and background),

ii. Annual average O_3 concentrations (rural and urban background) measured as the daily maximum 8-hour running mean,

iii. Total number of days in which one or more of the specified pollutants were recorded as 'moderate' or worse air pollution (the old headline indicator) in urban and rural locations.

The third indicator is the most complex and has a number of site requirements to ensure that monitoring data are representative:

- Rural sites should be included if they at least monitor O_3 (ideally PM_{10} should also be monitored but this criterion would exclude almost all sites from the Indicator),

- Urban Background and Roadside sites should be included if they monitor at least PM_{10}

Due to the small number of exceedances, it was decided that the absence of monitoring for NO_2 and CO would not result in a significant under-reporting of episodes.

Analysers must record an annual data capture rate of at least 75% to be included in any of the indicator calculations.

Sites demonstrated to be far outliers as a result of local factors in a particular year should be excluded from the analysis.

Air Quality Sustainability Indicator for Sussex

The following sites meet the criteria for inclusion in the Indicator calculation for 2015:

- Rural AQ Indicator: Chichester - Lodsworth, Wealden – Isfield

- Urban AQ Indicator: *(background*): Eastbourne – Holly Place, Lewes – Denton Community Centre.

- Urban AQ Indicator *(roadside):* Hastings – Bulverhythe, Horsham – Storrington, Chichester - A27 Chichester Bypass.

Figure 4 plots the first Sustainability Indicator for long-term monitoring sites in Sussex. Figure 5 shows a similar plot for the second indicator. Table 1.6 shows the third indicator.

Figure 4 First Air Quality Indicator for Sussex 2001 to 2015 (annual mean PM_{10})

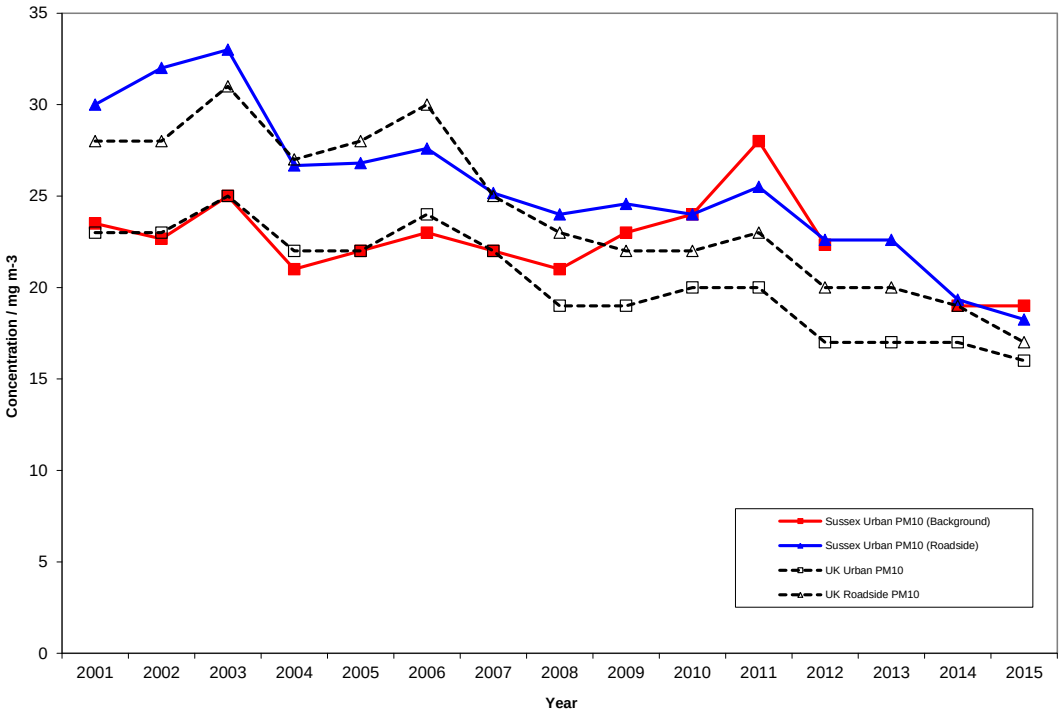


Figure 5 Second Air Quality Indicator for Sussex, 2001 to 2015 (mean daily max running 8hr ozone)

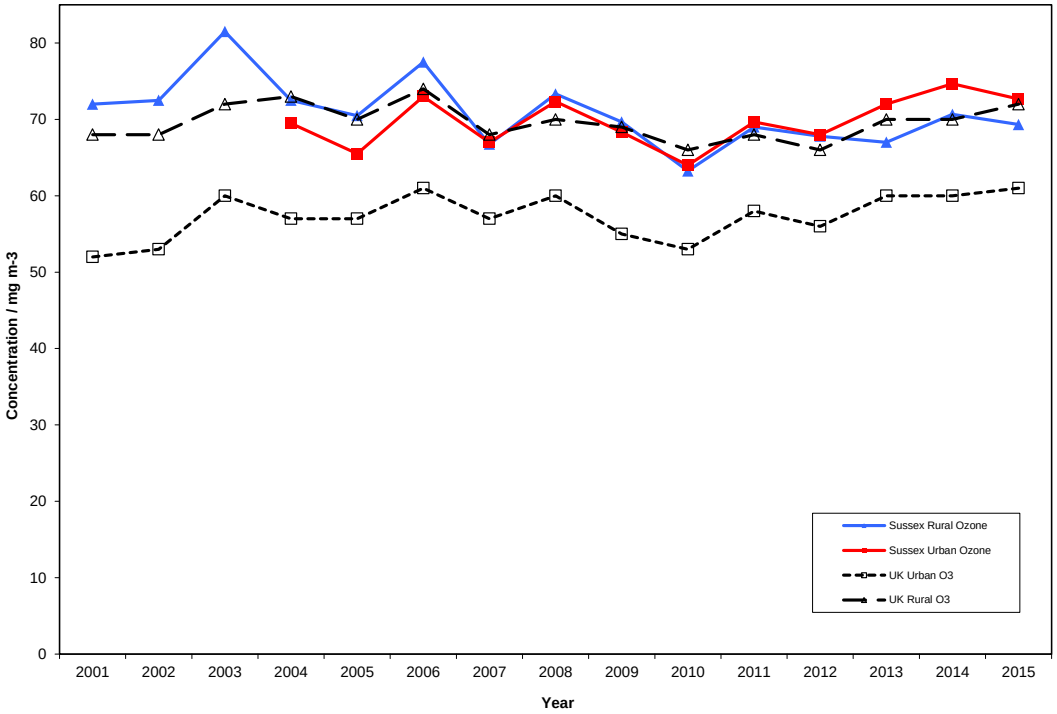


Table 1.5 Third (original) Air Quality Sustainability Indicator for Sussex															
Indicator	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Chichester Lodsworth	-	-	-	-	-	71	43	76	39	39	43	13	24	18	7
Wealden Isfield	-	-	-	-	-	78	24	-	-	36	76	16	31	12	16
Brighton and Hove Stanmer Park	-	-	-	-	-	-	-	-	-	-	38	19	21	-	-
Chichester A27 Chichester Bypass	-	1	14	1	-	11	9	5	3	1	5	5	1	3	1
Eastbourne Holly Place	-	-	-	-	-	-	-	-	-	-	-	11	-	3	3
Horsham Park Way	-	-	-	-	10	4	12	6	3	0	10	3	2	4	-
Horsham Storrington	-	-	-	-	-	-	-	-	-	0	10	7	16	-	1
Hastings Bulverthythe	-	19	41	3	11	12	8	4	6	0	0	1	-	-	3
Hastings Fresh Fields	-	-	-	-	-	-	-	-	17	7	-	-	-	-	-
Wealden Lullington Heath	50	40	94	56	64	64	27	51	36	10	25	12	12	6	12
Telscombe Cliffs Roadside	6	10	8	-	12	23	28	56	12	-	-	-	-	-	-
Lewes Commercial Square	-	-	-	-	20	13	15	5	4	1	0	-	-	-	-
Lewes Denton Community Centre	-	-	-	-	-	-	-	-	-	-	-	-	-	30	14
Lewes West Street	-	-	-	-	-	-	-	-	-	-	-	2	0	1	-
Rother Rye Harbour	-	47	107	37	26	59	24	44	39	10	37	24	-	-	-
Rother De La Warr Road	-	-	-	-	-	-	7	-	2	0	8	-	1	-	
Sussex-Rural	50	44	101	47	45	68	30	57	38	24	44	17	22	12	12
Sussex-Urban-(Background)	-	-	-	-	-	-	-	-	-	-	-	11	-	17	9
Sussex-Urban-(Roadside)	6	10	21	2	13	13	13	15	7	1	6	4	4	3	2
UK-Rural-Indicator	*34*	*32*	*64*	*45*	*40*	*55*	*30*	*45*	*32*	*22 (10)*	*30 (17)*	*14*	*17*	*9*	*11*
UK-Urban-Indicator	*23*	*19*	*48*	*22*	*21*	*38*	*23*	*26*	*10*	*8 (15)*	*15 (24)*	*18*	*14*	*12*	*9*

The 2015 figures in Table 1.6 are based on the revised index. The 2010 and 2011 figures in brackets are also based on the new threshold levels. As can be seen the changes to the thresholds has had a significant effect on the third indicator.

The air quality sustainability indicator for background PM_{10} in Sussex has remained stable in 2015, but for roadside PM_{10} has decreased, as has the UK roadside and background PM_{10}. Roadside PM_{10} has shown an overall improvement since 2001.

The air quality sustainability indicators for the Sussex urban and rural O_3 showed a decrease in 2015 whereas the UK urban indicator remained stable and the rural O_3 indicator showed a slight increase.

CHAPTER 2: Trends in Pollution Levels, 2001 – 2015

This chapter uses running annual mean calculations to illustrate trends in pollution levels as recorded by each continuous monitor in the network (see the 'How the charts work' section below for an explanation of running annual means).

Long-term pollution trends may be caused by changes in local emissions, i.e. fewer or cleaner vehicles or industrial processes, or changes in how these emissions are dispersed, i.e. weather patterns. For example, an unusually wet summer can lead to decreased levels of O_3, a cold settled winter can lead to increased levels of NO_2. These effects can obscure actual changes in emissions due to traffic management schemes or increased use of a particular road.

The longer a dataset is, i.e., the longer a site has been monitoring for, the more effective the trend analysis is. The effects of unusual weather conditions are smoothed out and sustained patterns due to changes in local emissions become clearer. Many years of monitoring data are required before firm conclusions can be made as to whether pollution levels are increasing or decreasing. For this reason sites that have been in operation for less than three years are not included in this chapter, but will become integrated into the analysis in the future.

How the Charts Work

The charts appearing in this chapter show running annual mean values (based on monthly mean concentrations) from a specified start date to January 2016. Running annual means are used so that gradual changes can be identified throughout the year, which are not apparent from a single annual figure.

For example, in Figure 2.1 the line for Hastings Bulverhythe is calculated in the following way;

- The first data we have for this site are from June 2001, so the first annual mean concentration can be calculated one year later on the 1st June 2002.
- The first mean is calculated from 1st June 2001 to 1st June 2002. The second is calculated from 1st July 2001 to 1st July 2002 and so on. This is what is meant by a running mean.

A chart showing percentage change is often more informative than simply showing changes in concentrations. In these charts, all sites start at zero, then concentrations are shown as the percentage change since the start date. As a common start date is required for this type of chart, they may show a shorter time period than the concentration charts.

Data from an inner London background site have been included in some charts to provide comparison with the Sussex network data.

PM_{10} Particulates

Running annual mean PM_{10} trends at all continuous monitoring sites since 2001 are shown in Figure 2.1.

Sites are shown one year after they joined the network, i.e., when the first annual mean calculation is possible. Sites that have not run for a complete year prior to January 2016 do not appear on the graph.

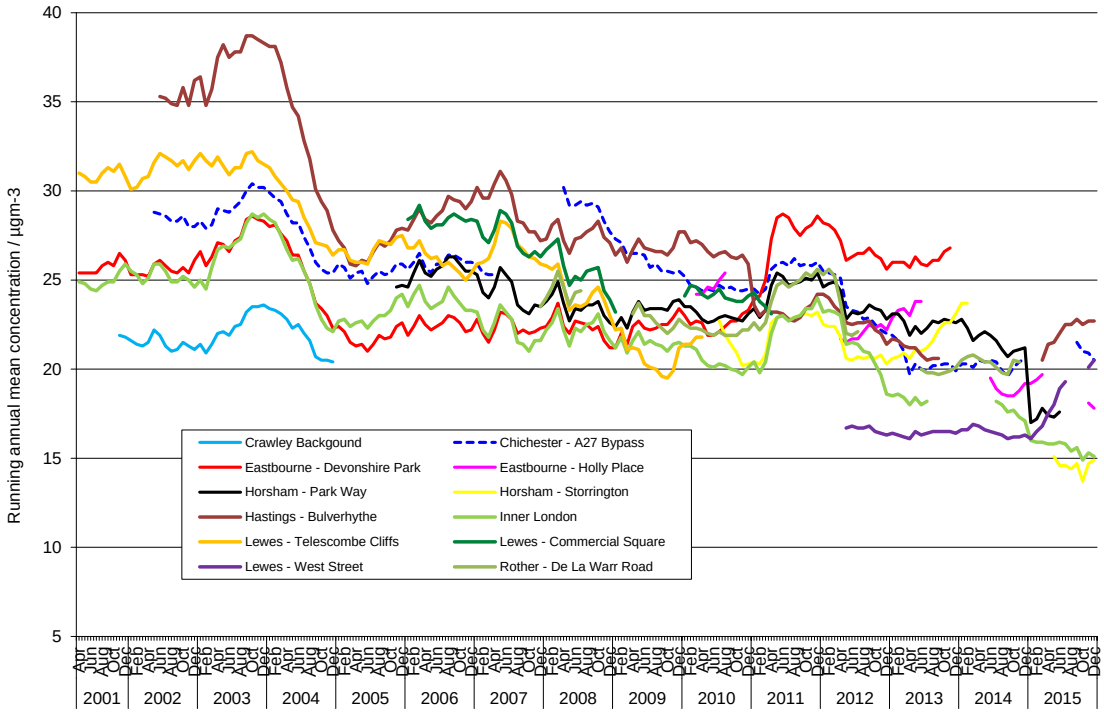
The running annual mean concentration during 2015 generally showed a decrease, apart from at Lewes West Street and Hastings Bulverhythe.

The overall trend is highlighted further when the percentage change rather than actual change in concentration is traced, as shown in Figure 2.2.

There are a number of sites that are not included in the percentage change plot as it is necessary for all included sites to have a common start date, in this case January 2006, the analysers that have been introduced into the network after this start date are not included.

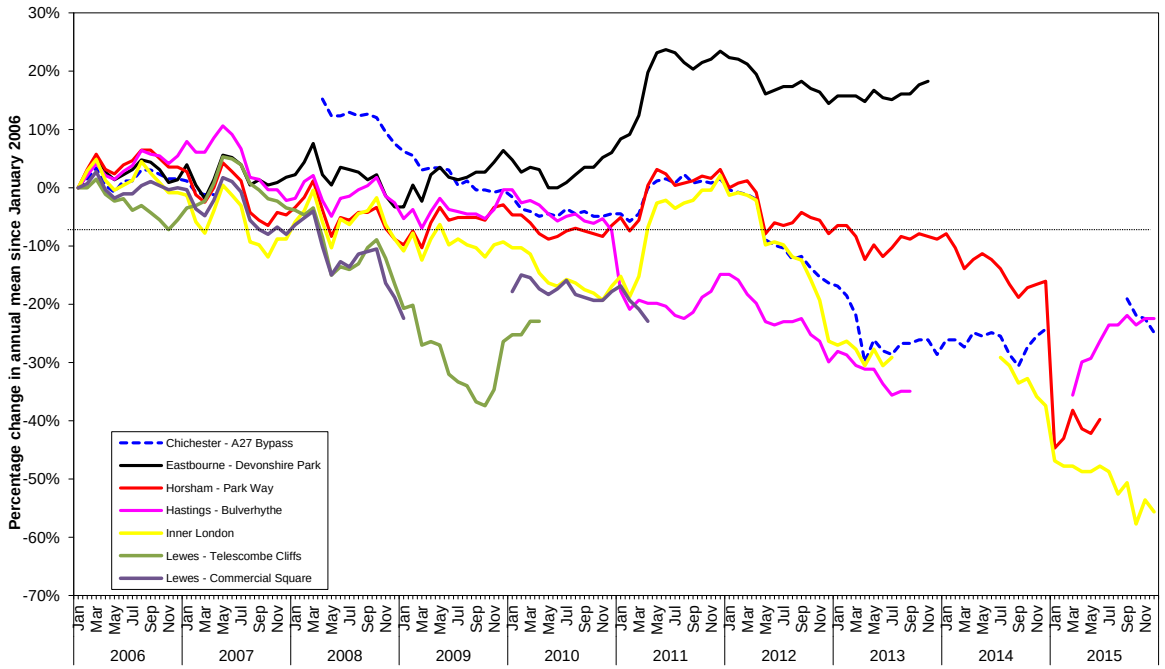
Roadside sites are generally expected to record higher levels than those monitoring at background locations due to their proximity to the local emission source that is mainly traffic related.

Figure 2.1 Trends in running annual mean PM_{10} concentrations, 2001 to 2015



N.B. The reduction in PM10 concentrations in 2004 can be attributed to TEOM data being corrected using VCM since 1st January 2004

Figure 2.2 Percentage change in running annual mean PM_{10} since January 2006



Sulphur Dioxide (SO_2)

There has been a national downward trend in SO_2 concentrations for several years.

Currently only the Lullington Heath site monitors for SO_2.

Nitrogen Dioxide (NO_2)

NO_2 is the most commonly monitored pollutant in the network. Charts of running annual mean concentrations are shown in Figure 2.3. Percentage change over a shorter period at longer-running sites is shown in Figure 2.4. Trends from the inner London background site are included in each chart for comparison.

The Air Quality Standard for annual mean NO_2 is 40 μgm^{-3} (21 ppb).

Most sites remained relatively stable during 2015 apart from Worthing grove Lodge, which having increased during 2014 then decreased during 2015 to previous levels.

The levels recorded at the roadside sites are generally higher than those seen at background sites due to their proximity to the traffic which is the primary source of nitrogen dioxide.

Annual mean NO_x concentrations shown as percentage change since February 2006 show the concentrations were relatively stable during 2015 (Figure 2.5), although Hastings Bulverhythe showed a decrease.

Figure 2.3 Running annual mean NO_2 concentrations, 1999 to 2015

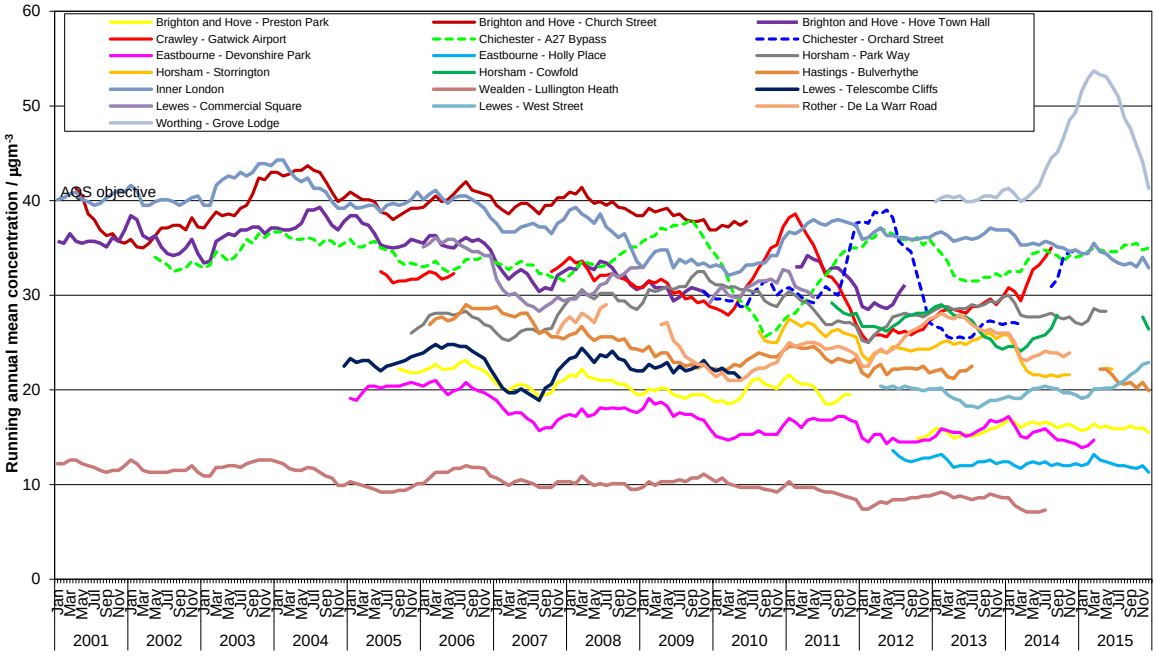


Figure 2.4 Percentage change in running annual mean NO_2 concentrations since February 2006

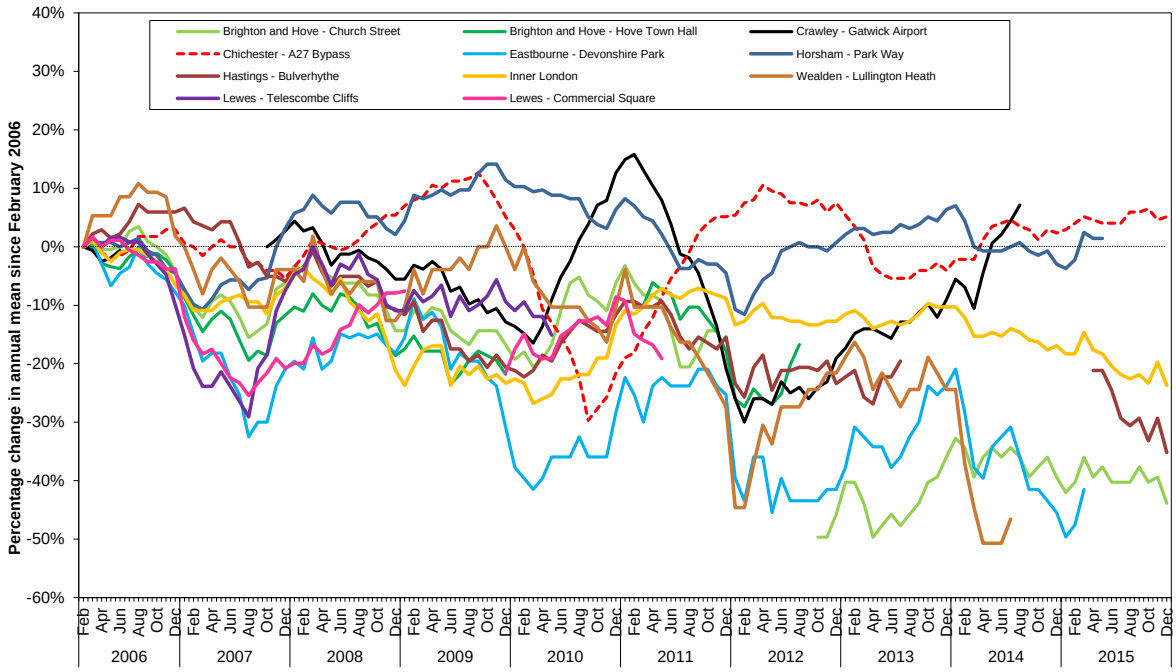
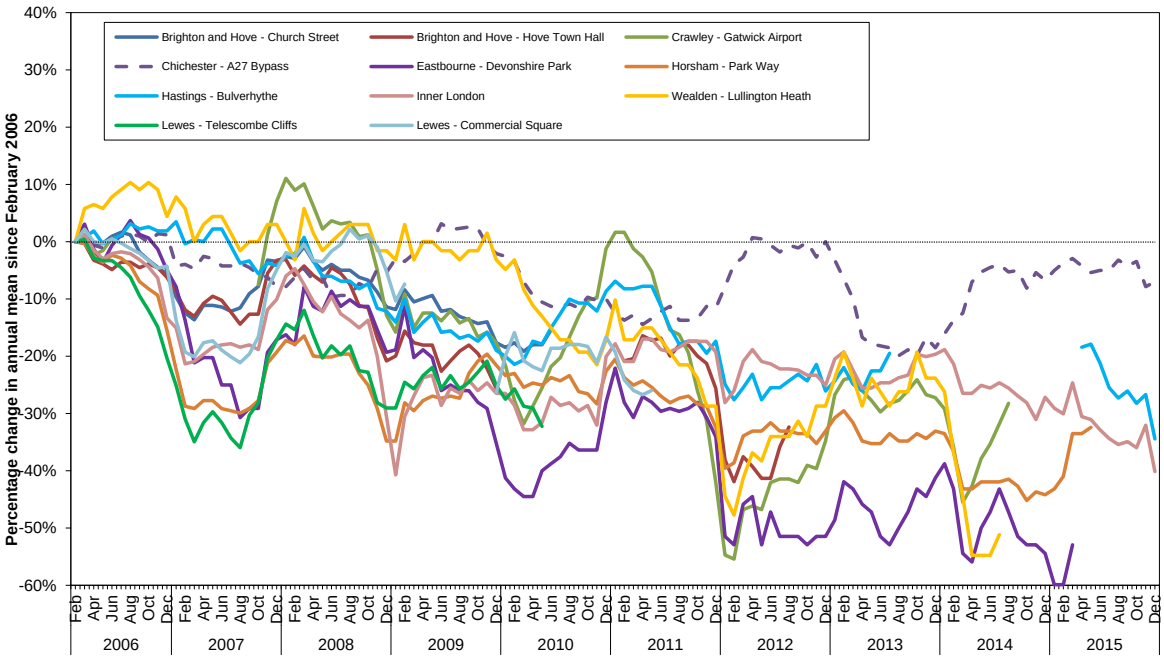


Figure 2.5 Percentage change in running annual mean NOx concentrations since February 2006



Ozone (O_3)

O_3 concentrations across most network sites have generally remained stable or shown a slight long term decrease since 1999. The levels decreased at Chichester Lodsworth and Eastbourne Devonshire Park during 2015, having shown an increase during 2014 at both sites.

O_3 levels are highly dependent on the weather and the warm sunny summer periods can cause a sharp increase in mean levels. It is also known that a proportion of the O_3 experienced in Sussex is transported from continental Europe under certain meteorological conditions.

The slight changes in O_3 levels throughout the year are also seen in the percentage change plot (figure 2.7).

Figure 2.6 Running annual mean O_3 concentrations, 1999 to 2015

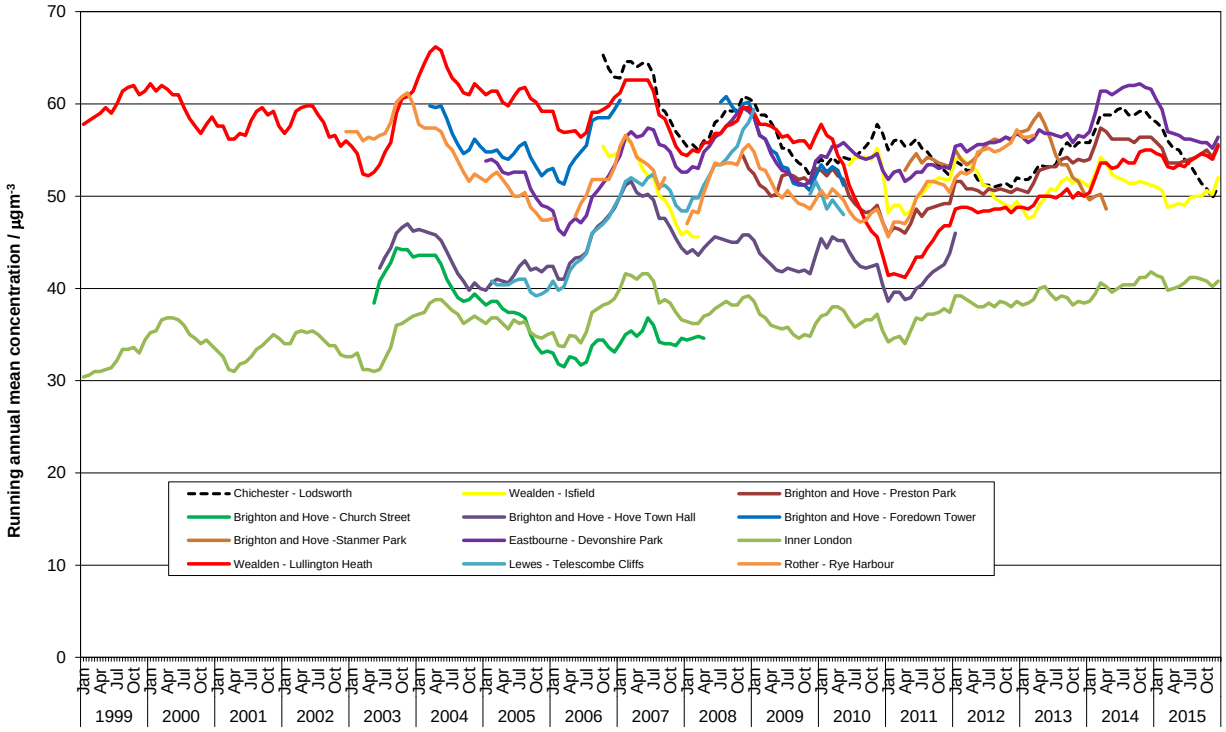
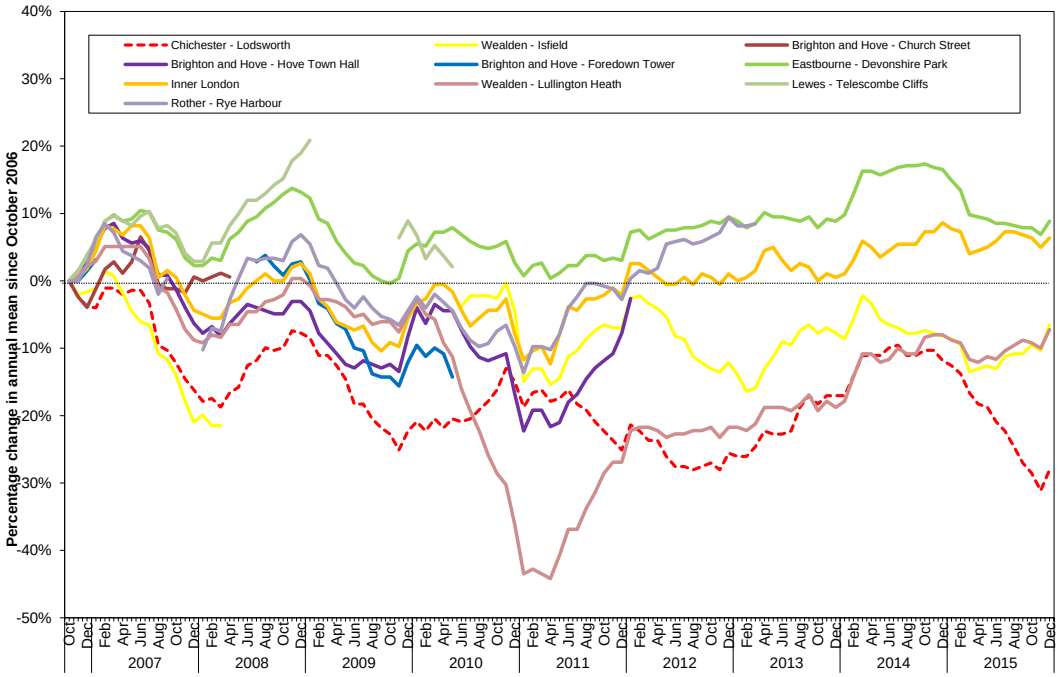


Figure 2.7 Percentage change in running annual mean O_3 concentrations since October 2006



CHAPTER 3: Review and Assessment Update

This chapter details each Local Authority's progress in the Review and Assessment process. For more information concerning the responsibilities of Local Authorities with regard to local air quality management contact the council direct or visit Defra's web site at

http://aqma.defra.gov.uk

A number of acronyms are often used in relation to the Review and Assessment process:

Defra	Department of the Environment, Food and Rural Affairs
APR	Annual Progress Report
AQAP	Air Quality Action Plan
AQMA	Air Quality Management Area
HA	Highways Agency
LTP	Local Transport Plan
USA	Updating and Screening Assessment
DA	Detailed Assessment

Air Quality in Adur and Worthing

Council monitoring shows that levels at Lyons Farm and Grove Lodge continue to be elevated above the national annual mean objective for Nitrogen Dioxide (NO2) of 40µg/m3. A Further Assessment of air quality in and around the Grove Lodge AQMA, prepared by Sussex-air for the Council, confirmed that levels of NO2 are predicted to continue to exceed the annual average objective for NO2 in the area around Lyons Farm, Grove Lodge (A27) and Offington Corner (A27/A24 junction).

Consequently, following a period of consultation the existing Grove Lodge Air Quality Management Area (AQMA) was extended. The 'Worthing Borough Council Air Quality Management Area No.2' came into force on 15th December 2014. The designated area incorporates:

- the eastern end of Crockhurst Hill from the eastern boundary of Durrington Cemetery towards Offington Corner Roundabout,
- Offington Corner Roundabout,
- Warren Road,
- 1-3 Warren Farm Place,
- 1 Links Road,
- Hill Barn Lane,
- 17 Mansfield Court Sanditon Way,
- Grove Lodge Roundabout,
- Grove Lodge,
- 1-2 Grove Lodge Cottages,
- 22-27 Lamorna Grove,
- Upper Brighton Road leading onto the Sompting Bypass, up to and including the Downlands Retail Centre,

- and Lyons Way.

Where an AQMA has been declared, the local authority must produce an Action Plan which sets out the options for working towards improving the air quality. We are working on our Plan which will set out how we intend to work towards reducing levels of nitrogen dioxide in the AQMA. As the elevated levels are primarily caused by traffic, we will be working with the Highways Agency (responsible for the A27) and West Sussex County Council (the other highway authority) to look at ways of reducing levels of nitrogen dioxide.

Following on from the completion of a Review and Assessment of Air Quality at the end of December 2000, we carried out an Updating and Screening Assessment (USA) of Air Quality in May 2003. The conclusions of this USA meant that a further Detailed Assessment (DA) of Air Quality was carried out on certain parts of the District.

This showed that the Air Quality Objective for nitrogen dioxide was likely to be breached in two areas of Adur - High Street, Shoreham-by-Sea and Old Shoreham Road, Southwick, in the vicinity of Kingston Lane. This resulted in two Air Quality Management Areas being declared in December 2005.

See:

http://www.adur-worthing.gov.uk/environmental-health/pollution/air-quality-and-pollution/local-air-quality-management/

Air Quality in Arun District

Arun District Council has completed a review and assessment of local air quality as required by the Environment Act 1995 Part IV. This involved the identification of all pollutant sources for the following seven pollutants (as listed in the National Air Quality Strategy 2000): Benzene; 1,3 -Butadiene; Carbon monoxide; Lead; Nitrogen Dioxide; Particulates (PM_{10}) and Sulphur dioxide. The Government has set objective levels for each of the above pollutants, which must be achieved before a specified target date. Ozone has also been identified by the National Air Quality Strategy as being a pollutant of concern. However, pollutants which lead to the formation of ozone emitted from other countries influence ozone levels in the UK. Therefore, ozone reduction is being tackled on an international scale and not directly by local authorities.

Arun published Stage 1 of it's review and assessment in December 1998, which revealed Nitrogen Dioxide, PM10 and Sulphur Dioxide all to be significant and in need of further assessment. The main pollutant sources were found to include a number of road sections along the A259 and A27, and a roadstone coating process authorised under the Local Authority Air Pollution Control (LAPC) regime.

The combined Stage 2 and 3 assessment involved the use of models to predict future concentrations of the three pollutants identified in the stage one assessment. The results showed that for Nitrogen dioxide, PM10 and Sulphur dioxide, concentrations were likely to meet the objective levels within the specified target dates. Therefore it was not necessary for Arun District Council to declare any Air Quality Management Areas. This decision was upheld by the Department of Environment, Food and Rural Affairs (DEFRA) following the submission of a report detailing the results of the assessment.

In 2009, and previously in 2003 and 2006, Arun District Council undertook an Update and Screening Assessment (USA) of local air quality to account for changes to air quality objectives, monitoring data and pollutant sources etc., 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, and it was therefore not necessary to proceed with Detailed Assessments. In other years progress reports detail any monitoring data collected in the previous year, and summarise any new or potential local developments that are likely to have an impact on air quality. They are also useful for identifying potential areas of poor air quality at an early stage.

You can view or download the reports from:

http://www.arun.gov.uk/air-quality-including-bonfires

Air Quality in Brighton and Hove City

Continuous analysis of outdoor air shows a long term improvement in nitrogen dioxide outside of the AQMA. Improvements are recorded in lower density areas outer roadside locations and suburban neighbourhoods where prevailing air quality is good. In combination with source reductions in lead, benzene and carbon monoxide it is likely that where many people live the air inhaled is more healthy than 10 or 20 years ago.

Monitoring at some city centre roadside sites in the AQMA suggests that current nitrogen dioxide concentrations are similar to 2002 with improvements since 2010. At a number of roadside locations nitrogen dioxide concentrations have not changed on those recorded fourteen years ago. Concentrations continue are recorded above the nitrogen dioxide legal limit within nine metres (30 feet) of confined roads in parts of Brighton, Portslade. Recent monitoring suggests compliance with the limit in Rottingdean but this needs to be confirmed with 2016 and 2017 monitoring results.

The Air Quality Action Plan relates to the Local Transport Plan and has joint interest to initiate a low emission strategy (LEZ). The 2015 bus LEZ covers North Street, Churchill Square and Western Road. We have won funding from department of transport and is investing over one million pounds in the retrofit of older buses in order to target emissions of oxides of nitrogen.

The air quality action plan will promote alternatives to diesel in the new management area for example methane and electric vehicle use and influence local planning policies regarding the massing and position and use of buildings. The Environmental Protection Team consults on planning applications and air quality is a material consideration for the planning process.

There has been impressive progress in providing travel choice in the city including a doubling in bus patronage in the past twenty years and increase in active travel such as cycling and walking. However a number of other measures require implementation if the EU and English limits for nitrogen dioxide are to be met. The use of electrical vehicles in Brighton & Hove has increased in recent years, but this category remains a tiny contribution to local transport. The local bus company has secured funds for electrical hybrid buses. Retrofits and regenerative breaking are now in daily operation. It is recommended that the city join with partners in West Sussex in order to utilise anaerobic digestion of organic waste to produce biogas (methane) fuel for local transport use.

Local Air Quality Management (LAQM) reports for the Department of the Environment (DEFRA) must be produced on regular basis. This is one of the council's statutory duties required under part IV of the Environment Act 1995.

Where specific airborne pollutant standards are exceeded local authorities have to designate these geographical areas as Air Quality Management Areas (AQMAs).

Particulates in the city

PM10s are fine airborne particles (less than ten microns). When inhaled the microscopic particles can penetrate deep into the lungs. Fine particles in the air can travel long distances between regions, that said emissions from local diesel engines are significant in influencing concentrations of fine particles close to roads.

Compared with an annual mean target of 40 µg/m3 (micrograms per metre cubed) in 2012 concentrations of PM10 were monitored on Beaconsfield Road (A23), Brighton at just under 28 µg/m3. There were fifteen days (24-hour average) that had concentrations > 50 µg/m3 compared to a target of 35. These monitoring results are based on 99.3% data capture through the calendar year.

In 2013 concentration on North Street close to the Ship Street junction were monitored close to 26 µg/m3. Three days (24-hour average) had concentrations > 50 µg/m3. These monitoring results are based on 90.8% data capture through the calendar year. From 2014/15 particulate matter less than 2.5 microns is monitored at North Street and Lewes Road in Brighton and results will be valuable to assess the health impacts of local air pollution.

Nitrogen dioxide in the city

During recent years up to 2015 concentrations remain above the legal limit at some certain roadside locations: in Brighton, parts of Portslade and Rottingdean High Street.

The problem of nitrogen dioxide is similar to other small cities with historical centres such as York, Oxford and Cambridge. It is also comparable with Portsmouth, Reading, Nottingham and Sheffield. With a population approaching half a million the Brighton-Worthing conurbation is one of the least industrialised in Europe (in terms of large combustion processes and factories). It has been certain for more than a decade that poorer air quality in Brighton is dominated by near ground level emissions and local transport sources. Due to economy and transport policies some local road counters show a decline in total traffic tallies between 2008 and 2012. Levels of nitrogen dioxide have not improved in some places near roads due to the following contributory factors:

- A higher proportion of diesel vehicles that show no real-world performance improvement in emissions of nitrogen dioxide
- Diesel particulate filters that can become clogged with soot following repetitive urban driving
- Exhaust traps designed to mitigate particles that can produce and emit additional nitrogen dioxide from the tail pipe
- Older petrol vehicles with catalytic converters that perform less well with time
- Internal combustion engine and emission abatement technologies that are not suited to; stop-start mileage, congested intersections, intermittent acceleration and sharp hill climbs
- Narrow street ways that are less favourable for dispersion of emissions and entrainment of fresher ventilation from open spaces such as parks and the sea
- Eddie and wake effects sometimes resulting in slower flow of wind one or two city blocks inland from the sea front
- A seasonal pattern in ambient nitrogen dioxide points to a lack of vertical dispersion above the street in the wintertime
- A recorded decline in regional background pollutant levels emphasis the importance of local road traffic emissions

The most concentrated pollution is not always found adjacent to the highest volumes of traffic. Road intersections and enclosed streets have a limited spatial capacity before air quality is likely to become an issue. Relatively few vehicles with modest emissions totals can cause long term ambient nitrogen dioxide concentrations to exceed legal target levels in confined spaces. Most of these urban street environments have very high population density with considerable retail activity and associated frequent pedestrian foot fall.

For further information on air quality in Brighton and Hove and the review and assessment reports go to:

http://www.brighton-hove.gov.uk/content/environment/air-quality-and-pollution/air-quality-management-city

Air Quality in Chichester District

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas.

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion.

While air quality is generally good within Chichester district, there are areas where elevated concentrations of pollutants occur. The main source of air pollution is from road transport particularly on roads in and adjacent to Chichester City. The principal pollutant of concern is nitrogen dioxide (NO_2) which is a by-product of combustion and is toxic by inhalation. Concentrations of NO_2 have stayed relatively stable over the last few years but there are a number of hotspots where exceedances of the national air quality Objectives occur. Air Quality Management Areas (AQMAs) have been declared at three locations as follows:

- Stockbridge roundabout at the junction with the A27 and A286
- Orchard Street, Chichester
- St Pancras, Chichester

Our Air Quality Action Plan (AQAP) states our intentions for working towards meeting the air quality objectives within the AQMAs. This document was first drawn up in 2008 and revised in 2015 and can be viewed on the link below. We see air quality as an important public health issue which needs to be considered in related policy and tackled in conjunction with partners who include West Sussex County Council (WSCC) and the Sussex Air Quality Partnership (SAQP).

Since our first AQAP dated 2008, we have won in excess of £290k of grant monies from a variety of sources. We have delivered a number of initiatives including Chichester's first car club, enabled the installation of electric vehicle charging points, provided 140 additional bike parking spaces in the city centre and contributed data to the air-Alert service.

Actions to Improve Air Quality

We have worked with partners to deliver a number of behavioural change programmes over the last year including:

- Funding a 'Bike It' officer to work with 10 schools within the district to encourage active travel to school. Key outcomes (averaged across all the schools) during 2014-15 are as follows:
  - there was an increase from 12% to 30% in regular cycling to schools
  - there was an increase in regular scooting and skating to school from 19% to 32%
  - there was a drop of 15% in pupils usually being driven to school.
- Setting up a programme of cycling initiatives such as guided rides, cycle confidence training and bike maintenance courses to encourage people to cycle, particularly for commuting to work. During 2015 around 50 people accessed these initiatives and some tried more than one activity.
- Implementing the Easit business travel scheme allowing staff discounted rail travel for both business and personal journeys. The scheme encourages travel by rail and also provides discounts for a number of other sustainable modes of transport (such as purchase of bicycles and electric vehicles).

Local Priorities and Challenges

As stated in our AQAP, our priorities for action are as follows:

- Measure, model and report on air quality

- Strengthen partnerships, seek funds, pool resources and exploit synergies
- Encourage low emission technology
- Encourage and foster behavioural change/modal shift
- Be innovative, capitalise on opportunities and celebrate our successes, reduce emissions by 1% over the lifetime of the AQAP.

We are pleased to report that the council has funded a new NO_2 analyser at the Orchard Street monitoring station. Monitoring has restarted at this location since September 2016.

We are working to increase the number of electric vehicle re-charging points across the district and have secured £50K from CDC's Cabinet to expand the public facing charge points.

We also have a Cabinet mandate to replace the diesel vehicles within the CDC fleet with electric vehicles where the business case is positive. We are currently working with the Energy Savings Trust to work up the business case.

Funding has been made available to upgrade two sections of path within one of the parks (Jubilee Gardens) in Chichester in order to remove a collision risk and regularise dual-use in this location. It is intended that works will commence on this project during 2016.

We are working with our planning policy team to enable air quality to be given greater importance within land use planning within the Local Plan five year review, in particular, in relation to cumulative impacts.

We have received and commented on the Highways England A27Chichester Bypass Improvement Scheme consultation of scheme proposals. The public consultation report will be presented to the Secretary of State for Transport who will make the final decision and make a preferred route announcement. This is expected early in 2017.

The key challenge in delivering our actions is obtaining funding to deliver projects and keeping the policy profile of air quality high within related policy areas such as Highways and land use planning. We continue to work with partner agencies and departments to maximise our traction.

How to Get Involved

The public can get involved by supporting our campaigns for behavioural change (eg joining the Car Club or car sharing and walking, cycling or using public transport wherever possible. Further information can be obtained by emailing: airquality@chichester.gov.uk

The Chichester and District Cycle Forum provides information on local cycling opportunities and campaigns on behalf of cyclists. The Forum is open to the public and further information can be obtained by emailing cycle@chichester.gov.uk

Information is available from:

http://www.chichester.gov.uk/pollutioncontrolairquality

Air Quality in Crawley Borough

The Council has a legal duty to monitor air quality in the town. The monitoring has shown that the average nitrogen dioxide concentration at a number of points along Crawley Avenue and around the Hazelwick roundabout exceeds the annual average Air Quality Objective for nitrogen dioxide. Following consultation that was undertaken in 2015 an Air Quality Management Area (AQMA) has now been formally declared in the affected area.

More detailed information is included in an annual technical report that is provided to Government, which can be obtained in the links below.

http://www.crawley.gov.uk/pw/Environment_and_Health/Environmental_Health/Pollution/index.htm

Air Quality in Eastbourne Borough

The council completed Air Quality USAs for Eastbourne in 2003 and 2004, following an initial Review and Assessment completed in June 2000.

The initial work in 2000 identified that the National AQS objectives were likely to be met in the required timescales and that no further work was required at that stage.

The reports can be downloaded from:

http://archive.eastbourne.gov.uk/environment/pollution/air/review/

Air Quality in Hastings Borough

In December 2003 the Council created an AQMA, due to the higher than normal levels of PM_{10} along the A259 (Bexhill Road).This was the first AQMA declaration in Sussex. For further information on Hastings Air Quality progress or reports go to:

http://www.hastings.gov.uk/environment_planning/pollution_noise_drainage/air/air_management/

Air Quality in Horsham District

The area covered by Horsham District Council is primarily agricultural in character and does not incorporate a significant heavy industrial base or major transport hubs. Locally, the most significant contributions to poor air quality come from road transport and the air pollutants of most concern are particulate matter (PM_{10}) and nitrogen dioxide (NO_2).

The main source of air pollution in the district are road traffic emissions from major roads, notably the A24, which intersects the district north - south, A264 to the north of Horsham, A272 and A281 at Cowfold; and A283 at Storrington. Two Air Quality Management Areas (AQMAs) have been declared in the district, in the town centres of Cowfold and Storrington; both for the exceedances of the annual mean objective for NO_2. A draft Air Quality Action Plan (AQAP) was prepared for both AQMAs; the Storrington AQAP was submitted to Defra in 2012 and the Cowfold AQAP in 2013.

Although the work under the Local Air Quality Management (LAQM) is the legal obligation of district councils, actions aimed at improving air quality most of the time require the cooperation of various departments and organisations. Horsham District Council works in cooperation with other stakeholders, such as planning, Public Health England, West Sussex County Council (WSCC) highways, neighbouring districts, Sussex-Air Partnership and the Environment Agency. The assessment and implementation of the identified traffic management schemes is done in cooperation with WSCC as they are the authority responsible for roads and transport management. Steering groups were set up in the community for each of the AQMAs. The work of the steering groups contributed largely to the development of draft Action Plans for the AQMAs. The Council is consulted by the Environment Agency upon the granting of environmental permits for 'PartA1' processes and liaises with the Agency regarding any issues concerning those permits.

The diffusion tube monitoring data for 2015 confirms that measured levels of NO2 in the AQMAs at Cowfold and Storrington are exceeding, or are close to exceeding, the air quality objective for this pollutant. One diffusion tube site in the monitoring survey exceeded the annual mean objective for NO2; this was Cowfold 7n, located on the A272 in the Cowfold AQMA. Four other monitoring sites measured concentrations within 10% of the annual mean objective (i.e. 36µg/m³ or more), three of these sites are within the Storrington AQMA (Storrington 1,2; Storrington 4 and Storrington 11n) and one within the Cowfold AQMA (Cowfold 1,2). The diffusion tube results indicate a general reduction in NO2 concentrations in the past two years 2014-2015 when compared with previous years. An overall decreasing trend has been observed for the majority of diffusion tube monitoring sites in the district in the eight years since the first monitoring sites were established. This can be attributed to decreasing background concentrations and is also indicative of a gradual improvement in fleet emissions.

On the basis of the 2015 monitoring data for NO2, the boundaries of the Storrington and Cowfold AQMAs can remain unchanged, and there is no need to proceed to a detailed assessment for any other location or pollutant.

Regarding particulate matter (PM_{10}), there were no exceedances of the PM10 air quality objectives at the two monitoring sites in the district in 2015. Data from the Horsham Park Way analyser shows an overall gradual reduction in measured concentrations since monitoring at this location begun in 2007. A decreasing trend has also been observed in the recent years at the Storrington AURN site.

The $PM_{2.5}$ results for 2015 indicate that concentrations at the monitoring site in Horsham Park Way are well below the target value of 25µg/m3 in 2015.

Further information can be found at:

http://www.horsham.gov.uk/environmentalhealth/environmental-health/air-quality/air-quality-assessment

Air Quality in Lewes District

Lewes historic Town Centre comprises many narrow streets, including single lane streets on steep hills that are bounded by tall buildings on both sides of the road. Such conditions can limit the dispersion of air pollutants and can lead to locally high concentrations. As a result of these conditions, the average speed of vehicles is very low during busy congested periods. A combination of these factors leads to higher emissions and consequently higher pollution.

In 2005 an Air Quality Management Area (AQMA) was declared in Lewes town centre for nitrogen dioxide.

Due to the traffic levels on the Newhaven gyratory (A259) locally high concentrations of air pollution have been measured.

In 2014 an Air Quality Management Area (AQMA) was declared for the Newhaven gyratory (A259) for nitrogen dioxide.

Reports can be downloaded from:

http://www.lewes.gov.uk/environment/824.asp

Air Quality in Rother District

An AQMA does not need to be designated at present. However, the Review and Assessment process for air quality will continue.

Further information can be found at:

http://www.rother.gov.uk/index.cfm?articleid=760

Air Quality in Wealden District

Significant changes in emission sources have not been identified within the Council's area. A number of proposed new developments which form part of the local development plan may influence local air quality. The potential effect of these developments on local air quality will be further considered in the 2016 Progress Report.

The reports can be found at:

http://www.wealden.gov.uk/Wealden/Environment/Pollution/Air/PHCS_Air_Pollution.aspx